

# SOLAR ECLIPSE NEWSLETTER

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## The sole Newsletter dedicated to Solar Eclipses

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Dear All,

Make sure you have fully booked your seat at the Solar Eclipse Conference for August at the Open University of Milton Keynes, UK. Spaces are limited. See you in August, Patrick & Joanne

## Solar Eclipse Conference SEC2004



Open University  
Milton Keynes UK  
20 - 22 August 2004

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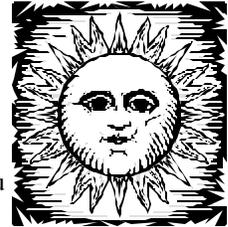
35	Picture WebPages Fred Espenak Circumstances for Cities (International)
35	Please add link
36	2005 Total Eclipse
36	2005 Galapagos Eclipse Cruise
36	Picture 2005 galapagos FrameHead
36	Picture 2005 galapagos Image86b
37	Galapagos

## SECalendar



Dear All,

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



have

For the whole Solar Eclipse Calendar, see our Solar Eclipse WebPages at

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

February 02, 1907 Death of Dmitri Ivanovich Mendeleeff (1834-1907), Russian. Uses a balloon to ascend above the cloud cover to an altitude of 11.500 feet (3.5 km) to observe an eclipse in Russia. (Ref Rc 1999)

February 02, 1998 ACE (US) starts observation of solarwind research. Ref. DD 2/99.

February 02, 2002 The E-Team, Joanne and Patrick Poitevin got married. Patrick and Joanne host the Solar Eclipse Mailing Lists, organizes Totality Day and the international Solar Eclipse Conference and edit the Solar Eclipse Newsletter and their Solar Eclipse WebPages.

February 03, 1965 Launch of OSO 2 (US). Studied solar flames and influence of it on earth. Ref. DD 2/99.

February 03, 3051 Last calendar year where there were two Annular-Total Solar Eclipses was in 1825. There was an annular-total solar eclipse on 16 June and one on 9 December 1825. The next occurrence we have as such is in 3051. There will be an annular-total solar eclipse on 3 February and one on 30 July.

February 05, -0001 (2 BC) A Partial Solar Eclipse on Feb. 5 of the year 2 BC in Chang-An, the capital of the Han Dynasty in China, was seen as a good omen for Confucianist Wang Mang, who would soon wrest control of the government from the reigning emperor. Ref. Rudi Thomsen, Ambition and Confucianism, A Biography of Wang Mang. And F.R. Stephenson, Atlas of Historical Eclipse Maps, East Asia 1500 BC to AD 1900. (Ref. ENB10)

February 05, 1934 Minor planet (3707) Schröter 1934 CC. Discovered 1934 February 5 by K. Reinmuth at Heidelberg. Named in honor of Egon Horst Schröter (1928- ), German solar astronomer and director of the Freiburg Kiepenheuer-Institut, on the occasion of his retirement. In 1976 he succeeded K.-O. Kiepenheuer at the Freiburg Institute for Solar Physics. An important achievement during his directorship consisted in negotiations about the erection of two new tower telescopes at Teide Observatory on Tenerife, Canary Islands. Schröter served as president of the Astronomische Gesellschaft from 1987 to 1990. In 1978 he became a member of the German Committee in COSPAR. (M 22499) Name proposed and citation prepared by J. Schubart, endorsed by G. Klare and L. D. Schmadel. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 05, 2002 Solar explorer successfully launched by Pegasus rocket. The L-1011 aircraft "Stargazer" takes off from Cape Canaveral to launch the Pegasus rocket with HESSI. Bryan Baldwin, Orbital Sciences' Pegasus launch vehicle program manager, said it was the first time a Pegasus count-down had been aborted only to have the countdown reset and carrier jet circle around to launch the rocket during a second try on the same day. Ref SENL 0302.

February 06, 1612 Death of Christophorus Clavius (Christoph Klau), German mathematician and astronomer. He observed the total solar eclipse of 1567 and observed the corona. Born in 1537. Ref. DD 2/99

February 07, 1824 Birth of William Huggins, British amateur astronomer. He built his own observatory on Tulse Hill, 8 km out of London. He discovered emission lines of hydrogen. In 1875 he observed together with his wife Margaret L. Murray. He studied further the spectra of planets and the solar corona, where he showed the hydrogen lines as well in 1876. Died in 1910. Ref. DD

(Continued on page 3)

## SECalendar

2/99.

February 07, 1834 Birth of Dmitri Ivanovich Mendeleeff (1834-1907), Russian. Uses a balloon to ascend above the cloud cover to an altitude of 11,500 feet (3.5 km) to observe an eclipse in Russia. In the Royal Society they mention as well 7 as 8 February 1834. (Ref. Rc 1999).

February 08, 1739 The longest eclipseless period is 22.32 years. It is the southern Indian Ocean where no solar eclipse was seen between 15 October 1716 and 8 February 1739. Same length, one saros later, 26 October 1734 to 18 February 1757 in the southern Atlantic Ocean. Ref. More Mathematical Astronomical Morsels by Jean Meeus; Willmann-Bell, 2002.

February 08, 1984 Minor Planet (3315) Chant 1984 CZ. Discovered 1984 February 8 by E. Bowell at Anderson Mesa. Named in memory of Clarence Augustus Chant (1865-1956), generally referred to as the "father of Canadian astronomy". A renowned teacher, Chant organized the Astronomy Department of the University of Toronto and built up the Royal Astronomical Society of Canada. He participated in five solar eclipse expeditions, the most important being the one he led to Australia in 1922 to test Einstein's {see planet (2001)} prediction of the deflection of starlight by a massive body. (M 12210) Name proposed by the discoverer following a suggestion by P. M. Millman. Chant is also honored by a lunar crater. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 08, 1994 Minor Planet (7436) Kuroiwa 1994 CB2. Discovered 1994 February 8 by K. Endate and K. Watanabe at Kitami. Named in memory of Goro Kuroiwa (1912-1990), Japanese astronomer and observer of variable stars. A student in the department of astronomy at the University of Tokyo on the occasion of the total solar eclipse on 1936 June 19, he independently discovered the nova CP Lac, along with Kazuaki Gomi {see planet (7035)}. While serving with the Japanese army in 1942 he independently discovered the nova CP Pup. He represented Japan in the geodetic survey program using photoelectric observations of lunar occultations, carried out from 1950 to the 1960s by the U.S. Army Map Service Far East. (M 34343) Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 08, 2003 Second edition of Totality Day, held in the Open University of Milton Keynes, England. Organizers of TD2003, Joanne and Patrick Poitevin welcomed lectures and presentations from Chris O'Byrne (Ireland), Daniel Fischer (Germany), Eric Strach (UK), David Forshaw (UK), Joanne Poitevin (UK), Olivier "Klipsi" Staiger (Switzerland), Prof. Dr. Barrie W. Jones (UK), Sheridan Williams (UK), Dr. Eric Jones (UK), Derek Hatch and Mike Foulkes (UK), Dr. Alan Ridgeley and Dr. Brian Sheen (UK), Dr. Voyto Rusin (Slovakia) and Prof. Dr. Miloslav Druckmuller (The Czech Republic), Andrew and Val White (UK), Ted Thurgur (UK), Nigel Evans and Patrick Poitevin. There were 70 attendees. The next conference will be SEC2004 on 20 - 21 - 22 August 2004 in the same Open University of Milton Keynes.

February 09, 2912 Least possible magnitude a single solar eclipse can have (only one eclipse in an eclipse season) is on 9 February 2912 with magnitude 0.154. It must be close to the theoretically minimum possible for the smallest single solar eclipse. Ref. More Mathematical Astronomical Morsels by Jean Meeus; Willmann-Bell, 2002.

February 11, 1868 Death of Jean Bernard Leon Foucault (1819-1868), French physicist. Photographed the sun and measured the speed of light together with (Armand) Hippolyte Louis Fizeau (1819-1896). (Ref. Rc 1999)

February 11, 1988 Minor planet (6001) Thales 1988 CP2. Discovered 1988 February 11 by E. W. Elst at La Silla. Named for the famous Greek philosopher Thales of Miletus (c.625-547 B.C.). None of Thales' writings has come down to us, but from Aristoteles {see planet (6123)} we know that he was the first to suggest a single substratum (water) for the Universe. The correct prediction of the solar eclipse of -584 May 28 contributed considerably to his reputation as an astronomer. Thales' significance, however, lies in the fact that he attempted to explain natural phenomena by causes within nature itself, rather than by caprices of anthropomorphic gods. He must be credited with at least five important geometrical theorems. (M 24766) Thales is also honored by a lunar crater. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 12, 1431 "In (the month of) Jumada al-Ukhra, the astrologers warned that the Sun would be eclipsed, and in Cairo there were callings to the people that they should pray and do good deeds. However, the eclipse did not occur and those who gave the warnings were denounced. Then news arrived from al-Andalus (Islamic Spain) of the occurrence of an eclipse there covering all of the Sun's body except one-eighth of it. That was after midday on the 28th of the month." From: Al-Maqrizi, al-Saluk fi Ma'rifat Du-

*(Continued on page 4)*

## SECalendar

wal al-Muluk. " In (the month of) Jumada al-Ula it was known that the calendar experts agreed that the Sun was to be eclipsed on the 28th of the month after the Zawal (i.e. after the Sun had crossed the meridian). The Sultan and the people were prepared for it and were watching the Sun until it set but nothing of it had changed at all." From: Al-'Asqalani, INBA' AL-Ghumr bi 'Bna' al-'Umr. These two quotations refer to total solar eclipse, expected in Cairo, but visible in Spain, of 12 February 1431. Quoted in Historical Eclipses and Earth's Rotation, by F Richard Stephenson, Cambridge University Press, 1997, page 446.

February 12, 1431 "On February 12 at about the 21st or 22nd hour, the Sun was completely obscured and in front of the Sun was placed a black circle like a little wheel. It became as dark as night and the sky revealed the stars. The birds went to roost as they usually do at night. Everyone was feeling ill at ease as a result of this event. It began half an hour before the Sun was covered over. It gradually lost its light even to the hour stated above. . ." Refers to a total solar eclipse in Perugia, Italy, of 12 February 1431. From: Antonio dei Veghi, Diario dall'anno 1423 al 1491. Quoted in Historical Eclipses and Earth's Rotation, by F Richard Stephenson, Cambridge University Press, 1997, page 408.

February 12, 1831 The black slave preacher Nat Turner witnessed an annular solar eclipse. It was a vision from God of a "black angel" overtaking a "white angel". The fomenting slave rebellion gained impetus and on August 13 Turner saw another spectacle - a naked eye sunspot. The rebellion began on August 21 but was quickly crushed and Turner hanged.

February 12, 1893 Marcel Minnaert (1893 - 1970) studied biology at the University of Ghent in his native Belgium and physics at the University of Leiden in the Netherlands. Minnaert published a collection of poems related to astronomy and popular books on light and color and physics of the open air. He gave a lot of explanations in regard of effects with solar eclipses.

February 12, 2002 HESSI is operational. It detected its first flare, a C2 flare early on Tuesday morning, February 12, starting at 0214 UT. The spacecraft is balanced and spinning at 14 rpm about an axis within about 0.1 degrees of the Solar Aspect System (SAS) axis. We should get accurate aspect information once the data from the SAS and the Roll Angle System are fully analyzed.

February 13, 1988 Minor Planet (4705) Secchi 1988 CK. Discovered 1988 February 13 at the Osservatorio San Vittore at Bologna. Named in memory of Angelo Secchi (1818-1878), Italian astronomer, director of the observatory of the Collegio Romano in Rome from 1848 to 1878. Famous for his work on stellar spectroscopy, he made the first spectroscopic survey of the heavens, and his classification scheme divided the spectra of the stars into four groups. Secchi also made an extensive study of solar phenomena and was a co-founder of the Società degli Spettroscopisti Italiani, now the Società Astronomica Italiana. (M 20160) Secchi is also honored by craters on Mars and on the Moon. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 14, 1779 Death of James Cook (1728-1779), British circumnavigator and one of the first scientific navigators. He observed the Solar Eclipse of 1766 August 5 from Newfoundland and in 1769 measured the transit of Venus from Tahiti. (Ref. Rc 1999)

February 14, 1953 Last solar eclipse on Valentine's Day. This century was blessed with Valentine's Eclipses. There was a partial solar eclipse in 1953, a total solar eclipse in 1934 and an annular eclipse in 1915. Unfortunately, we do have to wait till 2306 and 2325 for the next Valentine Solar eclipses. Both will be Total Solar Eclipses.

