

SOLAR ECLIPSE NEWSLETTER

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**THE SOLAR ECLIPSE
MAILING LIST IS MAINTAINED BY THE LIST OWNER PATRICK POITEVIN AND WITH THE SUPPORT OF JAN VAN GESTEL**

HOW TO SUBSCRIBE:

IN THE BODY OF THE MESSAGE TO listserv@Aula.com SUBSCRIBE SOLARECLIPSES name, country.

The Solar Eclipse Mailing List

The Solar Eclipse Mailing List (SEML) is an electronic newsgroup dedicated to Solar Eclipses. Published by eclipse chaser Patrick Poitevin.

solareclipsewebpages@btopenworld.com

It is a forum for discussing anything and everything about eclipses.

Thanks to the voluntary efforts of Jan Van Gestel of Geel, Belgium, the Solar Eclipse Mailing List (listserv) has been in operation since 10 December 1997. This is the first mailing list devoted solely to topic of solar eclipses on the internet.

You can send an e-mail message to the list server solareclipses@Aula.com, which will then forward your e-mail to all the subscribers on the list. Likewise, you'll receive e-mail messages that other subscribers send to the listserv. Only subscribers can send messages.

The sole Newsletter dedicated to Solar Eclipses

Dear All,

It took a while to finish this December issue of the SENL. Of course the total solar eclipse of 4 December is one of the main reasons of this delay. The special eclipse issue will be soon ready as well. Traffic on the SEML was enormous. The subscribers kept us busy.

Due to the end year festivities, we are both quite busy with work as well. This did not help the publication of the SENL either. But anyway, please find herewith the December issue.

Many different topics, but most of them related to the preparation of the total solar eclipse of 4 December. Last minute preparations. Many un-subscribed just before they left. Most of them re-subscribed when the trip was over. Though Australians and Southern African left the mailing list by the end of this month. Only the die hard eclipse chasers remain. Still over 300 subscribers though!!!

It is also time to thank all the contributors for the SEML and SENL. All best wishes for the new year. All best wished for a wonderful Christmas. It has been a busy year and we all deserve a good vacation and rest. Seasonal greetings to all of you.



Next years solar eclipses will be of a different kind. A low altitude annular solar eclipse. Will it be Scotland, Iceland or Greenland? And the Antarctic



total solar eclipse. By boat or from the air. We will all hear about it on the Solar Eclipse Mailing List and here in this Solar Eclipse Newsletter.

December 10th we celebrated 5 years SEML. Due to the eclipse and the busy traffic and work, we forgot about it more or less. Nevertheless, we now that many of you enjoy.

For now, all the best and ... keep those solar eclipse related messages coming ...

Best regards,

Patrick and Joanne

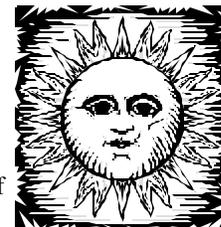


SECalendar



Dear All,

Please find herewith the solar eclipse calendar (SECalendar) for December. If you have any additional information, queries or remarks, please drop me a mail.



December 2002

For the whole Solar Eclipse Calendar, see

<http://solareclipsewebpages.users.btopenworld.com>

December 01, 1980 Minor Planet (3168) Lomnický štít 1980 XM. Discovered 1980 December 1 by A. Mrkos at Klet. Named for the meteorological and solar observatory in the High Tatras, where the discoverer worked for some 20 years. (M 23136; M 30819) Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

December 01, 1989 Minor planet (7176) Kuniji 1989 XH. Discovered 1989 December 1 by A. Takahashi and K. Watanabe at Kitami. Named in honor of Kuniji Saito (1913-), who joined the Tokyo Astronomical Observatory in 1936 and was engaged mainly in research on the solar corona. Following his retirement in 1974, he has collected historical materials from Japan, China and other countries to analyze them from the viewpoint of modern astronomy, using computers. He named this field of research "paleoastronomy" and hopes that many other researchers will enter into this kind of research. He also served as president of the Astronomical Society of Japan. (M 32789; M 33151) Name proposed by the discoverers following a suggestion by A. Fujii and A. Tanno. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

December 01, 2206 There will be 3 eclipses in 2206: A Partial Solar Eclipse on December 01 and December 30 and a Total Lunar Eclipse on 16 December 2206. There were 3 eclipses in December 1880: A Partial Solar Eclipse on 2 December and 31 December and a Total Lunar Eclipse on 16 December. Ref. SEML 06/00

December 02, 1989 Solar Max lost orbit and burned in Earth's atmosphere. Launched in 1980, Solar Max was repaired in the cargo bay of the Space Shuttle Challenger in 1984. Solar Max studied the Sun and discovered 10 comets skimming past or crashing into the Sun.

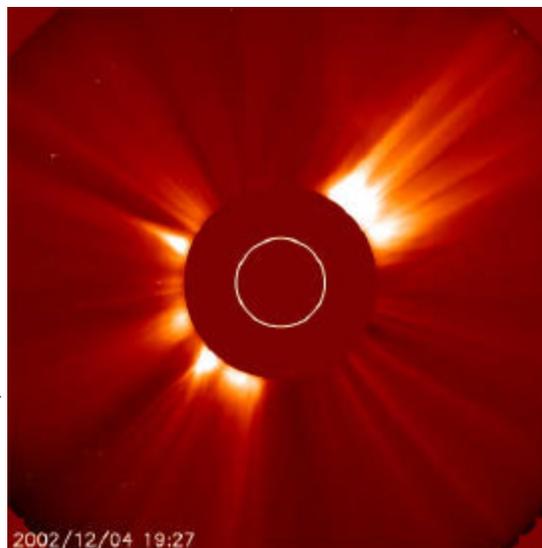
December 02, 1995 The SOHO satellite was launched in a halo orbit around the L-1 Lagrangian point between the Sun and the Earth.

December 04, 1639 The first observed transit of Venus (by only ONE observer) was that of 1639 December 4. The only one observer of the transit of Venus on 1639 was Jeremiah Horrocks [1619-41] who predicted that a transit of Venus would be observable on November 24, 1639. His observations were published posthumously in his work 'Venus in Sole Visa'. Ref SENL 01.02

December 04, 1983 A 1 percent magnitude partial eclipse was visible in Belgium. The eclipse was annular in Africa.

December 05, 1879 Sir William Abney proposed to the Royal Society a photographic map of the solar spectra in infra red. He made photographic emulsions which were sensitive at a wave length of 12000 Angstrom. This could not be copied for many years. Ref. DD 11/99

December 05, 1967 Launch of HEOS 1 (USA). Research of magnetic fields, solar wind and cosmic rays. Ref. DD11/99



LASCO image 2002 12 04

December 06, 1695 Total solar eclipse visible on the Mount Everest (Chomolungma). At the same time as well on two other

(Continued on page 3)

SECalendar

8000 meter summits (14 in total): Lhose and Cho Oyu. Ref. PA 05/00

December 07, 1631 The first transit of Venus as predicted by Johannes Kepler.

December 09, 1991 Minor Planet (5070) Arai 1991 XT. Discovered 1991 December 9 by S. Ueda and H. Kaneda at Kushiro. Named in honor of Ikunosuke Arai (1836-1909), the first director of the Central Meteorological Observatory. In his early days, he contributed to the triangulation of Hokkaido. In 1887 he observed the total eclipse of the sun at Sanjo, Niigata, and successfully photographed the event. (M 22506) Name suggested and citation prepared by H. Fukushima. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

December 10, 1974 Helios 1 was launched to observe the Sun and its solar wind. It was constructed in West Germany and launched by the US from Cape Canaveral in Florida. Because it was equipped with special heat-dispersal systems, the spacecraft were able to withstand extremely high temp's, which reached an estimated 700 F (370 C). It was the closest any spacecraft has approached the Sun (28 million miles from the Sun).

December 10, 1997 Start of the Solar Eclipse Mailing List (Solar Eclipse Lis t) on internet. This is the first worldwide Mailing List on Solar Eclipses. Jan Van Gestel from Belgium offers the server, Patrick Poitevin is the Solar Eclipse List Owner. After 5 years there are over 300 subscribers out of more then 40 different countries.

December 12, 0429 "Yuan chia region period, 6th year, 11th month, day chi-ch'ou, the first day of the month. The sun was eclipsed; it was not complete and like a hook. During the eclipse, stars were seen. At the hour of fu (= 15-17 h), then it disappeared (i.e. ended). In Ho-pei (province) the Earth was in darkness." Refers to a total solar eclipse of 12 December AD 429. From: Sung-shu (Chinese). Quoted in Historical Eclipses and Earth's Rotation, by F Richard Stephenson, Cambridge University Press, 1997, page 242.

December 12, 1871 Edward Walter Maunder mentioned an eclipse comet on December 12, 1871, observed by A.C. Ranyard. But he speaks " ... less convincing evidence ..." comparing with the eclipse comet of 1882 and 1893. On the drawing you can clearly see the dark lines visible in the corona. Edward Walter Maunder (1851-1928), his wife Annie Scott Dill (1868-1947) and his elder brother Thomas Frid (not an astronomer, assistant secretary of the BAA from 1890 to about 1928), observed and wrote numerous about solar eclipses.



December 12, 1871 Pierre Jules Cesar Janssen (1824-1907, France) uses spectroscopy from an eclipse in India to propose that the corona consists of both hot gases and cooler particles and therefore is part of the Sun. Jules Janssen discovered dark lines in the solar corona spectrum. (ref Rc 1999)

December 12, 1928 Jean Meeus birthday.

December 13, 1967 Launch of Pioneer 8 (USA). Research of the sun. Ref DD 12/99

December 13, 1974 Last solar eclipse on a Friday the 13 th. The next solar eclipse on a Friday 13 th is in July 2018. Both are partial solar eclipses. There are 24 solar eclipses on a Friday the 13 th between 0 and 3000. Of which 13 partial, 9 annular and 2 total solar eclipses. The most odd is the one of 13.03.313 which was an annular eclipse.

December 14, 1546 Birth of Tycho Brahe, Danish astronomer. His interest in astronomy started due to the observation of a solar eclipse in 1560. He died in 1601. Ref. DD 12/99

December 14, 1881 William R. Birt, English selenograph died. He founded the Selenographical Society and Selenographical Journal in 1878. He studied as well sunspots and the solar rotation. He was born in 1804. Ref DD 12/99

December 14, 2001 On December 14, 2001, the Japanese solar observatory Yohkoh began spinning out of control. Since then, all scientific operations have stopped. The problem began during the annular eclipse of 14 December 2001. Yohkoh uses a Sun-

(Continued on page 4)

SECalendar

centering system to determine its position at any given time. During the eclipse, the craft lost contact with the Sun, put itself into a "safe mode," and slowly began to drift off track and rotate. Normally this wouldn't have been a problem -- during its decade in orbit, Yohkoh has seen its share of eclipses. However, this event occurred during a rare period of the craft's orbit (known as an invisible orbit) when the craft was out of communication with Earth. Thus controllers on the ground couldn't detect (or compensate for) the craft's sudden roll. Ref. SENL 02.02

December 15, 1859 Gustav R. Kirchhoff distilled from the sun spectra which elements are present in the sun. Ref. DD 12/99

December 16, 1965 Pioneer 6 was launched to observe the Sun, orbiting between Earth and Venus in a 311-day orbit. The spacecraft is still functional to this day, and is the world's oldest surviving spacecraft.

December 19, 1973 Skylab took its now famous photo of a giant solar prominence loop.

December 20, 1876 Walter S. Adams, American astronomer was born. His spectroscopic research of sunspots and stars caused the discovery of a spectrometric method to detect the distances of stars. Died in 1956. Ref. DD 12/99

December 21, 1998 SOLar and Heliospheric Observatory (SOHO) positioned in a safe mode because the last gyroscope failed. Any orbit corrections would need too much energy. They used software to point the gyroscope. This was the first satellite successful in it. Ref. DD 12/99

December 22, 0968 "When the Emperor was waging war in Syria, at the winter solstice there was an eclipse of the Sun such as has never happened apart from that which was brought on the Earth at the Passion of our Lord on account of the folly of the Jews. . . The eclipse was such a spectacle. It occurred on the 22nd day of December, at the 4th hour of the day, the air being calm. Darkness fell upon the Earth and all the brighter stars revealed themselves. Everyone could see the disc of the Sun without brightness, deprived of light, and a certain dull and feeble glow, like a narrow headband, shining round the extreme parts of the edge of the disc. However, the Sun gradually going past the Moon (for this appeared covering it directly) sent out its original rays, and light filled the Earth again." Refers to a total solar eclipse in Constantinople of 22 December AD 968. From: Leo the Deacon, *Historiae, Byzantine*. Quoted in *Historical Eclipses and Earth's Rotation*, by F Richard Stephenson, Cambridge University Press, 1997, page 390, and, in part, in *Encyclopaedia Britannica CD 98*.

December 22, 0968 While the solar corona is visible at any solar eclipse, the first explicit mention of what can be pretty ambiguously interpreted to be the corona was made by the Byzantine historian Leo Diaconus (ca. 950-994), as he observed the total eclipse of 22 December 968 from Constantinople (now Istanbul, Turkey). His observation is preserved in the *Annales Sangallenses*, and reads: "...at the fourth hour of the day ... darkness covered the earth and all the brightest stars shone forth. And it was possible to see the disk of the Sun, dull and unlit, and a dim and feeble glow like a narrow band shining in a circle around the edge of the disk". Ref. SENL 01.02.

December 22, 0968 First clear description of the corona seen during a total eclipse, by a chronicler in Constantinople. The first mention of the corona may have been due to Plutarch, who lived from about AD 46 to 120. Plutarch's book 'On the Face in the Orb of the Moon' contains a reference to 'a certain splendour' round the eclipsed Sun which could well have been the corona.



TSE2002 12 04 by Joanne Poitevin

December 22, 1828 Death of William Hyde Wollaston (1766-1828), British Doctor and chemist. He saw in 1802 the Fraunhofer lines in the Solar spectrum but considered it as a limitation of colors. (Ref Rc 1999.)

December 22, 1870 "From the first second of contact I watched with all the attention I could command for any change in the effect on the landscape and sky. The sky might then be described as dull, not particularly dark, with small light clouds passing rapidly across, the general tone being inclined to violet-grey. No change took place till within a few seconds of totality, when the light was very sensibly lessened. At the first moment of totality, sudden darkness came on; dark purple clouds appeared on

SECalendar

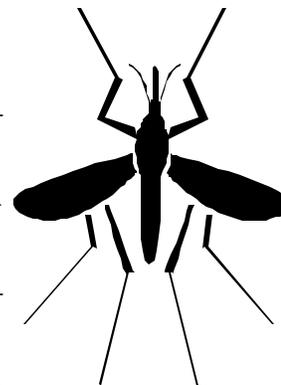
the horizon, with streaks of bright orange between them. The distant town of Jerez, from white, became a dark rich blue. The corona was radiating, and not perfectly circular, and varied as totality progressed; it was never symmetrical, and much too vague to enable me to describe by a line, excepting where a curved opening on the left-hand lower limb of the moon occurred, as shown in the drawing. The colour of the corona was warm white, and I could perceive nothing approaching a defined edge to the bright light immediately around the moon; it simply became less bright as the distance increased from the moon, though the contrast of the dark moon with the brightest part of the corona might induce a less practised observer to call it a ring of light. The drawing I send with this was painted immediately after, and is truest in colour and general effect as anything I ever did." Refers to a total solar eclipse in Spain of 22 December 1870. From: Paul Jacob Naftel (official artist for the eclipse expedition, led by the Reverend J S Perry). Quoted in Paul Jacob Naftel by Furniss and Booth. Ref FE 01/01

December 22, 1870 Jules César Pierre Janssen (1824-1907, France) uses a balloon to escape the German siege of Paris to study the December 22 eclipse in Algeria. He reached Aran (or Wahran), Algeria, but the eclipse is clouded out.

December 22, 1870 Photograph high level of sun spots in Eclipse/Bryan Brewer 1991 page 29 and sketch page 48. See also Young's description on the Fraunhofer lines in Total Eclipse of the Sun/J. Zirker 1995 p. 12+18.

December 22, 1870 Spain: Numbers of scientific experiments. Charles A. Young (US) was successful in Spain and revealed that the chromosphere is responsible for producing both the flash spectrum and dark line spectrum observed in Sun's photosphere. Corona was bright and suspect on relation to activity.

December 22, 1889 Father Stephen Joseph Perry, Director of Stonehurst College Observatory, Lancashire was a martyr to science and eclipse chasing. He lost his life to the eclipse of December 22, 1889. He led one of the two English expeditions organised by the Royal Astronomical Society. He was stationed on Iles du Salut, off the coast of French Guiana. He was stricken with malaria by the time of the eclipse and was already dying. He expired five days later on the ship Comus. Although he obtained photographs at this eclipse, his plates deteriorated due to the climate and the delayed development caused by his unfortunate situation. He chased other total solar eclipses plus both the Venus transits of the 19th century. Source: The Daily Telegraph Guide to the Eclipse (of June 1927). The 2006 annular eclipse can be observed from this location. Ref. Michael Gill 02/01



December 22, 1975 Launch of Prognoz 4 (former USSR). Research of the sun. Ref. DD 12/99

December 22, 1989 Minor planet (7575) Kimuraseiji 1989 YK. Discovered 1989 December 22 by Y. Kushida and O. Muramatsu at Yatsugatake. Named in honor of Seiji Kimura (1932-), an amateur astronomer who first suggested sending a solar eclipse expedition to the U.S.S.R. in 1968. Since then he has organized several overseas expeditions to observe total solar eclipses. Secretary of the committee of the Japan Amateur Astronomers' Convention for over 14 years, Kimura established the Herschel Society of Japan in 1984 and has been editing bimonthly newsletters promoting knowledge of the Herschels and keeping contact with the William Herschel Society in the U.K. (M 33789) Name proposed by the discoverers following a suggestion by S. Morikubo. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

December 23, 1907 Death of Pierre Jules Cesar Janssen (1824-1907, France). Studied the Sun. Co-discoverer of the lines of Helium in the Sun, that time on Earth not yet discovered. Observed solar eclipses of which one from Algeria when he escaped Paris with a balloon during the war. (ref Rc 1999)

December 24, 1957 Very high Wolf number (sunspot number): 355. The next it was also 355. Ref. DD 12/99

December 25, 1581 Due to the de lunation period (29,5 days), over 2 following years, no phase of the moon can be on the same day. In fact neither a solar eclipse. Though, there was a solar eclipse on 25 December 1581 and a solar eclipse on 25 December 1582. The first visible in South America and the second in the south of Asia and in Australia. It was only possible because of the change from Julian to Gregorian calendar. In October 1582, there were 10 days eliminated. (ref. H

(Continued on page 6)

SECalendar

5/88)

December 25, 2038 Partial Solar Eclipse with magnitude of 0.845 on Christmas Island. On December 26, 2019 there is a partial eclipse of magnitude 0.658 on the same island. At Christmas Creek, Western Australia, both partial eclipses: a magnitude of 0.798 and 0.297. Christmas Creek will get a total solar eclipse on 22 July 2028 with almost 4 minutes of totality. The TSE starts in the Indian Ocean, crosses Australia NW to SE, and sunsets just after crossing S. Island New Zealand.



December 26, 1886 Prof. Theodor Ritter Oppolzer (1841-1886), professor in astronomy in Vienna and author of the monumental Canon der Finsternisse died in Vienna. He started his work October 22, 1885 and it was published spring 1887 after his death.

December 27, 1571 Birth of Johannes Kepler, German mathematician and astronomer. He predicted for the first a transit of Mercury. Died in 1630. Ref. DD 12/99

December 28, 1882 Birth of Arthur Stanley Eddington, British astro physician in Kendal Cumbria. In 1912 he was leading an expedition to a solar eclipse in Brazil. Eddington confirmed his observations (that light bends when it passes a heavy mass) at the solar eclipse of 1919, together with Sir Frank Dyson. He had organized for this, special an expedition to the island Principe. He died in 1944 on 22 November in Cambridge. Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

December 30, 1777 Eclipse observed by Captain James Cook (1728-1779), actual date December 29, during his 3 rd travel. Eclipse Island, currently called Cook Island (at the entrance of the lagoon surrounded by Christmas Island in the Pacific). Christmas Day references are to an island NW of Australia. Americans are more familiar with the mid-Pacific Christmas Island. This island is likely where Captain Cook observed the 1777 eclipse. According to Emapwin the eclipse of 29 December 1777 was annular, and the mid-Pacific Christmas Island would have experienced about an 80% partial midday. Ref SENL 01.02

December 31, 1719 Death of John Flamsteed (1646-1719) who observed the 1715 solar eclipse from Greenwich. (Ref. Rc 1999)

December 31, 1842 Annular eclipse on New Years eve. December 31, 1880 Partial solar eclipse on New years eve. December 31, 2195 Partial Solar Eclipse on New Years eve. December 31, 2233 Total Solar Eclipse of December 31, 2233 will be visible on New Years day, January 1, 2234 for the West Pacific. December 31, 2252 Total Solar Eclipse of December 31, 2252 will be visible on New Years day, January 1, 2253 for the West Pacific.

and ... keep those solar eclipse related messages coming ...

Best regards, Patrick and Joanne

solareclipsewebpages@btopenworld.com
<http://solareclipsewebpages.users.btopenworld.com>



SEDates

TD2003 and Astrofest

From: solareclipsewebpages@btopenworld.com To: SOLARECLIPSES@AULA.COM Date: Sat, 09 Nov 2002

Hi, For those who are attending Totality Day 2003 at the Open University of Milton Keynes on 8 February 2003, please note you can combine your visit with the European Astrofest. Astrofest is a two day conference and exhibition in the Kensington Town Hall, Hornton Street in London. Sorry I do not have e-mail addresses or webpages (phone 0044 1732 367 542).

If you need help with accommodation for Friday and/or Saturday in Milton Keynes, opposite of the Open University, please let us know. We are expecting quite a few overseas. See as well our webpages below.

There are still some gaps in the program of TD2003. If you want to give a lecture or have a poster, please let us know. We would like to have as much as possible solar eclipse enthusiast whom observed from all kind of locations. See you there. PP

SEScannings

SEScannings in November issue Sky & Telescope

The wrong-way sun by William Speare (Letters) page 14

Solar Science for the coming decade by David Tytell page 22

Questar's Qmax Spectrometer by Dennis di Cicco pages 54 and 55

Amateur Events: February 8 Totality Day page 76

Gallery: Crescent Sunset by Carl Reynolds and One Sun by Paul Hyndman pages 130 to 132



SENL November Index

Dear all, Please find herewith the Index of the November 2002 issue of the Solar Eclipse Newsletter (SENL). Beside the topic, the page number is listed.

.../...

See the latest SENL and also the complete SENL Index since November 1996 at

<http://solareclipsewebpages.users.btopenworld.com>

The SENL will be soon on the WebPages of Fred Espenak/NASA. See <http://sunearth.gsfc.nasa.gov/eclipse/SENL/> and the index at <http://www.mreclipse.com/SENL/SENLinde.htm> with example: SENL0011.pdf

<http://sunearth.gsfc.nasa.gov/eclipse/SENL/SENL0011.pdf>

Comments and contributions are welcome at patrick_poitevin@hotmail.com

And ... keep those solar eclipse related messages coming ... Best Regards, Patrick and Joanne

solareclipsewebpages@btopenworld.com <http://solareclipsewebpages.users.btopenworld.com>



SEScannings

SEML Status

Next month, December 10, we celebrate 5 years SEML. Please find herewith the SEML Status so far. See our webpages for more details and the graph.

Country	Sub	Percent	
USA	94	30	%
Belgium	29	9	%
UK	29	9	%
France	23	7	%
The Netherlands	22	7	%
Germany	19	6	%
Australia	14	4	%
Canada	13	4	%
South Africa	8	3	%
Italy	6	2	%
Spain	6	2	%
Denmark	4	1	%
India	4	1	%
Sweden	4	1	%
Austria	3	1	%
Czech Republic	3	1	%
Switzerland	3	1	%
Venezuela	3	1	%
Hungary	2	1	%
Ireland	2	1	%
Mexico	2	1	%
Poland	2	1	%
Thailand	2	1	%
Turkey	2	1	%
Argentina	1	0	%
Costa Rica	1	0	%
Finland	1	0	%
Hong Kong	1	0	%
Iran	1	0	%
Japan	1	0	%
Korea	1	0	%
Malaysia	1	0	%
Mauritius	1	0	%
Nigeria	1	0	%
Norway	1	0	%
Qatar	1	0	%
Romania	1	0	%
Russia	1	0	%
Sri Lanka	1	0	%
Zimbabwe	1	0	%

40 different countries, 315 Subscribers

From: Shivapuja@aol.com

SENL October 2002 NOW ONLINE!

From: u32fe@lepvox.gsfc.nasa.gov To: SOLARECLIP-SES@AULA.COM Date: Fri, 08 Nov 2002 15:09:25

Joanne Poitevin has prepared a new issue of the SENL (Solar Eclipse Newsletter) for the month of October 2002. It is so big that she had to split it into two parts: Parts A & B.

All issues are online in pdf format and can be accessed via the SENL index page of MrEclipse.com: <http://www.mreclipse.com/SENL/SENLinde.htm> Other recent issues currently linked from the above page include:

SENL - January 2002 - Part A (0.7 MB pdf file*)
 SENL - January 2002 - Part B (1.3 MB pdf file*)
 SENL - February 2002 (1.2 MB pdf file*)
 SENL - March 2002 - Part A (0.7 MB pdf file*)
 SENL - March 2002 - Part B (0.8 MB pdf file*)
 SENL - April 2002 (1.1 MB pdf file*)
 SENL - May 2002 - Part A (1.1 MB pdf file*)
 SENL - May 2002 - Part B (0.6 MB pdf file*)
 SENL - June 2002 - Part A (0.5 MB pdf file*)
 SENL - June 2002 - Part B (0.8 MB pdf file*)
 SENL - July 2002 - Part A (0.8 MB pdf file*)
 SENL - July 2002 - Part B (1.0 MB pdf file*)
 SENL - August 2002 - Part A (1.2 MB pdf file*)
 SENL - August 2002 - Part B (1.3 MB pdf file*)
 SENL - August 2002 - Part C (0.9 MB pdf file*)
 SENL - September 2002 (1.3 MB pdf file*)

SENL - October 2002 - Part A (1.1 MB pdf file*)
 SENL - October 2002 - Part B (1.0 MB pdf file*)

Note that all these files are in Adobe pdf format and can only be read with Adobe Acrobat Reader. This software is free and can be downloaded from Adobe's web site (<http://www.adobe.com/>). As always, thanks for the hard work Joanne! - Fred Espenak

very interesting statistics! i will be stopping in mauritius on november 24th on my way south to the eclipse. if the member there is interested in chatting, contact privately me this week. thank you. michael e walton ohio, usa

SEScannings

SEScannings in Astronomy and Astronomy Now

Astronomy November 2002

Behind the Scenes by Dave Eischer page 6 (about the coming TSE)

Eclipse Memories by David Le Conte page 16

Fade to Black by Joel Harris pages 67 to 71

Baader AstroSolar Film page 78

Astronomy Now December 2002

Ask Alan (about the 31 May 2003 SE and the Green Flash) page 19

Book Review: Hardware (eclipse art) page 20

Sun Watching (filters) page 23

Chasing shadows by Martin Mobberley pages 37 to 39

Charting the history of the RGO (including accounts) by Emily Winterburn pages 64 to 66

November Issue of SAA In-Flight Magazine

From: Peter Tiedt To: Solar Eclipse Mailing List <SOLARECLIPSES@AULA.COM> Date: Wed, 13 Nov 2002 18:31:15

The November Issue of Sawubona, the SAA In-Flight magazine has a number of articles concerning the Dec 4 TSE.

Nothing fantastic, but some nice pictures.

If you are flying SAA before 1 December you should get a copy in the seat pocket. If not, contact your nearest SAA office / agent and request a copy. Peter Tiedt

From: Fraser Farrell

The Qantas inflight magazine ran an article about the Australian end earlier this year. I was one of the people interviewed (several months ago), but I haven't seen a copy of the article yet! cheers, Fraser Farrell



**SENL November 2002
NOW ONLINE!**

From: u32fe@lepvox.gsfc.nasa.gov To: SOLARECLIPSES@AULA.COM eclipse@hydra.carleton.ca Date: Wed, 13 Nov 2002 21:20:20

Joanne Poitevin has prepared a new issue of the SENL (Solar Eclipse Newsletter) for the month of November 2002.

All issues are online in pdf format and can be accessed via the SENL index page of MrEclipse.com:

<http://www.mreclipse.com/SENL/SENLinde.htm>

Other recent issues currently linked from the above page include:

SENL - January 2002 - Part A (0.7 MB pdf file*)

SENL - January 2002 - Part B (1.3 MB pdf file*)

SENL - February 2002 (1.2 MB pdf file*)

SENL - March 2002 - Part A (0.7 MB pdf file*)

SENL - March 2002 - Part B (0.8 MB pdf file*)

SENL - April 2002 (1.1 MB pdf file*)

SENL - May 2002 - Part A (1.1 MB pdf file*)

SENL - May 2002 - Part B (0.6 MB pdf file*)

SENL - June 2002 - Part A (0.5 MB pdf file*)

SENL - June 2002 - Part B (0.8 MB pdf file*)

SENL - July 2002 - Part A (0.8 MB pdf file*)

SENL - July 2002 - Part B (1.0 MB pdf file*)

SENL - August 2002 - Part A (1.2 MB pdf file*)

SENL - August 2002 - Part B (1.3 MB pdf file*)

SENL - August 2002 - Part C (0.9 MB pdf file*)

SENL - September 2002 (1.3 MB pdf file*)

SENL - October 2002 - Part A (1.1 MB pdf file*)

SENL - October 2002 - Part B (1.0 MB pdf file*)

SENL - November 2002 - Part B (1.1 MB pdf file*)

Note that all these files are in Adobe pdf format and can only be read with Adobe Acrobat Reader. This software is free and can be downloaded from Adobe's web site (<http://www.adobe.com/>). As always, thanks for the hard work Joanne! - Fred Espenak



SETalk

Delta T

From: Jean Meeus Date: Tue, 05 Nov 2002 19:03:58

On 2002 October 1, the difference between the Uniform Dynamical Time and the Universal Time was 64.42 seconds.
Jean Meeus

Wurlies

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Fri, 08 Nov 2002 20:59:31

> numerous "wurlies" (dust vortices), some rising to several hundred metres high.

WOW ! we call them " dust devils " in USA. (ugly thing to drive through in an open convertible car ... ;-) look forward to seeing them. I may finally see what I dreamt of long ago: totality surrounded by dust devils. Spectacular ! Klipsi

TSE2001 report from Zimbabwe

From: F.Podmore To: Solar Eclipses Mailing List <solareclipses@aula.com> Cc: Simon Walsh <sciman@stjohns.co.zw> Simon Walsh <zubenelechemale@hotmail.com> Date: Mon, 04 Nov 2002 11:35:53

I don't recall seeing the following website being posted on SEML - I just found it today.

Go to <http://metaresearch.org/expeditions/past/2001zimbabwe/2001eclipse-reports.htm>

[that is .htm not .html at the end]

for the Eclipse Edge Expedition report, with links, incl a video.

Patrick: apologies if it has appeared before.