February 14, 1980 Launch of Solar Maximum Mission, American Solar mission which achieved important results.

February 14, 1996 SOHO, European Solar mission reaches observation place: lagrangepoint L1.

February 14, 2325 A region near 29 degrees East and 23.5 degrees North, in the dessert of southern Egypt, will see five total solar eclipses in a span of 31.8 years during the 24 th century: 14 February 2325, 20 June 2327, 5 February 2334, 31 July 2353, and 23 November 2356. Ref. JM 9/99.

February 15, 0538 The first solar eclipse recorded in Britain, described in the Anglo-Saxon Chronicle; it occurred four years after the death of Cerdic, first king of the West Saxons. The Sun was two-thirds eclipsed in London.

February 15, 1564 Birth of Galileo Galilee in Pisa. During a short stop of his parents in Pisa, Galileo was born. His father, Florentine Vincenzo Galilee was musician. He died in 1642 on 8 January. (ref. De jonge Galilei, Davidfonds nr. 341)

## SECalendar

February 15, 1858 Birth of W. Pickering, American astronomer. Discovered satellite of Saturn Phoebe. Predicted in 1909 the existence of Pluto, observed also the Moon, Mars and Solar Eclipses.

February 15, 1961 Dr. Menzel notes that television coverage was excellent, and almost everyone in Europe could view the eclipse in one way or another. It was Galileo's birthday, and a 45 minute television program reviewed his contributions and those of other Italian and European scientists toward our present understanding of the sun. (ref. SaT 4/1961p191)

February 15, 1961 Russians studied for the first time the solar corona and upper-atmosphere phenomena during an eclipse from high-altitude stabilized platforms. On eclipse day, about noon, Russian scientists launched a series of rockets from an undisclosed base in the zone of totality. (ref. SaT 6/1961p328)

February 15, 1961 The first attempt to show a total solar eclipse on television from several stations along the track was made by the BBC at the eclipse of February 15, 1961. The track passed from France through Italy and former Yugoslavia, and thence into Russia. The attempt was successful and totality was shown from France, Italy and Yugoslavia. In eastern Yugoslavia, the place Nis, a TV camera was placed at 4900 foot. Patrick Moore failed to broadcast the event. (ref. SaT 4/61 p 203)

February 15, 1961 The German astronomer K. O. Kiepenheuer, who was director of the Fraunhofer Institute at Freiburg, went to Laigueglia, Italy, a little village not far from Imperia. He had 3 small cameras for studying the structure of the inner corona, which he wished to correlate with surface features on the sun. His party had a dictaphone on which to record their impressions, but during totality the observers were so preoccupied they forgot to talk! Later, when the recording was played back, it had one startling feature: Birds twittered distinctly in the background up to the beginning of totality, when these sounds stopped suddenly. Immediately after totality, the birds became active again. (ref. SaT 5/1961p264)

February 15, 1961 Widely viewed through southern Europe. Observed Total Eclipse by W. Carton, J. Meeus, Partial phase observed by F. Verbelen. F. Schmeidler (Germany) tried again in Italy on deflection of starlight (relativity tests). Sun was too low. Tried in earlier and later Eclipses. Poland observed during Part (94%) with reaction of bees, masse, moths, butterflies (confirmation of earlier Eclipse observations) by Wojtusiak and Majlert.

February 15, 1973 Launch of Prognoz 3, Russian mission for research of Solar and röntgenrays.

February 16, 0538 "The sun darkened on February 16th from dawn until nine in the morning." Refers to a solar eclipse in AD 538. From: The Anglo Saxon Chronicles translated and collated by Anne Savage, CLB Publishing Ltd. Ref FE 01/01

February 16, 1086 "On the sixth day of the month of February between the sixth and ninth hours the Sun was obscured for the space of three hours; it was so great that any people who were working indoors could only continue if in the meantime they lit lamps. Indeed some people went from house to house to get lanterns or torches. Many were terrified." Refers to a solar eclipse of 16 February 1086. Goffredo Malaterra, Chronicle of the Norman rule in Sicily and southern Italy during the 11th century. Quoted in Encyclopedia Britannica CD 98.

February 16, 1980 The only cricket match to have been interrupted by an Eclipse of the Sun was the Jubilee test between India and England on February 16, 1980. A Solar Eclipse was due that afternoon, and the Indian Board, in agreement with the English team, did not want the responsibility of a crowd of 50.000 damaging their eyes by looking at the Sun when the Eclipse began. The Test Match continued on the next morning.

February 17, 1865 May 20, 1825 Birth of George Phillips Bond at Dorchester, Massachusetts. July 28, 1851 First American eclipse expedition to Europe when George Phillips Bond (1825 - 1865) led a team to Scandinavia. Died of tuberculosis on 17 February 1865 in Cambridge, Massachusetts. Ref. Bibliography of Astronomers by Paul Luther, 1989.

February 18, 1977 Minor planet (5082) Nihonsyoki 1977 DN4. Discovered 1977 February 18 by H. Kosai and K. Hurukawa at Kiso. Named for the chronicles of Japan from the earliest times to 697, written in Chinese and completed in 720. It was the first historical record compiled by the Japanese government and contained records of various astronomical phenomena, such as appearances of seven comets (including the 684 return of P/Halley), 13 solar eclipses (e.g. in 628), occultations of stars and planetary phenom-

*(Continued on page 6)*

## SECalendar

ena. It was translated into English by W. G. Aston and published under the title of Nihongi. {See also the citation for planet (5454)}. (M 22506) Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 19, 1993 Minor planet (8387) Fujimori 1993 DO. Discovered 1993 February 19 by T. Seki at Geisei. Named in honor of Kenichi Fujimori (1934- ), an amateur astronomer who observes sunspots, faculae and prominences. A formal observer designated by the Sunspot Index Data Center, he served as director of the solar section of the Oriental Astronomical Association from 1971 to 1978. (M 33388) Name proposed by the discoverer following a suggestion by T. Sato and A. Fujii. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 20, 1990 Minor Planet (5403) Takachiho 1990 DM. Discovered 1990 February 20 by Y. Kushida and M. Inoue at Yatsugatake. Named for the home town of the wife of the second discoverer, Takachiho is located at the center of Miyazaki prefecture in Kyusyu, some 900 km southwest of Tokyo, and surrounded by mountains. Takachiho is famous for its legends and myths on the root of gods. The most famous is the legend of Amano-Iwato of Amaterasu-Ohmikami (the god of the sun). This story has been handed down by Yokagura (sacred music and dance) as performed by farmers. (M 22250) Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

February 21, 1938 George Ellery Hale died in Pasadena. Principally he was an astrophysicist and he distinguished himself in the study of solar spectra and sunspots. He developed a number of important instruments for the study of solar and stellar spectra, including the spectroheliograph and the spectraheliograph. Ten years after his death, his greatest dream, the 200 inch reflecting telescope on Mount Palomar was completed. Born in Chicago June 29, 1868. Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

February 22, 1824 Birth of Pierre Jules Cesar Janssen (1824-1907, France), French astronomer and physicist. 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)

February 22, 1960 Death of Samuel A. Mitchell, American astronomer of the University of Virginia. Observed numerous solar eclipses. Born in 1874.

February 23, 1938 Minor planet 1722 Goffin 1938 EG. Minor Planet discovered 1938 February 23 by E. Delporte at Ukkel, Belgium. Named in honor of the Belgian amateur astronomer Edwin Goffin, who has made extensive computations involving minor planet orbits. Goffin chased quite a few eclipses as well.

February 24, 0453 "Even the Sun appeared hideous, so that scarcely a third part of it gave light, I believe on account of such deeds of wickedness and the shedding of innocent blood." Gregorius Turonensis Refers to solar eclipse of 24 February AD 453, when Attila the Hun was raiding Italy. Ref FE 01/01

February 24, 1938 Minor planet 1552 Bessel 1938 DE. Minor Planet discovered 1938, February 24 by Y. Väisälä at Turku. Named in honor of the eminent German astronomer Friedrich Wilhelm Bessel (1784-1846). (Ref. Sc 1999)

February 24, 1996 Launch of Polar, American satellite. Studied Solarwind in polar orbit around the Earth.

February 25, 1598 "There is a tradition that some persons in the north lost their way in the time of this eclipse, and perished in the snow." Refers to the total solar eclipse of 25 February 1598. From: Maclaurin, Philosophical Transactions, vol xi, p193, 1737. Quoted in UK Solar Eclipses from Year 1 by Williams.

February 26, 1786 Birth of Dominique Francois Jean Arago (1786-1853), French astronomer. Studied solar eclipse of 8 July 1842 and noted it exists of gas. (Ref. Rc 1999)

February 26, 1842 Birth of Camille Nicolas Flammarion in Montigny le Roi in Hauter Marne. He died in Juvsy sur Orge on 3 June 1925. Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

February 26, 1878 Death of Angelo Secchi (1818-1878), Italian astronomer. Photographed solar eclipse of 18 July 1860. Studied

*(Continued on page 7)*

## SECalendar

the sun and sunspots. (Ref. Rc 1999)

February 26, 1979 Total Solar Eclipse in Pacific Northwest. Passes through parts of Washington, Oregon, Montana and Manitoba. Observed total by G. Vandenbulcke (Gerard Deman?). Picture Bryan Brewer/Eclipse 1991 p. 37. See graph brightness from jet in Total Eclipse's of the Sun/J. Zirker 1995 p. 71+72 and p. 121+125 on F corona and interplanetary dust.

February 27, 1897 Birth of Bernard Ferdinand Lyot in Paris, French astronomer. Studied polarization of moonlight on planets. Later mainly Solar research. Constructed chronograph and the 'lyot-filter' or monochromatic polarizing filter.

February 27, 1906 Death of Samuel Pierpont Langley (1834-1906), American astronomer. Founded SAO (observatory), measured the solar constant, studied aerodynamics. The Royal Society does also mention 22 February 1906. (Ref. Rc 1999)

February 29, -0356 (357 BC) Last total solar eclipse on February 29. This 5 minutes total solar eclipse started off in the Atlantic (near the NE coast of South America), through Africa and ending in Asia. Partial solar eclipse on February 29, 128. It takes only 76 years before we have a next solar eclipse on this date, namely in 184. This is again a partial solar eclipse. This eclipse of 128 was visible in South America and Africa. February 29, 0184 Partial solar eclipse on February 29. The eclipse of 184 was visible in Europe, Eurasia and North Africa. February 29, 648 Annular eclipse on February 29 in the Antarctic and the coast of Australia. This is 464 years after previous eclipse on February 29 in 184. February 29, 1188 Last solar eclipse on February 29. Between 0 and 3000, there are 6 solar eclipses on February 29. This eclipse was an annular eclipse, visible in Australia, Papua New Guinea and Hawaii. It will be 1228 before there is another solar eclipse on February 29, namely in 2416.

February 29, 2416 Next solar eclipse on February 29. February 29, 2872 Last solar eclipse on February 29, before 3000. This partial solar eclipse will be visible in Alaska and Siberia.

February 29, 1908 Dutch scientists produces for the first time heliu m. Ref. DD 3/99.

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

Best regards,

Patrick and Joanne

solareclipsewebpagesSENL200402btopenworld.com  
<http://solareclipsewebpages.users.btopenworld.com>

### SECalendar correction - Galilei

From: AlcovedbaseSENL200402aol.com To: solareclipsewebpagesSENL200402btopenworld.com Date: Wed, 14 Jan 2004

Hi Patrick, I have one minor correction for one of the entries on Jan 8: Galileo's last name is spelled Galilei. Galilee is the French version (francophone) of his name. Regards, Haldun I. Menali Boston, MA <http://members.aol.com/astroalcove/index.html>

### SECalendar for January

From: Fraser Farrell To: eclipses <SOLARECLIPSESENL200402AULA.COM> Date: Wed, 14 Jan 2004 11:36:02

> January 01, 1386 New Years total solar eclipse in Europe. January 01, 1443 Partial solar eclipse on New Years day. January 01, 1489 Annular eclipse on New Years day. For Papua New Guinea was this eclipse visible on

2606 January 01 : Next total solar eclipse for Adelaide, Australia. The first total solar eclipse to pass over city centre since Adelaide's founding in 1836. Last TSE at Adelaide's location was 1802 March 04; therefore a 604-year eclipse "drought" broken only by the annular eclipses of 1916 Jul 30, 2418 Feb 06, 2472 Mar 10, and several deep partials.

## SECalendar

Note to self. The 2606 TSE centreline passes south of Adelaide and within cycling distance of home. Duration ~3 minutes. Plan for - huge- New Year's Eve party guest list.... ; -) cheers,

From: Fraser Farrell

> founding in 1836. Last TSE at Adelaide's location was 1802 March 04; therefore a 604-year eclipse "drought" broken only by the annular eclipses

Another note to self: that should be -804- years..... cheers,

### Binary death?

From: Tim Salusky To: solareclipsewebpagesSENL200402btoopenworld.com Date: Thu, 15 Jan 2004 22:10:51

>From the SECalendar for January:

January 14, 1742 Death of Edmond Halley (1656-1742 or 1743) in Greenwich, British astronomer. Famous for comet Halley. Observed the so called Baily's beads before Francis Baily (1774-1844). Royal Astronomer Royal from 1720 till his death. The Royal Society mentioned 14 January 1742 or 1743. Ref. Rc 1999. Born in Haggerton near London on 8 November 1656. Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

January 25, 1742 Edmund Halley, British astronomer died. During an eclipse in England, is the first to report the phenomenon later known as Baily's Beads; also notes bright red prominences and the east-west asymmetry in the corona, which he attributes to an atmosphere on the Moon or Sun. Halley observed from London (John Flamsteed (1646-1719) observed from Greenwich). Halley also probably draw the first eclipse map. Born in 1656.



Iran  
picture  
ice-  
breaker

## SEDates

### **SEC2004 Countdown**

Dear All,

Only 7 months to go. The international Solar Eclipse Conference will take place in August. Places are limited and once all seats sold out, there will be no vacancies.

See our webpages for all information about the conference, the venue and accommodation. If you still have questions, please feel free dropping me a message of-line.

#### General WebPages

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

#### SEC2004 WebPages

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/SEC2004.html](http://solareclipsewebpages.users.btopenworld.com/SEC_files/SEC2004.html)

#### SEC2004 Preliminary Program

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/SEC2004Program.html](http://solareclipsewebpages.users.btopenworld.com/SEC_files/SEC2004Program.html)

#### SEC2004 Cost

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/SEC2004FEES.html](http://solareclipsewebpages.users.btopenworld.com/SEC_files/SEC2004FEES.html)

#### SEC2004 Registration

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/SEC2004Registration.html](http://solareclipsewebpages.users.btopenworld.com/SEC_files/SEC2004Registration.html)

#### SEC2004 Menus

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/Menus.htm](http://solareclipsewebpages.users.btopenworld.com/SEC_files/Menus.htm)

#### SEC2004 Register form

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/RegisterForm.txt](http://solareclipsewebpages.users.btopenworld.com/SEC_files/RegisterForm.txt)

#### SEC2004 Leaflet

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/Sec2004.pdf](http://solareclipsewebpages.users.btopenworld.com/SEC_files/Sec2004.pdf)

Best regards,

## SEScannings

### Book "Eclipses of the Sun"

From: Bob Morris To: SE from LRM <solareclipsesSENL200402Aula.com> Date: Thu, 08 Jan 2004 13:50:29

<http://www.amazon.com/exec/obidos/ASIN/0837119820/starshopcom-wireless-20/102-6624522-3404911>

There are used copies of this book by S.A. Mitchell on Amazon.

Trouble is there were numerous editions of this book between 1924 and 1951 and as I recall the earlier editions were the more interesting.

University of Toronto, where I encountered this book, had several copies.

This is a book which should be read by every eclipse chaser since it gives a flavour of what eclipse chasing was about circa 1924 onwards. (Or earlier I think.) Bob Morris

### Stunning book!

From: Bob Morris To: SE from L R M <solareclipsesSENL200402Aula.com> Date: Thu, 08 Jan 2004

I recently encountered the book "Beyond: Visions of the Interplanetary Probes" by Benson at my local bookstore. ISBN 0-8109-4531-2 \$55 US

The images in this book, especially those of Saturn, and of Jupiter's moons in front of Jupiter, are jaw-dropping.

There are many fold outs, including of Saturn's rings, which seem almost beyond belief!

The book is reviewed in this month's Sky & Tel (p. 72-73) but for some reason the Saturn images are not mentioned.

I've just ordered my copy at 30% off from Amazon.

Eclipse images? Since none have been taken by interplanetary probes, I don't think so.  
Bob Morris



### SENL January Index

Dear all, Please find herewith the Index of the January 2004 issue of the Solar Eclipse Newsletter (SENL). Beside the topic, the page number is listed. Please post your solar eclipse related contributions to us. Thank you.

The SENL can be downloaded free of charge. You only need Adobe Acrobat Reader on your computer. For Adobe see <http://www.adobe.com/products/acrobat/readstep2.html>

Dear all, Please find here with the Index of the January 2004 issue of the Solar Eclipse Newsletter (SENL). Beside the topic, the page number is listed. Please post your solar eclipse related contributions to us. Thank you.

The SENL can be downloaded free of charge. You only need Adobe Acrobat Reader on your computer. For Adobe see <http://www.adobe.com/products/acrobat/readstep2.html>

.../...

See the latest SENL and also the complete SENL Index since November 1996 at our Solar Eclipse WebPages 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 [solareclipsewebpages-SENL200402btopenworld.com](mailto:solareclipsewebpages-SENL200402btopenworld.com)  
And ... keep those solar eclipse related messages coming ...

## SEScannings

### SEC2004 Solar Eclipse Conference

From: solareclipsewebpagesSENL200402btopenworld.com  
To: SOLARECLIPSESENL200402aula.com Date: Sat, 10 Jan 2004 20:10:45

Please remind to register for the international solar eclipse conference we are organising next August. Number of seats are limited. Please make sure you are on our attendees list!

#### International Solar Eclipse Conference

An international Solar Eclipse Conference 2004 (SEC2004) will be held on 2004 Aug 20-22 at Open University, Milton Keynes, England. The main objective of the conference is to bring together professionals and amateurs to discuss all aspects of solar eclipses. Two days of lectures will be given in each of the following disciplines: predictions, mathematics, solar physics, weather forecasting, eye safety, diameter measuring, edge and central, and ancient eclipse research. Both past and future solar eclipses will be discussed, as well as the 2004 transit of Venus.

#### Preliminary program:

Jay Anderson (Canada): "2005 and beyond - a look at eclipse weather prospects for the next five years"  
Ralph Chou (Canada): "Eye Safety: Transmittance data, reports of eye injuries, law suits and more"  
Friedhelm Dorst (Germany): "Three Exciting Black Moons"  
Leo Dubal (France): "Questioning Ancient Eclipse Records"  
Fred Espenak (USA): "Eclipse Predictions for 2005 and Beyond"  
Nigel Evans (UK): "Flash"  
Mike Foulkes and Derek Hatch (UK): "Eclipse Imaging - 20 years of trying to improve"  
Jean Paul Godard and Martine Tlouzeau (France): "Eclipses through Philately"  
Pierre Guillermier (France): "Eclipse Paintings in the XVIe and XVIIe century : The Pieter Paul Ruben's Christ on the Cross and the Antoine Caron's Dionysius the Areopagite"  
Peter Hingley (UK): "Picturing Eclipses, 1478 - 2000"  
Barrie Jones (UK): "Shadow Bands"  
Serge Koutchmy (France): "Towards a higher spatial resolution in coronal total eclipse imaging"  
Jean Marc Lariviere (Canada): "Moving Eclipses - Eclipses in Films"  
Eli Maor (USA): "Jeremiah Horrocks and the 1639 Transit of Venus"  
Jean Meeus (Belgium): "Fictitious eclipses" (health per-

mited)

Chris O'Byrne (Ireland): "A calculator and timer for eclipse day"  
John Parkinson (UK): "A Sideways Look Back at the 1999 Eclipse in the UK"  
Jay Pasachoff (USA): "Solar Eclipse Science"  
Vojtech Rusin (Slovakia) and Miloslav Druckmuller (Czech Republic): "Image Processing"  
Eckehard Schmidt (Germany): "Nuremberg - it's history of solar eclipses"  
Glenn Schneider (USA): "EFLIGHT 2003 - The Umbra on Ice from 38,000 ft"  
F. Richard Stephenson (UK): "Historical eclipses: then and now"  
Peter Tiedt (South Africa): "Automated Eclipse Photography with Electronic Cable Release and Intel-based Computers"  
Tom Van Flandern (USA): "View from the edge: The special phenomena that make totality so spectacular"  
Robert van Gent: title TBC (ancient eclipse maps)

For registration and more details, contact Patrick Poitevin (email: solareclipsewebpagesSENL200402btopenworld.com )

or visit the SEC2004 web page: [http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/SEC2004.html](http://solareclipsewebpages.users.btopenworld.com/SEC_files/SEC2004.html) Best regards,

### Eclipse novel

From: Bob Morris To: solar  
<SOLARECLIPSESENL200402AULA.COM> Date: Sun, 11 Jan 2004 15:41:44

"Shooting the Sun" by Max Byrd

<http://images.amazon.com/images/P/0553802089.01.LZZZZZZZ.jpg>

<http://www.nytimes.com/2004/01/11/books/review/11MOSHER.html>

>From Publishers Weekly

In this languidly paced historical set in 1840, Selena Cott is a young astronomer on a mission: to be the first scientist, man or woman, to photograph (or rather daguerreotype) a total solar eclipse. She joins an expedition setting out along the Santa Fe Trail, its stated purpose to prove that the eccentric genius Charles Babbage's "difference engine," a mechanical computer prototype, can reliably calculate the exact latitude of an eclipse. Selena is an American, but she was raised a tomboy in France by her sea captain father, and she brings to her frontier adventure a cultured European manner coupled with progressive attitudes about a woman's place in the world. This sets her at odds with the chauvinistic explorers on the expedition, chief among them William Henshaw Pryce, Charles Babbage's financial adviser. Pryce has a secret (and nefarious) plan to locate the remains of Babbage's fabulously wealthy great uncle Richard and claim the inheritance that remains intestate in England years after the old geezer's disappearance in America. Selena braves desert rigors, the condescension and perfidy of her colleagues, and savage Native Americans

## SEScannings

in her race toward the first scientifically recorded total eclipse in the American Southwest. While Byrd tacks on a mystery and thriller subplot at the end to create a semblance of tension, the book is mostly an engaging travelogue along the old Santa Fe Trail, served up with plenty of authentic frontier detail and enough lessons in early 19th-century navigation to satisfy the most clueless bushwhacker as to his or her exact longitude and latitude.

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**Book Description**

Charles Babbage was an English genius of legendary eccentricity. He invented the cowcatcher, the ophthalmoscope, and the "penny post." He was an expert lock picker, he wrote a ballet, he pursued a vendetta against London organ-grinders that made him the laughingstock of Europe. And all his life he was in desperate need of enormous sums of money to build his fabled reasoning machine, the Difference Engine, the first digital computer in history.

To publicize his Engine, Babbage sponsors a private astronomical expedition — a party of four men and one remarkable woman — who will set out from Washington City and travel by wagon train two thousand miles west, beyond the last known outposts of civilization. Their ostensible purpose is to observe a total eclipse of the sun predicted by Babbage's computer, and to photograph it with the newly invented camera of Louis Daguerre.