And I have recently heard there is another ZimEclipse2001 video available but I don't yet have details [Simon: Please forward them to me] Francis

**Starry night pro new and umbra**

From: KCStarguy@aol.com
To: SOLARECLIPSES@AULA.COM Date: Wed, 06 Nov 2002 01:27:50



Bill Arnett has these comments on the starry night listserve. I have wondering about the umbra being circular . I love starry night pro and use it to simulate eclipses which I have used in my videos. Dr.Eric Flescher (kcstarguy@aol.com)

Message: 4 Date: Mon, 4 Nov 2002 23:18:09 -0800 From: Bill Arnett <bill@nineplanets.org> Subject: Re: Starry Night 4.0

> Speaking of shadows, I am curious about whether SNP4 has improved the geometry of eclipse shadows? (I still have MacOS 9, so I can't run SNP4 yet, and am counting on the kindness of others to investigate these things for me. :-)

>

> In SNP3, the edge of the penumbra (say, of the moon's shadow on the earth) always looks like a circle. This is OK if you're viewing from somewhere pretty close to the shadow axis (say from the moon), but if you're trying to view from off-axis, a circle is the wrong shape. This may seem like a small nit to pick, but the incorrect shadow geometry means that you don't see an accurate picture of which portions of the earth are in shadow. I've always wished (in SNP3) that I could watch the shadow's progress from above the earth's terminator, to see the finer points of first or last contact--but that viewpoint is very much off the shadow axis, so the shadow's not shown right. Any clue whether this is improved in SNP4?

It seems to be somewhat improved though I'm not sure it's entirely

correct. The Moon's shadow is definitely not always a circle but as it

gets near the limb it becomes a funny shape which doesn't look right to

me, as if the shadow outline was being truncated by an incorrect

calculation of the position of the limb. Bill Arnett
bill@nineplanets.org <http://nineplanets.org/> Emerald Hills
CA USA 37 27 N 122 15 W

SETalk

Maximum duration of TSE

From: Jean Meeus To: "INTERNET: SOLARECLIPSES@AULA.COM" <SOLARECLIPSES@AULA.COM> Date: Thu, 07 Nov 2002 13:12:54

Do you remember the mails of Mr. Nowak about the maximum possible duration of a total solar eclipse for a given place? Mr. Nowak called it the "dogma" of 7&31, and he pretended that the maximum possible is sensibly larger than the 7 minutes and 31 seconds found by Isabel Lewis seventy years ago.

At least, those unfortunate mails finally had one positive consequence. They triggered me to look at the problem and to try to calculate myself the maximum possible duration of a TSE. Well, that is not an easy problem, and after having puzzled my head over the subject, I finally found a method, though an indirect one.

I don't want to divulge too much at this moment. Maybe I will publish my results somewhere, somewhen in the future. For the moment, I can only tell you the following.

The maximum possible duration of a TSE depends on the eccentricity and on the longitude of the perihelion of the Earth's orbit. As these elements vary with time, so does the maximum possible duration of a TSE. This was known in advance, but what is interesting is how the value of the maximum possible duration of a TSE does vary over the centuries.

Therefore, I made the calculations from 2000 B.C. to A.D. 7000. During these 90 centuries, the max.dur. is always larger than 7 minutes. Presently, it is 7 minutes and 32 seconds, just ONE second longer than the value found by Isabel Lewis (who had no computer at her disposal!). The longest duration during the 90 centuries is 7 minutes 36 seconds, which occurred about twenty centuries ago. Going further to the past, we find that the max.dur. again decreases to 7m30s by 2000 B.C. It must have been 7m28s by 2200 B.C. (No luck for Mr. Nowak who probably hoped for a much larger value!).

By the way, on page 11 of their "Observe Eclipses" (The Astronomical League, 2nd ed., 1995), Reynolds and Sweet-sir write: "Totality may theoretically not exceed 7 minutes 58 seconds." How did they obtain such a large, wrong value? Jean Meeus

From: Dale Ireland

> The longest duration during the 90 centuries is 7 minutes

36 seconds, which occurred about twenty centuries ago.

Jean Is this the theoretical maximum or the duration of an actual eclipse?

> By the way, on page 11 of their "Observe Eclipses" (The Astronomical League, 2nd ed., 1995), Reynolds and Sweet-sir write: "Totality may theoretically not exceed 7 minutes 58 seconds." How did they obtain such a large, wrong value?

Jean I have seen this 7m 58s or 8m value quoted a few times. I am not sure how it found its way into print originally. I have a copy of ASTRONOMY, by Robert Baker first edition c1930, which states "The maximum possible duration scarcely exceeds 7m 30s." So the true value was known before that printing. This text also set the maximum duration of a total lunar eclipse at 1h 40m. Just for interest, it also says the shadow moves at 1060mph at the equator and can reach a maximum of 5000mph. It says the two main areas of scientific study related to eclipses are confirmation of the theory of relativity and the search for Vulcan the intra-mercurial planet (the book doubts its existence and quotes the correct theory of Mercury's motions). It has lots of other interesting eclipse figures such as averages per century, percentages of total versus partial etc which I could send you privately if you are interested in what the accepted figures at that time were.. Dale

From: Howard L. Cohen

For those interested in "historical values" for the maximum duration of solar eclipses:

Henry Norris Russell, possibly America's most distinguished astronomer, wrote a widely known and used astronomy textbook, ASTRONOMY, Vol. 1-2, with Raymond S. Dugan and John Quincy Stewart (first edition 1926).

This book, often referred to as "Russell, Dugan and Stewart," was long regarded as astronomy's "premier textbook" during much of the last century.

On pg. 221, Vol. 1, (of the 1945 edition) one finds:

"A 'total' eclipse of the sun observed at a station near the equator, under the most favorable conditions possible, may continue total for 7m40s. In latitude 45 degrees the duration can barely equal 6-1/2m. The greatest possible excess of the apparent semidiameter of the moon over that of the sun is only 1'19"."

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They also write, "At the equator an eclipse may continue 'annular' for 12m24s, the maximum width of the ring of the sun visible around the moon being 1'35"."

The authors do not give a source for their values although they cite several general references about eclipses at the end of their chapter on eclipses including T. Oppolzer's well-known "Canon of Eclipses." Howard Cohen

From: Jean Meeus

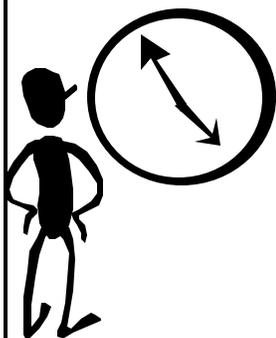
Dale asked : The longest duration during the 90 centuries is 7 minutes 36 seconds, which occurred about twenty centuries ago. Is this the theoretical maximum or the duration of an actual eclipse?

It is NOT the duration of an actual eclipse, but the theoretical maximum possible. For the problem, I did not calculate the duration of actual eclipses. Instead, I calculated many *fictitious* eclipses, and for each of them I calculated the maximum duration along the central line. I cannot give more details for the moment. :-) Jean

From: Jean Meeus

< This book, often referred to as "Russell, Dugan and Stewart," was long regarded as astronomy's "premier textbook" during much of the last century.

< On pg. 221, Vol. 1, (of the 1945 edition) one finds: "A 'total' eclipse of the sun observed at a station near the equator, under the most favorable conditions possible, may continue total for 7m40s.



Maybe the person who found that large value of 7m40s did the same error as Mr Raymond Brooks last year, when considering the closest possible perigee distance of the Moon and the largest possible distance of the Sun. The two are not compatible, however. When the Earth is near the aphelion, the Moon cannot be at an extreme perigee. Jean Meeus

From the SEML Owner

From: solareclipsewebpages@btopenworld.com To: SOLARECLIPSES@AULA.COM Date: Sun, 10 Nov 2002

Hi, It happened a few times that subscribers "misuse" the SEML. E-mail addresses are collected and used for collective messages. No matter the contents of the message, it is a misuse of the SEML and those subscribers will be removed immediately from the SEML.

In case of this kind of violence, please write or forward to the SEML Owner and corrective action will be taken. Thank you. Best regards, Patrick

Eclipse images on the web

From: F.Podmore To: Solar Eclipses Mailing List <solareclipses@aula.com> Date: Mon, 04 Nov 2002

Today I just found that the tour company Melitatrips has a gallery of images, incl those taken in Africa, presumably on their eclipse tour.

Go to <http://melitatrips.com/gallery.html>

[Patrick: again, apologies if this has appeared before]

Francis [One month to go, and counting - today started clear blue sky, now it's v cloudy - in Harare]

Digital Camera Filter for Partial Phases of SE

From: Gerard M Foley To: SOLARECLIPSES@AULA.COM Date: Wed, 06 Nov 2002 04:12:33

I have added an image of the sun obtained using a Baader metalised Mylar filter to the web page:

<http://foley.ultinet.net/~gerry/sun.html>

It looks quite good. Gerry <http://home.columbus.rr.com/gfoley> <http://www.fortunecity.com/victorian/pollock/263/egypt/egypt.html>

DESCENDING NODE

From: Rybrks1@cs.com To: SOLARECLIPSES@AULA.COM 2002 10:42:36

Two weeks from now On Dec 1, 2002 at 01:15 UTC the Earth and Sun will be aligned with the descending node of the Moon's orbit. All new moons for the following six months will pass south of the Sun including (just slightly) the new moon three days later on Dec 4 which is a TSE. Ray Brooks

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Digital camcorder recommendation?

From: Dave Balch, The Stay-at-Home CEO To: solaRECLIPSES@AULA.COM Date: Mon, 11 Nov 2002 16:52:00

I think its time to graduate from Hi8 to digital, and this eclipse seems like a great excuse to do it.

Anyone have any suggestions or recommendations for a digital camcorder that I can also use for occasional still photos, has enough optical zoom for an eclipse or, at least a capability for a teletender, and doesn't break the bank? Thanks in advance for your sugges tions Dave

From: Jay.M.Pasachoff@williams.edu

I am taking a Canon XL-1 to the eclipse. We used one at the 2001 eclipse and got an excellent movie. It has a zoom that is long enough to be excellent for eclipses, though it also has an attachment that lets it use Canon telephotos and other EOS lenses. However, it is expensive. We also made a movie in 2001 using a Canon Elura. It is smaller and less expensive, but also has fewer pictures. Still, it made a very nice eclipse movie. Both are mini-DV. Jay Pasachoff

From: Hal Couzens

I have had some excellent results from my Sony PC-110 which has the ability to shoot stills too (1152 x 852 pixels in jpeg format = 700k image). Its optical zoom is only 10x with digital to 40x. There has been a subsequent upgrade to the pc-120. I do not know the specs but believe it has improved stills capacity and a

From: Hal Couzens

Whoops sorry about sending the previous incomplete mail...

I have had some excellent results from my Sony PC-110 which has the ability to shoot stills too (1 megapixel). Its optical zoom is only 10x with digital to 40x.

There has been a subsequent upgrade to the pc-120. Its stills camera is improved to a 1.5 megapixel image and the digital zoom extended to 120x (still 10x optical though). The 120 upgrade is also bluetooth compatible.

Its got an incredible macro-lens for close focus work (which is useless for eclipses but really is pretty impressive).

It gives an overall very good image (broadcastable) for something so much smaller and cheaper than the X1-1.

But what range are you looking at dollar-wise? Hal Couzens

From: Jay.M.Pasachoff@williams.edu

I am taking a Canon XL-1 to the eclipse. We used one at the 2001 eclipse and got an excellent movie. It has a zoom that is long enough to be excellent for eclipses, though it also has an attachment that lets it use Canon telephotos and other EOS lenses. However, it is expensive. We also made a movie in 2001 using a Canon Elura. It is smaller and less expensive, but also has fewer pixels. Still, it made a very nice eclipse movie. Both are mini-DV. Jay Pasachoff

From: Dave Balch, The Stay-at-Home CEO

Is \$500 enough to get something decent?

From: Hal Couzens

Ah, probably not 1st-hand. Perhaps you could get something in the states, here in the UK you won't. At that rate it may be

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better to try to find someone who wants to trade their current camera for an newer upgrade.

Sony's lowest range mini-dv camera begins at \$799 (web-based price - DCR-TRV18, www.sonystyle.com). It isn't bad but I'd take out an extended warranty option on it.

Probably time to go offline with this strand.

From: Klipsi

if 3 CCD high quality:

the choice is mainly between Sony's new 950 model and CANon's XM2.

Advantage of XM2 : fantastic optics, x20 optical zoom

Advantage of Sony 950 : Memory stick, USB streaming (webcam function)

strongest optical zoom : Sony Digital-8, up to 25x optical zoom, top model with USB streaming and memory stick.

I do highly recommend that Sony Digital-8 model with 25x zoom. Klipsi

P.S Sigma lenses releases a 300-800 zoom photo lens at f/5.6 . Compatible with x2 Sigma teleconverter. Add a digital camera body with x1.7 ratio, and you get an incredible zoom lens 1020mm - 2720mm photo lens. Doh !

From: Dale Ireland

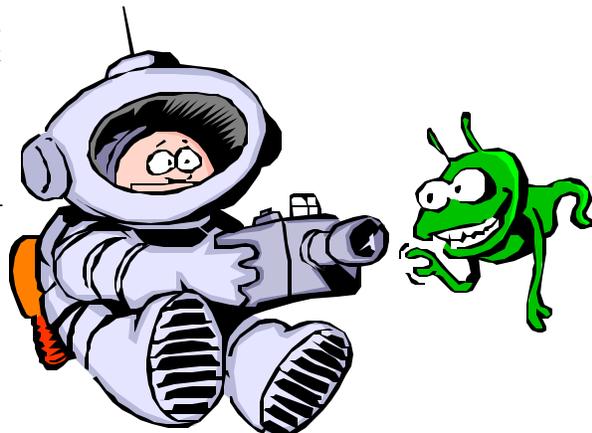
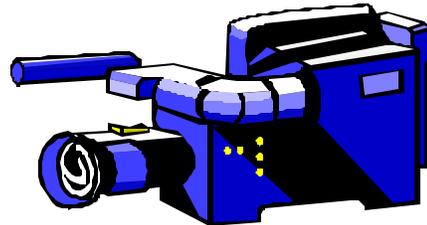
Dave I don't know about digital for \$500 but there are lots of deals out there on Hi8 cameras that have the features needed for eclipses. The most important feature is manual exposure control, sometimes referred to as manual iris control, a thumbwheel to brighten or dim the image manually. This can be achieved to a limited degree with by changing shutter speeds but that is a poor substitute for manual exposure control. Most Sony cameras have this even in the low end price range. A decent optical zoom is good, like 10X. Digital zoom just gets grainy and enlarges the pixels. I would use a 2X teleconverter on the camcorder rather than go into digital zoom, especially for eclipses. A color display or finder is very helpful as it is very easy to over expose the prominences and inner corona. They might look properly exposed in a B&W finder but when you play the tape you will see they recorded as white, overexposed, rather than red or bluish. The "ideal" camcorder would have an auto-exposure mode for landscape shots that doesn't boost the gain into the grainy region when light level gets very low at totality. Surprisingly this feature was common on early camcorders, they had a separate "high gain" switch for low light, but you almost never see this feature today except in the most expensive cameras. You can use Kodak Wratten Gelatin ND filters with a camcorder too :) I am using a Sony TR900 MiniDV for this eclipse but I use almost the cheapest camcorder I could find to run my live webcam at home, a Sony tr517 and surprisingly it would make a fine eclipse camera, it has great exposure control and zoom and it was about \$300. <http://www.drdaile.com/cam> Dale

From: GMadden

Easily. There are a million wholesale price outlet's on the Internet for photographic and video equipment. If you know exactly what you want you should be able to find a very good price in one or two evenings.

I have been buying from Circuit City recently. There is no restocking fee for returned merchandise and the prices can be attractive if you keep your eyes peeled.

I plan a lengthy full disk exposure prior to C1 and immediately after C4 using an old 8mm Sony. If I fry the CCD so be it. madden/rochester



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Umbraphile w/Canon T70

From: Jay Friedland To: "SOLARECLIPSES@AULA.COM" <SOLARECLIPSES@AULA.COM> Date: Thu, 14 Nov 2002 18:54:00

Umbraphile w/Canon T70 Hi all, I just wanted to do a quick survey of SEML before the eclipse to see what kinds of "electronic" shutter release cameras people were using with Umbraphile. I have built Glenn Schneider's circuit (and Dan McGlaun's too) and I know they work (with the help of various test equipment) but they won't drive my Canon T70s at faster than 1/8 sec. It turns out that there is some kind of debounce circuit inside which prevents either manual or electronic triggering in "bulb" mode at faster than about .11 seconds! Luckily this may still just work since we're going to be so close to sunset, BUT I really want to have a camera setup which I can drive faster in the future, so I figured a post here would let everyone know about which cameras people are using. Thanks, - Jay

p.s. I love the Canon T70 for meteor photography.

<http://www.nquinn.demon.co.uk/autoeclipsecamera.html>

http://www.delpsurf.cistron.nl/haas_array.html

(I actually used a 3 camera setup like this for last year's Leonids - it really works!) I may try to hack the cameras to make them respond more quickly in the future...

From: Peter Tiedt

I am using a Pentax MZ7 (ZX-7 in the US). Driving it from a PII laptop with Eric Pauer's software and circuitry. PC version of Umbraphile :-)

Initial tests have shown that faster than 1/8 or 1/15 is about the best I can expect, so will be shooting on ISO 100 or ISO50 stopped down to f/16 and ranging from 1/15 to 4sec. Should be OK for totality.

Phenomena will be a Penatx K1000 with 2x converter into a 4.5" reflector effective focal length 2000mm. This will be all manual. Peter Tiedt

From: Glenn Schneider

Let's hope you don't have to reboot!

Could you advise, though, what the speed limit is you found with your N70 being triggered electronically? Cheers, -GS-

From: u32fe@lepvax.gsfc.nasa.gov

I've experienced similar shutter speed limits using a Nikon N70 and Eric Pauer's software and circuitry (Eric's PC version of Umbraphile). Unfortunately, this is unacceptable so I

will be shooting the eclipse the using the computer between my ears! - Fred Espenak

From: Glenn Schneider

Hi Jay, I will confess I still use film cameras with the old electro-mechanical Nikon EM push-the-shutter-button-with-a-fast-solenoid method. Sometimes oldies are goodies. I have heard of problems/limitations similar to the one you are seeing with other cameras, i.e., fairly long "shortest" exposure times through their electronic interfaces, but with different thresholds for different cameras. Almost certainly your supposition of a debounce circuit, or something akin to it, is correct. Dan M. found a "workaround" for his camera (but I have forgotten the make/model) wherein if he "prepulsed" the input he could then take a much shorter exposure on a second closure pulse, otherwise the second (short) closure pulse was ignored. Sounds like some sort of capacitive "memory" in loose terms.

IF this is a common "solution" I would like to know, as I could modify UMBRAPHILE to allow you to define a "prepulse" waveform (e.g., send a XX millisecond trigger, YY milliseconds before the actual shutter closure for exposure times less than ZZ duration). Can you see if something like that works with your Cannon T70?

I am 99% certain this is NOT a problem with the control S/W, signals, or interface, but rather a limitation of the camera. I would like to better understand what this is, and if there is a general solution.

Will you be using Umbraphile for this eclipse. ? I would like to know who is. If you are you can email me directly and not clutter up Pat's server.

BTW the link to my UMBRAPHILE page on rtd.com is stale, I haven't used that ISP for a couple of years. Next time you update the page it is: <http://balder.prohosting.com/~stouch/UMBGRAPHILE.html>

Though it is just slightly "off topic" UMBRAPHILE can also be used for meteor photography as a programmable intervalometer. Just use the "serial port test mode". cheers, -GS-

From: u32fe@lepvax.gsfc.nasa.gov

Examination of test exposures on color negative film show no change in density for exposures faster than about 1/8 to 1/15 second. So the top shutter speed is somewhere in that range. - Fred

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SETalk

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From: Joel Moskowitz

Jay, I have tested (although have not had the chance to use, yet) several Nikons with electronic interfaces. I have found, for example, that the Nikon F5 will limit the shortest exposure to 0.02 seconds. Joel M. Moskowitz, M.D. 7 (total)solar eclipses and counting

New Moon????

From: Kidinvs@aol.com To: SOLARECLIPSES@AULA.COM Date: Fri, 15 Nov 2002 22:39:00

We all know that a solar eclipse occurs at the New Moon. But, exactly when is the New Moon?? Is the New Moon a phenomenon that occurs in an instant, or a day? I am guessing that the precise instant (if there is one) of the new moon is when a line can be drawn from the center of the 3 bodies (earth, moon, and sun). If that is true, then would that instant, at the time of an eclipse, be the point where the sun crosses the zenith, being the point of longest eclipse? Rick Brown www.eclipsesafaris.com

PS.. Although we all hear the sad news about conditions in Zimbabwe, I am assured by good contacts that we can still feel safe, and will not have problems finding food. I have had suggestions made to come with little in the way of valuables, but to PLEASE bring clothing that we can leave behind. I know from previous trips that the locals appreciate gifts of used clothing, particularly shoes, and sneakers. Surely, everyone going would find it easy to bring clothing to wear that can simply be left there, leaving an empty suitcase to fill with purchased goodies that we spend money on. Please help the locals with whatever you can. Clean out a closet. You will see smiles with every piece of clothing which you leave that will brighten your eyes. Good luck, and clear skies to all!!!!!!

From: Evan Zucker

At 02:39 PM 11/15/2002, you wrote: We all know that a solar eclipse occurs at the New Moon. But, exactly when is the New Moon?? Is the New Moon a phenomenon that occurs in an instant, or a day?

It definitely occurs in an instant, just like Full Moon and the other faces. That's why you'll sometimes see not just the date but the time of the phases in some calendars. Here's one: <http://aa.usno.navy.mil/data/docs/MoonPhase.html> -- EVAN

From: Mike Simmons

You may find the answer to this and other interesting questions at the very comprehensive site <http://www.moonsighting.com/home.html>. It is put together by a Muslim expert in early Moon sightings because of the significance of those sightings to Islam. But it is not all about religion and there is a lot of scientific information there, including information on eclipses. They just happen to study these things more extensively than most of the rest of us. I'd bet your question is answered there but it's interesting browsing anyway. Mike Simmons

From: Glenn Schneider

There is indeed a formal and unambiguous definition for the instant of new moon, as well as 1st qtr, full moon and 3rd qtr as follows: New, 1st qtr, full, and 3rd qtr moons occur when the selenographic colongitude of the Sun is -90, 0, +90, and +180 degrees, respectively. (The selenographic solar colongitude is the eastern selenographic longitude of the advancing [morning] terminator).

This is likely not the defacto definition which most people assume which invokes a geocentric or topocentric reference. For those with Macintosh computers, you can download MOONCLOCK from my web site, or even if you don't you can take a look at its brief description on: <http://balder.prohosting.com/~stouch/MOONCLOCK.html>

As you see this will let you know when the moon is "new" for you, if you prefer to think of this in terms of elongation angle, percentage of the surface illuminated as seen by an observer, though obviously this depends on your topocentric location. Cheers, -GS-

From: Jean Meeus

Indeed, any lunar phase, for instance "New Moon", last only just "one instant". One second later it is already no longer New Moon.

Of course, there is also the "popular" meaning of New or Full Moon. For instance when somebody says : "This evening I can easily observe deep-sky objects because the Moon is new". In fact, here "New Moon" means that the Moon is close to the Sun and is not visible. Or when somebody says that he want to wander by night because there is bright moonlight "because it is Full Moon": that could also be the days after true Full Moon !

Unfortunately, Glenn Scheider gives an incorrect definition of the lunar phases. The selenographic colongitude of the Sun is not involved at all. The lunar phases are officially defined as being the times when the difference between the

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apparent geocentric, ecliptical longitudes of Sun and Moon differ by exactly 0, 90, 180, or 270 degrees.

As an example, consider the New Moon of last July. It took place on 2002 July 10, at 10:26 UT. At that instant, the geocentric longitudes of Sun and Moon were equal; however, the selenographic colongitude of the Sun was not -90 (or 270) degrees at that time: it was 274.94 degrees!

If you use Glenn's definition to calculate the times of the lunar phases, you will obtain times that are erroneous by several hours. Jean Meeus

From: Harvey Wasserman

Does anybody know of a program for the PC that will calculate and display the phases of the moon? Thanks, Harvey Wasserman

From: Peter Tiedt

Virtual Moon Atlas is very good.

Freeware www.astrosurf.com/avl in French

http://astrosurf.com/avl/UK_index.html in English Enjoy! Peter Tiedt

From: Jean Meeus

You wrote : There is indeed a formal and unambiguous definition for the instant of new moon, as well as 1st qtr, full moon and 3rd qtr as follows: New, 1st qtr, full, and 3rd qtr moons occur when the selenographic colongitude of the Sun is -90, 0, +90, and +180 degrees, respectively. (The selenographic solar colongitude is the eastern selenographic longitude of the advancing [morning] terminator).

No, absolutely no! That would be an incorrect definition. (Who wrote it?)

The "Explanatory Supplement to the Astronomical Almanac" (1992) states (p. 731) :

"New Moon, First Quarter, Full Moon, and Last Quarter are defined as the times at which the excess of the apparent celestial longitude of the Moon over that of the Sun is 0, 90, 180, and 270 degrees, respectively."

This the *universally* adopted definition. The person who uses the Sun's selenographic colongitude to define the lunar phases is just wrong.

Consider, for instance, 1999 August 11. The instant of New

Moon was 11:09. However, the Sun's selenographic colongitude did not reach the value of 270.00 degrees until 20:25 UT, several hours after the eclipse. If we adopted 20:25 UT as the time of New Moon, that would be a strange New Moon, indeed! Jean Meeus

From: Mike Simmons

The best and most feature-rich has to be LunarPhase at <http://www.nightskyobserver.com/LunarPhase/index.htm>. I use WorldTime, which is freeware that will give you the Moon's phase on any day along with other astronomical information, world time zone information and more -- <http://www.pawprint.net/wt>. Mike Simmons

From: Glenn Schneider

Jean Meeus wrote: Unfortunately, Glenn Scheider gives an incorrect definition of the lunar phases. The selenographic colongitude of the Sun is not involved at all. The lunar phases are officially defined as being the times when the difference between the apparent geocentric, ecliptical longitudes of Sun and Moon differ by exactly 0, 90, 180, or 270 degrees.

Jean, I naturally would defer to you, but the definition I echoed in somewhat abbreviated fashion is in accord with what had been said for years in the American Ephemeris and Nautical Almanac. I am at home and don't have a copy of the Explanatory Supplement here (it's in my office), but for obscure reasons I do have the 1988 edition of the AA here. Can I refer you to page L6 of the Explanation? It says, in part: "...The tabulated colongitude of the Sun... is calculated by subtracting the selographic longitude of the Sun from 90deg or 450deg. Colongitudes of 270deg, 0deg, 90deg, and 180deg correspond to New Moon, First Quarter, Full Moon and Last Quarter, respectively."

I *thought* this was in accord with the "definition" as per the IAU/1984. Perhaps there has been a redefinition? I DO completely agree that the time at which the GEOCENTRIC longitudes of the Sun and Moon are the same the selenographic colongitude of the sun will not "agree" at any instant of time, but can differ in phase (meant as fraction of a circle, not lunar phase) by a small amount - like your example.

The question posed, as I read it, was of formal definition - not "popular meaning". Perhaps I have the formal definition wrong? Can you point me to the appropriate reference? I must confess I very often fall prey to the common usage. Often on a clear Tucson night my wife will say in passing "what a lovely full moon" as it rises over the Rincon Moun-

(Continued on page 18)

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tains. To which I reply after squinting into the sky through my glasses) , much to her chagrin something to the effect "its not full, only 99.2% illuminated" {which of course is not the formal definition}.

If you want to know what the lunar ELONGATION is, or the PERCENTAGE illumination, or its HELIOCENTRIC LONGITUDE is, I am pretty sure my MOONCLOCK program computes that correctly. On the page which describes S/W that: <http://balder.prohosting.com/~stouch/MOONCLOCK.html> I never used the word PHASE for exactly that reason, I thought the formal definition would be conjectural. Kind of like why Fred E. and I get slightly different "definitions" from pre-limb corrected totality durations, I still use the IAU/1984 value of k. Anyway, even if you don't use a Mac, can you look at the example on that page and see if you agree with these computed quantities - or download it and test it. Cheers, -GS-

From: Glenn Schneider

Sorry I don't do PC S/W - being a Mac addict for so many years, and I really don't know myself of any. Do take a second to see: <http://balder.prohosting.com/~stouch/MOONCLOCK.html>

On a Mac you can run "Virtual PC" to run PC's .exe programs under a Windoze OS emulator. Can you do something similar on a PC? -GS-

From: Glenn Schneider

Jean Meeus wrote: No, absolutely no! That would be an incorrect definition. (Who wrote it?)...

Looks like we cross-posted. As to "who wrote it", at least for the 1988 Astronomical Almanac (US Gov Printing Office and Her Majesty's Stationary Office) I suppose that would be Charles Roberts (USNO) and Alexander Boksenberg (RGO) - at least it is there names which appear in the Preface.

> The "Explanatory Supplement to the Astronomical Almanac" (1992) states (p. 731) :

Well, I'm not one to argue with the ESAA when it comes to formalizing definitions! I would be curious to compare the verbiage in the 1984 release to the 1992 release, which I'll do on Monday.

I'm not too old (yet) to stand correction, but to avoid "confusion" I think for DESCRIPTIVE purposes I will

still prefer terms such as percentage illumination, and heliocentric longitude, and elongation. AND to be careful to note whether such are GEOCENTRIC or TOPOCENTRIC as your moon is not "full" (by apparent topocentric illumination of 100%) at the same time for you and me. Thanks, -GS-

From: Rybrks1@cs.com

Yikes, we don't even know when the Moon is new! Just kidding.

I always interpreted the phases as defined by Jean Meeus since the almanac values listed Full and New Moon at the same or plus/minus 180 in ecliptic longitude as the Sun.

Just as most new moons miss eclipsing the Sun, most full moons are high or low also.

With a simple telescope it is very obvious that the precise Full Moon most of the time has a decided arc of dark top or bottom.
Ray Brooks

From: Bob Morris

It's amazing how even supposedly "science-oriented" film people completely mess up moon phases.

In the original E.T. the crescent moon looks more like a partially eclipsed sun in shape, and the phases change dramatically from one day to the next.

In the new version of E.T., the obviously "phoney" moon is in one shot replaced by a shot of the actual moon and the difference is jarring.

The documentary even highlights this! LRM

From: Kidinvs@aol.com

I had not known that my question would have brought on such a lengthy discussion of the moon. But, back to my original question...

We all seem to be in agreement that the "true" new moon is in fact, an instantaneous occurrence. It is also obvious that a solar eclipse only occurs during a "new moon." But just as obvious, a solar eclipse actually occurs a few hours before and after the "new moon"... I guess as much as 2 hours on either side. If the moon still has 2 hours to "live," and totality still exists on earth somewhere at the end of its path with a moon that is perhaps 2 hours old, are we still exactly truthful to state that a solar eclipse occurs only during the "new" moon? Perhaps, the eclipse can only occur during the new "phase" of the moon. If that is so, how long does that "phase" last??? Its really only linguistics, but I had a bet with a layman friend and I said that the eclipse occurs during the new moon. He said I was wrong, so we bet. He asked if

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an eclipse can occur with a 3 day old moon. Of course, we both agreed not. What about a 1 day old moon... of course not!!! a 12 hr. old moon, 6 hr. old moon. We both understood here the conversation was going. We decided to call the bet off!!! Rick Brown

From: Jean Meeus

Glenn Schneider wrote : Jean, I naturally would defer to you, but the definition I echoed in somewhat abbreviated fashion is in accord with what had been said for years in the American Ephemeris and Nautical Almanac.

This is not exact. For example, on page 546 of the Astronomical Ephemeris for the year 1974 (which is the British edition of the book; it differs from the American Ephemeris only by the introductory pages), we read:

"... the selenographic colongitude of the Sun... and is therefore APPROXIMATELY 270°, 0°, 90°, and 180° at New Moon, First Quarter, Full Moon, and Last Quarter, respectively."

The word "approximately" is important and, as you see, that sentence does NOT define the lunar phases!