The actual purpose, however...

Suffice it to say that in Shooting the Sun nothing is what it seems, eclipses have minds of their own, and even the best computer cannot predict treachery, greed, and the fickle passions of the human heart.

**From the Back Cover**

"An engaging travelogue along the old Santa Fe Trail, served up with plenty of authentic frontier detail."-- Publishers Weekly

\*\*\*\*\*  
\*\*\*\*\*

**Problems (LRM)**

a) In 1940 there does not seem to be any eclipse in the American west. As per the following URL, the eclipse is supposed to be Sept. 5, 1840. Since there is one on Aug 27, 1840, another the next month would be problematic! I think the fact that the eclipse does not exist may be part of the plot! Sorry. :-)

<http://www.csmonitor.com/2003/1230/p15s02-bogn.html>

b) Babbage's difference engine was not finished in his lifetime.

From: Bob Morris

Since Sept. 5, 1840 is no-where near the date of a new moon, it did not take too much knowledge to be a bit suspicious! All of that travelling for nothing! LRM

**ENHA 56**

From: Wolfgang R. Dick To: enhaSENL200402astrohist.org Date: Fri, 23 Jan 2004 19:21:03

ELECTRONIC NEWSLETTER FOR THE HISTORY OF ASTRONOMY

Published by the Working Group for the History of Astronomy in the Astronomische Gesellschaft \*

Number 56, January 23, 2004 \* Edited by: Wolfgang R. Dick and Hilmar W. Duerbeck  
.../...

Item 4 ENHA No. 56, Jan. 23, 2004 Solar Eclipse Conference

(From: "Elektronische Mitteilungen zur Astronomiegeschichte" Nr. 68, 10. Dezember 2003, Item 6.)

The next international Solar Eclipse Conference 2004 (SEC2004) will be held on 2004 August 20-22 at Open University, Milton Keynes, England. The main objective of the conference is to bring together professionals and amateurs to discuss all aspects of solar eclipses. Two days of lectures will be given in each of the following disciplines: predictions, mathematics, solar physics, weather forecasting, eye safety, diameter measuring, edge and central, and ancient eclipse research. Both past and future solar eclipses will be discussed, as well as the 2004 transit of Venus.

The Open University has its headquarters at Walton Hall, in Milton Keynes which is midway between London and Birmingham, and Oxford and Cambridge.

It is necessary to make prior arrangements if you wish to attend SEC2004 or to make a presentation, lecture, or poster display. Please contact Patrick Poitevin (solareclipsewebpagesSENL200402btopenworld.com).

The programme will include also several lectures on historic topics:

Leo Dubal (France): "Questioning Ancient Eclipse Records"

SEScannings

TALK

Pierre Guillermier (France): "Eclipse Paintings in the XVIth and XVIIth centuries: The Pieter Paul Rubens' Christ on the Cross and the Antoine Caron's Dionysius the Areopagite"

Peter Hingley (UK): "Picturing Eclipses, 1478 - 2000"

Eli Maor (USA): "Jeremiah Horrocks and the 1639 Transit of Venus"

Eckehard Schmidt (Germany): "Nuremberg - its history of solar eclipses"

F. Richard Stephenson (UK): "Historical eclipses: then and now"

Robert van Gent (The Netherlands): "Eclipse Cycles"

More information is available at the conference's web site:

[http://solareclipsewebpages.users.btopenworld.com/SEC\\_files/SEC2004.html](http://solareclipsewebpages.users.btopenworld.com/SEC_files/SEC2004.html)

[Source: conference's web site, see above]

Imprint

Electronic Newsletter for the History of Astronomy (ENHA)

Published by the Working Group for the History of Astronomy in the Astronomische Gesellschaft

Editors: Dr. Wolfgang R. Dick <[wdick@SENL200402astrohist.org](mailto:wdick@SENL200402astrohist.org)> and Dr. Hilmar W. Duerbeck <[hduerbec@SENL200402vub.ac.be](mailto:hduerbec@SENL200402vub.ac.be)>

All items without an author's name are editorial contributions. Articles as well as information for the several sections are appreciated.

Subscription for ENHA is free. Readers and subscribers are asked for occasional voluntary donations to the working group.

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Archives: Previous issues of ENHA are to be found at <http://www.astrohist.org/aa/enha/>.

Visual color impression of the corona

From: Jpdowning@SENL200402aol.com To: SOLARECLIPSES-SENL200402aol.com Date: Mon, 05 Jan 2004 03:29:25

Hi all, Recently, I ran into a 19th Century eclipse article from pre-photography days. An expedition of astronomers from the Chicago Astronomical Society came out west for the 1878 eclipse. The professors recruited 16 volunteers and asked them to concentrate on one quadrant of the eclipsed Sun, noting its form, extent and color, then to draw what they had seen. The Moon met the Sun at 40 degrees above the horizon in a very clear sky. Though one lone protuberance (prominence) was mentioned, apparently it was not considered as part of the corona for the color question.

Answers to "what is the corona's color?"

White	2	Yellowish white	3
Yellowish tint	1	Straw color	4
Deeper than straw	1	Yellow	3
Yellowish red	1	Orange	1

Professor Colbert then averaged the 16 impressions and reported the corona to be "pale yellow."

The three times I've seen the corona, (all high enough above the horizon to prevent any atmospheric coloration) it looked pretty similar in color, but not even close to what these witnesses report.

I am wondering for those who have seen the corona,

- 1) What word or phrase would you use to describe the color of the corona?
- 2) To take it a step further, what tri color mix would you use to match the color of the corona? Specifically, there is cool color mixing applet at [http://www.cs.rit.edu/~ncs/color/a\\_chroma.html](http://www.cs.rit.edu/~ncs/color/a_chroma.html)
- 3) For comparison, it would be interesting to try the same thing for the photosphere just before totality.

If anyone is interested in trying this, select 520, 470, and 620 as the three species of your triangular gamut. Off list, send me your verbal color description and the three numbers indicating the visual impression for the corona and three more for the photosphere. I'll collect them and send you the results. (Please note the order of the three wavelengths is NOT by increasing size.)

By the way, this is obviously a poll, not a scientific test due to horrendous methodological problems such as the differences in color

(Continued on page 14)

## SETalk

monitors, unreliability of color memory, etc, etc. But still, I'm curious to see what people say. Thanks, James Downing jpdowningSENL200402aol.com

From: Robert B Slobins

JP: I print my coronal images to reflect what I see, period. This includes not only extracting all possible information from the negative and retaining the smooth appearance (no haloes as one finds in radial-gradient filtered images) of the corona in the sky, but also retaining the colour of the corona.

Let's keep it simple: If a daylight film is balanced for 5500K, then the corona is white, just as in daylight as the sun is 5500 K. Not yellow, but white. Period. The corona beyond a solar diameter is mostly dust reflecting sunlight, and that is where I balance the colour. And remember that the corona inside that distance also includes the dust (K-corona, if I recall correctly at 1AM) corona--in fact, one is looking though a lot of dust.

If the eclipse is close onto the horizon, then its light will be warmer (except in the case of Antarctica, apparently). cheers/rbs

From: fabioSENL200402voreas.com

> I am wondering for those who have seen the corona,  
> 1) What word or phrase would you use to describe the color of the corona?

The expression I often use is "heavenly white". I am not trying to attach any religious connotation to the expression, but rather to say that it is a color that is "out of this world". This is my impression after seeing "only" (compared to others in this list) two TSEs ('99 Iran, '01 Angola). In both instances the silvery (here goes another good adjective) white was a wonderful contrast over the muted dark blue of the sky around.

> 2) To take it a step further, what tri color mix would you use to match the color of the corona? Specifically, there is cool color mixing applet at [http://www.cs.rit.edu/~ncs/color/a\\_chroma.html](http://www.cs.rit.edu/~ncs/color/a_chroma.html)  
> 3) For comparison, it would be interesting to try the same thing for the photosphere just before totality.

The problem here is that there are colors that simply cannot be represented by CRTs or LCD panels. The only way to do it would be to use R,G,B components larger than 1.0 (assuming each primary color goes from 0 to 1 in floating point) or larger than 255 (assuming each primary color goes from 0 to 255). The other issue is that the sample color over different backgrounds produces different reactions on peo-

ple. Fabio Pettinati San Jose, CA

From: Gerard M Foley

>I am wondering for those who have seen the corona,

>1) What word or phrase would you use to describe the color of the corona?

Pearly white

>2) To take it a step further, what tri color mix would you use to match the color of the corona? Specifically, there is cool color mixing applet at [http://www.cs.rit.edu/~ncs/color/a\\_chroma.html](http://www.cs.rit.edu/~ncs/color/a_chroma.html)

>3) For comparison, it would be interesting to try the same thing for the photosphere just before totality. If anyone is interested in trying this, select 520, 470, and 620 as the three species of your triangular gamut

.<snip>

Sorry, but I could not adjust the applet to those numbers. Gerry

From: Joel Moskowitz

I would say "pearly-white". Except fro 2002, when it was golden yellow because it was low on the horizon (I was at the sunset point)

From: Mark Egan

Does anyone still have a copy of the article "Strange Eclipses" by Stephen O' Meara in the August 1999 issue of Sky and Telescope? Funny thing.... I was reading this article (for the umpteenth time) a few days before this topic started.

Some quotes from the article regarding this topic:

"The corona's spectrum shows faint emission lines in the green; thus we would expect the corona to display a weak greenish tinge"

(According to the article, the artist E. Leopold Trouvelot noticed thisat the 1878 eclipse, as did Clyde Fisher (Hayden Planetarium) at the 1937 eclipse.)

Also: "During totality (referring to the 1991 and 1994 eclipses) the sky near the eclipsed sun was not red but the horizons were blazing with that color. Those who first looked at the brilliant horizon then turned their gaze toward the eclipsed sun might have been susceptible to seeing the pearly luster of the corona dyed with bluish or greenish light"

A contrast effect, perhaps?

(Continued on page 15)

## SETalk

Also, in the article, O' Meara quotes R.L. Gregory from his book "Eye and Brain: The Psychology of Seeing":

"...expectation, or previous knowledge of the normal color of the objects is important"

He proves this by saying that he saw prominences at his first TSE as magenta.... but he notes that that is not really his description, but rather the description of someone who told him that prominences were that color.

He later "made up his own mind" as to what color he saw prominences as.....

But this topic is about the corona, so I digress.

Anyway the point on that last paragraph is: how many of you were told (or read) that the corona will appear a certain way (white, pearly, greenish-white, etc.) and how many of us have actually concentrated to get a good look at the corona and its color?

To throw in a bit of personal experience: my only TSE (so far) was East of Munich in August 1999 but I had to see it through a moderately thick cloud. I saw the disc of the moon, the corona and some (but not all of) the prominences. I would say that the corona was white but I can't give a fair answer b/c of the cloud.

A little OT-- what surprised me also was that the disc of the moon appeared as an ashen grey-- NOT black-- was this due to the cloud? Do clear sky TSE's show the moon's disc as black. Anyway.... happy 2004!!!! Mark Egan astrophotoSENL200402yahoo.com

From: Robert B Slobins

'Pearly' may mean luminescent, as opposed to flat or matte.

We need to recognise the fact that people see colours differently from each other. It is a matter of perception. Colour reproduction is not a trivial activity.

Incidentally, the prominences are indeed a hot pink or magenta. You are adding the Balmer series of Hydrogen: red, blue and the violet lines plus the yellow of helium and that will create this complex colour. Do not be fooled by the H-alpha filtered images as the natural visible colour of prominences.

Now a question: When one observes the sun with a commercial H-alpha filter, and then does the same with a H-beta filter, will he see any differences in the chromospheric features between the two filters? If not, then when I print out my chromospheric images, then I would transform the colours to "prominence pink". Would that colour be faithful to the truth? cheers/rbs

From: Gerard M Foley

Noone ever told me what color the corona would or should be. I chose the same words as Joel Moskowitz, pearly white.

To give more detail.

Some cloud was involved in my first three eclipses. In both 1932 and 1963 a mackerel sky developed along the shadow path in front of totality, so that the thin cloud obscured the outer corona, and probably reduced the detail of the inner corona. In 1954 fairly dense fog arose just before totality, so that the inner corona was even less well defined than in the other two. In all three cases I remember the inner corona as white.

In 1970 the sky was perfectly clear, with not a cloud anywhere. I did not pay any significant attention to the horizon color. The inner corona was pearly, iridescent, with an impression of movement. I mentioned this to Prof. Waltmaier of Zurich the night before the (clouded out) eclipse of 1972, but he could not comment, not having looked directly at the corona during any of the 28 TSE's he had

*(Continued on page 16)*

## SETalk

observed (under dark cloth).

In 1973 the sky was cloudless, but whitened by dust from the desert, so that the pearly quality was not so apparent. In 1998 and 1999 I called it pearly in perfect skies. In 2002 I was clouded out for the second time.

See <http://home.columbus.rr.com/gfoley> Gerry

From: JpdowningSENL200402aol.com

Hi all, In 1991 in San Blas, Mexico a thin guazy cloudy covered the sun at 3rd contact and afterwards. I could see a crescent of sunlight on one side of the sun and the corona on the other for at least 5 seconds. There is no question that they were distinctively different colors: the corona seemed a very pale blue, like a fluorescent tube, while the photosphere was vanilla. Wouldn't it be true that the tiny crescent of photosphere (which is dimmer at the sun's limb anyway) gets mixed with the red light from the chromosphere and be warmed up compared with the corona's light that is being reflected from the whole sun? (It might be that the corona was pure white, but my feeling of it being "cold" light drags my memory of the color toward the blue.)

Gerry said

<The inner corona was pearly, iridescent, with an impression of movement. >

No one ever calls the corona flat white or chalky white. Pearls are layered, and these layers can cause tiny flashes of spectral colors to appear. How does coronal light become pearly? Thanks, James Downing

From: Jay.M.PasachoffSENL200402williams.edu

Hi. I discovered the description "pearly white" in an article about an eclipse by Edmond Halley, so that is where that hoary description comes from.

As to an earlier comment about the green coronal emission line:

a) there is also a red line of about equal strength, and a bunch of other weaker lines across the spectrum;  
b) those coronal lines are less than 1 angstrom wide, out of about 3000 angstroms of visible light, so they contribute a negligible amount to the total light (and color) of the corona, even at the innermost part, even if in that narrow region they are 10 times brighter than the continuous radiation at that wavelength is; c) the strength of those emission lines drops very drastically with height above the solar edge, within the innermost 10th of a solar radius, or so. I'm travelling now (at the American Astronomical Society meeting in Atlanta) so I don't have my tables/graphs with me, but there is a regularly reproduced graph (I know it is in Chapter 1 of *Nearest Star*, my popular book of two years ago with Leon Golub as coauthor, for example) showing how rapidly the strength of the coronal lines drops off compared with the continuous corona. Jay Pasachoff

From: Jay.M.PasachoffSENL200402williams.edu

H-beta should look just like H-alpha, though somewhat fainter and, of course, blue instead of red. Jay Pasachoff

From: Robert B Slobins

Would the helium yellow line carry exactly the same features as the hydrogen lines?

From: Dietmar Staps

The painter Howard Russell Butler received an invitation by professional astronomers, painting the corona. Normally the portrait painter needs 10-12 sittings of two hours each. Unfortunately Totality is a little bit shorter (June 1918 112 secs). Butler concentrated also on the colour of the corona and prominences. 20 and 10secs he devoted to these subjects.

in short:

*(Continued on page 17)*

## SETalk

inner corona : neutral in colour, "whitish"  
outer corona : extensions of yellowish and greenish tones

Please read the Butler Article in Natural History 19,p.264-271(1919) for more information.

From: Robert B Slobins

And how is "perfect colour vision" defined?

I can imagine that if there are people who have perfect pitch, there are those who have perfect colour vision. Or do we perfect colour vision as a skill like perfecting one's speech by getting rid of a regional accent.

I have to say that in 1970, 1979, 1988, 1991, 1994, 1995, 1998, and 2001, the corona appeared white to me. In 1972 and 1973 and possibly 1999, the corona had colour. However, there was a significant amount of clouds, humidity, or suspended particles (sand) in the air that warmed the corona.

The 24 January 1925 eclipse was at a low altitude in the morning, despite the coldness (-18 C) and clarity of the sky.

I would question Maunder and Moore's description. Let's say that when I balance the corona to white, the colours of rest of the image: the sky, <shudder> clouds, and lunar disk, fall into place.

Please note that when I did this printing, I was renting colour darkrooms in New York City and at times was surrounded by critics: professional photographers who were busy working for and with very picky clients on advertising and fashion projects. They had better know colour balancing and matching or else starve. cheers/rbs

From: Bob Morris

Butler's painting of the Sept 10, 1923 eclipse is the frontispiece for Mitchell's 1924 book on eclipses, which introduced me to the wonders of total eclipses and prompted me to see the 1963 eclipse in Quebec.

IMO this painting stands up remarkably well to the multi-exposure corona portraits we are now used to. Bob Morris

From: Chris Malicki

Having seen 9 total eclipses of the sun I feel I must state my impressions. The corona is a "brilliant electric white". By this I mean that it is a pure white colour (not yellow) with an almost fluorescent type of quality of white, not a white that can possibly be shown in a photo. It is most brilliant and spectacular. My 2c worth, Chris Malicki

From: barr deryl

Francis Baily writing about the 1842 eclipse described the color of the corona thus: ". . . quite white, not pearl-coloured, nor yellow, nor red . ." Observers in 1869 at Mattoon, Illinois, saw the corona as "a clear silvery light." Rebecca Joslin observing the 1925 eclipse from Norwich, Connecticut, disagreed: "Gold it was, and not the pearly, silvery crown we had been told to expect." But perhaps the definitive answer is found in Maunder and Moore's "The Sun in Eclipse:" "The colour is a pearly pink/grey to those with perfect colour vision." (p 152)

From: Joel Moskowitz

Actually, this is a physiological effect. Has to do with exhausting the visual proteins in the cones in the eyes. You can demonstrate this for yourself. Stare at a red piece of paper for a minute, then quickly look at a white piece of paper. It will appear green, That is because you will have exhausted the red receptors, so when you look at white, the red ones fail and you will see green, as these are the prominent receptors that are still able to work. Joel M. Moskowitz, M.D.

From: Jay.M.PasachoffSENL200402williams.edu

The helium is excited at somewhat higher temperatures than the hydrogen (more like 50,000 K instead of 10,000 K), so it could show a somewhat different configuration, though the main features would overlap.

From: Jay.M.PasachoffSENL200402williams.edu

Oh, is the quote below why there are these references to a greenish corona? As soon as it appeared, I wrote Sky & Tel about the error and two of the editors replied that they were very embarrassed not to notice the problem, since it is just not true that there would be any greenish tinge, given the weakness of the emission lines. They said they would run an erratum. Jay Pasachoff

From: ShivapujaSENL200402aol.com

for those of us that don't always understand the science involved:

Attached: body part1

What is the Daily Buzzword for January 8? helium \HEE-lee-um\  
noun

What does it mean? : a light colorless nonflammable element that is found in various natural gases and is used especially to blow up balloons

(Continued on page 18)

## SETalk

*(Continued from page 17)*

How do you use it? "Don't forget to pick up the tank of helium so we can blow up the balloons for the party!" shouted Mom as we rushed out the door.

Are you a word wiz? "Helium" developed from the Greek word "helios," which means "sun." Why do you think a kind of gas was named after the sun?

- A. because helium is effective only on sunny days
- B. because it makes things rise toward the sun
- C. because the scientist who discovered it liked warm sunshine
- D. because helium was first discovered to exist on the sun

Answer: In 1868, French astronomer Pierre Janssen was analyzing the results of a test he ran during an eclipse and noticed that his data suggested that the atmosphere of the sun contained a lot of one particular element. He thought it was sodium, but later astronomers found it was a previously unknown element. Since they thought the new element existed only on the sun, they called it "helium," after "helios," the Greek word for "sun." By 1895, scientists had discovered that helium does exist on Earth (it is actually the second most common element in the galaxy), but they stuck with the sun-based name anyway.

#### A FUNNY SEMI- ECLIPSE RELATED STORY

from: Mark Egan <astrophotoSENL200402yahoo.com>  
date: Tue, 06 Jan 2004 18:45:47 to: solareclipsewebpages-SENL200402btopenworld.com subject: Re: OT eclipse story?

I told this story recently to some of my friends, and, being somewhat of a slow time for eclipses, I decided to share it with you.

Every time I tell the story, I start it something like this:

My interest in solar eclipses helped me to get gas in the desert when I really needed it one day.

Huh? Yeah, that's the response I usually get. Here's the story:

March 1999: A friend of mine and I were on a photography trip to the mountains and deserts of western Texas. One day, we were in Guadalupe Mountains National Park. I looked at the gas gauge in the morning, and I remember us having about half a tank. No problem. So we spent the next few hours doing some driving and hiking to different places, taking lots of pictures of the pretty scenery. We were concen-

trating so much on the photography that we failed to realize that we were doing a fair amount of driving. I passed my gaze over the gas gauge (really by accident) and.....it was really close to Empty. REAL close. OK..... time for gas. What's the closest decent size town? Carlsbad, New Mexico. 50 miles away. Now I KNOW they've got gas, since that's a "tourist town" that serves as the gateway to Carlsbad Caverns National Park. But gee, this tank is dry. Can we make it that far? We looked at the map again. Is there any town that is closer? Well, yes. Dell Junction, 30 miles away. But it's just a dot on the map. We looked up the population of the town. 15. Yikes. With that low of a population, not much chance of it having a gas station. Time to head to Carlsbad..... waaaaaiiit a minute.

So my mind at this point rewinds back to 1994..... Remember the annular eclipse in the U.S. in May of that year? Sky and Telescope magazine had an article late that year summarizing reports from the event. In a little side box (not in the main body of the article) there was a story about a person who was wandering the very empty roads of West Texas looking for 2 things: a hole in the clouds and a solar filter. (He had left his somewhere else... his hotel I think). But that section of Texas does not have much at all..... finally he came up to 2 small buildings: a post office and a gas station. He ran inside the gas station, bought pop-tarts, and used the mylar around the pop tarts to view the eclipse. (BTW was this really safe?) The name of the town: Dell Junction.

Fast forward to 1999 again. I yell out: "Dell Junction has a gas station!" So we head west to the town, and sure enough, there is a post office and a gas station. We got the gas. Out of curiosity, we looked at the gas pump to see how much gas was necessary to fill it up: 16.1 gallons. Then we looked in the instruction manual of the rental car to see the tank's capacity: 16.1 gallons. We cut it close!

To this day I do not know if we would have made it the extra 20 miles to Carlsbad. But if I had not been into eclipses, or if that 150 mile- wide eclipse path had happened somewhere else, and if the person had not forgotten his solar filter, then I would not have known that Dell Junction had a gas station..... and I would have chosen to go to Carlsbad. I might have run out of gas in the empty desert a few miles short of Carlsbad.