And on page 522 of the same almanac for 1974 the definition of the lunar phases is given: "The times of New Moon, ... are the times at which the excess of the apparent longitude of the Moon over the apparent longitude of the Sun is 0°,". No selenographic colongitude of the Sun here!

The sentence "...The tabulated colongitude of the Sun... is calculated by subtracting the selenographic longitude of the Sun from 90deg or 450deg. Colongitudes of 270deg, 0deg, 90deg, and 180deg correspond to New Moon, First Quarter, Full Moon and Last Quarter, respectively." is in fact incorrectly stated, as it contradicts all other definitions. Certainly the sentence is meant to indicate that the value 270° occurs *near* New Moon, etc. It does not *define* New Moon.

If a colongitude of 270deg would define New Moon, etc, then the American Ephemeris would give completely different times for the lunar phases. You can calculate it yourself. And at the quarters we would have odd things. Here is an example.

2002 March 6, Last Quarter at 01:25 UT. At that instant, the colongitude is 172.33 degrees, *not* 180. The colongitude reaches the value 180.00 degrees that day at 16:32 UT, which is 15 hours after Last Quarter! And at that instant, the illuminated fraction of the lunar disk has decreased to 0.44. If 16:32 UT were adopted as the time of Last Quarter (which is not the case), we would have a 44% illuminated lunar disk at Last Quarter! Never has such a situation been seen! Regards. Jean Meeus

From: Glenn Schneider

Indeed *APPROXIMATELY* is in this case the operative and important word. However, it does NOT appear in the 1988 edition, Looks like it was dropped in the "translation" from British to American, or edited out over

time. I can track down the history of that on Monday - but it certainly makes sense to talk about "phase" by the differential in the lunar and apparent solar longitudes. No arguments, just stating what was in the later edition of AE. -GS-

From: Rybrks1@cs.com

Regarding Rick Brown's question of New Moon versus a TSE.

In my timeline, I define the difference. Note the difference for M*, G*, D*, New and Noon

Excerpt follows for Dec 4 2002. Time is UTC plus 10.5 hours for local site in S Austr.

The following 4 underlined events occur in Indian Ocean, the shadow having traveled less than halfway from Africa to Australia, about 650 miles northwest of the Crozet Islands.

M* 17:57:38 greatest magnitude, occurs before reaching bulge of Earth due to receding Moon Moon assumes largest size ratio relative to Sun Latitude 38.93 South, Longitude 58.07 East Duration 2m 3.64s, (0.14 seconds shorter than G0)

G* 18:01:10.9 Latitude 39.47 South, Longitude 59.57 East Instant of greatest eclipse, umbra footprint is least elliptical, closest to Earth's center. Apex of umbra cone would extend 1679 miles (42% of Earth radius) beyond center of Earth. (From NASA/TP - 2001 - 209990)

D* 18:02:18 Maximum Duration -39.49, 59.62 east, 0.012 seconds longer than G* Shadow can encompass both sites G* and D simultaneously. Increased duration from two effects: Smaller hour angle reduces relative velocity with site and morning sites move up against Moon direction as opposed to pm sites move down with Moon.

New Moon. 18:04:21 Sun and Moon same ecliptic longitude.

Noon* 18:08:44.4 Mid eclipse at local noon Lat. 40.54 South, Longitude 62.85 East. Sun and Moon same Right Ascension Ray Brooks

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From: Rybrks1@cs.com

Rick;s other question: Max difference between New Moon and an eclipse. Let's define *eclipse* as Greatest Eclipse which is closest approach to Earth's center. For a perfectly centered solar eclipse (gamma equals exactly zero, New Moon and Greatest Eclipse are the same instant.)

The eclipses which almost miss (skim) Earth have the largest delta between Greatest eclipse and New Moon. Oct 3 1986 is a good example - over ten minutes difference between Greatest Eclipse and New Moon.

July 11 1991 is the opposite example - gamma of 0.0044 and a difference of only a few seconds between the two. Raymond Brooks

From: Rybrks1@cs.com

I noticed this too. There is a famous photo of Wrigley Field with a reversed - impossible crescent- rising over the stadium and Lake Michigan. Brooks

From: Cliff Turk

The worst I saw was a school book in this country where the picture of the last quarter Moon was actually a first Quarter printed upside down and through the back of the negative!! This is the way our children learn! See some of you at the TSE in Kruger Park, I hope. Cliff

From: Harvey Wasserman

To those who responded with many great examples, thank you very much! I have been playing with Virtual Moon - very enjoyable! And yes, Glenn, your program for the Mac looks excellent but no, I am not aware of any way to run Mac programs on a PC. I guess it is a matter of economics. There is just not enough need for this, I suppose.

Enjoy the eclipse, all who are going. It will be the first I have missed since my first eclipse in Aruba. :(Next, I suspect, will be Turkey.

Clear skies for all! Harvey

From: Crocker, Tony (FSA)

This brings to mind some questions I have had about ancient measurements, specifically the famous Thales prediction of 584 BC. A Caltech professor of Greek heritage explained that story to me in some detail over dinner last night.

- 1) How precisely could the new moon time be predicted then?
- 2) For a new moon close to the node, did they know the difference between new moon date and node date closely enough to get the latitude of the eclipse central point?
- 3) And finally, from Fred's map that eclipse was in late afternoon in Greece/Asia Minor. I think that requires even more precision in calculations than items 1) and 2).

Our speculation last night was that Thales probably had fair estimates of 1)and 2) and was quite certain of a deep partial but got lucky with totality.

Nearly full moon with Hong Kong Planetarium (Picture by PP)



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Kodak Professional Supra 800 with 2-stop push

From: Glenn Schneider To: SOLARECLIPSES@AULA.COM Date: Sat, 16 Nov 2002 07:02:40

Has anyone use Kodak Professional Supra 800 film pushed to 3200? I will buy and test a few rolls this weekend, but looking for comments from those who may have already experimented with this. -GS-

From: Robert B Slobins

Do not do it. Use Fuji professional print films.

I used NPZ 800 on the aurora and the color response is outstanding. It reproduces the spectrum well. I would trust the new NPH 400 and NPS 160 also.

I have been able to push Fuji print film two stops and still get acceptable grain. I do not know about Kodak; I have avoided using Kodak products for seven years now and do not anticipate changing that policy. --Robert B Slobins

From: Joseph Cali

Like Robert Slobbins, I am a fan of the Fuji pro print films. I've posted these two image fragments for list members inspection at

<http://joecali.members.easyspace.com/2002tse/press800.html>

They are taken with Fuji press 800 and are straight crops from my original archived scans - no digital ice, no noise reduction & no sharpening. You'll forgive the dust specs. You can see the grain in these images. Joe Cali

From: Glenn Schneider

Hi Joe, I've been a Kodak person for so long the transition is difficult. Now that the Leonids are over (great show from Mt. Lemmon, Arizona, by the way), I'll be running some of my own comparative tests here. I had purchased several rolls of Fuji NPZ to evaluate in comparison to Kodak Supra. Your web positing is Fuji Press 800, not NPZ. The specs from Fuji (which were very spotty from what I could find) seemed to indicate NPZ would be the choice for +2 stop push processing. Could you comment on the merits of Fuji NPZ 800 vs Press for eclipse photography. I presume the images you had posted were not pushed. Let me know if that is not correct. I normally would never consider such high speed (lower MTF) film for an eclipse, but as we'll have the Sun up < 2 degrees it will likely be a necessity - and we will definitely be seeing limited. -GS-

Eye safety

From: Jay.M.Pasachoff@williams.edu To: solareclipses@aula.com Date: Sun, 17 Nov 2002 02:48:01

A very interesting site about eye safety when observing the Sun, and debunking the story that Galileo injured his eyes by looking at the Sun, is from Andrew T. Young, an astronomy professor, and is at <http://mintaka.sdsu.edu/GF/vision/Galileo.html> Jay Pasachoff

Eclipse shades as photographic filter?

From: Geoff To: SOLARECLIPSES@AULA.COM Date: Sun, 17 Nov 2002 08:05:08

Hi there everyone, I was wondering has anyone ever tried using Rainbow Symphony eclipse shades as a photographic solar filter? I was thinking of using it for wide-angle sequences (50mm), because it seems to look a bit sharper, and is a more pleasing colour, than Baader is at that focal length. Only 17 days to go! --Geoff

From: Assoc Prof J R Huddle

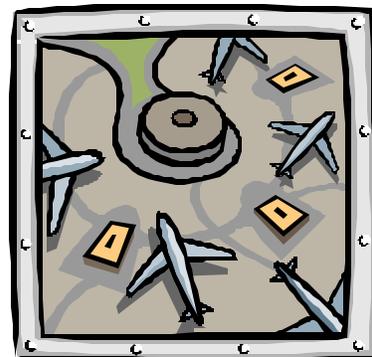
Yes, I have used both the "Black Polymer" and the "Polymer Plus" materials that I've purchased from Rainbow. I've used them as filters for camcorders, but I don't shoot film anymore, so have not used them for that. Both are fine for camcorders, but the Polymer Plus is a bit more optically dense, so I prefer the plain Black Polymer. Polymer Plus has an extra reflective coating on it, so if you use it, make sure the shiny side is toward the sun to prevent reflections off the front of your lens, and onto the filter, and then back through your lens. Jim Huddle

Airport x-rays

From: Dale Ireland To: Solar Eclipse List <SOLARECLIPSES@AULA.COM> Date: Sun, 17 Nov

Here is a good discussion of the current machines with examples of damaged film

<http://www.kodak.com/global/en/service/tib/tib5201.shtml> Dale Ireland



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Thales

From: Jay.M.Pasachoff@williams.edu To: solareclipses@aula.com Date: Tue, 19 Nov 2002 03:08:38

"This brings to mind some questions I have had about ancient measurements, specifically the famous Thales prediction of 584 BC. A Caltech professor of Greek heritage explained that story to me in some detail over dinner last night."

Richard Stephenson, in his masterwork about "Ancient Solar Eclipses and the Earth's Rotation," concludes that the Thales story is not true. It was told a few hundred years later. Thales could not have had the ability to predict eclipses then. Jay Pasachoff

From: GMadden

Jay, I respect Stephenson's conclusion, but upon what basis does his assertion rest?

Specifically, what impediments would have impaired Thales' ability to predict an eclipse? gjm George Madden Rochester, NY USA

From: Jay.M.Pasachoff@williams.edu

Fair question but I'm just too busy with getting revisions done for the second edition of my text The Cosmos, due out in March; teaching my courses; and getting ready to leave on Sat with 1000 kg of equipment and 18 people (11 Williams College students included) for Ceduna. So I will have to leave it for you or someone else to get a copy of Stephenson's book and to summarize the argument for the group. Jay

From: J.P. van de Giessen

See <http://scholar.lib.vt.edu/ejournals/EIAnt/V3N7/worthen.html> for a discussion on this subject Jan Pieter van de Giessen

Mutil-exposure sequence and 50mm lens

From: Gordon To: SOLARECLIPSES@AULA.COM Date: Tue, 19 Nov 2002 12:16:29

To Geoff and Everyone, Below Geoff mentions that he wants to do wide angle sequences with a 50mm lens.

I to, want to do a long multi-exposure sequence this year. I have ran some simulations with the field of view indicators in Software Bisque's The Sky program for the coordinates for Beitbridge, Zimbabwe. The ENTIRE track of the Sun from 1st contact through 4th contact will NOT fit with in the framing of the 50mm lens. This assumes that you want an entire sequence and if you frame your shot with the lens level with the horizon. At least not in Zimbabwe. So, be careful if a multi-exposure sequence is in your plans this year.

Because it is a early morning eclipse in Zimbabwe, the Sun track is quite vertical from the bottom of the frame to the top of the frame. You do not have the advantage of the track crossing the 50mm frame diagonally.

The Sun track for 1st through 4th contact WILL fit nicely within the vertical limits of a 35mm lens and that is what I plan to use.

Please correct me I am missing something and I am wrong. Thanks. Gordon

From: Geoff

Gordon, From South Australia, the eclipse occurs low on the horizon: 1st contact occurs when the Sun is at an altitude of around 20°, and by sunset the Sun will have drifted about 15° west of where first contact occurred (diagonal path of around 25°). This should be well within the reach of a 50mm lens frame. --Geoff

From: Gordon

Geoff, Great! I wasn't sure where you were observing from.

It looks like people observing in Africa will need the FOV of at least a 35 mm lens. Gordon

Before you leave for the solar eclipse

From: solareclipsewebpages@btpopenworld.com To: SOLARECLIPSES@AULA.COM Date: Wed, 20 Nov 2002

Hi, To all leaving for the solar eclipse:

- Please do NOT send wishing well messages to the entire SEML. All messages will be received by over 300 subscribers.

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- Please check your out of office mailbox or auto reply (do NOT use for this SEML). Your auto replies will be send to the SEML and all subscribers will continuously receive.
- Please check the capacity of your mailbox, so we do not have bounced back messages or mailbox full messages after a few days.
- Please unsubscribe if you do not want to receive messages during your SE voyage. Re-subscribe after your return, but bear in mind we will be back after December 8th.
- Please remind you can catch up with SEML messages from the free monthly Solar Eclipse Newsletter, readable from the webpages below.
- On behalve of all SEML subscribers, and to all SEML SE travellers: Have a safe trip and a successful solar eclipse.
- And ... keep those solar eclipse related messages coming ...

Best regards, Patrick and Joanne

UMBGRAPHILE, MacOS X & "Classic"

From: Glenn Schneider To: SOLARECLIPSES@AULA.COM Date: Sat, 16 Nov 2002 16:51:29

For Umbraphile Users: I have not had time to re-work a MacOS X "native" version of Umbraphile yet. Sorry about that. It's not just layering on an aqua interface, but a reliance on some fundamental system services I haven't yet figured how to migrate in a bug-free way. The good news, though, IF you have upgraded to Jaguar (MacOS 10.2(.x)) is that there are now USB-to-Serial drivers which will allow you to run Umbraphile seamlessly in "classic" mode without having to reboot back to System 9 (or earlier). I am using a Keyspan USB Twin Serial adapter and a new driver I downloaded from their web site at: <http://www.keyspan.com/downloads/>

For some reason (yet to Figure out) I have to connect to camera interface to the adapter port labeled "1", but assign port "2" though Umbraphile. Not sure why/when/how this numbering confusion happened, but if you do that it works without a hitch.

NOTE: If you are using Umbraphile under "classic" and reset your system time via your System Preference panel, Umbraphile will NOT pick up the new time AFTER you have started the timer/countdown windows going. If you must reset your system clock, I suggest you do so before starting Umbraphile altogether. Glenn Schneider <http://balder.prohosting.com/~stouch/UMBGRAPHILE.html>

From: Glenn Schneider

Those planning to use Umbraphile PLEASE get version 2.4.1 which is now on my web site at:

<http://balder.prohosting.com/~stouch/UMBGRAPHILE.html>

This update:

1. Fixes a bug related to an inability to specify NUMEXP other than 36 for when coupled with certain other parameters.
2. Makes UMBGRAPHILE fully MacOS X (10.x.x tested through 10.2.2) comp liant in classic mode. -GS-

Photographic exposures at low altitudes.

From: Geoff To: SOLARECLIPSES@AULA.COM Date: Thu, 21 Nov 2002 09:28:29

Hi there, I have been reading Joe Cali's extinction tables for exposures at low altitudes, and was wondering if anyone on this list has done any tests of exposures of the Sun (through filter) at various altitudes as it approaches the horizon. If so, how do they compare to exposures of the Sun where extinction does not need to be taken into consideration. --Geoff

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From: Glenn Schneider

Several months ago I posted some information on low altitude extinction, and Pat P. echoed it in the July 2002 SENL, so I won't be redundant about that. However, Carter Roberts just called a very thorough paper on this subject to my attention which is more detailed and others here, I am sure would be interested in it:

<http://cfa-www.harvard.edu/cfa/ps/icq/ICQExtinct.html>

The tabulated numbers are in agreement, within the various uncertainties with what I had posted earlier (which is good, of course). However, keep in mind that at low altitude all of this is highly variable and on eclipse afternoon it could be quite a bit different.

"Nominal" prediction: At 4-degree elevation, extinction = 3 stellar magnitudes (1/16 brightness, 4 "f stops" At 1.3-degree elevation, extinction = 8 stellar magnitudes (~1/1600 brightness, 40 "f stops)", but (at 1.3-degrees) DIFFERENTIAL extinction +/-0.5 degrees a factor almost 100!

What is "nominal"? Tell me how much dust will be in the air... Cheers, -GS-

Total lunar and central solar

From: Jean Meeus To: "INTERNET:SOLARECLIPSES@AULA.COM" <SOLARECLIPSES@AULA.COM> Date: Thu, 21 Nov 2002 13:45:42

Further to the mails of Evan Zucker and Olivier Staiger:

It is not too rare that a central solar eclipse and a total lunar eclipse occur during the same eclipse season, that is, with an interval of half a lunation.

I found 18 such cases during the period 1951-2050. Besides the eclipses of 2003, examples are:

1986 : annular-total solar on Oct. 3, total lunar on Oct. 17;
 1990 : annular solar on Jan. 26, total lunar on Feb. 9;
 2008 : annular solar on Feb. 7, total lunar on Feb.21;
 2015 : total solar on Mar 20, total lunar on Apr. 4.



It is much rarer to have TWO such cases in one calendar year. After 2003, the next "double case" will take place in 2044. Jean Meeus

Penumbral Eclipse

From: Francis Graham To: SOLARECLIPSES@aula.com Date: Wed, 20 Nov 2002 18:01:18

Dear List, I got the penumbral eclipse last night, by photography and photometry. Is there anyone else doing photometry of penumbral eclipses? Francis Graham

From: Assoc Prof J R Huddle

I watched the penumbral eclipse with binoculars. After about 8:30 EST, the sky became quite clear, and the moon, eclipsed or not, was stunning. (Mid-eclipse was at 8:46 pm EST.) Visually, I could just barely detect a subtle grey shading in the Mare Frigoris region, lunar north of the craters Plato, Aristotle and Hercules. I did neither photography nor photometry, but thought - too late - that it might be interesting to do so. My understanding is that some atmospheric scientists use such measurements to study air pollution - the darker the penumbra, the more pollutants there are in the atmosphere. Of course, this is not entirely satisfactory, because you want measurements more than twice a year. Jim Huddle

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From: Klipsi

I briefly watched it, too. A few hours before the eclipse it was clear in Geneva and I had a gorgeous view on the Full Moon, see <http://eclipse.span.ch/live3.jpg> . Went to sleep and set alarm clock for 02.37 AM local time, 10 minutes prior to mid-eclipse. Was ready to take an image at max eclipse to see if faint darkening would appear. But meantime, high fog/low clouds had formed. Could still see the full moon through the cloud layer, but with the moving bands of fog it was impossible to detect eclipse-related darkening. Went back to sleep. Still had a huge smile in my heart, as now I knew for sure.... 2 weeks only to totality ! It almost feels unreal.

From: Evan Zucker

We had unusually clear skies in San Diego last night, due to our current Santa Ana condition (which is also why it's 90 degrees F today). I knew there was going to be a lunar eclipse, but I had mistakenly thought it was going to be later in the evening. (I had been focusing on observing the Leonids the night before and hadn't yet turned my attention to the eclipse. Fortunately, we had beautifully clear skies for the Leonids too.)

I was driving home around 5:45 PM PST and saw the full moon just rising. It was immediately obvious to me that the upper left side was darker than the rest of the disc, which made me remember that the eclipse had begun before moonrise. I figure that's a pretty good test of the darkness of a penumbral eclipse -- if you realize there's an eclipse underway even though you didn't think it had begun yet.

Seeing the eclipse brought home the imminence of the total solar eclipse -- if the companion minor lunar eclipse is here, then it can only be two more weeks before the big one arrives. (That's "big one" in lower case; the next "Big One" will be 2009.) I wish I were going. Evan H. Zucker San Diego, California

From: Francis Graham

Dear LList, J.R. Huddle is correct in his last e-mail on this track, I am doing photometry of penumbral eclipses for a similar reason that they are done for total lunar eclipses. It is well known that the Danjon number in a total lunar eclipse varies as do atmospheric conditions on Earth (such as volcanic stratospheric dust). My research question is: do Penumbral lunar eclipses, which are caused by the Earth partly blocking the sun, also show anomalies or variation? As a first step, they seem to show a variation from a hypothetical situation where the Earth would be atmosphereless (the geometric penumbral eclipse). But I want more data before I come to any further conclusions, or even firm conclusions. Francis Graham

From: Robert B Slobins

After being awake 38 straight hours as a result of my going to Iowa for the Leonids, I attended my astronomy club. The meeting adjourned and I walked out to see the moon through cirrostratus. There was a bit of darkening discernable.

By the way... in 2003 there will be two total lunar eclipses each followed by central solar eclipses. How rare is that? -- Robert B Slobins

From: Evan Zucker

I would think that is extremely rare, although I'm sure Jean or somebody else will pipe in with some statistics.

I had always thought that a total eclipse is typically accompanied by one or two partial eclipses. Although I wouldn't be that surprised to have this happen once in a while, to have it happen twice in the same year seems quite unusual. I wonder if it's a coincidence or if there is some connection between the two eclipse seasons next year. Evan H. Zucker San Diego, California

From: Robert B Slobins

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Oh, and by the way, must the central eclipses 1) be polar and can the central eclipses be 2) both total or 3) both annular? --Robert B Slobins

From: Klipsi

the reason for this rare 2003 eclipse year is because all are what I would call "near-miss" eclipses.

usually, a total solar eclipse is followed, or accompanied, by one or two partial or penumbral eclipses. On the other hand, if the solar eclipse is only partial, the accompanying lunar is total. The reason lies in the length of the "eclipse season", the time in which Earth is near the node. From Full Moon to New Moon, from lunar eclipse to solar eclipse. Fred explains it very well in his book Totality. Recent example, year 2000: 4 partial eclipses of the Sun, 2 total lunar eclipses. When you have short partial solar, then you get a long lasting total lunar. when you have a long total solar, the partial lunar will be short or even penumbral only. Now, in 2003, the first solar eclipse is annular but almost misses us. it is visible only in high northern latitude. It is not even a full antumbral touchdown, as one limit is determined by the daylight terminator on Earth. The preceding lunar eclipse, 2 weeks earlier, manages to be total, but not for a long duration (not like the mid-july total lunar eclipse which set records). The full moon does entirely enter Earth's shadow cone alright, but it does not reach the center axis of the cone. In november 2003, the total lunar eclipse is again a near miss. It is total, alright, but again short duration of totality, and the cone center axis is not touched. And 2 weeks later the solar eclipse in Antarctica almost misses us.

I call 2003 "the year of cold eclipses", because you can only see them either at night, or in arctic / antarctic areas. <http://eclipse.span.ch/2003.htm> Olivier "Klipsi" Staiger

From: u32fe@lepvox.gsfc.nasa.gov

I watched the penumbral eclipse with binoculars. After about 8:30 EST, the sky became quite clear, and the moon, eclipsed or not, was stunning. (Mid-eclipse was at 8:46 pm EST.) Visually, I could just barely detect a subtle grey shading in the Mare Frigoris region, lunar north of the craters Plato, Aristotle and Hercules. I did neither photography nor photometry, but thought - too late - that it might be interesting to do so. My understanding is that some atmospheric scientists use such measurements to study air pollution - the darker the penumbra, the more pollutants there are in the atmosphere. Of course, this is not entirely satisfactory, because you want measurements more than twice a year.

The Penumbral Lunar Eclipse of 2002 Nov 20 was visible from the Americas, Europe and Africa (Map & Diagram at: <http://sunearth.gsfc.nasa.gov/eclipse/LEplot/LEplot2001/LE2002Nov20N.gif>). Penumbral eclipses are quite subtle and often difficult to detect visually. The eclipse is easily revealed if you compare photos of the Moon shot before and during the event.

I shot a five hour sequence of photos of the eclipse from my yard in southern Maryland. I've posted a pair of shots at:

<http://www.mreclipse.com/LEphoto/LEgallery1/NLE2002-3.JPG>

The photos were taken with a 4" telescope and a Nikon Coolpix 995 digital camera. The two images show the Moon just before the eclipse began (6:30 pm EST) and near mid eclipse (8:50 pm EST).

This was just an appetizer for December's total eclipse! I'm heading to the airport bound for Africa, but I wanted to share a quick look at the penumbral eclipse. Later, I will post a sequence of images. - Fred Espenak



SETalk

Sun photo

From: analog6@ozemail.com.au To: SOLARECLIPSES@AULA.COM Date: Sun, 24 Nov 2002 23:10:23

This photo from the Sydney papaer for today appears to show a sunspot on teh Sun during a strong duststorm Photo is dated 14 Nov - was there one showing, or is it a blot? Odille Esmonde-Morgan Canberra Australia

From: Geoff

I'm not sure, But check the spaceweather.com archive of all the "daily sun images": <http://www.spaceweather.com/images2002/14nov02/midi140.gif> --Geoff

take video images with the automatic exposure off.

Note also to turn the focus to manual, or you might lose the whole of totality with the focus "hunting." Jay Pasachoff

From: KCStarguy@aol.com

I shot the incoming shadow in 1999 in Hungary with the manual focus and the manual shutter. I caught the shadow coming up above the horizon some 40-60 miles away and caught the darkening.I then shot the whole eclipse the total sun and flipped through the aperature

Others who have used automatic shutter to capture the shadow don't have quite the effect of the darkening and I am pleased I chose manual.

Capturing that shadow with video was something I wanted to do since I captured it with photos aboard the Canberra in 1973. Dr.Eric

From: Joel Moskowitz

I think the "questioner" wants to see the surroundings. By keeping to manual exposure, the effect of darkening will be readily apparent, but it may be too dark to give an adequate image of the immediate surroundings. But, if you put the camera on auto, it will ride the iris and gain to give you a decent image of the surroundings. It will show the darkening, just not as extreme, and may be closer to how you actually see the surroundings. Of course, this does NOT apply to the eclipse itself. I uploaded a short movie segment from the 1999 eclipse to give you an example. It is a Quicktime movie, size 3 mB. Download the movie, "sequence 1.mov" from: <http://homepage.mac.com/joelmoskowitz/FileSharing7.html> Joel M. Moskowitz, M.D.

From: Evan Zucker

Nice movie. I was really surprised that the guy on the left was bending over at the very moment of second contact. I was especially surprised because it looked like he had an eye patch on initially and then removed it, which would indicate that he is an experienced observer (or got advice from an experienced observer).

I like to take "surroundings" photos too. I try to get the best of both worlds. I take two series of photos of the same area - with some distant mountains in the frame, if possible. One series uses automatic exposure, and the other is at a fixed exposure, that exposure being the proper exposure for the scene pre-eclipse. -- EVAN

(Continued on page 28)

Eclipse subject photography

From: Hal Couzens To: SOLARECLIPSES@AULA.COM Date: Fri, 22 Nov 2002 15:22:55

I have found much information about exposing for an eclipse itself. But what about exposing for a subject lit by an eclipse. The fall-off of light is so fast and so extreme it is hard to judge. And the darkness is also dependent on any additional weather patterns etc.

Anyone have any thoughts on exposure. It is stills and cinecamera work. And ideally the cinecam will capture the lighting change itself, to do this I want to fix my exposure but not be too far over before or too far under during totality.

I will be in South Africa on Jorika Cawoods farm near Tshipise. The exact location for THE MOMENT is undecided - half the fun is the specific location recce ther days before. ok not half the fun maybe a twentieth or so but fun nonetheless ;) Best Hal

From: Jay.M.Pasachoff@williams.edu

Hal notes that the automatic exposure will play a role. Note that it is interesting to see the extreme darkening in the last minute before totality, and that the automatic exposure will diminish the effect. I prefer to

SETalk

From: Joel Moskowitz

Anyone, even an experienced observer, can sometimes get caught up at the wrong time. I'm not sure who it is. BTW, I'm on the right behind the big video camera (and my voice is the loudest you hear). My daughter in the red shirt in the middle. Glenn Schneider seated in the far right corner. Joel M. Moskowitz, M.D.

Eyepatch

From: KCStarguy@aol.com To: SOLARECLIPSES@AULA.COM Date: Sun, 24 Nov 2002 04:19:24

Like it was covered in this listserv before, some people have an eye patch on and take it off at 2nd contact because one eye being dark adapted let's the observer see more of the corona instantly. Anyone try it? Dr.Eric Flescher



In a message dated 11/23/02 12:27:45 AM, ez@AbacusTotality.com writes: Nice movie. I was really surprised that the guy on the left was bending over at the very moment of second contact. I was especially surprised because it looked like he had an eye patch on initially and then removed it, which would indicate that he is an experienced observer (or got advice from an experienced observer). I like to take "surroundings" photos too. I try to get the best of both worlds. I take two series of photos of the same area -- with some distant mountains in the frame, if possible. One series uses automatic exposure, and the other is at a fixed exposure, that exposure being the proper exposure for the scene pre-eclipse. -- EVAN

From: Glenn Schneider

Yes, Many times. It really does work. But be sure you take the eyepatch off AFTER second contact. You really do not need any depth perception to view the 2nd contact diamond ring... -GS-

From: Joel Moskowitz

Eric, Yes, I have used it several times. So has Glenn, Craig Small, a few others I know. The idea is to dark adapt one eye to see fainter parts of the corona. The key is that you need to put it on at least 1/2 hour before 2nd contact, preferably 45 minutes, and put it on your dominant eye. The other key point is that you do not remove it until the diamond ring is completely extinguished. Joel M. Moskowitz, M.D.

From: Mike Simmons

In the "heat of battle", have you ever forgotten to take the eye patch off? In 1991 I got a new eyeglass prescription but forgot to put them on during the eclipse. I wear contacts now. ;-) Mike Simmons

From: Mike Murphy

Yep, I did, in Zambia last year. I recommend it - if you can put up with the ribbing from you various eclipse chasing friends, "Left your parrot at home then Eh mate?" :-)

I patched my left eye, which is my dominant one, for 45 minutes prior to second contact. I found that using both eyes was a bit confusing for a second or two but then the truly amazing sight of the corona sort of snapped into view and the wispy-ness of it seemed apparent to me but not to others around me. It is difficult to be conclusive about this because, for one thing, it is the only TSE where I haven't been clouded out and secondly, the emotional effect, that the eclipse had on me, was so strong and un-expected that I can't really say whether it would have been as good an experience without the eye patch ruse.

I did plan to patch the other eye in Mozambique this year but, alas, I can't be there, so others will have to conduct the experiment for me ;-) If I was going this year I would not do any photography at all but just watch, either using image stabilised or tripod mounted binoculars. Clear skies to those of you who are going. - Mike in the UK

SETalk

Beauty Solar Eruption

From: Rybrks1@cs.com To: SOLARECLIPSES@AULA.COM Date: Mon, 25 Nov 2002 03:53:03

On Saturday Nov 23 at 18:10 UT there was wonderful eruption in H2 light emanating from very near the Sun's north ecliptic pole. It grew suddenly, extended over 40,000 km from the limb and lasted only about 12 minutes. It would have been a terrific prominence for a TSE. Timing is everything. Ray Brooks

Fresh evidence of 'eclipse wind'

From: Mike Murphy To: SOLARECLIPSES@AULA.COM Date: Tue, 26 Nov 2002 16:53:32

No, not all about the hot air that some of us chasers talk ;-) but some research by Dr Karen Aplin, from the Rutherford Appleton Laboratory near Oxford and Dr Giles Harrison from the University of Reading. This news article in text only is on the BBC's web site at: <http://news.bbc.co.uk/1/low/sci/tech/2515045.stm>

Or with graphics at: <http://news.bbc.co.uk/1/hi/sci/tech/2515045.stm> Regards - Mike in the UK

From: Gerard M Foley

My testimony is of course only anecdotal. The TSE of 1932 appeared to have caused the formation of a "mackerel sky" (high thin striped cloud) at North Conway NH along the track of the eclipse, preceding the umbral shadow. I observed a repetition of this during the 1963 TSE at Plessisville, QU. Gerry

A Space Odyssey

From: Jean Marc Larivière To: EclipseListServer <solareclipses@aula.com> Date: Mon, 02 Dec 2002 21:49:03

For those of us not lucky enough to travel to Africa or Australia, I include the following comment I have prepared about the film 2001 : A Space Odyssey for the Eclipse Film Database which should be publicly available shortly and the accompanying challenge. The film opens with a lunar eclipse as seen from a point just beyond the Moon. As the camera rises from behind the normally hidden face of the Moon (hidden from earthbound observers, of course), it reveals the Moon-Earth-Sun alignment. As the camera rises further into space, the Sun is seen slowly rising 'above' the Earth. Of course it could be argued that this sequence simply depicts a full Moon alignment and not necessarily a lunar eclipse. That argument has some merit since it does seem that the Sun appears from behind the Earth too soon after the camera clears the lunar limb when one should still be in the Earth's umbra which is several Moon diameters large at that point in space. On the other hand, the nighttime face of our planet does not seem to be lit by much moonshine at all, which would be the case during a lunar eclipse. Perhaps someone using an appropriate astronomical software can simulate this shot and let me know. In the meantime, since the debate is mostly academic, I will side with the lunar eclipse theory, if only to include this cinematic masterpiece in the database.

Since a number of the list members have previously indicated that they frequently use an astronomical software to simulate eclipses, and since some of these programs allow one to locate the observer not only on Earth but also in space, I thought someone might want to have a go at my challenge and share the results. After all, those of us waiting to tune in to one of the eclipse webcasts while we follow Klipsi's Australian journal have to have our fun too ! Jean Marc Larivière



SETalk

Film x-rays

From: Jay.M.Pasachoff@williams.edu To: solareclipses@aula.com Date: Wed, 27 Nov 2002 19:11:51

>From my wife, who is in Massachusetts, by e-mail:

I heard on the NBC news this a.m. NOT to have your film x-rayed anymore --the official said the machines are now powerful enough to wipe film clean. Jay Pasachoff

From: Evan Zucker

I heard on the NBC news this a.m. NOT to have your film x-rayed anymore --the official said the machines are now powerful enough to wipe film clean.

I have read reports about this for quite some time, but it's getting more publicity now -- enough to reach Jay's wife -- due to the large number of people flying for the holidays. Perhaps the reports I've been reading have been warnings that this was going to happen, but now it has definitely happened.

In any event, I think it has long been a good idea not to put undeveloped film in check-in baggage. I've been keeping mine in carry-on luggage for years now. Evan H. Zucker San Diego, California

From: GMadden

Seems to me a good opportunity to test domestic and international screening systems.

We have here a variety of well informed investigators who can be relied upon to make useful observations and provide useful reports post December 4th. George Madden Rochester, NY

From: klipsi@bluewin.ch

>Seems to me a good opportunity to test domestic and international screening systems.

seems to me a good opp to invest in local economy. buy film in africa or australia, process locally. or go digital. Klipsi

From: Evan Zucker

At 08:57 PM 11/27/2002, Robert wrote: I say, take all possible precautions. I would double-bag my film in lead.

That's bad advice -- if the people manning the X-ray machine see a shape that they can't identify (such as a lead-lined bag), they will either crank up the X-rays to the max (which could theoretically get through the bags) or, if that still doesn't work, open up your luggage. When they find the bagged film, they might open the bags and then run it through the X-rays. There's no way of knowing what they'll do. That's why the only good advice is not to put it in checked luggage in the first place.

>In the UK, the guards always make you run the film through x-rays first, then hand inspect.

The logic of that escapes me. If they're going to X-ray it anyway, what's the point of hand inspecting it too?

>Or carry the exposed film on your person and spill the rolls into the basket along with your watch, etc.

That's exactly what I do except I have the film cassettes unboxed and uncannistered in a clear plastic bag. -- EVAN

From: Robert B Slobins

Jay, et al: Really, do you trust NBC news or anything of that ilk?

SETalk

I say, take all possible precautions. I would double-bag my film in lead.

In the USA, one is entitled to a hand-inspection of film. In the UK, the guards always make you run the film through x-rays first, then hand inspect. This may be the case in Africa and Australia.

Since the UK has always been on guard against terrorism (IRA), the airports have been very strict. So when I ensure that the contents of the bag is invisible, then I guess that no x-rays got in there. I force the hand inspection. Or carry the exposed film on your person and spill the rolls into the basket along with your watch, etc.

Of course, get the film processed in SA or Australia and half of your worries are over!

Or, use FedEx or DHL to get the film into your favorite professional lab, unless they too use x-rays, which I do not believe. cheers/
Robert B Slobins

From: Robert B Slobins

Evan: OK--I assumed that one would carry film on board, not on checked baggage. It is common sense. Would one do anything different, especially in the US?

Think of it: checked baggage gets lost and delayed. I left Lusaka with seven bags checked or force-checked. I arrived in Fort Wayne with one. The rest dribbled in over 48 hours. All was OK, but imagine if my film were in those bags, regardless of screening?

>The logic of that escapes me. If they're going to X-ray it anyway, what's the point of hand inspecting it too?

So they can get out of hand-inspecting first. This is where I double-bag. I make them look!

>That's exactly what I do except I have the film cassettes unboxed and uncannistered in a clear plastic bag.

Ditto. Robert B Slobins

From: KCStarguy@aol.com

When I went recently on the airline, they said regular film is okay through the x rays but that higher ASA are not good to go through the machine. Is that the way you all see this? Dr.Eric Flescher (kcstarguy@aol.com)

From: Mike Simmons

I just saw an interview with a "travel consultant" on MSNBC last night and he was asked about the talk of new x-ray machines that will ruin any film. He said that the machines now put out a lot stronger x-ray flux and it's true that any film will be ruined, even low-speed film. Apparently there are now signs at the checkpoints stating this (I haven't been on a plane since June). He suggested buying film at the destination because everyplace has got a Wal-Mart or K-Mart -- an unfortunate bit of American centrism. The next time I go to Tehran I don't expect to find either of those stores. And there is very little slide film anywhere in the country and certainly not what I usually use. I may have to do what I did last time and take a digital camera body. Mike Simmons

From: GMadden

Well for starters, I don't know what "regular" film is.

Some thoughts. . .

Who cares about unexposed film?

(Continued on page 32)

SETalk

Outbound, I keep my eclipse film double bagged and checked. If lost, I would buy, beg or steal at my destination. To be sure, I do keep several rolls on my person as a contingency.

Inbound, I would insist on hand inspections -- stating up front the reasons why (even informing the flight crews whilst aloft and letting them look at the materials as well), and go so far as to begin appeals to higher authorities if need be and generally making a pain in the ass of myself until SOMEONE in authority finally got the point. You may risk delay, but what is more important particularly if you are a researcher or principal investigator and you are working on something?

What is the point? Simple. You really have no idea what you have on film until it is processed do you? Therefore, you should do everything humanly possible to prevent any contamination of your documentation. Do whatever it takes to avoid exposure to anything other than natural background radiation.

Those using larger formats have different problems, but the idea is the same.

I have had little difficulty in this area. Inbound, I -- like others here -- keep the film in a clear plastic ziplock baggie without the plastic container. I also try to leave an inch or so of leader hanging out when I remember not to go too far with the rewind. To date, I have had no problems within or outside the US (in fact, some stations have been decidedly lax, a discomfoting thought).

You can go to Victoria Falls anytime. But no one alive today will see a total solar eclipse from Victoria Falls. Think of your exposed eclipse film as an infant and you should be all right. George Madden Rochester, NY

From: Robert B Slobins

Eric -- It is claimed that up to ISO 800 will not be affected. I still would bring the lead bags. --Robert B Slobins

From: Jay.M.Pasachoff@williams.edu

Inspectors are usually unsympathetic (perhaps by rule or law) to specific pleas, but they have been instructed that regular film is OK but film over a certain ASA should be hand-inspected. So everyone should get a few rolls of ASA 1600 film or the highest possible with official high ASA (ISO) and mix them in with the other film. Then you can honestly say that you have ISO 3200 (or whatever) film.

Briefing from Ceduna: Our equipment is pretty well set up. After the perfect day we had on Wed, Thurs (Thanksgiving for Americans) was mostly cloudy. It cleared up in the west at eclipse time or just thereafter, with a 10-degree-high band of clear weather between about 5 or 15 deg, so we might have seen the eclipse. Of course, eclipse cooling would modify all that on Dec 4.

The sky cleared up beautifully overnight, and we could see the beautiful crescent moon rising in the east. By 5 am it was high enough for us to take some test exposures of it with one of our telescopes. As we were working the sky was clouding up again. Jay Pasachoff

From: Geoff

It is true that in Australia you will be able to find a K-Mart (no Wal-Mart here :), Woolworths, Safeway, Coles, Big W etc... however would you actually trust buying films from there?

All they stock is usually Kodak Gold 100/200/400, and Fuji Superia 100/400 - and they would not be stored under the best conditions - definately not refridgerated, and no, definately no slide-film at those places. However that is not to say you would not be able to buy more professional film over here, you'd just have to be in a decent sized City to find a photographic store, I

(Continued on page 33)

SETalk

think Fraser has already mentioned where they are. --Geoff

From: Jay.M.Pasachoff@williams.edu

Mike's point at the end is a good one: this may just push us all to digital imaging. We have a six megapixel Canon camera with us and the images it takes are gorgeous. We are testing recycle and readout time. Overexposure effects are different from those with film, but we can get used to it.

For this eclipse, I still have lots of Ektachrome and Fujichrome, but I won't bet how much I will use the next time.

From: Robert B Slobins

Who cares about unexposed film?

I would. I take 70-90 rolls with me. That is quite an investment!

The x-rays will fog the film. It does not matter whether the images were made before or after the x-ray fogging.

Do what you will...my film stays with me at all times.

Remember, the interest and motivation of most security personnel is not necessarily the same as yours. Many care about doing their job, but there are quite a number of bullies in the field. Being a pain in their ass is justification enough for them to accord one "special treatment". It is best to cover yours.

My double-lead-bag trick worked just fine at Gatwick last month. I made 'em look and all went well.

It is also best to have your credentials with you. I carry my publications portfolio and postcards with me. That gives the message that I am doing my job earning a gainful living as the security and airline people are. I usually leave a postcard behind as a souvenir for crew and security team members, especially if they accommodated me in some way.

Since my goal would be to observe an eclipse and return alive, I let the gate people know that I appreciate their efforts. cheers/rbs

From: Stig Linander

It seems that the film-xray-airport discussion keeps popping up - especially whenever Patrick is off-line (I suppose he's in ZA by now).

It's been discussed sooooo many times - there's very little to add - it's a matter of general photography, not specifically a matter of eclipse photography.

Those concerned can try the Usenet instead, the rec.photo groups, uk.rec.photo.misc, and several other groups.

For example, try:

http://groups.google.com/groups?q=film+xray+airport&meta=group%3Drec.photo.*

http://groups.google.com/groups?q=film+xray+airport&meta=group%3Duk.rec.photo.*

There's also a FAQ: <http://w1.541.telia.com/~u54105795/FAQrec-photo.html>

Thanks. Clear skies 04-Dec, Stig - leaving for ZA tomorrow. Stig Linander -- The Ophiuchan -- www.linander.dk/stig - This email is optimized for Pine in an 80x24 Xterm -

From: Mike Simmons

SETalk

>It's been discussed soooooo many times - there's very little to add - it's a matter of general photography, not specifically a matter of >eclipse photography.

Since the machines and procedures have changed recently -- at least here in the US -- new discussions are necessary. The old rules no longer apply and old information could lead to problems.

Mike Simmons

From: Dale Ireland Date: Mon, 09 Dec 2002 06:29:27

You don't necessarily have a choice, regardless of international conventions. Don't check film through as the radiation is now even greater for checked luggage than carry-on. As I noted in my previous post, procedures vary even in the US. In Seattle we had a hand inspection, in LAX they agreed to "hand inspection" which involved wiping the canisters with a swab and sending them through the "sniffer" a process that took over 20 minutes for all our film. In French Polynesia they gave you a choice of having your film x-rayed or not getting on the flight. My film was in lead pouches and they never asked for a recheck after it went through the x-ray machine so I don't know if the machine can see through the pouch too or if they just don't care. Same process in New Zealand. The safest thing to do is buy your film at the eclipse site and process it before flying home (which we did) Dale

Lunar Standstills

From: Brian Whatcott To: HASTRO-L@LISTSERV.WVU.EDU Date: Thu, 28 Nov 2002 20:56:09

Claira Beth, <LIFEMOON@aol.com> addressed a question to me, which would be better addressed to the readership of this list. If you would be kind enough to copy your response to her email too, that would help, I'm sure. I am uncertain if she subscribes to either group where the topic has been relayed. Thank you. Brian Whatcott

Message-ID: <130.18340f06.2b178105@aol.com> Date: Thu, 28 Nov 2002 09:24:05 EST Subject: Questions on Lunar Standstills

Greetings, ...I have been working on a project of my own on Calendars, mainly due to the problems/flaws of the Solar Calendar. I created a Lunar calendar but found that also had its own flaws/problems... Sunday, November 24, 2002, PBS aired a show called the "Mystery of Chaco Canyon" which [mentioned] the Standstill [which] really intrigued me. ...If the standstill cycle is 9 years and 3 months how come the Standstill is occurring only on the Solstices? ... The full cycle supposedly takes place in 18 years and just over 6 months which would place it back on a Solstice. So I would assume a standstill happens on an Equinox then a Solstice then an Equinox..... Is this correct? What is meant by 18.61? Does that take into account of some years having 13 moons and others with 12?

The second part is the prediction of Eclipses depending on the Moon's position in reference to the where it is in the Standstill cycle. If on either end, the Eclipse(s) would fall on the closest Equinox and if in the middle it/they would fall on the closest Solstice. Is this correct?

I appreciate any and all time, I really want to understand this

...

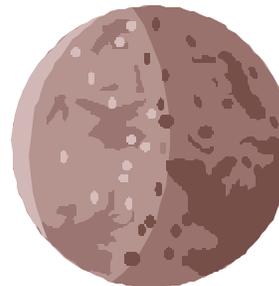
Thank you in advance Clairia Beth Brian Whatcott Altus OK Eureka!

From: Lenny Abbey

I guess I'm dumb, but what is a "lunar standstill"? Lenny

From: Victor Reijs

Hello Clairia and others, See my pages: <http://www.iol.ie/~geniet/eng/moonperb.htm#Conclussions>



SETalk

> ...If the standstill cycle is 9 years and 3 months how come the

It is an averaged cycle of 18.6 years. But it is visible every 18, 18.5 and 19 years (and not solstices more more close to equinoxes). I am talking here about the lunar standstill LIMITs (lunar standstills happen every month).

> Standstill is occurring only on the Solstices? ... The full cycle supposedly takes place in 18 years and just over 6 months

It is just over 7 months (0.6×12). Furthermore it is an average this 18.6 years.

> which would place it back on a Solstice.

So for an explanation the above pages (and the pagers I refer to in that pages). All the best, Victor

--

URLs: <http://www.reijs.org/>

<http://www.archaeocosmology.org/>

<http://www.iol.ie/~geniet/maeshowe>

<http://www.iol.ie/~geniet/irishstones>

<http://www.iol.ie/~geniet/stpatrick>

From: Sepp Rothwangl

Hi Lenny, Clair and others, Hmm.. may be in that TV show of chaco canyon was meant the moon extremes? The southern and Northern most points of horizon where to moon can rise and set. Similar to the points of solstice rise and set? In the expression of native americans that could be expressed as lunar standstill. Sepp

From: Thomas Schmidt

There is only a very loose correlation between lunar standstills and solstices or equinoxes. The orbit of the moon has an inclination of 5 deg 9' on the ecliptic, and the nodes (the intersections of lunar orbit and ecliptic) are drifting around the ecliptic once every 6798 days (= 18.61 years). When the ascending node coincides with the vernal equinox, the declination of the moon varies from ca. 28.5 deg (= $23.5 + 5$ deg, where 23.5 deg is the obliquity of the ecliptic) to -28.5 deg during one month (major standstill). When the ascending node coincides with the autumnal equinox, the declination of the moon only varies from ca. 18.5 deg (= $23.5 - 5$) to -18.5 deg (minor standstill).

Some dates for the ascending node coinciding with the vernal equinox are:

1913 May 27

1932 Jan 6

1950 Aug 17

1969 Mar 29

1987 Nov 8

2006 Jun 19

2025 Jan 29

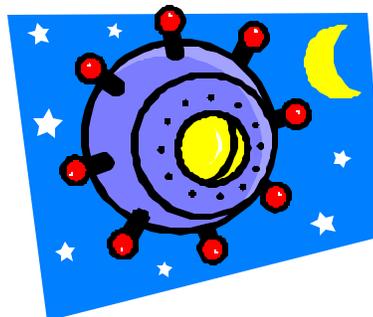
2043 Sep 10

2062 Apr 22

2080 Dec 1

2099 Jul 13,

so we might expect a major standstill around these times.



No correlation with solstices or equinoxes can be seen here. However, due to perturbations by the sun, the inclination of the lunar orbit is slightly variable, with an amplitude of 8' and a period of 173.31 days. The inclination reaches a maximum of 5 deg 17' when one of the nodes coincides with the direction to the sun (or rather, when the sun coincides with one of the nodes, as the sun is moving faster).

SETalk

Now, when one of the nodes is close to one of the equinoxes (i.e. the moon's orbit is close to reaching maximum or minimum variation of declination), and the sun is passing through that node, the inclination gets an extra short boost, so that the actual maximum/minimum variation may be reached at a time which is close to, but not identical with the exact passage of the node through the equinox. As this situation (node close to equinox, sun close to node) occurs close to the vernal and autumnal equinoxes, the maximum/minimum variations of declination and thus the standstills are biased towards the equinoxes.

Furthermore, so far these are only possible extreme variations of declination of the moon, as we have only discussed the conditions under which the lunar orbit reaches extreme variations of declination. If the moon happens to be close to the ecliptic at that time, it doesn't profit from some point of its orbit being at extreme declination; when the moon reaches that point, optimum conditions may no longer or not yet apply. The actual extreme declination of the moon then occurs when the moon passes the highest/lowest part of its orbit, although this point of the orbit may even be at a more extreme declination at a different time. Therefore, maximum declinations of the moon tend to occur close to the equinoxes (see above) and close to half moon (moon at highest/lowest point of orbit, that is, at elongations of 90 or 270 deg from sun which is at equinox).

Some dates for maximum northern and southern declinations of the moon are

N S

1913 Mar 16 1913 Mar 28
 1932 Mar 15 1932 Mar 28
 1950 Oct 3 1950 Sep 19
 1969 Mar 25 1969 Mar 11
 1987 Sep 15 1987 Sep 29
 2006 Sep 15 2006 Mar 22
 2025 Mar 7 2025 Mar 22
 2043 Sep 25 2043 Sep 12
 2062 Mar 18 2062 Mar 31
 2081 Mar 18 2080 Sep 21
 2099 Sep 8 2099 Sep 21



Here a bias towards the equinoxes is obvious.

In addition, the observed standstill measures the declination of the moon at the moment of rising or setting, and will usually not exactly coincide with the moment where the moon has extreme declination.

Watching the half moon rising or setting is not very convenient. You have to stay up late, it is not terribly impressive, and the less-than-round appearance of the moon may make it difficult to agree on the exact point of rising or setting at the horizon. So if you are not a megalithic astronomer wishing to attain maximum possible accuracy and only want to witness a touristic attraction, you may prefer to watch the full moon rising around the time of extreme declination. In the general vicinity of a standstill, full moon and extreme declinations coincide around the solstices (although these declinations will be slightly less extreme than those at half moon close to the equinoxes).

> What is meant by 18.61? Does that take into account of some years having 13 moons and others with 12?

It is simply the time the nodes need to travel once around the ecliptic.

These matters are briefly discussed in Jean Meeus: *Mathematical Astronomy Morsels*, Willmann-Bell 1997, p. 26ff, Hugh Thurston: *Early Astronomy*, Springer 1994, p. 13ff. Regards, Thomas

From: Joan Griffith

I referred her to Calndr-L, where if those guys don't know, nobody will ever know! lol. However, there is also a book

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called *How the Shaman Stole the Moon*, which is about someone's journey to Chaco Canyon to discover a number of things described by the PBS show, which was made by The Solstice Project people. Last time I looked at this site, there did not seem to be much on it. Anyway, *How the Shaman Stole the Moon* is free to read online & has if not specific answers, probably a bit more information along with drawings and pics. The author, William Calvin, is a neurobiologist at the U. of Seattle. <http://faculty.washington.edu/wcalvin/bk6/> Joan "It's not that I'm so smart, it's just that I stay with problems longer." Albert Einstein

From: Ron Sutcliffe

Greetings Brian Whatcott, Clairia Beth, and HASTRO folks, The Lunar Standstill event can last for around 8 months or longer centered around the 18.61 year cycle with the most northerly moonrise for horizon based observatories becoming dependent upon the minor perturbances rather than the moon's orbital inclination to the ecliptic. The lunar orbital minor perturbances amount to about 1/4 degree or 1/2 an apparent moon diameter. The best graphic that I've found to depict this phenomena is in John Wood's "Sun, Moon, and Standing Stone" at page 104 (isbn 0-19-211443-3).

The moon rises once every month within the northerly constellations of the ecliptic close to the location that the sun occupies when it is at summer solstice. In current times this is between Taurus and Gemini. During the months of the lunar major standstill one can observe this moonrise during different times of the day or night with the most dramatic observing time being the full moon rise during the time of winter solstice.

The producers of the video "Mystery of Chaco Canyon" depict many aspects of the lunar cycles with wonderful graphics that have been a tremendous help to me in visualizing these complicated phenomenon. However I feel that the assumption that the major standstill was only observed during the moon rise closest to winter solstice by the ancients is a bit simplistic. I cannot visualize an ancient culture sophisticated and inspired enough to dedicate so much social resources to lunar alignments, and yet lacking in the relatively straightforward naked eye observing skills that would lead to a knowledge of the location of the equinox and solstice points upon the backdrop of the constellations in the ecliptic.

What do others think about this? best regards, ron Ron Sutcliffe

From: Rolf Sinclair

Hi List -- Thanks to Thomas Schmidt for a very thorough explanation of the lunar "standstills" (perhaps better called lunastices).

The main thing that comes through all this is that a lunastice is not an easily observable (yet rare) "event". It is certainly not as well defined (nor as easily observed) as a solstice. I have seen it written all too often that "a 'standstill' occurs once every 18 to 19 years" (or every 18.6 years if the speaker is trying to make it sound exact), or even "occurs once every 18- 19/18.6 years at the time the full moon rises at the furthest north declination extreme".

For all that the Moon's motion is governed by simple Newtonian principles, it does a complicated dance in the sky. There is a lunastice (i. e., an extreme in the monthly declination swing) every month, although it isn't necessarily signaled by a full moon. This monthly lunastice is brief -- in effect only a few hours long -- because the declination changes noticeably between successive risings of the Moon, even near a lunastice. The sun appears to remain longer at a solstice -- the rising point seems to be about the same for a few sunrises -- since it has six months to get to the other extreme. A solstice is thus a "solar standstill", while a lunastice is not really a "lunar standstill".

Some lunastices are more impressive than others as the monthly maximum pulsates over the 18.6-year period. But at the "maximum in the monthly maxima" (which is the extreme lunastice, and is what is usually meant colloquially by a "standstill") the limiting declination is slowly changing (a sine wave changes slowly near its maxima). For a number of months you are hard put to tell the change by observing moonrises with the naked eye (what with the varying phases of the moon and the uncertainties of atmospheric refraction). Even at the time of extreme lunastices, however, each monthly lunastice is a brief few-hours-long affair that doesn't necessarily coincide with full moon.

Conclusion: the extreme declination maximum can occur at any lunar phase, and (effectively) can keep recurring for some months. This makes it hard to speak of "an event", or for archaic alignments to have been made with unrealistic

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accuracies to “the standstill”.

This can be verified by looking at a multi-year day-by-day table of the moon’s declination, that has the dates of full moon (or some other particular phase) indicated as well.

Perhaps as a first approximation we could simply say that in some years the moon at times stands higher in the sky than the sun ever does, and rises/sets further to the north than the sun does at solstices; and nine or so years later it never stands as high in the sky as the sun does, and never rises/sets as far to the north as the sun does at solstices. This was very likely close enough for practical purposes through the ages, and proof is required that at any time and place people were preoccupied with anything more exact.

I don’t see how you could make a useful calendar out of all this. It’s hard to find a better “year” than the one defined by the changes in seasons and the obvious period of these changes of 365 ¼ days (with Gregorian corrections). Just as it’s hard to think of a useful way of keeping time and defining the “day” that isn’t based on the 24-hour day/night alternation. Rolf Sinclair

TSE 2002

Vacancy for one on self-organized eclipse tour

From: Daniel Fischer To: SOLARECLIPSES@AULA.COM Date: Fri, 08 Nov 2002 22:27:37

Due to a participant dropping out at the last moment (she got a trip to Thailand for free as a birthday present ...) we have one seat to offer on 4WD vehicle with roof tents, going from Jo'burg towards Pilgrim's Rest, the southern Kruger Park, the Messina area and back on the N1 highway, from Nov. 24 til Dec. 7. The price would be only a few hundred \$U.S., but you would have to get a flight to/from Jo'burg that matches our itinerary (we pick up the vehicle on Nov. 24 around noon and drop it off in the afternoon of Dec. 7).

Any takers on this list? If there's more than one, we'll have an auction ... :-)
Daniel Fischer and Mirko Nitschke (all veterans of Zambia 2001)

Brunch with Klipsi

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Sat, 09 Nov 2002 06:25:21

Hello ! Anyone from the list in Johannesburg on november 23rd ? join me for brunch ! I arrive november 23rd 8 AM on KLM at Johannesburg airport. Will step out of airport just to walk 50m to the SUN (!) Intercontinental hotel. Meet me in hotel lobby at 10 AM, then we have brunch in hotel. Claire Flanagan of the Johannesburg planetarium plans to join, too. If you don't find me in lobby, check if I'm not already munching in restaurant ? Or check if I am in hotel room, as I might take a room for daytime use, shower, relax a few hours . If my flight is much delayed, or if I miss the flight, or if I am not there for whatever reason... you can have my desert ! ;-) I fly out Johannesburg a few hours later on Qantas QF64 to Sydney. If you plan to join me for brunch, you can confirm to klipsi@bluewin.ch . thanks. Klipsi

Anyone else observing from the Stuart highway?

From: Chris Malicki To: SOLARECLIPSES@AULA.COM Date: Tue, 12 Nov 2002 05:43:11

I've finalized my plans for the eclipse of Dec. 4 and will be on the Stuart highway, likely (but maybe not exactly there) at the Wirraminna railstop with my wife and her 3 Australian relatives. I should be identifiable by the red and white Canadian maple leaf flag at my site and would be happy to see anyone on this list who may be there. Look for me. Good luck everyone. Chris Malicki

"Carrying us away, Oh ever more away, Time" (1967) <http://webhome.idirect.com/~kmalicki>



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2**Places to Visit in South Australia**

From: Evan Zucker To: SOLARECLIPSES@AULA.COM
Cc: simonharder@ozemail.com.au Date: Mon, 04 Nov 2002 04:52:04

My Aussie friend Simon asked me to pass along this information about places to visit in southern Australia for those of you who will have some free time before and after totality. -- EVAN

Places to Visit in South Australia**PARACHILNA**

Northern Flinders Ranges (close to Lyndhurst and path of totality)

The place at Parachilna that I mentioned to you is the Prairie Hotel. It is not right in the hills, but is very close to some great scenery and has the ranges behind it. They have got a good name for their hospitality, (Australian) country music events and "feral food" with lots of things like camel, emu and quandong etc on the menu. They may well already be booked out in their rooms for the time of the eclipse but, knowing Jane and Ross, I would not be surprised if they have made some sort of arrangements to cope with overflow accommodation as well as having some sort of special event at that time. Maybe they will set up a tent city or something. Their phone number is (08) 8648 4895.

POLTALLOCH (friends of mine)

Beautiful country estate on the shore of freshwater Lake Alexandrina. Established in 1839, Poltalloch Station is a sheep and cattle farm with 22 historic buildings, including the jetty house, shearing shed, stables and lighthouse. Our guests stay in private heritage cottages with airconditioning, sunny verandahs and wood fires in winter.

Enjoy swimming, canoeing or sailing, tennis and walking in our extensive pristine bushland. Poltalloch is renowned for seclusion, tranquility, spectacular sunsets and some of the best birdwatching opportunities in the Coorong and Lakes area.

- all cottages are self-contained. Need to bring food and drink for own lunch and dinner.
- breakfast provisions optional.
- guided tours of the station buildings available.
- our phone number (08) 8574 0043 fax (08) 8574 0065 e-mail: info@poltalloch.com.au

Coorong National Park (day tours can be arranged) and bird-watching. We should have our website going very soon - end of the week at the earliest, maybe next week. It'll be www.poltalloch.com.au

and Other Places to Visit in South Australia**CLARE and the CLARE VALLEY**

Beautiful valleys, old towns, Great Red Wine

SOUTHERN VALES and VICTOR HARBOUR

South of Adelaide, rolling hills, great wine, amazing beaches

(both of these are better than the Barossa Valley and Handorf unless you like leider-hosen, bell ringing and other kitsch)

MT REMARKABLE, JAMESTOWN to CLARE

Accessible Flinders Ranges, Red Gums, sleepy country towns.

Anywhere where else you go.. some of the best beaches you will find anywhere, sharks to match and plenty of fishing.

WEATHER

November-December

Warm to Hot but dry. Evenings still mostly cool. ENJOY!

Great Australian weather info

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Sat, 02 Nov 2002 08:11:43

for those who go to Australia for the eclipse, here is a great site for weather info www.weatherzone.com.au Klipsi

From: Fraser Farrell

And for those of you who are reluctant to 'sign up' for anything because of privacy and spamming concerns; see Weatherzone's primary source of information at:

<http://www.bom.gov.au/weather/sa>

Browser-neutral too...although you will need Java to see the radar & satellite image animations.

Ceduna is in the Western Agricultural forecast district (and faces the West Coast ocean forecast district). The eclipsed parts of the

(Continued on page 40)

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Stuart Highway, Woomera Prohibited Area, and Roxby Downs road are all in the Northwest Pastoral forecast district. Lyndhurst is in the Northeast Pastoral forecast district.

As per standard meteorological practice all temperatures refer to measurements inside Stevenson Screens. Temperatures in direct sunlight or on the surface can be much higher! American readers should also note that we use degrees celsius in forecasts...so don't wear your thermal undergarments if they're predicting 30 ; -)

Long-range forecast for most of Australia is for the current drought to continue for several months. Ceduna got about half its average winter/spring rainfall this year. Andamooka and Lyndhurst have had no significant rain since mid-2001.

A low altitude dust haze is now evident at many inland locations. The majority of particles are forward-scattering and their light is unpolarised. The haze is most obvious towards the direction of the sun. A faint haze halo can also be seen around the rising/setting moon.

The approximate loss of stellar magnitude at low altitude is now:

altitude (degrees)	extinction
8	0.6
6	1.3
4	2.3
3	3.6
2	5.2
1	~8



based on visual observations of Venus setting on clear Outback nights. Reddening only becomes evident below about 3 degrees.

Fortunately the sun doesn't realize that it's supposed to be past solar maximum, so the corona should still be rather bright and able to punch through the haze during totality. Probably similar to what was seen at the 1999 Aug TSE, or the 1999 Feb annular? Ceduna has almost no haze over the sea there. cheers, Fraser Farrell

Australia

From: Fraser Farrell To: Rybrks1@cs.com Cc: eclipses <SOLARECLIPSES@AULA.COM> Date: Fri, 08 Nov 2002 14:47:44

Ray,

>Thanks for the temperature road info, Fraser. More importantly how were the clouds to the Southwest at altitude 6 degrees?