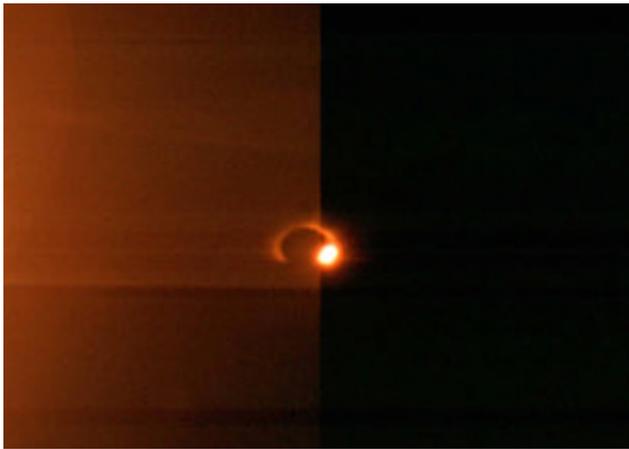
Coincidences are so cool! Hope you enjoyed this fun little story. All the best..... Mark Egan astrophotoSENL200402yahoo.com

#### Globe -spanning totality!

From: Jen Winter - ICSTARS Astronomy To: SOLARECLIPSES-SENL200402aula.com Date: Wed, 14 Jan 2004 06:13:11

Here's a world first, I think? Our friend Tora Greve of Sweden who joined us on the Novolazarevskaya Antarctic Eclipse expedition just recovered the roll of film stuck in her "frozen" camera. She had previously recorded that the camera failed to function and froze during

## SETalk



**global spanning eclipse Kopia%20av%20Toras%20dianantring**

the event. As it would turn out, the camera froze during totality, but after she successfully imaged it.

That's not the first. When she developed the film, she found an image of the Total Lunar Eclipse taken during a partial phase only a few frames ahead of the Total Solar Eclipse on the same roll of film!

Eclipse to eclipse was 125 latitudinal degrees! 55 deg north in Malmo Sweden for the total Lunar - to 70 deg south to Novo Antarctica for the total solar! wow! <http://www.siriussolarsystem.se/eclipse20032.htm> Clear Skies, jen

#### **APOD- Astronomy Picture of the Day website and book**

From: KCStarguySENL200402aol.com To: SOLARECLIP-SESEN200402aula.com Date: Sat, 10 Jan 2004 23:13:38

>From CNN from the authors of APOD- Astronomy Picture of the Day website and book Robert Nemiroff (MTU) & Jerry Bonnell (USRA) <http://antwrp.gsfc.nasa.gov/apod/astropix.html> now has come out with a book with the best of the APOD (Moon, Galaxy, space and other photos). I don't know the list but I am certain there is probably an eclipse picture or two in the book.

Meanwhile you can also look through the archives at <http://antwrp.gsfc.nasa.gov/apod/archivepix.html> and see the APOD that relate to eclipses that I have found previously at the archives on these following dates

2003 December 08: An Antarctic Total Solar Eclipse  
2003 November 08: Eclipsed Moon in Infrared  
2002 December 06: Zimbabwe Solar Eclipse

2002 December 04: Moon, Mars, Venus, and Spica  
2002 December 03: Eclipse Over Acacia  
2001 June 22: Eclipse in African Skies  
2001 June 21: Diamond Ring in the Sun  
2001 June 20: Total Eclipse of the Active Sun

Dr. Eric Flescher (kcstarguySENL200402aol.com),

From: KCStarguySENL200402aol.com

Glenn Hey congrats on that APOD pic in 1999 Glenn. The pictures are out. The person on CNN was thumbing through the book for one of the authors. They showed a few including one of an astronaut on the moon, two pics from the Hubble and more. Dr. Eric Flescher (kcstarguySENL200402aol.com),

#### **Photo mishaps**

From: Klipsi To: SOLARECLIPSESEN200402AULA.COM  
Date: Sat, 10 Jan 2004 06:41:06

Gernot wrote : somebody broke off my car on the way to Stockholm and took nearby all my equipment and slides!

sad to hear this... ;-( speaking of mishaps : guess what happened to me when I returned from Antarctica ? I had , on top of video and digital photos, shot 17 slide films and 4 print films. I brought all those 21 film rolls to the same photo processing shop. guess what they did ? they processed ALL 21 rolls in the same process, for slides. Including the 4 print films !!! Now prints look like slides, too dark, and all blue. Looks like photos taken at night in full moon light ;-) now I guess I will definately go digital, buy the new Canon 300D. also, with the 1.6 factor my 400mm lens becomes a 640mm lens, which is realgood for eclipses. Klipsi

From: Robert B Slobins

Klipsi:

1--Did you separate the slide files from the print films and package them in different groups? Did you mark the packages clearly?

2--Do you use a \*professional\* photo processing shop?

3--You may have 'art'. Cross-processing is a favourite way of getting something 'different' to exhibit. This is done in New York City all the time. Otherwise, you have a lot of work to do on your computer.

4--Your 400 mm lens is a 400 mm lens, period! The image size is still the same; you just have less frame space to cover, so in that respect, you have a 640 mm lens coverage equivalent. But let no one think that you get an extra 240 mm focal length! Also, verify

(Continued on page 20)

## SETalk

that you can use your current lenses on the camera body. cheers/rbs

From: klipsi@SEN200402@bluewin.ch

Hi Ray,

>1--Did you separate the slide films from the print films and package them in different groups? Did you mark the packages clearly?

I brought them to that special shop, not supermarket nor department store, put all films on the table but did separate the prints from the slides. There was no confusion possible. The slides were Provia 100f and Velvia 100f, the prints were Superia 400. Clearly different tags and colours.

>2--Do you use a \*professional\* photo processing shop?

ironically, yes ! it is clearly their mishap. he must have been day-dreaming.

>3--You may have 'art'. Cross-processing is a favourite way of getting something 'different' to exhibit. This is done in New York City all the time.

hm, interesting. I'll have a look at what it looks like without PC processing. thanks. Klipsi

From: Jen Winter

>3--You may have 'art'. Cross-processing is a favourite way of getting something 'different' to exhibit. This is done in New York City all the time.

There is actually a photographer known on the art circuit who turned such a travesty into his own good fortune. I understand he was a nature photographer with a very expensive large format digital camera, and was out in nature... where the camera dropped into the water. The camera was forever spoiled and all pictures thereafter had bizarre and random color irregularities in every shot taken from there out. Now he sells his artwork with the new modern color scheme on old landscape imagery. He's tried to duplicate the problem with other equipment with no luck. There must have been something magic in the slime of the bog that day... Nature's funny and beautiful that way, isn't she?  
jen

**Number of eclipses**

From: Timo Karhula To: SOLARECLIPSE@SEN200402@AULA.COM  
Date: Thu, 08 Jan 2004 15:02:38

Hi list, I'm not sure if it has been mentioned on this list but Paul Maley of Ring of Fire Expeditions has seen an impressive number of 44 solar eclipses. Is that a record? See <http://www.eclipsetours.com/eclipsepage/>  
Timo Karhula

From: Sheridan Williams

I followed up Timo Karhula's comments about Paul Maley's eclipse observation record. I note that Paul Maley has seen around 16 total solar eclipses, and 12 annulars.

Could someone persuade Paul Maley to let me have his eclipse list for my league tables? I can't extract the details from his web site because I don't know the durations and whether he was successful.

From: Crocker, Tony (FSA)

The page shows only 16 totals. The total/annulars were in annular locations. Some of the locations look like probable cloud-outs. Glenn and Jay can rest easy.

From: Timo Karhula

Does it count as a success in Sheridan's table, if an eclipse is classified as a 4 (barely visible)? I'm referring to the totality in Finland 1990. Everyone said it was clouded out on the ground but it was not (completely). In my video footage, the upper one fourth of the corona is shining through the clouds, approximately how it appeared at the Shlebnikov (sp?) in the Antarctic recently. Did anyone see the Finland eclipse from the ground and where were you? I was located by the lake Pielinen near the hill of Koli, about 60 kms north of Joensuu. Cheers, /Timo Karhula

From: Sheridan Williams

I agree that it's a tricky call to judge. I tend to credit people with whatever duration of totality they say they have seen. Like cheating at patience, it is up to the individual what times they claim.

If anyone thinks that I have not credited them with the correct times, please email me off list and I'll correct their entry. In the meantime if Timo will let me have his times for both annulars and totals I'll add them to the table.

From: Gernot Meiser

Yes I saw the eclipse in Finland in 1990 but for a very short time through the clouds. I was located directly at the Russian border. Unfortunately I have only pictures of the partial phase because somebody broke off my car on the way to Stockholm and took nearby all my equipment

## SETalk

and slides! I would check the precise location if you do want to know it. Gernot Meiser

From: solareclipsewebpagesSENL200402bopenworld.com

Timo Karhula wrote: .../... Did anyone see the Finland eclipse from the ground and where were you? I was located by the lake Pielinen near the hill of Koli, about 60 kms north of Joensuu.

Dear Timo, I was in Finland at the lake too, but I have from the position and the maps Suomujärvi, Finland. But I did not see anything during that eclipse. Best regards, Patrick

From: Mark R. Kidger

Timo Karhula wrote: .../... Did anyone see the Finland

eclipse from the ground and where were you? I was located by the lake Pielinen near the hill of Koli, about 60 kms north of Joensuu.

Dear Timo, I was in Finland at the lake too, but I have from the position and the maps Suomujärvi, Finland. But I did not see anything during that eclipse. I was close to Mikkeli in central Finland. The sky was 98% clear, with only a thin band of cloud in one direction to 5° above the horizon. Guess which...

My best view was through cloud about 2 minutes before totality. Mark

From: JpdowningSENL200402aol.com

<Timo Karhula wrote Did anyone see the Finland eclipse from the ground and where were you?>>

I was at the top of a small ski hill, I believe about 40 km west of Joensuu, though I'm not sure of the exact location. As it was 4:40 AM, the sun was up, but the sky before the eclipse did not seem very bright. We watched the partial phases as the moon approached. There were some tall cumulo-nimbus clouds that rose to maybe 20,000 feet to our west, about 5 miles away. We saw the approaching shadow clearly. The sky got dark enough to agitate the cows grazing around us. A sheet of opaque clouds had been sliding down from the northeast for the previous half hour, then just two minutes before the total phase began, the sheet covered the sun and everything to the northeast. Very odd, because the ground got quite dark while the clouds to the west flared up with a deep crimson glow and remained that way throughout the eclipse. Those clouds must have been just outside the umbra, bathed in chromospheric light. We knew the exact instant that the eclipse ended because those clouds lit up just as if a spotlight had been turned on them. I've never seen that cloud color before or since. Though the sky phenomena were interesting, I don't consider that I saw an eclipse that year. James Downing JpdowningSENL200402aol.com

From: Arne Danielsen

Timo, I was clouded out from my location on a golf course in Kontiolahti (a few km NE of Joensuu). A narrow slit in the cloud-cover allowed me to follow the partial phase from around 04:15 (local Finnish summertime), but at 04:39 (14 minutes before totality) I ran out of luck and the Sun was lost behind the clouds :( Best regards, Arne

From: Felix Verbelen

Hello everyone.

> Did anyone see the Finland eclipse from the ground and where were you?

After having seen a magnificent total solar eclipse on June 11th, 1983 in Java (near Glagah, on the beach of the Indian Ocean) just accompanied by a friend and 3 Belgian tourists we met at our hotel in Jogjakarta, I definitely wanted my wife and kids to see the morning eclipse in Finland on July 22nd, 1990. Starting from our home in Belgium, we went all the way by car, crossing Germany,

*(Continued on page 22)*

## SETalk

Denmark, Sweden up to Haparanda at the northern point of the Botnian Gulf and then down in Finland to Ilomaatsi and further to a tiny place called Haapavaara, in all some 3000 km, where we spent a couple of days in a blockhouse, less than 500 meters from the Russian border and already in the zone of totality. On the morning of the eclipse (the middle of the night), we drove some 60 km to a place located on a hill not far from a lake and almost perfectly on the central line, between the villages of Hiisakoski and Tyrjansaari (about 25 km NW of Ilomaatsi). Not really to our surprise, we found at that same spot a group of umbraphiles who had been there already for several hours. On our way, at a number of occasions, we had seen the partially eclipsed sun through the clouds just above the horizon, but took no pictures. We arrived only 20 minutes before totality, got the camera installed well in time for totality, but the Sun/Moon weren't seen anymore. The dip in ambient light at the time of totality was really spectacular, but my wife, daughter and son (twins, 15 years old at that time) were disappointed.

Just to compensate their frustration (and mine), we drove the same day to Sodankyla in Lapland (where we saw some pictures of the totality on a Russian channel). The weather there was great, and we were back home only 4 weeks later, via the North Cape and another 5500 km ...