Fairly solid cirrus at Wednesday sunset because a cold front was passing to the south of us. Thursday sunset was scattered cloud, with the sun visible through some dust haze.

>Koolymilka does have a road very near centerline that runs parallel to it, It might be worth the \$30 ?? US ? Aus? to have that advantage.

That road is irrelevant. You will not be permitted to move outside of the designated site at Koolymilka. You will also be taken in and out by shuttle buses from Woomera; no visitors cars will be allowed in. These conditions are not negotiable. See my Location Report for the Woomera Prohibited Area.

The police and military patrols in the Prohibited Area have orders to arrest anyone found outside the designated site. The terrain offers few opportunities for concealment. And they have had lots of practice hunting down assorted protesters, and illegal immigrants who escape from the prison at Woomera.

Note that being arrested for trespass on a military facility automatically blacklists you with the Australian immigration and foreign affairs departments. So you could have trouble getting a visa for the 2012 Nov TSE.

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If you need mobility then stay on the public highways. The SA Tourism Commission are setting up off-road public areas on the Stuart highway, Roxby road and Lyndhurst. The speed limit on the roads by these areas will be reduced to 60 km/h. These areas will contain parking space, some shade, toilets, water supply, some St John Ambulance people, police etc. Probably some local community clubs/groups will also be there selling food & drink.

You can stop on the roadside in some other location; but you will be expected to look after yourself, and to deal with any emergencies yourself. Note the advice to tourists at www.eclipse2002.com.au.

Note also that the road roughly paralleling centreline between Purple Downs homestead and Andamooka homestead is now closed to public traffic. cheers, Fraser Farrell

Cellular Coverage in Eastern/Northern SA



From: Peter Tiedt To: Solar Eclipse Mailing List

<SOLARECLIPSES@AULA.COM>
Date: Mon, 11 Nov 2002 18:38:50

I have scanned a coverage map of cellular (mobile) phone coverage for Eastern and Northern SA.

This is available offlist - please send me an e-mail with

CELLPHONE COVERAGE

in the subject line and you will automagically receive the file by return e-mail.

The map is the coverage of Vodacom, coverage by MTN is nirtually identical. Coverage by Cell-C is limited to the major centres. Peter Tiedt rigel@stars.co.za Visit my website at <http://www.eclipse.za.net>

Help?

From: nick@atomic-productions.com To: SOLARECLIPSES@AULA.COM Date: Mon, 11 Nov 2002 22:06:46

Hello all, I hope this message finds everyone well. Although I've been lurking around the board for eight months now, this is my first posting and I'm looking for some help...of course, isn't that always the case. The first thing I should probably do is admit that I am an eclipse "virgin" but will be filming the Dec 4th eclipse as a news piece for National Geographic Today. I am also writing an article for The National Post (a Canadian daily) on Eclipse Chasers (Umbraphiles, Eclipsions et al). In this capacity I was hoping to interview (by phone) a couple of people who will be attending the Dec. 4 eclipse to get an idea of why there is so much enthusiasm. It's for the travel section so will concentrate on people who plan their trips around eclipses. If there are any Canadians traveling to Africa and reading this I'd be especially interested in talking to you (apologies to everyone else for the blatant Canadian bias). It will be a very light hearted piece and being new to this, I'm really just trying to get an idea of the lure, then let people know about the technical details of planning an eclipse trip. I'm sure after Dec. 4th I would write a much different article but they want the piece beforehand. I was hoping to conduct talk to people sometime this week and would obviously give anyone a call whenever was convenient for them. I'm not sure how the board works in cases such as this, but if you are interested, please send me an email to: nick@atomic-productions.com Thanks in advance and wishing you all clear skies. Nick Sutcliffe

From: Bill Kramer

I would be willing to talk to you about this "craze". I'm the webmaster at <http://www.eclipse-chasers.com> and veteran of nine total solar eclipses. This will be my 10th. Although not Canadian, I'm from Ohio - is that close enough? <grin>

You can reach me via email (bill@autocode.com or webmaster@eclipse-chasers.com) and on the phone (Eastern time) at 614-792-3900. All I ask is that if you use my name or an image from the web site is that you send me a copy.

An eclipse virgin, eh? Many of your questions will be answered in just a few weeks.... -Bill Kramer

From: nick@atomic-productions.com

Hello all, Firstly, can I just say WOW thanks to everyone for getting back to me. My enthusiasm for Dec 4th has just increased 10 fold and without having actually seen an eclipse yet I'm already pondering my plans for the 2006 eclipse. I'm currently down in Cape Town where a 56k connection is considered High Speed. Combined with the fact I'm getting my email directly off the server with no Outlook or equivelent, replying to you all may take a little time but hopefully you will bear with me. Thanks again to everyone that responded thus far. All the Best, Nick



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Zim visas for Brits

From: Mike Murphy To: SOLARECLIPSES@AULA.COM
Date: Tue, 12 Nov 2002 13:14:04

FYI, any British citizens travelling to Zim now need an entry visa.

----- begin extract form the FCO's guidance -----

With effect from 8 November 2002, holders of British passports require visas to enter Zimbabwe. Visas can be obtained from Zimbabwean diplomatic missions abroad, or on arrival at the port of entry into Zimbabwe. The current charge for a visa is 20.00 GBP or 30 US Dollars. Visitors are currently being given entry permission for thirty days. Visitors may apply to have this period renewed and extended if required. Since the extension of targeted sanctions, there have been isolated cases of British passport holders being denied entry to Zimbabwe on arrival. Those affected have mainly been connected with Non-Government and Aid Organisations but have also included normal tourists with connections to the government such as Armed Forces personnel and Police Officers.. We therefore recommend that all those considering visiting Zimbabwe should first check current entry requirements with the Zimbabwe High Commission, Zimbabwe House, 429 Strand, London, UK; tel: 020 7836 7755.

----- end of extract form the FCO's guidance -----

See the FCO's web site for the rest of the travel advice details: <http://www.fco.gov.uk/> or the text only version, straight to the country advice section: <http://www.fco.gov.uk/servlet/Front?pagename=OpenMarket/Xcelerate/ShowPage&c=Page&cid=1007029390590&to=true>

Clear skies - Mike in the UK 12.11.02

South Africa and Mozambique Time

From: Gerard M Foley To: SOLARECLIPSES@AULA.COM Date: Tue, 12 Nov 2002 15:57:58

Will December Civil Time in South Africa be UTC plus two hours? Will this be the case for the whole country and also for Mozambique?

Clear Skies Gerry <http://home.columbus.rr.com/gfoley> <http://www.fortunecity.com/victorian/pollock/263/egypt/egypt.html>

From: Jay.M.Pasachoff@williams.edu

I don't know about Africa, but I recently telephoned Ceduna, Australia, to find out the time zone there. At 7 am Eastern Daylight Time in the US, it was 10:30 pm in Ceduna--15 hours later. Jay Pasachoff

From: Govert Schilling

Gerry:
> Will December Civil Time in South Africa be UTC plus two hours?

Yes. Maximum eclipse will be around 08.20 a.m. local time.

> Will this be the case for the whole country

Yes.

> and also for Mozambique?

That I don't know for sure, but I'm pretty confident. You may want to check the following URL: <http://www.hilink.com.au/times/> --Govert <http://www.govertschilling.nl>

From: Klipsi

according to another source I have, Mozambique is UTC plus 2 hours.

and dont forget to add one more hour if summer daylight time applies . Klipsi

From: Peter Tiedt

South Africa, Zimbabwe and Mozambique are all UT +2 No DST in these parts. Peter Tiedt

From: Fraser Farrell

Jay, Actually we are 15.5 hours -EARLIER- because Australian dates always begin before the same date in the US.

Which is why we can finish our New Years Eve parties, sleep for a few hours, then switch on the TV news and watch the timeball drop in Times Square for _your_ midnight... and make jokes about Americans being behind the rest of the world ;-) cheers,

2002 Total Eclipse links

Date: Wed, 6 Nov 2002 16:37:29 -0500 To: SOLARECLIPSES@AULA.COM, eclipse@hydra.carleton.ca From: FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov>

Greetings - I'm preparing some updates on the NASA Eclipse Home Page for the 2002 Total Solar Eclipse: <http://sunearth.gsfc.nasa.gov/eclipse/TSE2002/TSE2002.html>

In particular, I'm looking for web sites which will offer live webcasts of the total eclipse. Please check the links for live webcasts near the bottom of the page. Can anyone suggest any other links to include?

I'm also updating the 2002 eclipse links page:

<http://sunearth.gsfc.nasa.gov/eclipse/TSE2002/TSE2002txt/T02links.html>

Again, can anyone suggest any other links to include? I don't want any links to tours or eclipse trips because those are nicely summarized on Eric Pauer's web page: <http://www.bit-net.com/~pauer/eclipse02/2002eclipse02trips.htm>

I'm really looking for links which give educational information or additional details about the eclipse. Thanks! Fred Espenak

From: Bill Kramer <bill@autocode.com>

Hi Fred, Not doing a live feed, but I do have a site about this eclipse.

I will be adding pictures etc when we return.

<http://www.eclipse-chasers.com/e02/ec12002.htm> Bill Kramer webmaster@eclipse-chasers.com

PS: Best of luck in South Africa! I will be just north of you in Zimbabwe.

From: "eclipse98" <eclipse98@earthlink.net>

Fred, Hole in the Sky will have its 'annual' photo and writing contest again this year. Jerry www.holeinthesky.com

From: Klipsi

thanks, Fred , for the link to my near-live report and webcam. :-)

my current plan is to be "somewhere" along Stuart highway, between Woomera and Coondambo. Thanks to the car we'll have mobility. However, it seems that Telstra cellphone coverage does not cover that area, except immediate Woomera vicinity, outside of totality. Even if cellphone (for web access and upload) worked, it does not guarantee file transfer, since "phone operation" has not same coverage as "data services". Thus, I will most likely not be able to webcast 100% live, but still hope to upload a few pix in the hours afterwards. And anyway, my server could probably not support hundreds of thousands of hits in case of live webcast . But, you never know, maybe Telstra surprises us with lastminute extension of coverage area, or maybe I am in an unexpected target area where data service works. whatever, we'll see.... As for acquiring digital images, I'll have 3 video cams. One Sony digital8 with x25 zoom, zoomed close on the Sun. Another Sony DV cam , wider-angle, to catch horizon, Sun and Mercury above. And finally, my Sony laptop PC has in-built webcam, which I'll run to record wide angle view . Thus, hope to upload images and various video clips few hours later, with views from various cams ;-)

Clear skies to all !

hey, by the way... in one year we'll be en route to Antarctica, somewhere between South Africa and the Crozet Islands . (and I'll probably be seasick, heehheeh . One year..... wow ! Klipsi

(Continued on page 44)

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From: Starfield Scientific

I will be posting info soon on an eclipse flight over Antarctica in 2003. All those interested should email me directly and I will attempt to confirm prices soon (it ain't gonna be cheap!). Regards David Finlay Starfield Scientific & Photographic Services <http://www.starfield.com.au>

From: Fraser Farrell

Reliable Telstra mobile phone coverage is available within a ~20km radius of Woomera, and within ~5km of Koolymilka (which is on centreline, inside the Woomera Prohibited Area). That's Telstra CDMA phone coverage - standard GSM Telstra mobiles and other carrier's mobiles WILL NOT WORK.

In addition, Telstra's claims of CDMA coverage at a location are based on their service crews being able to detect a cell station signal there. This is not the same as getting a signal lock of sufficient strength to permit a connection. I've actually gone to the region several times this year, with assorted mobile phones including Telstra CDMA's. The radii given above are the regions of useful connectivity in the Woomera region. Somewhat smaller than those suggested by Telstra's marketing department.

Therefore no eclipse location on the Stuart Highway has mobile phone coverage. Unless you use a satellite phone.

Similarly, Telstra CDMA is only useable to ~22km from Roxby Downs, ~15km from Andamooka, and ~20km from Leigh Creek. Telstra GSM digital only works out to ~10km from Roxby Downs. Therefore centreline in all of these regions doesn't get mobile phone coverage either.

You can occasionally get a signal at greater distances - but it is not reliable or stable. And with thousands of metal surfaces around centreline to absorb/reflect/scatter a phone signal, and hundreds of attempted voice calls and SMS in progress in these cells at any instant, I expect service quality on eclipse day will decrease.

Ceduna is the only place which will be getting any extra mobile phone capacity installed for the eclipse - for Telstra customers only.

BUT there may be an alternative. The Coondambo Fibre Optic Repeater Station (CFORS) is beside the Stuart Highway only a couple of km off centreline. You will have no trouble finding it...look for a pair of buildings set in a vast flat expanse of saltbush, with some big solar panels next to them ;-)

CFORS regenerates the signals in the Adelaide-Darwin fibre optic cable; which is Australia's main link to Asia and Europe. The cable is running at less than 20 percent of its full capacity. As well there is the Optus-owned second cable which also gets its signals regenerated here. Bandwidth is not an issue...

I would be astonished if the CFORS buildings did not contain some standard telephone connection sockets. But I expect you would need to be self sufficient for your own power needs, because the power available at CFORS is limited.

Contact Telstra (www.telstra.com.au) or Optus (www.optus.com.au) about the possibility of using your modem at CFORS. Telstra would almost certainly charge you for all bytes transmitted and received. This is their standard policy for Internet connections for businesses & special events. Optus do not charge for bytes transmitted, only bytes received.

Finally, all of your equipment must be capable of surviving ambient shade temperatures of 40+ C. Centreline on the Roxby Road was a relatively mild 30 C with a westerly breeze on Wednesday evening. Centreline near Lyndhurst yesterday afternoon was about 35 C. Little wind, but numerous "wurlies" (dust vortices), some rising to several hundred metres high. And it's not summer here yet. cheers, Fraser Farrell

From: Govert Schilling

Does anyone know about mobile phone coverage in the totality zone in South Africa, in particular along highway 525? --Govert Schilling <http://www.govertschilling.nl>

(Continued on page 45)

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From: Dale Ireland

Fraser When we were driving across Europe in 99 for the eclipse we were told to be cautious using and displaying our FRS 2way "walkabout" transceivers as they were illegal in some countries. These have a range of 5 to 10 mi. Are they legal without a license in Australia? What is the wattage limit. Dale

From: Gerard M Foley

U.S. FRS transceivers operate at UHF, a little above 450 MHz. Because of the restricted range of VHF, UHF and higher frequency devices, the rules regarding their use vary from continent to continent and country to country. In general those accepted for unlicensed use in one country are not permitted in another country. Dale's inquiry is quite justified. It is unlikely that African countries in general permit unlicensed U.S.A. FRS or GRS transceivers to be used.

Enforcement varies, but with current international politics being what they are, one is likely to get into a potful of trouble without meaning to. Gerry K8EF

From: Fraser Farrell

Dale, I don't know. Try our federal department of communications for the current regulations: <http://www.dcita.gov.au> cheers, Fraser Farrell

From: Peter Tiedt

Fairly close to the N1, coverage will be OK. However, as you get closer to the Kruger Park, coverage will diminish and eventually disappear.

- and it is not a highway ;-) It is an undivided hardsurfaced road (2 lane) about 8m wide. Peter Tiedt

From: Klipsi

>Does anyone know about mobile phone coverage in the totality zone in South Africa, in particular along highway 525? --Govert

check out <http://www.gsmworld.com/roaming/gsminfo/index.shtml> to find coverage maps worldwide for the GSM network, country by country.

most countries will have several competing roaming suppliers. Their respective coverage area is often quite different. Also, as I said previously, the area covered for phone calls is not automatically the same as for data calls (for webcasting from laptop). Also, your own GSM contract may have roaming agreements with only one, or none, of the local suppliers. But you can find on their websites if they offer some kind of prepaid service. When I was in Zambia last year I bought a local prepaid card and it worked fine. So just bring along your GSM phone, with the SIM chip, and see if it works, or buy locally a prepaid solution. Note: GSM is NOT the only system used, many countries have other systems that may have wider coverage area. Klipsi

From: Govert Schilling

Thanks very much! This helps a lot. --Govert <http://www.govertschilling.nl>

Pre-eclipse travel affliction

From: Vic & Jen Winter - ICSTARS Astronomy To: SOLARECLIPSES@AULA.COM Date: Thu, 14 Nov 2002 06:38:24

Gettinreadyitis: The state of mind where one develops a heightened state of anxiety and excitement in preparation for a trip. That condition is worsened by the expectation of witnessing an important astronomical event.

Symptoms include, but are not limited to: Sleeplessness; Distant gaze, Lack of focus and direction, Inability to concentrate and

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rampant, uncontrolled spending habits.

Those afflicted with gettinreadyitis can be seen aimlessly wandering their homes, offices and department stores seeking items they plan to pack, improved luggage configurations and gadgets which might come in handy on the upcoming trip. They are known to frantically telephone camera and video suppliers with last-minute equipment purchases and annoy their peers by gabbing excessively about their upcoming trip.

Cure: 1 Eclipse

From: David Makepeace

As I am leaving for Australia today this describes my life perfectly! I need my cure! David Makepeace Toronto, Canada UmbraLog 1257

Visit my website at <http://www.eclipseguy.com>

From: Peter Tiedt

You forget to mention that a relapse seems to occur every 173 days.

Peter Tiedt rigel@stars.co.za Visit my website at <http://www.eclipse.za.net>

Weather

From: rybrks1@cs.com To: SOLARECLIPSES@AULA.COM Date: Fri, 15 Nov 2002

Dear Fraser: Thanks for all your info notes in general.

Could you comment on the weather in general along the path from Ceduna inward keeping in mind that low to the southwest is the important view.

How is haze? Is Ceduna becoming a favored spot weatherwise? What about fires etc? Many of the SA sites are reporting 'conditions unknown'

Although we are still 19 days away it might not be bad to start getting a feel about conditions along the entire path to increase the odds in one's favor. Thanks again Raymond Brooks

Outback eclipse festival

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Thu, 14 Nov

hi just found this site <http://www.outbackeclipsefestival.com/> Klipsi

From: Klipsi

yo I just found another live webcast, from AFrica ! www.eclipselive.com

Klipsi

From: Klipsi

http://astronomy.swin.edu.au/solar_eclipse_2002/

From: Fraser Farrell

Tickets available at many Australian music stores - and online - although they are selling quickly.

Visited them onsite last Thursday, and spoke to the site manager at length. He has done these events before but not in the SA Outback. He commented how unbelievably hot and dry it was onsite - and this was with daytime temperatures in the low-mid 30's. Lots of the locals have told the construction crew these temperatures are mild compared to _real_ summer time out there. Note however that 10-15 percent air humidity really dries out the human body regardless of ambient temperature. Antarctic workers have this problem too.

Their "swimming lake" isn't happening. This was advertised in anticipation of rain falling to fill the lake near the venue. Most of Australia is afflicted by drought. Also they will not be doing performances during the heat of the day after all. This means more performances at night until ~2am(?).

Their venue is on the east side of Lyndhurst (between the town and the former railway line's embankment), and attendees will be camped east of the former railway line. Access is via temporary entrances off the Strzelecki Track. To alleviate dust -- and the site IS a dustbowl at the moment -- vehicle movement on site will be restricted, and water trucks will be employed.

Water tanks, and tankers to fill them, are scheduled to arrive there about now.

I was concerned to see their construction crew working in full sunlight in the hottest time of the day, many of them without hats. This brings a high risk of sunburn and/or heatstroke. The latter tends to strike suddenly; and if you're up a ladder or something at the time.... There's also a significant risk of burns caused by touching objects and surfaces (particularly metal) sun-heated to 100+ degrees C.

Several people have told them it would be smarter to get some temporary floodlighting put up, and work at night to get their large tents etc built. Otherwise they could be too fatigued by the construction work to run the festival itself effectively. So I hope the moonlit nights during the next few days will be put to good use!

And in related news: The town of Lyndhurst town is getting an extra water

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tank to supplement its existing modest supply (piped in from Leigh Creek).

The Leigh Creek "tent city" is not happening after all. Bring your own and camp at the local golf course. Businesses there will be open until much later than usual on Wednesday night because of the celebrations in town. The school is closed for the day too. The open-cut coal mine north of Leigh Creek normally works 24 hours/day, but there will be a hiatus between 7pm and 8pm (the first hour of nightshift) for safety reasons. The mine safety manager agreed with my opinion that it's not a good idea to be operating huge mining machinery while distracted by a 99.8 percent partial eclipse! cheers, Fraser Farrell

Help needed barring a miracle

From: Robert B Slobins To: "SOLARECLIPSES@AULA.COM" <SOLARECLIPSES@aula.com>
Date: Mon, 18 Nov 2002 17:25:24

Unless a miracle occurs, I will not be at the total eclipse.

I would like to get flash and coronal spectra videos or images with the assistance of someone on the path.

Please call +1 260 497 9060 or email 76630.2206@compuserve.com to discuss. Thanks for your help in advance.
Robert B Slobins



Changes to astronomy.trilobytes.com.au

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-chat <assa-chat@assa.org.au> Date: Fri, 15 Nov 2002 16:55:20

To all, A few changes to my eclipse web pages:

- Split the existing Location Reports for Stuart Highway, Roxby road into smaller sections to alleviate timeout errors.
- Minor changes to the eclipse circumstances page, the help page and the homepage.
- Added a new page on photography/videotaping for the eclipse virgins who keep pestering me about this topic. Often via phone calls at all hours of the day and night...
- Added a new Location Report for Ceduna.

On the To Do list this weekend: finish off the Location Report for Lyndhurst, and finish off the List Of Things To Observe At Night. cheers, Fraser Farrell

From: Fraser Farrell

To all, My Location Report for Lyndhurst is finally(!) online at <http://astronomy.trilobytes.com.au/2002/eclipse.htm>.

This completes the entire series of Location Reports that I intend to make public:

- Ceduna (and region)
- the Stuart Highway between Woomera and Glendambo
- the Woomera Prohibited Area
- the Woomera to Roxby Downs road (including Andamooka)
- the Leigh Creek to Marree road (including Lyndhurst)

There's also some eclipse photography hints for the first-timers. Plus updates to the help/FAQ page.

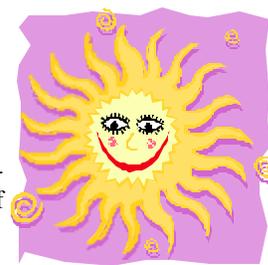
And for those of you who have been asking me about weather in Australia; see <http://www.bom.gov.au/weather/sa/> in the days preceding the eclipse for special forecasts. And pray to your favourite weather deity for clear skies on December 4.

I'm now going to have a nap for a couple of hours before despatching my children to school. I expect to see the TRANSMIT light on my uplink solidly illuminated when I awaken... ;-) cheers, Fraser Farrell

Weather in South Africa

From: Peter Tiedt To: SOLARECLIPSES@AULA.COM Date: Tue, 19 Nov 2002 19:18:29

Weather in South Africa is great - clear mornings and cloudy afternoons!!! been like that for 2 weeks now - about right for this time of the year. Peter Tiedt



How to observe from a boat?

From: Jean-Paul GODARD To: solARECLIPSES@AULA.COM Date: Fri, 15 Nov 2002 22:03:09

This will be our first cruise, and also first eclipse-cruise (Olympic Countess) You surely have a lot of tips to help us getting the best from this experience! If it's not fully eclipse related, send it private!! Cordialement, Martine & Jean-Paul ("We met in Moon's Shadow") tlouzeau@noos.fr jean-paul.godard@noos.fr

From: Gerard M Foley

I have observed the last three of my eight eclipses from ships. The first of the ships was the French car ferry Massalia, which ordinarily ran round trips from Marseilles to Casablanca, but in 1973 was chartered for a cruise to the coast of Mauritania, stopping at Madeira and Tenerife on the way. The second was the Royal Caribbean Majesty of the Seas. We were between Guadeloupe and Monserrat for the eclipse of 1998. The most recent was the Orient Lines Marco Polo, which was in the Black Sea for the eclipse of 1999 (and will be somewhere near the Olympic Countess this coming 4 December). One of my grandsons and I plan to be with you on Olympic Countess.

In every case we had no cloud (the Majesty of the Seas had to avoid cloud), and calm seas. Off the Mauritanian coast we had dust from the Sahara whitening the sky, so that the display of the planets and stars was not so dramatic as in the clear skies of the other two cruises. There was a little chop in the Atlantic on that occasion, and the ship's captain followed the advice I had from an earlier experience and kept the engines running until a few seconds before second contact, so that the ship had sufficient way for the stabilizers to be effective during totality. If this is not done, there is a certain chance that the ship may roll, even with reasonably calm seas. The Caribbean and the Black Sea were so calm that nothing of this kind was necessary.

A ship at its best is not absolutely steady, so that very long photographic exposures are not good. On the other hand, 1/50 second and shorter exposures at f8 with an 800 mm focal length lens on ISO 64 film record a substantial part of the corona.

Since photographs are only faint imitations of the eclipse, and some of the best photographers in the world have photographed eclipses and will do so for this one, do not spend a lot of time and attention on photography. The sight of the eclipsed sun in a clear sky is incomparable, cannot be recorded, and should be experienced to the fullest by the naked eye.

Hope to meet you on Olympic Countess Clear skies! Gerry

From: Evan Zucker

The most important thing is to make sure you're on the open deck and not in your cabin during totality!

Seriously, though, I learned one thing on my eclipse cruise in 1998. We had the choice of observing from the ship or disembarking at and observing from Aruba. Fred Espenak and I, among many others, disembarked, only to scramble to cover our telescopes from the rain which appeared between first and second contacts.

The lesson I learned is that, assuming you have a choice whether to observe on land or ship, choose the ship unless there is no doubt at all that the land will have good weather. -- EVAN

Eclipse safety warning (satirical)

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-chat <assa-chat@assa.org.au> Date: Mon, 18 Nov

To all, I'm getting a little fed up with the lawyer-friendly paranoia that continues to issue from the South Australian Department of Human Services & Health (DHS&H) concerning eclipse viewing. Now that it has been picked up and parroted by the mass media here, I'm getting flooded with emails and phone calls from worried people all over the country. I actually had to disconnect my phones this afternoon so that I could get some work done....

I've come to the conclusion that nothing _factual_ that we say will change the opinion of the DHS&H. But perhaps satire might work where facts have not? So below is my satirical version of the DHS&H warning.

(to our non-SA readers: Victor Harbour is a popular seaside resort about an hour's drive south of Adelaide)

"The Department of Human Services & Health warns that there is no safe way of travelling between Adelaide and Victor Harbour; for whale -watching or for any other purpose.

"People should not attempt to walk to or from Victor Harbour, with or without shoes, backpacks, water, a hat, or any other product not specifically designed for eighty kilometre journeys.

"These devices do not provide protection from exhaustion, sore or blistered feet, bee stings, snakebite, or getting lost in the frequent night-time fogs near Mt Compass.

"Other devices, such as Motor Vehicles, also do not provide protection. The Department advises that many people have been killed or permanently injured as a result of using Motor Vehicles to travel to and from Victor Harbour. Motor Vehicle deaths may occur suddenly and without warning. Motor Vehicle injuries may not become apparent until victims are revived after the event by medical personnel.

"There are, however, two indirect ways of seeing Victor Harbour's whales:

1. With reconnaissance or survey images. The Department of Lands, for example, sells aerial photos and satellite images of Victor Harbour. Some of these may include whales.

2. By asking a friend, who already lives there, to send you some whale-related postcards or other visual souvenirs of Victor Harbour.

"There are some devices known as Army Tanks which might be used to travel safely to and from Victor Harbour for whale-watching. People should seek appropriate expert advice before using Army Tanks for this purpose."

I feel a bit better now. Off the soapbox, and back to work....! cheers, Fraser Farrell

From: Starfield Scientific

Fraser is not the only one getting fed up. I've just heard that Channel 7 TV was the station distributing false information about eclipse shades, saying that they were totally unsafe to use to watch the eclipse.

This is having extremely serious repercussions.

Example - While in South Australia selling eclipse shades in the week before the eclipse I was going to be raising money for a young girl named Kaitlin Morris, from Tailem Bend SA, who needs a heart transplant. Kaitlin is only 8 years old and has holes in her heart.

I was going to try and raise \$10,000 for her family by selling eclipse shades, however after hearing about the story on Channel 7 they are hesitant to be involved. We had everything organised for the fundraising up until this point.

I have never had to try so hard to give away \$10,000.

The most difficult information to swallow in this whole situation is that as far as I know, Channel 7 will be the only TV station covering the eclipse live.

Therefore----> The less people using eclipse shades means more people

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watching it on TV-----> therefore higher ratings for them.

If you want to help with this situation then please send a fax to: The Executive Producer 60 Minutes FAX: +61-2-9436-0527

Please mention who you are and how much experience you have watching eclipses, and tell them that ECLIPSE SHADES ARE SAFE! Hopefully Channel 9 (the station that runs 60 minutes) will be more than happy to expose the dirty tactics employed by their rival station.

I want to get as many people as possible bugging the 60 Minutes fax line until they relent and do the story. I believe they will want to do it anyway because just last week they ran a story on the struggles of two heart-lung transplant recipients.

Who would have thought that an eclipse could affect innocent people in such a way? Trust me to get involved in this!
Regards David Finlay <http://www.starfield.com.au>

From: Starfield Scientific

...also, the number for Channel 7 in SA is +61-8-82694660. Ask to be put through to the news desk and then to the person who ran the anti-eclipse story. Feel free to tell them how stupid they are and how real people watch eclipses. A slightly miffed... David Finlay

From: Fraser Farrell

Channel 7 likes to run one-sided stories, and their "Today Tonight" current affairs show is pure tabloid in my opinion. Lots of stories about welfare cheats and dodgy builders and UFO sightings and such. The CNNNN show (<http://www.cnnn.com>) satirises them well.

The Tourism Commission is doing an eclipse press conference in Adelaide this Wednesday morning. Yours truly is explaining the astronomy -- right after the Department of Human Services and Health representative "explains" safe eclipse viewing.

It should be interesting :-) BTW I have now put my satirical safety warning online... cheers, Fraser Farrell

From: Robert B Slobins

I am convinced that government and media people want to be heroes. Perhaps such individuals did not receive enough attention or were invalidated as children. So they do this to make noise and get in the way.

The British would not leave Ralph Chou alone in 1999. That was a problem, as he had the Toronto Centre expedition to lead.

I remember in 1963, 1970, and 1972, the media simply informed the public about safe methods of solar observation: with developed black and white film, #14 welders glass, and projection methods. These eclipses occurred while school was not in session (7 March 1970 was a Saturday; the others were during summer vacation). There was no hysteria, no lock-ins of children in Manitoba in 1979. I do not recall even such nonsense in 1984, either.

I have had my experiences with the media over time when things in the sky were happening. The Americans were pretty sloppy--they were not interested in my answers during interviews. Indeed, when PBS' science correspondent interviewed Joe Rao on the Leonids on Friday, the correspondent continuously referred to Leonids as 'meteorites'.

I suggest contacting these individuals, and in doing so, come on strong and firm with them. cheers/rbs

From: Geoff

David, I too like Odille sent an email, as I don't have a fax machine. I'm not sure what good it would do since it says that story

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suggestions should be sent to the snail mail address (or fax). -- Geoff

From: Starfield Scientific

Geoff, if you can, send me the email and I will fax it to them myself. Looks like I'm getting a lot of support with this. Thanks for the help! Regards Dave

UPCOMING SOLAR ECLIPSE - CEDUNA 04/12/2002]

From: analog6@ozemail.com.au To: SOLARECLIPSES@aula.com Date: Mon, 18 Nov 2002

This message contains the email for 60 Minutes - I have sent them one regarding Channel 7's inaccuracies. Odille Esmonde-Morgan Canberra Australia

> From: "TCN 60Minutes, Mailbag" <60MinutesMailbag@nine.com.au> Subject: RE: UPCOMING SOLAR ECLIPSE - CEDUNA 04/12/2002 Date: 19/11/2002 9:40:20 To: <analog6@ozemail.com.au>

> Thank you for your email to the 60 Minutes mailbag. All comments whether positive or negative are carefully read and considered for the mail segment. Comments are also passed on to the reporter and producer of the segment. As this email address is for the mailbag segment only any story suggestions need to be put in writing and sent to the Executive Producer, 60 Minutes, PO Box 600, Willoughby, NSW 2068. Please note this is the email address for 60 Minutes Australia and NOT CBS 60 Minutes which is shown in the United States. Thank you. 60 Minutes

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Eclipse in South(ern) Africa

From: Matthew Poulton To: SOLARECLIPSES@AULA.COM Date: Mon, 18 Nov 2002 23:19:43

Despite having bought my plane ticket to Johannesburg some time ago, I have yet to finalise my plans for next month's eclipse - preferring if possible, to be flexible given the uncertainty of the weather. I have a couple of options for getting into the path of totality (probably close to the SA/Zim border), but I am unsure whether these will extend to last minute relocations which may be necessary in order to dodge the clouds! This may be a bit of a longshot therefore, but if there is anyone with similar plans with a spare seat in a vehicle departing from or near to Jo'burg from 1st December onwards, please feel free to contact me off-list.

Also, if anyone is able to comment on:

- (a) how far in advance can local weather forecasts be considered "reasonably" reliable
 - (b) the feasibility of a night time relocation (following a poor forecast on the Tues day!) within this part of the eclipse path,
- it would be most welcome!! Thank you. Matthew Poulton

Severe thunderstorm today

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Tue, 19 Nov 2002 06:04:43

parts of South Australia , e.g.Roxby Downs , gets severe thunderstorm today... ;-) Olivier "Klipsi" Staiger

From: Fraser Farrell



No surprise there. Wet Season has begun in northern Australia; and the thunderstorms that emerge from this (via "upper-level disturbances") are a major source of rainfall for Roxby Downs. The other major source is cyclones from the Indian Ocean, when they disintegrate over the Great Sandy Desert and spew their moist clouds in all directions....

The cold fronts that sweep in from the Southern Ocean typically produce little rain at this latitude, but may cover large regions with cirrus.

Incidentally it's not considered a _real_ thunderstorm by the locals unless it drops hailstones that dent cars, or floods out the roads, or something equally dramatic. A couple of thunderstorms in 1986 put the airport underwater, for example... ;-)

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Lots of cloud over Adelaide when I was there today, but only a few spots of rain so far. cheers, Fraser Farrell

From: Maxine & Michael

We did have a thunderstorm in Adelaide early November. But Nope, nothing in Roxby. It is a long way from Adelaide - over 500 kms. I just spoke on the phone to my friends in Roxby (I teach a young boy there the violin by telephone) Maxine

From: rybrks1@cs.com

Dear Fraser: Keep those weather reports coming. Are you favoring Ceduna or the eastern part of the path?

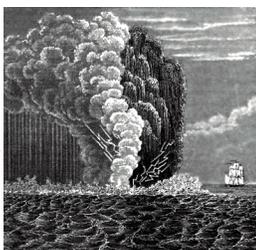
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Earnestly interested in a "Local Yokel" report as they say. We Yanks won't even remember that Lows spin CW with all the excitement coming! Ray Brooks

From: Maxine & Michael

A report in today's paper said that Blinman area, close to the path in the north has had 6mm of rain since September 2001. Yes That IS 2001, not 2002

- Maxine's web site is <http://ching.apana.org.au/~oliri/>



Electricity in South Africa

From: Peter Tiedt To: SOLARECLIPSES@AULA.COM Date: Thu, 21 Nov 2002 18:34:07

Just for completeness, electricity in southern Africa is 220v 50Hz

Plugs are 15 amp, with 3 round pins, an earth of about 9mm diameter, and live / neutral of about 7mm. AFAIK this is unique in the world.

Zimbabwe plugs are the same as British, and Botswana (I think) the same as SA.

Mozambique ???

Also for completeness, we have one other similarity to the Aussies (shudder) we also drive on the left. Can't resist saying that Ireland !!!! beat them at rugby :-))) Peter Tiedt

From: Bob Morris

So South Africa is 50 Hz.

As I said, "cheap" commercial 60 Hz stuff with motors or transformers, will burn out on 50 Hz.

BTW, 50 Hz stuff runs fine on 60 Hz so Brits who come to North America and downconvert will be OK.

I lived in the UK for 3 years and knew many North Americans who burnt out hairdryers, fans etc. even though the voltage was converted properly.

Transformerless stuff (new radios, camcorders etc) work fine. Bob Morris

Electric adapter for South Australia

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Wed, 20 Nov 2002 20:39:48

question: is the electric power jack for Australia the same as in USA, 2 flat prongs, parallel ? It seems to me that I saw a jack that has 2 flat prongs, however not parallel, but in an open V shape. Can someone from South Australia confirm this , please ? thanks Olivier "Klipsi" Staiger Geneva Switzerland tel +41.79.449 4630 <http://eclipse.span.ch> klipsi@bluewin.ch

From: Jay.M.Pasachoff@williams.edu

The Australian plug is unique to that region of the world, and is indeed with two flat prongs (similar to American prongs) but in an open V shape. The ground is another prong oriented vertically to the open side of the V. Jay

From: imoon@interlog.com

I am in Australia now using adapters with the two flat prongs in an open V shape. Not the same as North America! Also - A/C is 220/50 not 110/60.

David Makepeace UmbraLog1257

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From: Assoc Prof J R Huddle

Apparently, Australia does not use the same one we use here in the USA. Go to, for example <http://www.walkabouttravelgear.com/elect.htm> or any of the other sites you get when you do a search for "travel electrical adapters"
Jim Huddle

From: analog6@ozemail.com.au

No, it is not the same. 3 prong plug, the top 2 set at an angle to each other and the bottom upright one being the earth wire for earthed appliances. I will do a digital shot when I get home tonight and put it on my web page so all can go and have a look.

I have a large adaptor that I bought in a travel shop which does all other US/European/Asian plugs to our 220volt (for my Sony Mavica which has a US plug). I think from memory it was about \$25. Odille Esmonde-Morgan Canberra Australia

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From: Starfield Scientific

Don't forget that the water goes down the sink hole the other way too.

Sorry that isn't eclipse related but it's the first joke I've attempted in the last 6 months.

Also of note, we drive on the left side of the road. This is important to remember when there are semi-trailers going in the other direction. With the country in the grip of a massive drought there is a lot of wildlife out on the roads at night looking for food. It would be advisable to plan all your driving during the day time. Even though it is going to be deathly hot, it's better than putting a bull roo through your windscreen.

And don't pat the fauna...it bites! Regards David Finlay

From: Fraser Farrell

Three parts to this long message:

1 - POWER

The Australian (and New Zealand) power plug & power point are unique and definitely NOT the same shape as the US or UK or any European equivalents. The only places in SA which are fitted with non-Australian power points and voltages are hotels with significant international clientele. The Roxby Downs Motel has them in its bathrooms. I'm told that the Eldo Hotel in Woomera also has them but this is unconfirmed. No hotel or motel in Ceduna has them.

I would strongly advise buying your power plug adapters BEFORE you leave home; because stocks in Adelaide are limited - and you can bet lots of naive eclipse tourists will be buying them after they get here so they can plug in their hairdryers or something. Moreover, most stocks here consist of adapters for Australian appliances to be plugged into other countries' power points.

Jaycar Electronics (www.jaycar.com.au) and Dick Smith Electronics (www.dicksmith.com.au) both sell a variety of adapters in their Adelaide city stores.

The standard Australian 10 amp power _socket_ can be sketched using ASCII characters thus:

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The upper left hole is Active. Upper right is Neutral. Both are angled at 45 degrees. Top ends of holes are 10mm apart, the bottom ends are 15mm apart. Lower hole is Earth. Its top end is 10mm from the bottom ends of Active and Neutral. All holes are

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(nominal) 7mm long and 2mm wide. The standard 10 amp Australian power plug has a 20mm long Earth pin, and 15mm long Active & Neutral pins.

Also note that Australian mains electricity is (nominally) 240 volts AC at 50 Hz. Appliances designed for the UK or similar 240 volt regions can be used directly with the help of a power point adapter. Others may require a transformer. US appliances for example WILL BE DAMAGED if plugged in directly, unless they are designed for 240 volt use too.

A surge arrestor is highly recommended if you're plugging in expensive equipment. Many transmission lines in SA are hundreds of kilometres long, and a thunderstorm (or geomagnetic disturbance) can influence line voltages at great distances. Much of the state is also tied into the national power grid, which covers about one third of the continent. In addition during hot weather most South Australian power networks are severely loaded; and a substation fault or a fallen power pole can trigger widespread blackouts or power transients.

The Netcraft Web Server Survey includes a graph of how often this happens for my place - where power supply is considered to be reliable. The URL below is for my main webserver. Each time there is a power failure exceeding the 10-minute endurance on my UPS, the webserver uptime drops to zero:

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http://uptime.netcraft.com/up/graph/?site=www.trilobytes.com.au&mode_u=on&mode_w=on&avg_days=30&submit=Redisplay+Graph

(note: long URL; may line-wrap in some email readers)

There is one pre-planned shutdown shown in that graph (memory upgrade) but all the others are power cuts. My best webserver uptime in the last 3 years is only 157 days... :-(

2 - MODEMS / INTERNET

Modem users should also note that Australian telephone signals and voltages and associated regulations are probably different from what you're used to. We do use a standard RJ-11 connector & socket for phone lines, but the dial tone here, for example, is two short bursts of 17Hz tone, repeated every ~2 seconds. You may need to configure your modem to ignore dial tone when dialling out. In addition, to receive AUSTEL certification, a modem must be able to withstand 240 volts applied through the phone line for 10 minutes without starting a fire.

Large areas of rural Australia are also afflicted with Pair Gain telephone lines. In effect, one physical phone line gets electronically split into two (or more) phone services. Pair Gain is adequate for voice, but fax and data transmission will be very slow. Many of my customers on Pair Gains are stuck with 14.4k Internet connections - and even that required a lot of tweaking to make it happen at all. Incidentally each "service" on a Pair Gained wire still gets full line rental charges applied. Our federal opposition minister for communications (Senator Kate Lundy) has an excellent description of this scandal on her website <http://www.katelundy.com.au>

Internode (<http://www.internode.on.net>) are one of the best Internet providers in the state, and they are very familiar with the needs of travellers and local telephony problems (and non-Microsoft computers too). I use them when I'm travelling. Their national dialup number works fine in Ceduna and Roxby Downs. It's an untimed local call too. I didn't get an opportunity to test other locations.

3 - WEATHER

Marree, which is about 80km north of Lyndhurst, actually received its first rainfall for two years earlier today. 0.2mm. You read that right - one fifth of a millimetre! The weather observer there probably would have dismissed it as ant sweat or something, except that there were dark clouds overhead at the time.

There are reports of kangaroos and (feral) camels being killed in large numbers, as they lick the night-time dew from the cold steel of the Outback railway lines and the cattle grids on the roads. As we've said already; do your long distance driving in the daytime. It's hotter, but at least you can see the camels or kangaroos or cattle before you hit them....

(Continued on page 55)

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The Bureau of Meteorology will be providing special eclipse forecasts, including maps of predicted cloud cover, beginning Friday 29th November. These will be sent to TV, radio, newspapers; and will be posted on the BoM website under <http://www.bom.gov.au/weather/sa>

Note that the Ceduna and Woomera weather radars cover much of the eclipse path and can be used to identify rainfall zones. Hopefully all they will show on Dec 4 is the usual surface "ghosts", or flocks of migrating birds!

One major concern is the Japanese GMS-5 meteorology satellite, which from its geostationary orbit provides hourly visible & IR images of Australia. It is well beyond its design lifetime and noticeably degrading. There is no replacement for it in orbit; although there is an arrangement to re-position one of the US NOAA satellites if necessary. Given the nature of geostationary orbital mechanics this is not expected to be a fast process. If GMS-5 dies suddenly then the only satellite images of cloud cover will come from the occasional passes by non-geostationary NOAA satellites.

To the many of you asking me "does Ceduna or the Outback offer clearer weather?" I can only say to watch the weather forecasts. The Bureau has a lot of trouble predicting cloud cover here except in the most general terms. Basically because a lot of SA weather comes out of the deserts, where there are few weather observations, or out of the Southern Ocean where there are practically no weather observations. Many times I have cancelled public astronomy nights because of predicted overcast - and then watched it turn clear at sunset. The opposite has also happened!

Cold fronts and their associated cloud bands travel from west to east across SA. These bands rarely reach further north than Ceduna or Port Augusta during summer. The other major sources of cloud in December are thunderstorms drifting down from northern Australia's Wet Season, and (occasionally) Indian Ocean cyclones disintegrating over the Great Sandy Desert. These latter sources can put clouds anywhere along the path of totality.

If I was not already hired to be a tour chaperone, I would be driving to Port Augusta and then flipping a coin to choose my road ;-)

Finally, one bit of good news from our drought. It has greatly reduced the cattle population, which means far less Outback cattle poo than usual - which means far fewer flies! cheers, Fraser Farrell

From: McCann, Stephen

<http://www.powercords.co.uk/standard.htm#AUSTRALIA> may help a bit. Cheers Stephen

From: Fraser Farrell

And for those of you whose displays don't show the pipe symbol correctly, here it is again drawn with the letter i this time:

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Yes the Earth hole is vertical.... cheers, Fraser Farrell

From: Dale Ireland



Lots of my Sony electronic stuff says it will operate at 110-240v. My car's tachometer goes up to 8,000 rpm but it will not run there for too long. I wonder if 240v is pushing the US electronics or if a voltage converter would be better? Dale

From: Fraser Farrell

Most Japanese / Taiwan / China stuff that claims 110-240 volt operation is fine for either voltage. Just buy a plug converter; it will autodetect and adapt to the supply voltage. One of my customers has executives flying over from their California head office regularly, and they plug their US-sourced Toshiba laptops into power here without any concern. A couple of the staff here do the same when they visit head office.

(Continued on page 56)

T By contrast a lot of US-made appliances and electronic stuff seems to be built solely for 110 volt. And it amazes me how many American tourists will just plug these things into a foreign power point without a second thought....and destroy them. cheers, Fraser Farrell

S From: Dale Ireland

E I am surprised that most devices including computers don't have a problem with the 50hz vs 60hz. Older telescope clock drives would run a little slow. Dale

From: Bob Morris

What frequency is South Australia? If it's 50 Hz, watch out!

If you run most el-cheapo hair dryers designed for 60 Hz on 50 Hz instead, even if you convert the voltage, they will burn out.

2 The lower the frequency the more the energy loss in the core of a transformer or in a motor.

0 This happens all the time when people try North American stuff in the UK.

0 Anything "cheap" with a transformer or a motor will burn out cause they have marginal design. Bob Morris

2 From: Assoc Prof J R Huddle

Most dual-voltage appliances, like camcorder battery rechargers, were designed with the notion in mind that people might want to travel with them. It is not quite the same thing as pushing the design limits on a car engine. If your dual-voltage appliances break down because you used them the way they were designed to be used, you should seek compensation from the manufacturer. I've never had any trouble with camcorder rechargers, despite taking them all over the world, and even to some places where I was reasonably certain the electrical power was neither 110 nor 240.... Jim Huddle

From: Assoc Prof J R Huddle

That's because those computers run on DC. AC from the wall charges a battery in a laptop, and the battery runs the computer. The battery charger is designed to accept a variety of AC sources. Telescope drives, especially older models, may derive their clock speed from the frequency of the AC power. 110 Volt, 60 Hz power from a receptacle in your house can be a little high or a little low in voltage, but it has to be pretty close to dead on 60 Hz, or else the energy company can have pretty serious phase problems. (If you add two waves of slightly different frequencies, as the energy companies have to do when they get energy from more than one source, you get beats.) For this reason, I'm pretty sure that even in regions where the voltage isn't always reliable, the frequency is pretty darn close to whatever it is supposed to be. Jim Huddle

From: analog6@ozemail.com.au [Save contact](#)

Yes, My previously mentioned Siny camera charger is rated 110-240v, and I have been plugging it into Aussie power via the converter plug for 2 years and it is just fine. dille Esmonde-Morgan Canberra Australia

From: Fraser Farrell

I'm told Canada also uses 110v / 60Hz ?

> If you run most el-cheapo hair dryers designed for 60 Hz on 50 Hz instead, even if you convert the voltage, they will burn out. [etc...]

Correct. And motors (telescopes, tape recorders, etc) will spin at the wrong speed... This shouldn't be a problem for appliances

(Continued on page 57)

that are genuinely designed to run on 240v / 50Hz as well.

T Some (eg power supplies for desktop PCs) may have an inconspicuous switch. Others such as laptops and camcorders use an auto-sensing power pack which delivers DC to the appliance.

S Also of note for telescope drives: the sky here spins CLOCKWISE. Some telescopes don't do this easily. For example most Celestrons sold during the 1990's required an expensive "optional" (Celestron's description) hand controller to enable use in the Southern Hemisphere. And unlike older Celestrons you couldn't simply rewire the RA motor. Little wonder that Meade massively outsold them here solely because of their simple N-S switch!

E Polar alignment in this hemisphere is never easy. It's worse in December because the Southern Cross, used in the most popular alignment methods, is upside down on the southern horizon until about midnight. And from latitudes north of Port Augusta, Gamma Crucis is no longer circumpolar. See the notes I wrote for Adelaide Optical's customers on Polar Alignment:

<http://www.adelaideoptical.com.au/scopes/polefind.htm>

2 And to confirm Peter Teidt's comment; Australia drives on the left for the same reason South Africa does. Both countries (and Zimbabwe too) used to be part of the British Empire.

0 Mozambique, I suspect, would drive on the right like all the other ex-Portugese colonies?

0 Forgetting to drive on the left in Australia occasionally kills tourists. Typically these happen because of about-to-collide-with-another-vehicle scenarios; when the tourist driver's instinctive "keep right" reflex takes over and makes a bad situation worse. Gene Shoemaker, for example, was killed when he was surprised on a blind curve (on a lonely single-lane track) by an oncoming vehicle. Its local driver instinctively swerved left to avoid collision; Gene instinctively swerved right - and crash!

2 Also note that road trains do not stop or manoeuvre easily, therefore they ALWAYS have right of way regardless of what the Road Traffic Act says. Being assertive or confrontational with one will be a stupid decision. You're up against something ~100 times heavier than your car. And it's distressing for the emergency services people to collect your remains afterwards with forceps and tweezers...

If you're overtaking road trains, allow about one kilometre of clear road to do it in. Note that mirages on the road can easily hide oncoming traffic (and animals) until they are a few hundred metres away. If in doubt, don't overtake. It's also not a good idea to linger close to the rear of a road train; so if you're not intending to overtake then drop back at least 100 metres.

If the road train runs over a cow or a kangaroo, your first indication may be the mangled carcass suddenly emerging before you from under the train's rear wheels. Road trains can also lose large chunks of their tyres at any time. This won't affect them much, but hitting a big piece of "truck peel" at speed can do significant damage to a car. I tore a wheel off my previous car when it ran into a "truck peel" one night. It certainly gets the adrenalin going, trying to stop a fully loaded car and trailer from 100 km/h, with ruptured brake hoses, and a front wheel missing.... cheers, Fraser Farrell

Road train

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Date: Fri, 22 Nov 2002 03:54:14

Jay wrote: You might define "road train" for the SEML.

ROAD TRAIN : big truck with 2 to 5 (typically 3) trailer units; each unit 10-15 metres long, up to 3.5 metres wide, and loaded up to 5 metres high (measured from road surface). Total wheel count including the truck is 40-60 wheels. Total permissible gross weight up to 155 tons. Speed governors limit its top speed to 100 km per hour.

Note that some dodgy operators deliberately overload and/or disable the speed governor.

Some road trains are pictured in my Stuart Highway report: <http://astronomy.trilobytes.com.au/2002/stuart-highway.htm> Fraser



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Farrell

From: analog6@ozemail.com.au

Further to Fraser's reply, these things are HUGE and the 'undertow' from them is capable of sucking a small vehicle under the wheels of the following trailers. Pass (in either direction) with care and caution and preferably at low speed (yours, not theirs). They really are behemoths and not to be treated lightly. Odille E-M

From: Donald Watrous

A lot of these bits of advice (road trains, drive during the daytime, be serious about carrying water and using sunscreen) are familiar to me from having read *In a Sunburned Country* by Bill Bryson. It's a humorous, fact-filled sometimes frightening and sobering description of the land and its people. It would make good background preparation or a good carry-along for those traveling there for the eclipse.

You can listen to Bryson read a bit of it at http://archive.salon.com/audio/nonfiction/2001/06/19/bryson_sunburned/index Is this book known and/or popular in Oz? Clear skies! Don

Mozambique drives on LEFT

From: F.Podmore To: Solar Eclipses Mailing List <solareclipses@aula.com> Date: Fri, 22 Nov 2002 14:46:24

For those who may be going to Mozambique for 4 Dec, another correction to Fraser Farrell's recent posting. Mozambique drives on the LEFT, probably because it is surrounded by countries that all do that.

You can check: www.fia.com/tourisme/info-pratic/lefthand.htm www.travel-library.com/general/driving/drive_which_side.html www.africaguide.com/country/mozamb/info.htm Enjoy your trip. Safely. Francis

Travel safety concerns

From: Dave Balch, The Stay-at-Home CEO To: soLARECLIPSES@AULA.COM Date: Fri, 22 Nov 2002 04:31:28

I will be traveling from the west coast of the U.S. through Atlanta to South Africa. I must say that I am a little apprehensive... any thoughts on possible security issues due to the current world situation?

From: Mike Simmons

Which are you concerned about, Atlanta or South Africa? Just watch out for the usual pickpockets and such, as always. In my opinion, there are no more dangers now than before. I traveled from the west coast to Iran via London and back a few months ago (United and Iran Air). Other than additional security in the US it was very much like the same trip in 1999. Many people feel safer because of the added security. Be aware as always but don't let concerns spoil your trip. Have a good time! Mike Simmons

From: Vic & Jen Winter - ICSTARS Astronomy Buy travel insurance. jen

From: Klipsi an average of 8'000 people die in France in traffic accidents each year. Stay out of France and you're safe ! (bad joke, sorry) more seriously: No f... terrorist is going to stop me from seeing totality ! God bless ! ;-) Klipsi leaving in a few hours.

From: Jörg Schoppmeyer and around 7300 in Germany, mainly near the switzerland boarder, I think the swiss drivers with their big and fast cars are not used to the speed on german highways...:-) (worser joke) be carefull on the roads in SA and Australia, you have to drive "on the wrong side".... (left-hand drive) Joerg

From: Harvey Wasserman Be careful going through Atlanta! Harvey

From: Kidinvs@aol.com Yes... I would be very carfull as you pass through Colorado !!!

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2**The sky spins CLOCKWISE - no!!**

From: F.Podmore To: SOLARECLIPSES@AULA.COM Date: Fri, 22 Nov 2002 14:04:23

Re one part Fraser's email, I beg to differ...

On Fri, 22 Nov 2002, Fraser Farrell wrote: Also of note for telescope drives: the sky here spins CLOCKWISE. Some telescopes don't do this easily. For example most Celestrons sold during the 1990's required an expensive "optional" (Celestron's description) hand controller to enable use in the Southern Hemisphere. And unlike older Celestrons you couldn't simply rewire the RA motor. Little wonder that Meade massively outsold them here solely because of their simple N-S switch! <snip>

Yes, it spins clockwise looking south, for east is then on your left, where things rise. But Turn yourself round and look north, and east is on your right, so the sky (and Ursa Major etc) rotate ANTICLOCKWISE, around the north celestial pole which is below the horizon at an angle equal to the observer's latitude.

[Golly, I hope I'm right - Fraser is such a mine of correct info on most things... My abject apologies if I've made a mix-up!!] Francis

From: Barrie W. Jones

When I went to Botswana in 1986 to photograph Halley's Comet I had to put an extra spur gear in the equatorial mount so that it went the other way when the top end of the polar axis pointed towards the south celestial pole. Barrie Jones

From: Starfield Scientific

Yes, but why on earth would you bother looking north when most of the time there is nothing there? Granted there is no bright star at the south celestial pole, but the vast glorious area around the southern cross more than makes up for it. If you hear anyone swearing at night at Ceduna it's me trying to polar align my lx200 on sigma octans.

Because you can't see the north celestial pole, and the fact that the southern cross is like the hand of a big clock (wh ich I guess it really is), your mind will naturally perceve the sky as spinning clockwise.

Keep an eye out for the LMC & SCM. You may first think they are slow moving clouds...I suppose in a way they are, except they are clouds of stars. The tarantula nebula in the LMC is situated in a good position for observing this time of year. Don't forget 47 Tuc next to the SMC too.

I remember as a kid a question in Trivail Pursuit that asked "What is the closest galaxy to the Milky Way"? Being an eager astronomer even at that age I proudly answered the LMC, only to be told that the answer on the back of the card was Andromeda. You can imagine my frustration.

Be warned also that Orion will be upside-down. I have seen a few yanks almost fall over when looking at it in the southern sky for the first time. Don't worry, people wont laugh at your amazed expression...much.

Just about the whole path of totality will have amazingly dark skies at night. Enjoy the southern stellar wonders while you can cause you can't take them with you! Regards Dave F.

From: Fraser Farrell

But Francis, why would you want to look at the northern sky? We both know that most of the good stuff in the universe has a negative Dec ;-)

I should have been clearer. The sky here spins clockwise around the celestial pole that you can see. Which is the one you're aiming your polar axis towards. Although sigma Oct is a pathetic excuse for a pole star, almost lost in a dim and undistinguished starfield. The Magellanic Clouds are much easier to spot...

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Ursa Major's brighter stars are too far north to be seen from the Australian end of the eclipse. The more southerly portion of Ursa major scarcely rises at all; and December is the wrong time of year to see it.

Orion rises soon after sunset - Rigel first - alongside Canis Major to its right. Overhead you will see Grus, Phoenix and Sculptor. Several interesting and reasonably bright galaxies can be found here.

Pavo is in the southwest sky, with the distinctive "kitchen chair" of Ara below it. Be sure to check out the great globulars NGC 6397 and NGC 6572 and the spiral of NGC 6744; and (if it's bright) the very red variable V Pavonis.

You may also see the tail of Scorpius, and the Sagittarius teapot to its right, both just above the sunset glow and setting early. Capricorn (with Uranus & Neptune) is high in the northwest.

High in the south are the Magellanic Clouds with Reticulum extending northwards between them. Even binoculars will show some of the Magellanic nebulae & clusters (eg: NGC 2070 and NGC 1671/1673) and a small telescope can easily spend hours touring around here. Reticulum also contains some fairly bright galaxies.

If NGC 362 was anywhere else in the sky it would be considered a fine globular cluster. It has the misfortune of being close to the distractions of the Small Magellanic Cloud, and the mighty star ball of NGC 104. Is NGC 104 (a.k.a. 47 Tuc) better than Omega Centauri? Is Pepsi better than Coke? The only point of agreement among southern astronomers is that they both make M13 look rather ordinary in comparison.

Achernar can be seen high to the southeast, and from it the entire length of Eridanus can be traced to its end near Rigel. Along the way is the Fornax Galaxy Cluster and the yellow dwarf - red dwarf - white dwarf triple star of omicron2 Eridani.

Later in the night - after your post-eclipse celebrations perhaps - the great swathe of Milky Way from Puppis, through Vela and Carina, to the Cross rises high enough to be seen well. This part of the sky is littered with objects...just scan along it and enjoy whatever you find!

And if you can point a telescope towards Beta Crucis, look carefully in its vicinity for the variable DY Crucis. A star so incredibly red when it's at maximum that we call it Ruby Crucis... cheers, Fraser Farrell

Webserver speedup...

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-chat <assa-chat@assa.org.au> Date: Fri, 22 Nov 2002

To all, After running my server's uplink at its maximum capacity of ~300 MB/day since Monday; I have now temporarily moved "astronomy.trilobytes.com.au" to another server with 50 times as much bandwidth. A lot of the traffic increase here, I suspect, is due to www.ceduna.net getting "Slashdotted" a few days ago and its visitors following the link from www.ceduna.net to my site.

The move will not only improve the speed of the eclipse pages. It will also allow the other websites hosted here to be reachable again - by removing 90 percent of the current traffic on my internet link!

And the TRANSMIT light will have a chance to cool off, in between my tons of outgoing emails... ;-))

Despite the high traffic, my webserver was still only reporting a system load of about 0.07...not bad for a computer that was discarded by its former owner as "too slow" to run Word 97. cheers, Fraser Farrell

Sawubona

From: Jean-Paul GODARD To: solarECLIPSES@AULA.COM Date: Fri, 22 Nov 2002 19:10:21

The inflight magazine from SAA (Sawubona) pictures the "Limpopo eclipse" You have a copy of front page at <http://mapage.noos.fr/eclipses/sawubona.jpg> Cordialement, Martine & Jean-Paul

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E**Coming to Ceduna**

From: Mick Wolf
To: SOLARECLIPSES@AULA.COM
Date: Fri, 22 Nov 2002 11:36:22

Who is coming to Ceduna? It would be nice to meet you all in 10 days time Mick.

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2**More bad media coverage...**

From: Geoff To: SOLARECLIPSES@AULA.COM Date: Sat, 23 Nov 2002 00:02:53

Well folks, They've done it again. Sydney Morning Herald has published an article, in which Ophthalmologists (?) are advising that kids shouldn't watch the eclipse, and that people are advised to "watch the eclipse live on the internet" just to be safe. In particular, regarding eclipse shades (You'll love this David..) they say and I quote: "the college and the Optometrists Association warn that these glasses should not be used". I can't find this article online, but there's another article from the same issue of the paper (23rd Nov) online about eclipses in general.. <http://www.smh.com.au/articles/2002/11/22/1037697867672.html> --Geoff

From: Fraser Farrell

Bah humbug...any kid knows that watching fireworks on TV isn't the same as being there. That's the analogy I use when I speak to kids.

And while people are going hysterical about easily preventable risks and harm; what about the risk of exposing Junior to all the porn and terrorism handbooks on the internet? Not to mention all those evil MP3-swapping services and warez collections.... ;-)

Seriously I hope Darren picks a good spot for the CSIRO webcam. I can imagine one teensy little cloud hiding totality at the webcam - while the rest of Ceduna (and Australia) enjoys a clear sky! And all these newspapers saying the next day "the eclipse was clouded out in Australia".

I also note that the company who own the Sydney Morning Herald are sending their South Australian crew to Ceduna anyway. I have an interview with them on Monday. Perhaps I should ask if they will be watching it via webcam too?

Misc.

From: klipsi@bluewin.ch To: SOLARECLIPSES@AULA.COM Date: Sat, 23 Nov 2002 12:18:59

hola from Klipsi, typing a message from the free internet access at BA lounge in Johannesburg airport. Safely arrived this morning from Amsterdam with KLM. Great flight ! Crossed the 2005 path of annularity when flying over Lybia. Crossed the 2006 path of totality over Lybia, too. Saw some nice lightning when over Kongo, at night. Chasing storms in a B747 ? hehehe... Had a special smile when flying over Lusaka, crossed the 2001 path of totality. Saw lake Kariba . Finally crossed the 2002 path of totality. At Johannesburg airport, WITHIN the transit area, found that there's a hotel,so did not need to get out of airport to the Interconti. Cost is only 23 US\$ for 6 hours use, perfect for a shower and a nap after long flight. Took a shower and slept a few hours. Now , fully awake and ready to hit the road... err.. the air, in a few hours more, boarding QF64 to Sydney. Exactly one year to the day before the Antarctica eclipse ! Hope to meet with captain and investigate routing, see islands south Indian Ocean, maybe icebergs, maybe Antarctica (doubt it)? Sydney watch out, here I come ! Another question: does anybody on this list own a... Mitsubishi Eclipse ???