On August 11th, 1999 we were among the lucky ones who actually saw a beautiful totality in France (near Vouziers). Kind regards.  
Felix Verbelen

From: Timo Karhula

Thank you all for sharing your more or less succesful eclipse accounts in Finland 1990. Since I did not have any digital equipments to record the eclipse (there were not so many at that time), I'm going to scan one or two photos showing the upper corona. The photos are not of the best quality, though. Stay tuned. Greetings, /Timo Karhula

From: Timo Karhula

Hi SEML, As I mentioned in a previous mail, some corona was indeed visible from the ground at the TSE in Finland on July 22, 1990. The photos are not of very high quality since it was my first (and only!) attempt to photograph a totality and I was not using a cable release. The coronal light was more pronounced when looking through the view-finder and on the video-film. I clocked the totality as lasting 81 seconds. Stupid and engaged as I was, I never looked at the totality directly. I was located at (about) long +63d07', lat +29d50', by the lake of Pielinen, near Koli hill.

<http://w1.213.telia.com/~u21321981/html/Totality%20in%20Finland%201999/Totality%20in%20Finland%20July%2022.htm>

Here are three photos from Purple Downs in South Australia, before the TSE on Dec 4, 2002. The first photo shows my video-camera and in the background the Astronomical Society of South Australia's (ASSA) 4-inch Takahashi refractor. The second photo shows umbraphiles with Reinder Bouma from the Netherlands in the background (looking through a camera). It's me on the third photo.

<http://w1.213.telia.com/~u21321981/html/Totality%20in%20Australia%202002/Totality%20in%20Australia%202002.htm> /Timo Karhula

### About eclipse calculations: 2 questions

From: luca quick To: SOLARECLIPSESEN200402@ula.com Date: Wed, 14 Jan 2004 14:05:39

Dear Eclipse Friends, I'm looking for two algorithms:

- a) a precise criterion to discriminate if a New Moon gives rise to a solar eclipse or not, taking in account the non spherical shape of the Earth
- b) a procedure to calculate the coordinates of the site of greatest eclipse in the case of non central eclipses (total, annular or partial).

For both the algorithms, the besselian elements are supposed to have been already calculated.

## SETalk

I have used a test which fails to identify the smallest partial eclipses as "true eclipses" (for example the eclipse of 1935 January 5, magnitude=0.001). At first, I check that  $|\text{Moon Latitude}| < 1^{\circ}35'$  (Danjon, *Astronomie Générale*, 1994). Then I calculated the Besselian elements. From them, I calculate the time of maximum eclipse, which is time when the quantity  $(X^2+Y^2)$  reaches a minimum. For this time, I evaluate the value of the Besselian elements X, Y, D, L1, L2 and calculate  $\rho = \sqrt{1 - 0.006694385 \cdot \cos(D)^2}$  (Meeus, *Mathematical Astronomy Morsels*, 1997). The quantity  $\rho$  is the minor semi axis of the elliptical section of the terrestrial spheroid with the fundamental plane. If the quantity  $\sqrt{X^2+(Y/\rho)^2} < 1$  (Condition 1) then the eclipse exists and it is central. This first part of the criterion correctly identifies all the central eclipses. In the other case, to establish if part of the umbral cone touches or not the terrestrial spheroid I verify if the condition  $|\sqrt{X^2+(Y/\rho)^2} - L2| < 1$  (Condition 2) is true. If this condition is false, I verify if the condition  $|\sqrt{X^2+(Y/\rho)^2} - L1| < 1$  (Condition 3) is true in order to establish if part of the penumbral cone touches the earth spheroid.

For the eclipse of 1935 January 5 the quantity  $|\sqrt{X^2+(Y/\rho)^2} - L1|$  is barely bigger than 1, even if an extremely small part of the penumbral cone touches the earth. Then the condition (3) considers this small partial eclipse as a near miss. If the condition (3) were changed in  $|\sqrt{X^2+(Y/\rho)^2} - (L1/\rho)| < 1$ , the first eclipse of 1935 would be correctly identified but some very close near misses would be considered as true eclipses. The condition (2) suffers from the same problem.

Could anyone say me if this reasoning should be replaced with a completely different one or if it could be corrected with some changes?

Does anyone know an algorithm to calculate the geographical coordinates of the site of greatest eclipse for non central eclipses (total, annular and partial), always starting from the Besselian elements? I think that this site (which is the point of the earth surface nearest to the shadow axis at greatest eclipse) doesn't exactly lie on the line joining the geocentre with the centre of the umbra on the fundamental plane at the time of maximum eclipse.

I thank all the person who will read this rather dry and technical message up to the end and/or who will be able to help me.

PS Sorry, but I haven't access to Chauvenet's books or to the Explanatory Supplement to the A.E (1961). Clear skies, Luca QUAGLIA

From: Fraser Farrell

Luca, The best book I've ever read on astronomical calculations: "Astronomical Algorithms" by Jean Meeus.

Published by Willmann-Bell (<http://www.willbell.com/math/mc1.htm>) in English. Available from W-B directly, or from Sky & Telescope magazine. I have also seen it in academic bookshops here in Australia.

I don't know if there is an edition in French or any other languages. Jean himself may know more about this. And no, you can't borrow - my- copy.... ;-)

From: Jean-Paul GODARD

You should try " Fifty year canon of solar eclipses" from F Espenack (Nasa Pub n° 1178) A fortran program is given ( but I think, it doesn't take the geoid shape into account ;-( )

For the second question, Have a look around <http://www.imcce.fr/ephem/eclipses/soleil/Soleil.html> It's the French "Institut de Mécanique Celeste" and you may find some hidden treasures from Mr Rocher. (I think to a PDF manual that I used before... but I don't have a precise URL) Cordialement, Martine & Jean-Paul

From: luca quick

Dear Friends, I think I've found the answer to the first of my questions. It was split in two in two of Jean Meeus's books (Astronomy Algorithms and Mathematical Astronomy Morsels). I will never end to be surprised about how deep and well written they are!

Knowing the besselian elements and the exact value of Gamma, the condition to establish if an eclipse is possible is

$$(|\Gamma| - L1) < \text{Local Radius}$$

where L1 is the radius of the section of the penumbral cone in the fundamental plane and Local Radius is the radius of the terrestrial reference ellipsoid in the direction of the centre of the umbra in the fundamental plane at the time of greatest eclipse. In order to calculate it, you have firstly to calculate the angle theta between the X axis and the centre of the umbra in the fundamental plane. This is easily done, starting from the values of X and Y at maximum eclipse, with:

$$\theta = \arctan(Y/X)$$

Then Local Radius is calculated from

$$\text{Local Radius} = \sqrt{\cos(\theta)^2 + \rho^2 \cdot \sin(\theta)^2}$$

(Continued on page 24)

## SETalk

The quantity rho is the minor axis of the elliptical section of the terrestrial ellipsoid with the fundamental plane and it's given by

$\rho = \text{square root}(1 - 0.006694385 * \cos(D)^2)$  where D is calculate, as X and Y, at the time of greatest eclipse. The second question I asked remains, at the moment, without answer. Thanks to those who answered me (and to those who will be able to answer to my second question). Clear skies, Luca

### "Shooting the sun" eclipse novel

From: Bob Morris To: SE from LRM  
<solareclipsesSENL200402Aula.com> Date: Fri, 16 Jan 2004 13:03:39

I've sent the following two messages to the author of the eclipse novel via a newspaper writer who knows him. There's some redundancy in the two messages.

There has been no reply as of yet. Bob Morris

A quote from a review: "Babbage claims his machine has calculated the exact time and place of the next solar eclipse visible in the Northern Hemisphere -- 'latitude 37 degrees, 13 minutes north, longitude 103, 15 west at 2:15 p.m. on September 5, 1840.'

Message two:

If there's something I've missed, and there is a really clever aspect which all fits together, I'll run out and buy the book.

But, you simply can't invent a solar eclipse that occurs on a date which is \*not\* a new moon -- or your intelligent characters who know enough to want to photograph an eclipse will not believe that the eclipse could take place on that date. Since many wall calendars have phases of the moon, you would not even need an almanac to determine if an eclipse could happen on that date.

Now if the point they seek in the US west is the point of maximum \*duration\* of the total eclipse (as opposed to being the \*only\* spot where the eclipse is visible from) then that's another story.

But every solar total eclipse follows a path across the globe as per my previous email.

A solar eclipse that is viewable at only one spot does not exist. Well, except for some near the north or south poles

which are viewable from a very small region. But still not a \*spot\*.

Any solar eclipses in the US are always visible over a swath, or path of totality.

A swath that only touched a small jutting out of land on the east or west coast might be possible and thus represent "the only point in the US where the eclipse can be seen," but the co-ordinates given seem to be in north Texas. Bob Morris

Message 1

> It is one thing to invent an eclipse of the sun for a novel. Mark Twain did so for a Connecticut Yankee in King Arthur's Court. (Was that an actual eclipse date and the observation site legitmate? I can't remember.)

>

> But one should choose a date which is a new moon, since an eclipse of the sun can only occur on a new moon.

>

> Sept 5, 1840 is nowhere near the date of a new moon.

>

> Anyone who knew the least bit about solar eclipses and who had access to a calendar with phases of the moon would know that an eclipse of the sun could not occur on that date.

>

> Further, to invent an eclipse of the sun which only occurs only at one specific spot on the earth is preposterous.

>

> A total eclipse of the sun is visible over a path, usually some 100 miles or so wide, which starts where the shadow touches down at local sunrise (people at that point see an eclipsed sun rising), sweeps across the earth at some 1500 miles per hour or so, then ends at a spot where the shadow leaps off the earth (people at that spot see an eclipsed sun setting).

>

> It appears that the author does not know the first thing about total eclipses of the sun.

>

> If part of the plot is that there is no eclipse, that Babbage's machine has mislead them, then someone smart enough to want to photograph an eclipse would know that even a mispredicted eclipse could not occur on a date when there was not a new moon, and (also) that the eclipse would occur over a path -- and not just on a single point on the earth.

From: James Huddle

Bob Morris writes, "Further, to invent an eclipse of the sun which only occurs only at one specific spot on the earth is preposterous." What the eclipse is hybrid, with the two Willcox points very close together? Could there be a place where the footprint of totality was shorter than one minute of longitude and narrower than one minute

(Continued on page 25)

## SETalk

of latitude in such a case? How long and wide will be the track of totality in 2005?

By the way, I have read some perfectly entertaining science fiction novels that contained premises much more preposterous than this! Jim Huddle

### **The Beginning of the End of an Era**

From: Glenn Schneider To: SOLARECLIPSESEN200402AULA.COM Date: Fri, 16 Jan 2004 19:44:32

Apologies to Patrick, as not an elipse issue, but many of interest to many I now on this list.

> Date: Fri, 16 Jan 2004 12:56:34 -0500 From: Steven Beckwith <svwbSEN200402stsci.edu> Reply-To: Steven Beckwith <svwbSEN200402stsci.edu> To: All\_StaffSEN200402stsci.edu

>  
> Colleagues, A few minutes ago, we concluded a meeting at which Sean O'Keefe, the NASA Administrator, announced his decision to cancel SM4, the next servicing mission to Hubble. It was his decision alone, and I will discuss the details with your personally.

I must reserve public comment, but a reminder that Congress appropriates and Barbara Mikulski oversees the independent agencies, of which NASA is one.

Mikulski, Barbara - (D - MD) 709 HART SENATE OFFICE BUILDING WASHINGTON DC 20510 (202) 224-4654 Web Form: [mikulski.senate.gov/mailform.html](http://mikulski.senate.gov/mailform.html)

Glenn Schneider

### **Eclipse penguin game**

From: Klipsi To: SOLARECLIPSESEN200402AULA.COM Date: Sat, 17 Jan 2004 08:11:48

for those long boring rainy days...

at last, an eclipse game on PC <http://www.radishworks.com/CosmosCreatorSampleScenes.htm> enjoy ! Olivier "Klipsi" Staiger

From: Joel Moskowitz

Where's the MAC version?