From: Stephen Russell Welcome to Sydney. Cheers, Steve.

From: Starfield Scientific I own a Mitsubishi Sigma...you want to buy it? It's going cheap! For those of you who are interested (and some who already know) Croydon Travel in Melbourne regularly charter a Qantas jet to fly over Antarctica. I have been trying to squeeze more information out of them about their planned eclipse flight next year, but have found them a little bit slow. I offered to advertise their flight for them at my stalls selling eclipse shades at Westfield Marion, and Ceduna, but they don't appear to be interested. Fine! That shouldn't hold me back from informing everyone here about the flight though. I have also attempted to get them to send me an attachment of the prices for the Antarctic eclipse flight in 2003 without success. All I know is that the price contains a lot of numbers, more than I can afford even if I supply them with shades. Daniel Fisher from Germany has already informed me that he has been in contact with Croydon Travel, so I may be repeating information that people on the SEML already know. My apologies of this is so. Croydon Travel details are: <http://www.antarcticaflights.com.au/> contact: gayle.browne@croydontravel.com.au Regards David Finlay <http://www.starfield.com.au>

NEWS ARTICLE RE WOOMERA VISITORS

From: analog6@ozemail.com.au To: SOLARECLIPSES@AULA.COM Date: Tue, 26 Nov 2002 01:00:02

The following article appeared in today's Adelaide Advertiser - I know some people were going on tours which planned to watch teh eclipse from Woomera. I'm starting to get excited now! Odille Esmonde-Morgan Canberra Australia

Top secret seats for eclipse tourists By REBECCA KER 26nov02

A SECRET area near Woomera Village will be opened to tourists for the total solar eclipse next week. Public access has been granted for viewing the rare phenomenon on December 4 from the Woomera Prohibited Area. Usually reserved for satellite launches and weapons trials, about 1000 overseas and Australian visitors will pay \$45 each to be transported to the site about 40 minutes from the village via buses, with the promise of premium conditions for viewing the eclipse. But site project officer Andy Lush said yesterday private vehicles were prohibited. "It is a site that sits on the centre-line of totality and it's about 800m long," Mr Lush said. "It has a very clear view out to the west and southwest with no vegetation in the way." Declared a restricted area in 1947 for defence tests, controlled access to the site has been allowed now, but only with special permission. Woomera Heritage and Information Centre manager Linda Biddau said international interest had led to the opening of the large 127,000sq km area. Access will be managed by defence and aerospace company Bae Systems, which won a 10-year contract to support Woomera's defence operations. Totality – total clipse – will last about 33 seconds.

This message was sent through MyMail <http://www.mymail.com.au>

From: Fraser Farrell

> Top secret seats for eclipse tourists By REBECCA KER 26nov02 A SECRET area near Woomera Village will be opened to tourists for the total solar eclipse next week.

I would hardly describe Koolymilka as secret. Numerous journalists and cameras - including the Advertiser's - have been out there in the last ~20 years and publicised what they saw. For example the Hyshot scramjet test flights, assorted Japanese space agency projects, Kistler Corp, and our Army Navy & Air Force blowing up assorted things....

The correct adjective, I think, is RESTRICTED. "Secret" implies deliberate suppression / concealment of information; and a visit from the Black Helicopters if you blab about it.... ;-)

In spite of this I notice the Advertiser's poster blurb today is SECRET SITE OPENED FOR ECLIPSE. My first thought when I saw it was "is there a James Bond style camouflaged island near Ceduna?"

Or a new and most southerly island in the Archipelago de Recherche...?

> Totality – total eclipse – will last about 33 seconds.

Actually 26.4 seconds (corrected for refraction and the true lunar limb profile) at the locale I was shown a few months ago. Which is a trig point on a gibber plain a few hundred metres south of the Koolymilka buildings.

And yes Telstra CDMA mobile phones do work there, thanks to a base station at Koolymilka itself. But I expect the call capacity would be very limited because Telstra installed their smallest station.

I am not aware of anyone from the Astronomical Society of SA who is going to this site. Many were discouraged by the admission fee and the inability to drive their own car into there. We do have members going to just about every other eclipse locale in SA - including some places that I haven't mentioned on this list.

I'm also interested to note that none of this month's ~300 visitors to <http://astronomy.trilobytes.com.au/2002/wpa.htm> resolve back to computers at either News Corporation (the owners of the Advertiser) or its affiliate companies. cheers, Fraser Farrell



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Here It Comes

From: Rybrks1@cs.com To: SOLARECLIPSES@AULA.COM
Date: Mon, 25 Nov 2002 11:52:31

It is fun (about 9 days to go) to "watch the shadow tip" approach us.

If we could see the Moon's shadow (like shafts of light in a dusty room define a shadow shaft) taper down to its point (vertex), we could see it wind around toward us over the next week. This morning the vertex was just right of Saturn and you could very easily imagine seeing the shadow extend toward it.

Nov 26 just right of the Gemini Twins

Nov 27 to the left of the Twins

Nov 28 between Leo and the Twins

Nov 29 near Regulus

For the remaining four days leading up to the eclipse it basically approaches Earth from under the belly of Leo the Lion, not moving

much in Right Ascension. That is because the Moon itself is basically no longer moving toward the Sun but laterally between Earth and the Sun. Clear skies to all. Ray Brooks

Please Help Limpopo Children with Viewers (fwd)

From: F.Podmore To: Solar Eclipses Mailing List <solareclipses@aula.com> Date: Mon, 25 Nov 2002 10:39:40

Hello list, I have just had the appeal below from Clara Jacob, who is desperate.... Is anyone in a position to help, and get them to her in time to be distributed?

Please copy your reply to her and me, so I know the situation. Yours gratefully, Francis

PS Yesterday Harare had clouds and RAIN - today it's brighter but still cloudy. Dr Francis Podmore (Senior Lecturer) 48 Pendennis Road

----- Forwarded message ----- Date: Sat, 23 Nov 2002 19:18:55 +0200 From: EventCoordinaters <bcj@worldonline.co.za> To: eclipse@clock-tower.com, podmore@compcentre.uz.ac.zw Subject: Fw: Please Help Limpopo Children with Viewers

Subject: Fw: Please Help Limpopo Children with Viewers

My name is Clara Jacob and I am acting on behalf of the children from rural schools in Limpopo Province. Now you might think I am crazy to be looking for 150 000 units if plain white solar eclipse viewers, but I am not. In actual fact we have been SEARCHING to say the least for a sponsorer to sponsor us with funding to allow these children to view the total solar eclipse without damaging their eye-sight and finally at the last minute a company called Transnet pledged US\$18 000 for these viewers for the children.

Is there a one in a million possibility that you may please provide us with these 150 000 units of the viewers within our budget please pat?

I may be reached on my mobile on: +27 83 582 2750 or on the same e-mail address.

Looking forward to hearing from you soon. Regards Clara Jacob Limpopo Province SOUTH AFRICA

Australian Financial Review article

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-chat <assa-chat@assa.org.au> Date: Mon, 25 Nov 2002

To all, Ben Sandilands wrote the following article for the Australian Financial Review, who published it in their Saturday edition. The AFR considers itself a bastion of responsible journalism, and as its name implies it has a wealthy and/or conservative audience.

I'm impressed by this article on two counts. One, Ben is so far the only journalist, out of the dozens who have interviewed me, to actually send me a copy of his work. In every other case I've had to rely on my relatives videotaping the news broadcasts or collecting newspapers for me. Two, he's got the safety facts right. No doubt because he's seen an eclipse before.

This nice bit of writing then fell victim to an unknown editor at AFR. He/she added a picture of an _annular_ eclipse to illustrate the story. Argghh!!

Here's Ben's article as submitted:

The longest yet shortest and darkest tourism event of all time is bearing down on the South Australian outback.

Late in the afternoon of December 4 a fleeting but spectacular total eclipse of the sun will occur within a thin strip of land from Ceduna on the great Australian Bight to the salt pans near Cameron Corner, where the borders of SA, QLD and NSW meet in the Sturt

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Desert.

Fortunes are being made serving the needs of tens of thousands of visitors strung out along the 900 kilometre shadow track where the maximum eclipse will be little more than 33 seconds.

Every rude surfer's shack from Cactus to Coffin Bay seems to have been found and bought up at hundreds of US and Euro dollars a night by eclipse chasers, the most fanatical, selective and determined tribe of globe trotters known to mankind.

Where pilgrims and international soccer fans go to geographically fixed holy places, eclipse chasers pursue the ephemeral contacts between the earth and the shadow of the moon, whether in polar extremes, steaming jungles or deserts.

Caught in the anti-spotlight of the lunar shadow is Rob Curkpatrick, the event's co-ordinator for the South Australian Tourist Commission.

"I'm not worried about the dedicated eclipse chasers," he says. "They know exactly what they are doing, they made their plans years, even decades ago.

"Close behind them are the tour groups, where the eclipse became a bonus natural event within itineraries built around our year of the Outback program, with this as its grand finale.

"What concerns us, meaning the tourist industry, police and emergency services, is the unpredictable tens of thousands of people who are likely at short notice, and with little preparation, to head off to Ceduna, Woomera and other points, and risk getting into significant difficulties.

"This is the ultimate gig without tickets.

"You can turn up at whim, and find out that BYO water, sun protection, food, and tyre repair kits makes it anything but a free ride."

Unprecedented traffic is anticipated along the Stuart Highway that intersects the shadow track from a point north of Spud's Roadhouse to one south of Glendambo, on parts of the Woomera-Roxby Downs road, and a small section of the road cum track north from Leigh Creek to Marree via Lyndhurst, where promoters are staging a night long post eclipse trance music festival.

Technically, eclipse watching will involve the largest act of wilful trespass in Australian law, since anyone who ventures beyond the public road verges will be intruding onto pastoral leases or Aboriginal lands or sites or all of the above.

While totality misses Woomera, which gets only a deep partial eclipse (an astronomical non-event) some of the best viewing lies within the Woomera Prohibited Area.

This is contaminated with unexploded munitions and frequently inspected by armed patrols charged with arresting anyone not using a controlled eclipse site (\$45 a head including transport from Woomera, a light meal and unspecified 'entertainment.')

Curkpatrick has liaised with the emergency authorities to produce a survival pamphlet for the eclipse which has been out for six weeks.

"This is 40 degrees country with no drinkable water, it is very dangerous and unwise to drive at night, there are no communications across most of the shadow track except Telstra CDMA in some areas and it is loaded with traps for the unwary or ill-prepared," he says.

The traps include the topography, road trains and black cattle or wild life on a two lane blacktop at night.

The Stuart Highway is built on a raised bed to make it flood proof in an ancient landscape with no creeks and rivers. Drive off it into the crumbling regolith and you are a near certainty to get bogged in wet or dry conditions, 4WD vehicles included. Iron hard

(Continued on page 65)

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mallee roots and sharp rocks, the natural enemies of the tyre, abound.

Kinetic energy (mass times velocity), rules the roads in the form of road trains. Head on impacts with small cars can pass unnoticed if it is dusty or the rig's stereo is playing Lee Kernagan to the max.

Fraser Farrell, the author of a 'must read' web guide to the event at astronomy.trilobytes.com.au, says that where there are road side clearings they exist for these monsters which thunder along the highway oblivious to anything else, including cattle. "If you are going to camp at these locations, do so beyond the nearest vegetation to avoid a tragedy," he says.

There are only two towns under the shadow track, Ceduna, population 3600, and Lyndhurst, population 20. Both could easily top 20,000 on the day. Ceduna which is 786 kilometres from Adelaide, has two tent cities, and a three day Solar-bration festival. Its success has been guaranteed because the city fathers and mothers wisely decided all accommodation would be sold for a minimum of three nights.

Margie Stott, who is the Ceduna Visitor Centre, says "We have no shortage of natural wonders. Sea lion colonies, rugged coastal scenery, great beaches, wild flowers and bird life. The overseas eclipse chasers want to see this part of real Australia to the full." Which they must!

The visitor surge has spilled over to Port Lincoln, 400 kilometres away, from which some visitors will commute to see the sun go out (and much more) for about 29 seconds at this part of the shadow track.

The eclipse has sparked the usual 'hide under the bed and don't look at the sky' nonsense while the astronomical community points out it is safe to look at a total eclipse because (duh!) the sun is really totally eclipsed and behind the moon.

It is dangerous to look directly at the sun anytime including through sunglasses or camera viewfinders and during the partial phases before the eclipse becomes total, but no-one standing near the centre line of the shadow track under a clear sky will be left in any doubt when those moments begin and end.

This is a near sunset eclipse, with the sun already close to the south western horizon. Just before totality this quadrant of the horizon will show sudden signs of bruising.

It's the great shadow, seconds away and approaching at 25,000 kilometres an hour.

This, for societies without astronomy, was the moment of utter terror. A wall of darkness, as unstoppable and certain as death itself would sweep over them, not to mention hapless priests or astrologers who had failed to predict its arrival.

Sometimes the falling temperature makes an 'eclipse wind' spring up, like the one that made the wave tops shout near Eden in Australia's last total eclipse, on October 23, 1976.

A diamond ring effect will flicker along the edge of the blacked out lunar disc as the sun vanishes. For a short period by eclipse standards the ghostly corona, or outer atmosphere of the sun will be visible against a deep twilight sky, and it should be possible to spot the planet Mercury above the eclipse and perhaps one or two of the pointer stars to the Southern Cross low to its left.

When the eclipse ends turn your back on the setting crescent sun. For just a second or two you might see the awesome outline of the lunar show streaking away toward the approaching night.

It next returns to this continent on November 14, 2012, when the sun rises fully eclipsed at a point just east of Darwin, from where the spectacle tracks across early morning skies in far northern Queensland.

And if you're on the Stuart Highway, or (like me) near Lyndhurst, you may see Ben Sandilands at work. cheers, Fraser Farrell



South Australia weather reports

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-chat <assa-chat@assa.org.au> Date: Mon, 25 Nov 2002 12:33:44

To all, Thanks to a large ex-tropical low crossing SA last night and today, many places have recorded significant rainfall. My place has had 22mm (so far) today with more expected overnight. There has been minor flooding of some of the nearby creeks here.

This particular low began in the tropical Indian Ocean, and might have developed into a cyclone if it had stayed over the ocean another 2-3 days. Instead it crossed the WA coast and went into the Great Sandy Desert; merging with a second low approaching from the southwest. The combination of moist tropical air and the cooler (second) low produced an extensive mass of cloud, with many thunderstorms therein.

It is these thunderstorms which are currently producing rain along the eclipse path. Some rainfalls reported in the last day or so:

Andamooka - 14mm
 Ceduna - 5mm
 Glendambo - 5mm
 Lake Everard - 9mm
 Leigh Creek - zero (but got 10mm on weekend)
 Marree - 8mm (its first significant rain in 2 years!)
 Roxby Downs - 16mm
 Woomera - 9mm



Additional rainfalls like these will cause Outback dirt roads, for example the Lyndhurst to Marree road through eclipse centreline, to be closed until they dry out. Large signs by the road will advise travellers of road closures. Driving on roads while they are wet/muddy causes a lot of damage to the road surface, and will almost certainly get you bogged. Or into worse predicaments. Consequently fines (~\$Aus 1300) will be imposed on anyone driving on an officially closed road. You don't have to see actually doing it. A warm engine and obviously fresh road mud all over your vehicle is sufficient evidence for conviction.

Normally it only takes a day or so of warm dry weather for most dirt roads to be re-opened - as "passable with care". This means keep your speed down and watch out for slippery surfaces and mud.

It is rare for the bitumen roads to be closed by flooding because they are built up on embankments in the flood-prone areas. But the rain produces puddles on the road - which attract thirsty animals onto the roadway. Where they present a big risk of collision to your car.

Also note that many floodways & creeks emerge from the Flinder Ranges to cross the bitumen road between Port Augusta and Lyndhurst. And that rainfalls like these can produce flash floods. I have more than once witnessed a Flinders Ranges creek go from totally dry to torrential muddy water 2 metres deep in under a minute. So if it's been raining, look upstream before you drive across.

It is of course much easier to spot these types of hazards in daylight.

But on the bright side, rain like this will also help to settle the dust! cheers, Fraser Farrell

From: Glenn Schneider

We have arranged to rent 4WD vehicles to allow for (only as needed) off-road travel toward the eastern end of the path. How does this "warm engine and mud" fine work in that case? I presume if we do go off-road under such conditions we will get our vehicle(s) muddy. And, in the desert heat the engine will definitely be warm even if it has not run in quite a while. You guys must either raise a lot of revenue, or no-one does off road driving? Or, is the "road mud" sufficiently different from the "non-road

(Continued on page 67)

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mud" that they can tell the difference? Here in Tucson we have "The stupid motorist law", wherein when road blockades go up across the washes during the summer monsoons not only is it illegal to cross them and the roads at those points - BUT if you get your vehicle is swept away by a rush of water (which invariably happens every year) you have to reimburse the county government for the cost of your rescue on top of a hefty fine. And, if you have a minor (<18 yr old) in your vehicle you are charged with reckless endangerment, which usually means some time in the local constabulary. But, we don't arrest people with muddy and warm vehicles or thousands would be piled up around the Pima county courthouse every day during the summer rains. At Fr. Grey, I certainly don't want to end up in the slammer and miss the eclipse because we went in search of cloud-free skies off in our off-road vehicles. -GS-

From: Fraser Farrell

Glenn, The local police and Outback residents can easily tell the difference between a merely sun-warmed engine, and one that's got hot from slogging through the mud! A long trail of mud droppings behind your hot & filthy vehicle is a bit of a giveaway too....;-)

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You will get muddy if you go off-road in the wet. "You" in this context means your vehicle, and its occupants (from having to dig the vehicle out of the mud), and its contents (from mud-covered occupants carrying same into the vehicle when they re-board). The Corner country is mostly sand dunes with claypan areas between them. The latter gets rather squishy and gooey when wet.

There's an old Outback saying - if it rains, wait a day before driving anywhere. When I was doing geological exploration jobs we would deliberately ignore everything within walking distance of camp while the weather was dry. Then examine them last of all, or earlier on foot if it happened to rain...

You're at the sunset end of the path. So you're dealing with the South Australian police, who may close the Innamincka to Cameron Corner road. And also the New South Wales police, who may close the Cameron Corner to Tibooburra road. And perhaps the Broken Hill to Tibooburra road too.

These rain closure laws apply to public roads. And they were proclaimed because of yuppie idiots trying to plough through regardless of weather; and gouging huge and erratic ruts in the roads. Which would stay there for months after the road dried out again to inconvenience all subsequent travellers. And these idiots would often get trapped in bogs, or roll their vehicles off of zero-grip curves, or get washed away in flash floods....

Pastoralist's and mining tracks and off-road trails aren't covered by these laws -- but you will probably be told in no uncertain terms by their owners to stay off them if they are wet. Joe will undoubtedly tell you the same thing.

We don't (yet) have anything like your "stupid motorist law" here, but I know it would be welcomed by our emergency services people.

Incidentally the one time I got caught out by rain in that part of the Outback I was trapped there for four days. On a ridge about the size of a football pitch, with a lot of soggy (and irritated) venomous snakes for company. I slept on top of the truck! cheers, Fraser Farrell

From: Glenn Schneider

Thanks very much for the information, and I do indeed to follow Joe Cali's lead and advise on local conditions! Here (in the Sonoran desert) I cannot tell the difference between off-road mud and on-road mud which gets caked on vehicles after driving during the summer monsoons. I now see there is a difference between our desert here and yours down under. Still, not taking to the roads under such conditions is VERY good advise in either hemisphere. Cheers, -GS-

From: Geoff

Thanks for that Fraser. At least I guess a good thing is that the rain has come now, and not in a weeks time - for the same reason that I'm glad that 2 days after my car was serviced that a harmonic balancer broke and cost \$300 to fix, I'm glad it happened now and not in a couple of days when I leave to drive down to Ceduna (from Sydney).

(Continued on page 68)

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I also am hoping that down there the weather patterns are nothing like we have in Sydney, for about the last ~2 weeks (that I have noticed, it probably happens more), practically every day has been perfectly clear skies! Perfect morning, no clouds, hot weather.. then around 2-3 hrs before Sunset, clouds form predominantly around the west. The Sun is then behind clouds whilst it sets. Then a few hours later when it is into the night (around 10-11pm), the clouds are gone and it is perfectly clear again, and so the cycle continues... maybe the meteorologists might be able to explain this to me, however it is very odd that there is always a mammoth cloud to the west during the 1-2 hours before Sunset, however there appears to be no other clouds any other direction on the horizon. May have something to do with the Blue Mountains due west of Sydney? -Geoff

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From: Fraser Farrell

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I also note that at this time of year Sydney receives a lot of tropical air directly from Wet Season. Then again whenever I'm in Sydney it suffers massive rain / floods / hailstorms ... the Olympic organisers paid me a massive amount of money to stay away during the games ;-)

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That big cloud is classic late-afternoon convection buildup. I often see the same thing on the mountains around here. cheers,

Shingwedzi Camp

From: nick@atomic-productions.com To: SOLARECLIPSES@AULA.COM Date: Tue, 26 Nov 2002 15:23:39

Hello again to everybody, Just another thank you to all the people who got back to me regarding the article I was writing. Hopefully you all got personalized responses, if not, apologies from both myself and the South African Internet. Being new to the writing game, it was all a learning experience and in the end I was forced to write what the editor deemed worthy...such is life. I am now writing in the capacity of Producer and wondering if anyone traveling to Shingwedzi in Kruger would be willing to go on camera both before and after the event. We would not take much time and would be unobtrusive. We are looking for people who could give us insight into their passion for eclipses, why they traveled to the event, express their favorite memories etc. Basically, we want to put a face to Eclipse Chasing. As I said before, it would be a low key affair. Thanks in advance to all and looking forward to meeting everyone at Shingwedzi. Clear Skies, Nick nick@atomic-productions.com

From Serge Koutchmy, CNRS, Paris

The Dec. 4, 2002 Total Solar Eclipse in Angola

A team of scientists and engineers from the Institut d'Astrophysique de Paris (CNRS) and from other Labs, including some representatives from Russia, Portugal, Germany, Iran, Swiss, Algeria, Tchequie and Brazil, will collaborate with the University A. Neto of Luanda and the Angolan Minister of Science and Technology to permit a good coverage of the Total Solar Eclipse event of Dec. 4, 2002. Observations will be made from 2 groundbased sites and from a specially prepared CASA type aircraft (through the open side-door). The scientific program of observations includes, besides the usual W-L imaging at different resolutions, colors and linear polarisation, some new experiments aimed at i/ analyzing the chromospheric prolateness (ovalisation) discovered a few years ago by comparing solar limb images taken simultaneously from space (EIT of SoHO) and from ground (SacPeak Obs. and Pic du Midi Obs.);

ii/ measuring the direction of the coronal magnetic field using linear polarisation measurements of the green FeXIV line to look again at the surprisingly quasi-radial direction of the field in the inner corona. The rather reduced value of the magnitude of the eclipse (less than 1.01) makes it particularly suitable for the study of the chromosphere and the TR. Several "in phase" EIT and Lasco spaceborne observations will be simultaneously collected from SoHO and possibly from Trace and Coronas as well as from groundbased Observatory at Pic du Midi and NSO/Sacramento Peak, for ex.

An important accompanying educational program has also been defined to make the event significant and useful for the Public. An international Symposium on "Astronomy, Scientific Education and Culture", sponsored by the French Cooperation in Angola and other government Angolan sponsors, will take place in Luanda before the eclipse. Papers like the "Legendary discovery of the solar corona", "Space weather: A New Field in Science", "From the Sun to the limit of the Universe" or "The contribution to Science of the Persian Culture" etc. will be presented. Finally, a scientific movies Festival is organized immediately after the day of the eclipse, thanks to CNRS. Historical movies (like the famous "Flammes du Soleil" from the Lyot prominence observations and the more recent US movie "Eclipse of the Century") as well as the latest movies on the Sun, on Astroparticules and Cosmology and more movies on the "Life", biology, medicine etc., will be shown.

Paris, Nov. 26, 2002 Institut d'Astrophysique de Paris - CNRS 98 Bis Bd Arago Paris F-75014 (France) Fax: XX (33) 1 44 32 8001 Phone: XX (33) 1 44 32 8056 (from France, replace 33 by 0)

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2**Solar eclipse safety**

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Date: Tue, 26 Nov 2002 22:49:18

To all, Just finished a live interview with ABC Radio National (Australia) which included Prof Kevin Buckett, one of the Health Department's most senior people. He said two interesting things on-air.

Firstly he conceded that it is, in fact, safe to look without eye protection during totality. At last.... But secondly, he continued the dogma that there are "no Australian or international standards for [eclipse shades]".

Due to time constraints (we were on air just before the news broadcast) I didn't get a chance to respond with British Standard EN 169:1992 and its associated European Community Directives. Or to mention the vast orders for eclipse shades this year by the various Governments in southern Africa.... cheers, Fraser Farrell

Report from Ceduna for the Solar Eclipse Mailing List

From: Jay.M.Pasachoff@williams.edu To: solareclipses@aula.com Date: Wed, 27 Nov 2002 19:02:33

Ceduna, South Australia Nov 27 am

Greetings from the eclipse site. I arrived here on Tuesday with my team from Williams College. We are planning to carry out a series of scientific observations of the solar corona, including a test of solar coronal heating models and a duplication of the otherwise unavailable results from the defunct inner coronagraph on SOHO. The experiments are described, along with images from our past expeditions, at www.williams.edu/astronomy/eclipse.

The weather was cloudy when we arrived, and sunset Tuesday saw spectacular cloud patterns. But it cleared overnight, and Wednesday, Nov 26, was a beautifully clear day. For the latter part of the day, the sun was 100% clear most of the time, though some wisps came up at eclipse time. I wish we could have rescheduled the eclipse for a day earlier.

The forecasts show the weather deteriorating over the weeking and then a front coming through early next week, bringing clearing with it. So we have to hope that the front goes through early and that the oscillation in weather on a weekly cycle for the paste few weeks continues, bringing us a favorable peak next Wednesday. Jay Pasachoff

Northern roads reports / special weather forecast

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-chat <assa-chat@assa.org.au> Date: Wed, 27 Nov 2002

To all, A reminder that Outback South Australia's conditions & closures for all dirt roads can be viewed online at: http://www.transport.sa.gov.au/quicklinks/northern_roads/northern.asp As of this afternoon the status of dirt roads included

OPEN - Lyndhurst to Marree road including centreline - Glendambo to Wirrulla road including centreline - Glendambo to Iron Knob roads - Merty Merty to Cameron Corner - various roads in/near Flinders Ranges National Park

CAUTION AT CREEK CROSSINGS (due to mud, debris, water) - Strzelecki Track from Lyndhurst via Merty Merty to Moomba - Leigh Creek to Arkaroola road - Marree via Lake Eyre South to Coober Pedy

FOUR WHEEL DRIVE ONLY - Roxby Downs to Lake Eyre south (borefield road) - Mt Hopeless to Balcanoona road including centreline And the Bureau of Meteorology's special eclipse weather forecast page is now online: <http://www.bom.gov.au/products/IDS65084> Live content there begins from 4pm Friday (SA time). cheers, Fraser Farrell

From: Glenn Schneider

Frasier, Thanks very much for these links. With regard to the BOM <http://www.bom.gov.au/products/IDS65084/> their forecast map extends only eastward to longitude 140. A number of us are planning on observing the eclipse near sunset in the region of Cameron Corner (long. 141) or possibly even further east near Tickalara (long 142.4 at the non-centerline airstrip). Hence, it would be extremely useful (for us and likely some others) if they would extend the range of coverage of their forecast map to at least 142 deg, or better 143 degrees. I tried to call their contact phone number of: 08 8625 2048 given on that web page, but did not get anybody - likely the time difference is currently a problem (as I am still in Arizona at the moment). I'll be on travel shortly, and I could not find an email contact for this at BOM. Could I impose upon you, Joe, or some other "local" to call their office at BOM and make this request on our behalf (as well as other eclipse chasers heading to the western extremity of the path)? Cheers, Glenn Schneider Steward Observatory, University of Arizona

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2**RAIN!!**

From: analog6@ozemail.com.au To: solareclipses@aula.com Date: Fri, 29 Nov 2002 10:07:46

Fellow eclipsers i don't know what is happening in South Aussie, but it seems as if the drought is trying to break here in Canberra. We had a spectacular storm with wild lightning and flash flooding earlier, and it has now back-built and we are being absolutely deluged again.

If SA gets these rains you do realise people have been stranded for weeks in central Australia? And take great care if you're going onto any dirt roads, remember they are clay underneath and turn to goo in the blink of an eye.

Weather update please Fraser?? Odille Esmonde-Morgan

From: Fraser Farrell

On Fri, 29 Nov 2002 20:37, analog6@ozemail.com.au wrote: And take great care if you're going onto any dirt roads, remember they are clay underneath and turn to goo in the blink of an eye.

I think I've made these facts very clear in my eclipse pages. Also the fact that nowadays it's rare for the _bitumen_ roads to be closed by flooding.

> Weather update please Fraser??

Weather forecasts, satellite images, radar images, weather observations etc for South Australia: <http://www.bom.gov.au/weather/sa>

Special forecasts for the eclipse (page is now active): <http://www.bom.gov.au/products/IDS65084/>

Northern Roads Report (outback SA road restrictions & closures): http://www.transport.sa.gov.au/quicklinks/northern_roads/northern.asp

The Northern Roads Report is also sent to many Outback petrol stations and tourist information centres. If in doubt, read the huge signs installed at the beginnings of all major dirt roads....

I've just returned from a 6 hour viewing session at our local observatory. Scattered cloud here at sunset, gradually developing to broken cloud, and finally overcast by ~2:30am. cheers, Fraser Farrell

Help wanted

From: Robert B Slobins To: "SOLARECLIPSES@AULA.COM" <SOLARECLIPSES@aula.com> Date: Thu, 28 Nov 2002 05:00:00

My miracle did not come through; I will be sitting this total solar eclipse out.

Does anyone on the list have diffraction grating with them, or plan to. Please contact me on +1 260 497 9060. Robert B Slobins

ICSTARS Webcast

From: Vic & Jen Winter - ICSTARS Astronomy To: SOLARECLIPSES@AULA.COM Date: Thu, 28 Nov 2002

We have just secured a wireless internet connection for our stay in South Africa and will, therefore be maintaining an eclipse expedition webcast on

www.ICSTARS.com

It is unclear if our observing location is within cel coverage range, but we will have upload capability within a matter of hours. We are imaging with multiple formats, including Nikon D-100 format, so we're excited to have those digitals available for the webcast on eclipse day. Clear Skies, Vic & Jen

Expedition SAROS 2002 flight to Southafrica

From: Francisco A. Rodriguez Ramirez To: SOLARECLIPSES@AULA.COM Date: Fri, 29 Nov 2002 16:51:56

Hi all, In few hours we will flight to Southafrica. You can see our expedition in www.saros.org . Good Luck all ! Atte. Francisco A. Rodríguez www.astroeduca.com



Solar Eclipse Meterology story from BBCT
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From: Robert B Slobins To: "SOLARECLIPSES@AULA.COM" <SOLARECLIPSES@aula.com> Date: Fri, 29 Nov 2002 18:46:52

Tuesday, 26 November, 2002, 12:45 GMT Fresh evidence of 'eclipse wind' By Dr David Whitehouse BBC News Online science editor Researchers have confirmed the existence of a so-called "eclipse wind", often reported anecdotally during a solar eclipse. The finding comes from what they say is the most comprehensive set of weather measurements ever made during such an event. The 11 August, 1999, total eclipse, visible over Britain, the rest of Europe and the Middle East, also produced detectable atmospheric pressure fluctuations. The effects tracked the shadow of the Moon as it raced over the Earth, covering a region of the planet's surface several thousand kilometres across. High quality data The August 1999 event aroused unprecedented interest in Europe and the Middle East from the public and scientists alike. Dr Karen Aplin, from the Rutherford Appleton Laboratory near Oxford, and Dr Giles Harrison, from the University of Reading, placed accurate weather recording equipment in the path of the eclipse, and compared its recordings with data collected at Reading, which was slightly to one side of the path of totality. "The meteorological effects of eclipses are not well understood and high quality data are unusual," Dr Aplin told BBC News Online. "We hoped to investigate the controversy over whether there is such a thing as an eclipse wind, which is often anecdotally reported," she added. Cold-core cyclone According to the scientists, their measurements are the first accurate recordings of the weather changes during an eclipse. "The instruments did detect very small changes which occurred in the cloudy conditions in Cornwall. Combining the data with that obtained in Reading enabled us to determine a structure for the wind patterns associated with the eclipse."

Wind patterns were subtly altered over a region several thousand km across by the cooling induced when the Sun's rays were blocked out. In particular, the researchers found that a gentle "cold-cored cyclone" was induced at Reading during the eclipse because of the prevailing cloudy conditions coupled with the slight temperature change. A cold-cored cyclone is a roughly circular pattern of winds with air at the centre sinking to feed the outward flow. More to learn "We found that the prevailing weather conditions were disturbed even in the cloudy area, and we found a wind circulation which moved with the Moon's shadow," says Dr Aplin. "After the eclipse had passed the wind patterns returned to their pre-eclipse values. "However, we also observed small fluctuations in atmospheric pressure at Reading for a few hours after the eclipse. These were probably eclipse-induced waves caused by cooling in the upper atmosphere, slowly propagating down to the surface." While the researchers say the cold-cored cyclone model is a good one to explain what they observed, they add that it does not fully explain the wind patterns seen along the boundary between the region of the total and partial eclipse. The research is published in the Proceedings of the Royal Society.

TAKE CARE DRIVING IN AUSTRALIA

From: analog6@ozemail.com.au To: solareclipses@aula.com Date: Fri, 29 Nov 2002 07:24:49

The Sydney Morning Herald had this storey in today - remember it is KEEP LEFT on our roads (weird to you I know, but them's the rules). We don't want to lose any of you.

"Police believe two Swiss tourists killed when their campervan and a semi-trailer collided in Queensland today were travelling on the wrong side of the road." Odille Esmonde-Morgan Canberra, Australia analog6@ozemail.com.au <http://analog6.members.easyspace.com>

South African weather forecasts

From: Peter Tiedt To: Solar Eclipse Mailing List <SOLARECLIPSES@AULA.COM> Date: Fri, 29 Nov 2002 19:18:58

For forecasts of weather in South Africa see <http://www.weathersa.co.za/>

There is a link from the top of the page to <http://www.weathersa.co.za/eclipse/Eclips4Dec2002.html>

Long range forecast for Kruger Park is 1/8 - 3/8 cloud.

BeitBridge - Hot and Humid

Bulawayo area (where I am going) - Hot and Dry.

Peter Tiedt



The Advertiser front page story

From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-CHAT@assa.org.au Date: Sat, 30 Nov 2002

To all, The story appended below appeared on the front page of the Adelaide "Advertiser" today; accompanied by a photo showing 3 children - all wearing eclipse shades - looking directly at the sun.

The photo appears to be contrived. Just hand these 3 unwitting kids some eclipse shades, tell them to wear them while looking at the sun, and then [click]....

Of course, if the "facts" of this story are true, then the photographer has just ruined these kids' eyes. Despite "knowing" that the shades are "dangerous". Under Australian law this counts as reckless endangerment of children...which is a criminal offence attracting jail time.

You may want to emphasise this point if any of you are speaking to journalists. I'm going to post it on my website tonight.

I also note that Prof Buckettt conceded earlier this week (during an interview on ABC radio) that looking directly at totality is, in fact, safe. Which contradicts what Dr McGovern is quoted as saying below. Hmmm....

And frankly I'm concerned - as a SA resident - that these health "experts" and their colleagues also make important decisions about my local hospitals and medical services. I wonder what else they are getting wrong?

Eclipse glasses can hurt your eyes By BRYAN LITTLELY and DAVID ECCLES 30nov02

EYE experts and the State Government yesterday warned people against using any of the "so-called solar eclipse viewing glasses" on Wednesday.

They say the use of such "flimsy" glasses in the past had caused irreparable eye damage and there was "no safe way of directly viewing an eclipse".

The Western Australian Government also said yesterday it would ban the glasses and threatened to hit vendors with \$100,000 fines.

But eclipse glasses are hot property on the streets of Ceduna, where hundreds of pairs have been sold in preparation for next week's total eclipse over the Far West SA town.

The Ceduna Visitor Centre said yesterday it had sold 650 of 2000 Eclipse Australia Shades.

Promotional material for the Eclipse Shades claims they are certified by the British Standards Institute, and centre staff hand out fact sheets to buyers advising them on the safe use of the glasses.

Andy Mehringer, an optometrist with Kays Optical in Sydney, yesterday sold German-made Sunwatch glasses in Ceduna and declared them "absolutely OK".

"They are certified in Germany, and there are no standards in Australia," Mr Mehringer said.

"What party is going to govern what is dodgy, and what is not, if there are no Australian standards to be met?"

Mr Mehringer, who has 2500 of the glasses to sell, said he told all his customers of the risks. "Parents have to take care of their children, making sure the glasses are fitted properly," he said. "The glasses cannot have any holes in the film, they cannot be scratched and you should not clean the film."

(Continued on page 73)

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Royal Australian and New Zealand College of Ophthalmologists spokesman Dr Stephen McGovern said an eclipse posed special risks.

"It is never safe to look at the sun, but the most damaging situation occurs at an eclipse, when the pupil dilates during low visible illumination, allowing more of the harmful radiation to focus on the retina," he said.

Children's eyes were particularly at risk because they filtered out less of the harmful wavelengths.

Human Services Department Environmental Health director, Associate Professor Kevin Buckett, said the one-size-fits-all style of glasses posed a risk of dislodgment during viewing, and cases were documented of people suffering eye injuries as a result.

After a 1999 eclipse in the United Kingdom, 20 people went to hospital for eye injuries. Four of those had used eclipse glasses, which had dislodged during use, he said.

"There are no pain receptors on the retina inside the eye, so you get no physical warning that you are causing irreparable damage to your eyes," he said.

---- cheers, Fraser Farrell

LOCATIONS FOR VIEWING

From: Odille Esmonde-Morgan & Warwick Lawson To: "Solar Eclipse news Group (E-mail)" <solareclipsewebpages@btopenworld.com> Date: Fri, 29 Nov 2002

On looking at today's eclipse predictions map (and thanks again to Fraser for the link) I plan to stick to my original plan and go to Wirraminna, almost on the centreline and on the Transcontinental Railway line (the road runs close to it at that point).

That's if I get there, with the diabolical special knowledge all mechanical items have, my van has decided to spit the dummy; and has an emergency visit booked to the van doctor this morning. Fingers crossed! Odille Esmonde-Morgan Canberra, Australia

Web site from Ceduna

From: Jay.M.Pasachoff@williams.edu To: solareclipses@aula.com Date: Fri, 29 Nov 2002 07:07:29

We have just opened a Web site showing photos on a daily basis from our Williams College expedition to Ceduna, Australia. See www.users.bigpond.com/williamseclipse. Jay

From: Alejandra León-Castellá

I tried your web site today and the pictures did not work. Please let me know when they do. I wanted to include it in our e-bulletin's list of web pages for the coming eclipse. Good luck, Alejandra

Rainfall Forecast for Southern Africa

From: Peter Tiedt To: Solar Eclipse Mailing List <SOLARECLIPSES@AULA.COM> Date: Fri, 29 Nov 2002 19:31:28

The statement below refers ...

STATEMENT FROM THE SIXTH SOUTHERN AFRICA REGIONAL CLIMATE OUTLOOK FORUM (SARCOF-6), HELD IN HARARE, ZIMBABWE 4 TO 6 SEPTEMBER 2002

1.1 SUMMARY

The northern part of the SADC region (Democratic Republic of Congo, Tanzania, much of Angola, northern Zambia, northern Mozambique and southern Malawi) and the Island States are expected to receive normal to above normal rainfall for the period October to December 2002 while the rest of the region is likely to experience normal to below normal rainfall. During the period January to March 2003, there are high probabilities of normal conditions across much of southern Africa. However, there is a chance of rainfall sliding into the below normal category over the southern part of the region (Botswana, southern Zambia, southern Malawi, central and southern Mozambique, southern Namibia, much of South Africa, Zimbabwe and Swaziland), during the same period January to March 2003.

more info at http://www.cpc.ncep.noaa.gov/products/african_desk/rain_guidance/sa_forum.html

http://www.cpc.ncep.noaa.gov/products/african_desk/rain_guidance/SAFPD03_DJF1.html Peter Tiedt



Final (?) eclipse website updateT
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From: Fraser Farrell To: SOLARECLIPSES@AULA.COM Cc: ASSA-CHAT@assa.org.au Date: Sat, 30 Nov 2002

To all, I have just uploaded what will probably be the final pre-event version of my eclipse website. Latest additions include some more photography tips and links, and my comments about the Saturday front page story in the Advertiser.

Leaving home on Monday morning for a leisurely drive up to Leigh Creek; arriving there at about lunchtime on Tuesday. Spending a few hours in and around the town - my boys were quite small when they last saw it - before joining the tour group I'm chaperoning on Tuesday evening. See www.banksia-adventures.com.

If weather permits I will be taking the group out outside Leigh Creek on Tuesday night for an astronomy session.

ABC Regional Radio are sending a team to Lyndhurst, and they will be broadcasting from outside the Lyndhurst hotel from 2pm on Wednesday. You may hear me being interviewed at that time - as long as outbackeclipsefestival.com don't drown us out with their 80,000 watt sound system! But as anyone who knows me will confirm, I have a loud voice... ;-)

During the eclipse I will be at a private viewing site with my tour group; and afterwards returning to Lyndhurst for the big outdoor barbecue.

We set off on Thursday morning for Wilpena Pound. Afterwards the tour group continue to the wineries further south, while I make another leisurely trip home. Arriving sometime on Friday.

Good luck to all with the weather, have safe trips, and I may see a few of you at the eclipse. cheers, Fraser Farrell

Looking good

From: klipsi@bluewin.ch To: SOLARECLIPSES@AULA.COM Date: Sat, 30 Nov 2002 20:35:36

4-day weather forecast for South Australia looking good. today sunday will be hot in SA, monday a cold front will arrive from west, with possible strong storms, then following days will settle quietly, looks like tuesday will have clouds, rain, but should clear by wednesday evening e-day, specially for inland woomera lyndhurst. ceduna however is currently on a watch list ... Klipsi

Africa eclipse live sites

From: johnleppert@peoplepc.com To: SOLARECLIPSES@AULA.COM Date: Sat, 30 Nov 2002 21:16:36

I'd appreciate it if someone would post three or four websites that will be sending "live" images of the solar eclipse next Wednesday (late Tuesday night here in North America) from South Africa or Zimbabwe or elsewhere on the African continent. Thanks. 30 Nov 2002 1517 CST Deneb Observatory 38128 184th St NE Regan ND 58477 (701) 286-6257 47o13'37"N 100o29'45"W 2054' MSL

From: klipsi@bluewin.ch

hi, see www.eclipselive.com for live webcast and for near-live uploads see: <http://www.icstars.com/Africa2002/Eclipseday.html> and www.saros.org more links LIVE, LIVE2, LIVE3, LIVE4 etc. on my page <http://eclipse.span.ch/eclipse.htm>

arrived in Adelaide, all group members arrived, tomorrow we head north towards Woomera. Tomorrow weather forecast for South Australia looks for thunderstorms, but wednesday outlook still looks good. Klipsi

From: Abebe Kebede

I have some links here. I prepared it for my students <http://www.physics.ncat.edu/~michael/moonstruck/index2.html> Click on the still globe Abebe

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E**Space Station Eclipse**

From: Evan Zucker To: SOLARECLIPSES@AULA.COM Date: Tue, 03 Dec 2002 02:25:06

I'm sure many of you subscribe to the NASA Science News e-mail list, but those of you who don't might enjoy this link:

NASA Science News for December 2, 2002

The crew of the International Space Station will enjoy a unique view of this week's total solar eclipse--looking down at the moon's shadow on the earth below. FULL STORY at http://science.nasa.gov/headlines/y2002/02dec_isseclipse.htm?list449573 -- EVAN

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2**Weather FYI**

From: Robert B Slobins To: "SOLARECLIPSES@AULA.COM" <SOLARECLIPSES@aula.com> Date: Tue, 03 Dec 2002 18:38:00

I checked the NOAA READY web site for forecast cloud cover according to the AVN short range model effective 0600 UTC 03 DEC 2002:

For 0600 UTC 4 Dec 2002: A high pressure ridge looks to be placed over southern Zimbabwe. The path along the Botswana - Zimbabwe border to Beitbridge should have 20% cloud cover or less. The rest of the South African path should have less than 40% cloud cover. The projected cloud cover increases towards Mocambique with 50%.

For 0900 UTC 4 Dec 2002: Ceduna should have 20% cloud cover, and inland, less than that. There is a band of cloudiness to the south and slightly east of Ceduna for that time. It looks as if it would be wise to move southwestward from the sunset point, as there is forecast to be a band of clouds to the north. Glen, you need to keep an eye out to the north. cheers/Robert B Slobins

TSE 2003

2003 Khlebnikov update

From: Vic & Jen Winter - ICSTARS Astronomy To: SOLARECLIPSES@AULA.COM
Date: Sun, 17 Nov 2002 07:16:28

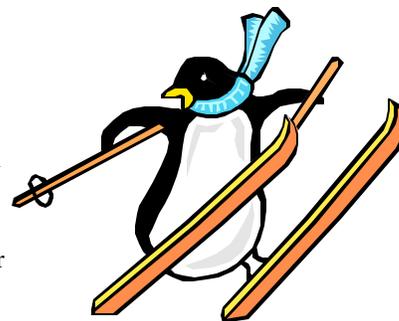
For their promotion of the 2003 Eclipse voyage, Quark Expeditions was unclear if they intended to produce a brochure at all, or not.

Today, I received my regularly scheduled copies of their current offerings - including their 2003 Antarctic Season.

The voyage is listed - and occupies some 3 pages, plus a diamond-ring photo out of 24; but not in elaborate detail at all. I was naturally underwhelmed at the attention spent on the expedition, and there are a lot of details not included. Perhaps it is selling a bit better than the regularly scheduled voyages. Perhaps I had envisioned over 1/2 of the 2003 program dedicated to this very important event.

One item of interest that we're still working on is the chance to get over to the observation points of the 1874 Transit of Venus on the Kerguelen Islands. The A.L.P.O. Transit Coordinator asked if we could visit one or some of 5 observation points to re-confirm coordinates with GPS accuracy. That would be a great opportunity if we be able to help reaffirm or correct these numbers.

I wonder if we can help anyone re-affirm the positions of some important meteorite finds! Clear skies, Jen Winter



Antarctica webcams, see weather Nov. 23-24

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Thu, 21 Nov 2002 06:05:34

Dear friends, Here below is a list of live or nearlive webcams in Antarctica, giving you a glimpse of what the weather might look like now and on a november 23-24, one year before.

does anybody know of other webcams in Antarctica ? or a website for the japanese Asuka station, which is on the limit of the path ? Or for Mirnyy, Maitri or Novolazarevskaya, which are the 3 stations INSIDE the path of totality. (Mirnyy possibly the best, with Sun almost 14 deg. high, while Maitri and Novo have the Sun smack rising on horizon).

none of these cams below is within the path of totality 2003. But some are quite close (well, relatively close!), such as DAVIS , CASEY and NEUMAYER. see this map <http://sunearth.gsfc.nasa.gov/eclipse/TSE2003/TSE2003gif/TSE2003-3b.GIF>

and I'd say it is quite likely that some of these will show images of their partial eclipse next year.

Remember the eclipse is around 22:35 - 23:20 UT on november 23 2003. webcams:

CASEY <http://www.antdiv.gov.au/stations/casey/video.asp>

DAVIS <http://www.antdiv.gov.au/stations/davis/video.asp>

MAWSON <http://www.antdiv.gov.au/stations/mawson/video.asp>

NEUMAYER http://www.awi-bremerhaven.de/NM_WebCam/

SOUTHPOLE <http://www.phys.unsw.edu.au/southpolediaries/webcam.html>

MCMURDO <http://live7.truelook.com/face/newface.jsp?name=/nasa/mcmurdo>

about McMurdo cam: it is possible to tilt , pan, zoom the view. Does it allow to point at and see the Sun around 23h00 UT nowadays ? I will be flying from south africa to australia coming november 23-24, in 2 days, so I cannot verify it right then (will check today however). So could YOU please check , and save the image, if the sun is visible around ~ 23.06 UT on nov. 23 ? that should show the position of the Sun around max eclipse for McMurdo webcam. Zoom into it. thanks Klipsi

From: Geoff

Klipsi and others, The school of Physics at the University of New South Wales (Australia) is involved with Antarctica research, and has webcams updated every 10 mins, at: <http://www.phys.unsw.edu.au/southpolediaries/webcam.html> --Geoff

**Images from QF64**

From: klipsi@bluewin.ch To: SOLARECLIPSES@AULA.COM Date: Sun, 24 Nov 2002 17:52:54

dear friends I just uploaded a few images of flight QF64. see <http://eclipse.span.ch/eclipse.htm> and check the date 24 best regards, Klipsi

From: klipsi@bluewin.ch

hello dear friends, have arrived in Sydney.

Congrats for those observations of the McMurdo webcam. Very promising.

about QF64

with a little bit of help and extra input, I think it would be possible to see the eclipse from that regular scheduled flight.

However currently it is leaving a bit too early. We even took off with 44 minutes delayed and still came about 30 minutes too early in the target area (E90, S60, 22h30 UT). alright , we had strong jetstream, it pushed us at supersonic groundspeed, over 1200 km/h !

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Biggest problem is uncertainty of jetstream location. Qantas will choose flight route which favours maximum full efficiency. This may bring route much further north, if jetstream is blowing up there.

Well yesterday I was lucky. We came as far south as 55 S. And at 90 E we were still 52 S. We did get into the path of totality. But we got there half an hour before 22h30.

By 22h30 we were 98 E, beyond the target.

STill, I believe the captain would certainly "slow down" to make it happen. Provided the initial main route comes close to target area.

Another risk is , if the incoming flight QF63 is delayed, then so will be yours, too.

But I can confirm now that the Sun is indeed visible from the seat window around 22h00 - 22h30 UT, and from E 90 deg longitude.

If I were not on a cruise, and if no specific eclipse flight existed, I would give it a try.

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First class is even better, as it is in the front nose tip of the b747, where the body is curved, and thus the windows look slightly more forward.

But a dedicated eclipse flight is still better, for sure.

From: Starfield Scientific

What are you going to do about Qantas closing the window's shutters during the eclipse? They are aware that the eclipse is going to occur, and the flight staff will make sure that nobody opens their shutters.

From: Glenn Schneider

Klipsi et al, I am, and have been, working this with QANTAS and have had very substantial discussions with flight ops and a lead pilot for the airline. This has also been discussed with management. I ask for your patience and I will report back to SEML when the ducks are lined up. This is under serious investigation, but it would be counter productive for too many individual pings, I believe I have a very good investigatory dialog well in progress. Indeed they are collecting this years flight data to evaluate and update several flight options I proposed. Where it will go is still a work in progress, but if it can be done (i.e., if QANTAS in the end is willing) it will. -GS-

From: GMadden

This is a very good point.

It requires notification and full comprehension of Quanta WELL BEFORE departure so that they know what's going on and who's doing what.

Of course, if you are trying to convince the flight crew to adjust routes and/or retard or increase speed for an interception, then this would/should be part of the whole package. George Madden Rochester, NY

From: Glenn Schneider

Regarding Klipsi's email, I did not want to get into dialogs (yet) on flight specifics, but just to let you know again this is under serious investigation I wanted simply provide about two of the so-far four QA 64 flights we are looking at for strawman profiles. Klipsi (and others) I am sure will be interested. I am about to disconnect until appx Dec 10th, so replies are not needed, this is just informational at this point. (Klipsi: what was the date of your flight?)

QA 64 is a regularly scheduled flight, as you all know, and as such is subject to Air Traffic Control and other delays, which

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would be a killer on eclipse day. It is possible to arrange for priority take-off but do keep in mind that take-off delays can and do happen. No such special arrangements have been made for recent flights, of course, and here is what happened with two of them. The information below is verbatim from the QANTAS line captain and 747-400 pilot with whom I have been working details of flight considerations {except for my added comments}

=====

1) Flight (1) QFA64 departed JNB 21/11/02.

Firstly, it left 2 hours and 2 minutes late! One passenger had to be offloaded at the last minute. For security reasons their bag had to be located in the holds and also offloaded. The ATC caused further delay. This sort of stuff can always happen, and would ruin our day.

Performance-wise: Instead of the normal sea-level ISA max Performance Limited Brakes Release Weight of 397,000kg, the actual Performance Limit due altitude and temperature on that day was 370,000kg. The aircraft took off right on that weight with max possible payload.

Its actual route was optimized for minimum fuel burn, to maximize that payload. However: its optimized route took it AMAZINGLY CLOSE to our desired points.

{Note: I provided the intercept and "totality run" points to them simply as an exercise. They are not cast in stone - but certainly would be viable. As a first iteration they needed something to begin working with, and there may indeed be some flexibility (within limits) for planned or in situ variances depending on flight specifics)}

If we assume it left on time, using its planned waypoints in the area of interest to us:

Airborne, say, 1605Z we get:

55S 080E: airborne+05.09 = 2114Z

55S 085E: airborne+05.26 = 2131Z

55S 090E: airborne+05.44 = 2149Z

Looking at "Contact II" of 55'11"S 088' 28"E, reqd ETA 2222Z we can see that leaving late as actually happened the intercept would have been missed.

Leaving on time, we would have been roughly 30mins too early. This is quite favourable, as a delay of 30mins might well be sanctioned to allow the intercept.

2) Flight (2) QFA64 departed JNB 23/11

This flight left the terminal 28mins late. It also took off at Max Takeoff Weight with max payload. Its optimized route also took it CLOSE to our desired points, very similarly to the one two days before:

If we assume it left on time, say airborne 1605Z we get:

55S 080E: airborne+04.50 = 2055Z

55S 085E: airborne+05.06 = 2111Z

54S 090E: airborne+05.23 = 2128Z

Looking at "Contact II" of "55-11S 088-28E" at "2222Z" we would have been roughly 1 hour too early. This is getting a bit on the limit of what the Company would be prepared to accept, I am sure, as we always have passengers eager to make connections at the other end, and the aircraft might well be scheduled, with a shortish turnaround, to operate its next service.

>From a fuel point of view, just by eye, I would think we would have been ok on both of the above, to make the small diversion necessary.

(Continued on page 79)

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I will send a similar analysis of the 3rd and 4th flights this week to you as soon as I get them - given I have a simulator session I must study for day after tomorrow.

{snip} =====

My principle contact (who sent me the above just today in fact as an update) is headed for London on Saturday on QFA31 - though I know he would liked to have been in Australia for the 4 Dec eclipse, but his schedule does not permit it.

But one other piece he re-confirmed back to me: >I expect within another month to be able to confirm if any timetabling >changes might be made for next year, at least at the initial planning >stages. They are done about a year in advance.

So, again, I ask your patience while they continue to evaluate options. Keep in mind that QA 64's schedule and routing TODAY might not be what it will be next year - but it may be. Cheers, and a good eclipse to all. -GS-

From: klipsi@bluewin.ch

I was in business class, upper deck , window, seat 12K.

you can find some fotos on <http://eclipse.span.ch/241102.htm>

I was stunned by the speed we reached, inflight screen info said we had a groundspeed of up to 1209 km/h , "supersonic" !!! That is because we benefitted of an extremely strong jetstream. But of course, jetstream velocity and location changes daily. Who knows what it will be in 2003 on nov. 23...

I am very glad to hear you are working on QF64. My feeling is very good about that flight, specially if we can have the support of the pilot to deliberately choose to fly to S 60, E 90 for 22.30 Z.

Keep us posted .

On december 9 I will fly back, QF63, Sydney to Johannesburg. This is an even longer flight, almost 14 hours. Probably coming closer to Antarctica, maybe even seeing it (again, will depend on jetstream location). And it is a daytime flight, so I really hope to see icebergs, maybe one of the islands (volcanic Heard would be my preference) .. and with lots of luck even "my" Kapitan Khlebnikov icebreaker, which on dec. 9 will be near Casey station, according to info found on Quark Expedition website, as the KK will be doing another full circumnavigation of Antarctica. Klipsi

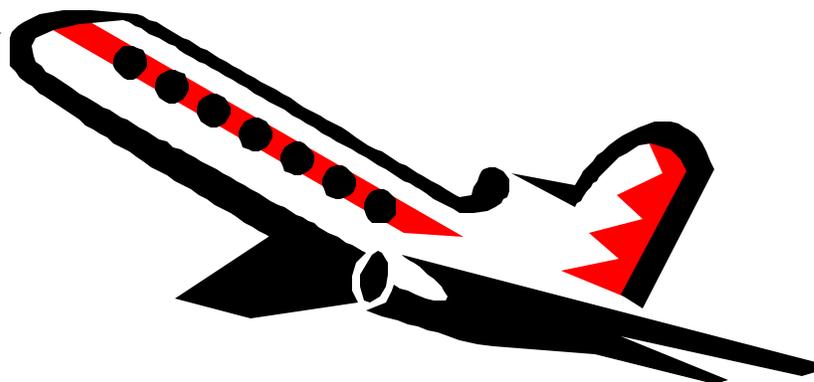
From: klipsi@bluewin.ch

Planespotting .

During the 28 days of our november 2003 icebreaker eclipse cruise next year we will have a funny game to play : planespotting - try to spot QF64 and QF63 as it flies high overhead , if its jetstream powered route brings it over our location. And if skies are clear at that moment. Lots of ifs...

I guess when sailing in the southernmost Indian Ocean you dont see aircrafts often, so it will be a welcome sign of civilization ... ;-)

There is also a scheduled regular flight from JNB to Perth, operated by SAA and codeshared QF. But it does not get that far south. Klipsi



McMurdo webcamT
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From: klipsi@bluewin.ch To: SOLARECLIPSES@AULA.COM Date: Sat, 23 Nov 2002 12:55:15

please somebody check out <http://live7.truelook.com/face/newface.jsp?name=/nasa/mcmurdo>

to verify if the Sun is in the field of view at 23h00 UT today, nov. 23.

this is 6 PM EST in USA, or 5 PM CST, 3 PM PST.

the webcam is a robotic, remote control webcam, tilt, pan, zoom, so you can search around for the Sun.

if you can see the Sun, even in clouds, at 23h UT, this means that next year at the same time, when the eclipse occurs over Antarctica and McMurdo gets a very deep partial eclipse (not total), if the natural filter (thin clouds) is perfect, you can see the eclipse LIVE on that webcam !

please save an image of the Sun if you see it, to remember the position vs. the horizon. Klipsi

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From: GMadden

It is as of 16:50 UT this day. I will try again at 23:00 UT.

(I'm fighting someone for control of the camera . . . kinda funny really). George Madden Rochester

From: brian seales

Sorry George that was probably me you were fighting with! Maybe we should delegate one person from the list to check it out for Klipsi Brian Seales Ireland

From: Harvey Wasserman

No. No sun visible 6:01 PM Eastern. Harvey

From: Evan Zucker

I watched the sun for about 20 minutes leading up to 23h00 UT today, November 23. It's a clear day in Antarctica, and the sun was clearly visible the whole time. The sun is visible near the top of the image with the horizon just above the bottom. I took a series of screen shots, which I can send to anybody who wants them.

Maybe we can get one of the scientists at McMurdo to put a neutral density filter on that camera during the eclipse next year. -- EVAN

From: Harvey Wasserman

Sorry, didn't realize it scrolled.

The sun is far upper right, very overexposed. So much so that I am not sure if the sun is actually visible. I have posted the picture at

<http://www.macdear.com/mcmurdo.htm> Hope this helps. Harvey

From: Jean-Paul GODARD

I just sent a picture to klipsi from the Email java facilitie to Klipsi Sun Can found in field. Somebody else was playing with the zoom at the same time.... Cordialement, jean-paul.godard@noos.fr

(Continued on page 81)

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From: Harvey Wasserman

OK. Sorry for the second time, but after reading one of the other posts, I realize that I *still* didn't realize how much it scrolled, and that you could scroll up too. So the picture I posted isn't the best that can be done. All I can say definitively is that 30 minutes later I could see the sun just fine, though still very over exposed. Harvey

From: Evan Zucker

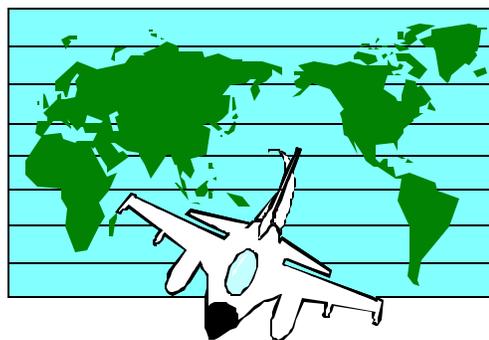
You can see all the screenshots I took at <http://www.evanzucker.com/mcmurdo>. Each one has the local time in California as the file name. The first few shots are just of the main photo. The last few show the entire screen, including my computer clock and the panorama view on the bottom.

The "money shot" is at <http://www.evanzucker.com/mcmurdo/1500PST.jpg>. Evan H. Zucker San Diego, California

REGISTRATION FORM CROYDON TRAVEL 34 Main Street Croydon Victoria Australia 3136 Email: gayle.browne@croydontravel.com.au lease register I/we aboard Eclipse Antarctica 2003 from Sydney/Perth. I/We wish to reserve the following seating

Seats
Available

- 7 First Class super premium at USD6,000
- 13 Business Class super premium at USD5,500
- 2 Business Class
(restricted viewing) 16A & 30A USD5,000
- 15 Business Class
adjacent to window seat at USD2,750
- 20 Economy super premium at USD4,000
- 20 Economy adjacent to super premium
window seat at USD2,000
- 16 Aisle seat Eclipse side at USD1,600
- 7 Super standard window seat
(over wing) at USD3,500
- 7 Adjacent to window seat
(over wing) at USD1,750
- 7 Aisle seat Eclipse side same row at USD1,400



We enclose ____ registration fees of USD200. Please charge my Visa/Mastercard/American Express/Diners Club for USD200 per person ... / ...

We require a preliminary registration fee of USD200. This fee is fully refundable less a handling fee of USD50 if you decide not to proceed with your booking within 30 days of us mailing you a copy of the tour brochure with the final tour pricing. The pricing indicated above is the indicative pricing and the final price will be set when the tour brochure is produced in December 2003. With the limited space available we believe it is essential for serious Eclipse enthusiasts to register immediately if they wish to secure a window seat aboard Eclipse Antarctica 2003. .../...



Joanne & Patrick

*The sole Newsletter dedicated
to Solar Eclipses*



THE SOLAR ECLIPSE NEWSLETTER IS A MONTHLY NEWSLETTER ABOUT SOLAR ECLIPSES EDITED BY PATRICK POITEVIN & JOANNE EDMONDS. FINANCIAL SUPPORT FROM THE RAINBOW SYMPHONY.



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11 August 1999 total solar eclipse painting by Guido Gubbels



Guido Gubbels