### **Strange Eclipse Story (Possibly for the SENL?): 31-May-2003, Orkney Islands**

From: Michael Gill To: [solareclipsewebpagesSEN200402bopenworld.com](mailto:solareclipsewebpagesSEN200402bopenworld.com) Date: Sun, 18 Jan 2004 21:32:03

Hi Patrick, Here is a bizarre story from the 31-May-2003 eclipse:

[http://www.dailyrecord.co.uk/news/content\\_objectid=13825974\\_method=full\\_siteid=89488\\_headline=-ECLIPSE-FIGHT-NOT-PROVEN-name\\_page.html](http://www.dailyrecord.co.uk/news/content_objectid=13825974_method=full_siteid=89488_headline=-ECLIPSE-FIGHT-NOT-PROVEN-name_page.html)

Eclipse violence! Whatever next?

(Note that Scottish courts can deliver three possible verdicts: "Guilty", "Not Guilty" and "Not Proven". The latter is regarded in some circles as a "reluctant acquittal" - the accused goes free.)

Cheers, Michael

*(Continued on page 26)*

## SETalk

ECLIPSE FIGHT NOT PROVEN Jan 17 2004

AN ISLAND councillor walked free yesterday after being accused of attacking a neighbour during a solar eclipse.

A jury found an assault charge against James Foubister, 56, not proven.

The Orkney councillor denied attacking Ian Eunson and breaking his collar bone.

Kirkwall Sheriff Court had heard how a feud boiled over last May during a solar eclipse.

Locals had gathered in a field belonging to the councillor at Deerness to watch the event.

Cllr Foubister said Eunson was swearing in front of kids and fell as he tried to stop him.

He also said he had suffered four years of abusive phone calls and vandalism.

His crops had been sprayed with the word "w \*\*\*\* r" in weed killer five times.

Mr Eunson, 31, said he was drunk at the time and could not recall what happened.

### **Solar Eclipse Articles**

From: Dietmar Staps To: SOLARECLIPSESEN200402AULA.COM Date: Sat, 24 Jan 2004 10:27:11

- old eclipse articles :

the french link <http://gallica.bnf.fr/> here you will find many old journal articles in different languages

Do you know other links to access old astronomical journals online ?

- new eclipse articles :

some years ago Astronomy and Astrophysics Abstracts (AAA) (Section 074 corona and 079 eclipses..) was the best source to find new literature . unfortunately it is no longer published

ADS Abstract Service

[http://esoads.eso.org/ads\\_abstracts.html](http://esoads.eso.org/ads_abstracts.html) is very helpful but articles in nonenglish languages, amateur articles (you will find many of them in AAA) are not well covered Do you know databases, homepages... to find more new articles ?

### **Julena S. Duncombe, 1912-2003.**

From: Bob Morris To: SE from LRM <solareclipsesSEN200402Aula.com> Date: Mon, 26 Jan 2004 17:13:10

I have just found out that Julena Duncombe passed away on Saturday, September 13, 2003 at a hospital in Highlands, Texas.

In the 60's and 70's she did the USNO Eclipse Circulars, the most detailed data then available on solar eclipses.

When I sent her my photos of the May 1966 broken-ring eclipse I observed from south of Athens, she replied that she was pleased that it was basically as they predicted. They were not sure if it would go total for a short time at that point. I still have the letter somewhere. Bob Morris

## SETalk

**Eclipse music, can anyone play it ?**

From: Klipsi To: SOLARECLIPSESEN022004AULA.COM Date: Mon, 26 Jan 2004 18:59:51

just found this on the web <http://www.mind.net/music/images/eclipse.gif>

anyone on this list can play it and record it as a sound file, so we can listen to what an eclipse might sound like ? Klipsi

**Stupidity smarts- dumbest astronomy questions**

From: KCStarguySEN022004aol.com To: SOLARECLIPSESEN022004aula.com Date: Mon, 26 Jan 2004 20:39:14

I was thumbing through my issue of astronomy magazine Jan 04 P.16-17 and found this article article by Bob Berman. I looked closer. Here are some of the results you all might be interested in.

# 5 stupid question

(regarding a presentation of the Europe 1999 eclipse one person asked " And during the eclipse , where will the Moon be? "

#4 stupid question

a high school senior "if the Sun is a star, why can't we see it at night?"

#3 stupid question

another high school senior asked after seeing a photograph of the Earth " What keeps the blue from falling off?"

#2 stupid question

a man asked " if the stars are so huge , how did the astronauts steer around them ont he way to the Moon?"

and #1 stupid question

are you read ?????

:

after listening to a radio announcing that you should not stare at a solar eclipse , a woman called an asked the radio station " if the eclipse is so dangerous , why are they having it? " Dr.Eric Flescher

From: Mike Simmons

Good list. I would just change the descriptions of the questions from "stupid" and "dumb" to "ignorant". Mike Simmons

From: Christiaan

On Mon, 26 Jan 2004, Mike Simmons wrote: Good list. I would just change the descriptions of the questions from "stupid" and "dumb" to "ignorant".

Indeed.. there are no stupid questions. Just studid people (erm... I mean stupid answers ;) groeten, Christiaan

From: Fraser Farrell

Eric, During my various interviews and public meetings before the 2002 Dec 4 TSE, I received many complaints like:

- Why are you having this eclipse on a Wednesday? It would be much more convenient if it was on a weekend.
- Why do we have to go into the des ert to see this? It would be easier if you had this eclipse in a city instead.
- You shouldn't publicise this eclipse because it will blind people.

## SETalk

I wish now that I had recorded some of these criticisms. Purely for educational purposes of course ;-) cheers, Fraser Farrell

From: Brian Garrett

Except for that last one ("why are they having it?"), which really \*was\* stupid. Brian

From: Mike Simmons

OK, that one was really dumb.<g> I guess the best I can say is that not everyone is born smart like us, huh? :-) Mike

From: KCStarguySENL022004aol.com

I read as is on the article in the mag by the author.

From: KCStarguySENL022004aol.com

Hey Fraser Yes you have some good ones.

Well I have one that is indirectly astronomy related. You know the caption says "the real reason why the dinosaurs died out." (meaning that this was not really the reason as Gary Larsen knows -it was an asteroid strike millions of years ago....) Well I planned to use this as a way for some of my gifted students to reason and deduction. I asked them " what is wrong with this comic?" The students could not come up with a good answer about cigaretttes so I gave them a teaser hint and said "were cigaretttes around millions of years ago?" They then came up with " well maybe they were washed down the stream in the flood ." At this point I "lost it." I don't think I got around to actually telling them the real gist of the comic. Dr. Eric Flescher (kcstarguySENL022004aol.com),

### **TSE2003 S&T/TQI/LanChile Flight Photos**

From: Kelly Beatty To: SOLARECLIPSESENL022004AULA.COM Date: Tue, 27 Jan 2004 21:15:42

folks... it's taken a little longer than expected to compile everyone's pictures from the S&T/TQI Antarctic eclipse expedition, but now they're ready. please have a look at participant Bob Stephens illustrated account:

<http://www.travelquestinternational.com/TourReports/AntarcticFlight/antarctictourRpt1.htm>

and the nice assortment of images from our flight, our tour Chilean observatories, and our sightseeing adventures in Patagonia:

<http://www.travelquestinternational.com/TourReports/AntarcticFlight/antarcticAlbum.htm> Kelly Beatty SKY & TELESCOPE

### **Fictional Eclipse Expedition - Max Byrd's Novel**

From: Michael Gill To: solareclipsewebpagesSENL022004btopenworld.com Date: Tue, 30 Dec 2003 16:04:23

Patrick, The following link is a review of a novel with an eclipse-chasing theme:

<http://www.csmonitor.com/2003/1230/p15s02-bogn.html>

I haven't read the novel so I can't comment any further.

Note of course that Fred's tables do not show any eclipse, lunar or solar, on September 5th 1840.

<http://sunearth.gsfc.nasa.gov/eclipse/SEcat/SE1801-1900.html>

<http://sunearth.gsfc.nasa.gov/eclipse/LEcat/LE1801-1900.html>

## SETalk

[http://www.amazon.com/exec/obidos/tg/detail/-/0553802089/qid=1072799923/sr=1-1/ref=sr\\_1\\_1/104-7983785-1688768?v=glance&s=books](http://www.amazon.com/exec/obidos/tg/detail/-/0553802089/qid=1072799923/sr=1-1/ref=sr_1_1/104-7983785-1688768?v=glance&s=books)

Cheers and a happy 2004. Clear skies, especially on the 8th of June. Michael

**Eclipse sighting**

From: KCStarguySENL022004aol.com To: SOLARECLIPSESENL022004aula.com Date: Sun, 01 Feb 2004 00:27:15

In BC cartoon 1/30/2004

The character Fat Broad comes running up the hill and says to the Blond cavewoman " Did you see the moon last night? " The Blond cavewoman says "No , why?" Fat Broad says " You missed the Total eclipse of the Moon??" The Blond cavewoman says " Apparently not" as the Fat Broad stalks off in dismay with a sigh Dr. Eric Flescher (kcstarguySENL022004aol.com),

**2001-2006 links**

From: KCStarguySENL022004aol.com To: SOLARECLIPSESENL022004aula.com Date: Sun, 01 Feb 2004 21:11:51

I have placed more links, information on my website. In particular I have placed some links on the 2003 page. I was not able to go but it is interesting to see your accounts. Those who want to place more 2002 or 2003 links or information 2005 and 2006 links let me know by private email. Easy way to find these links are on the pull down member called what's new. I also have my photos and accounts on my 1972, 1973, 1979, 1998, 1999, 2001 pages and some lunar eclipse accounts from November 8, 2003. Thanks Dr. Eric Flescher (kcstarguySENL022004aol.com),

**FEBRUARY FULL MOON**

From: eclipseclatSENL022004comcast.net To: SEML <SOLARECLIPSESENL022004aula.com> Date: Thu, 05 Feb 2004

For the umbratics (lunatics who follow the shadow) some boring (but for us) fun info:

The Full Moon (Snow or Wolf) at 8:49:08 UT on February 6 is the highest Full Moon above the ecliptic for 2004 - or the high Full Moon closest to splitting the nodes.

The adjacent New Moons of January and February 2004 (surrounding this Full Moon) compete with each other for the nadir prize. And the New Moon of these two expected to appear lowest beneath the ecliptic (and Sun) is in fact not lowest.

January New Moon lies 4.8233 degrees below the Sun (ecliptic). February lies only 4.804 deg below the Sun but because it is farther away from Earth it is actually 727 miles lower than the January New Moon. With vernier telescopic measuring it would also appear farther beneath the Sun viewed from Earth. Raymond Brooks



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S**Transit of Venus items**

From: Storm Dunlop To: HASTRO-LSSEN022004LISTSERV.WVU.EDU Date: Thu, 15 Jan 2004 21:04:04

A friend of mine (Peter Gill) is just selling some astronomical books, and it has just occurred to me that members of this list might be particularly interested in a couple of rare items relating to transits of Venus. Here are extracts from his list (which also includes other historical items):

4. Anon: Instructions for Observing the Transit of Venus, December 6, 1882, prepared by the Commission authorized by Congress and printed for the use of the observing parties by authority of the Hon. Secretary of the [US] Navy, pp.1-50 + 4 plates (3 coloured), Government Printing Office, paper wrappers, Washington [DC], 1882. Ex-library (stamp on front cover, but clean internally), bottom right-hand corner of front cover and pp. 1-4 chipped, but otherwise in extremely good condition. A fascinating item - I wonder whether the 'strong alcohol' (p. 27) was really used for developing the photographic plates?! Extremely rare - £225.00

32. Whatton, Rev. Arundell Blount: Memoir of the Life and Labors of the Rev. Jeremiah Horrox, Curate of Hoole, near Preston; to which is appended a translation of his celebrated discourse upon the Transit of Venus across the Sun, pp. i-xvi, 1-216 + folding plate (no tears), red embossed boards, Wertheim, Macintosh, and Hunt, London, 1859. Top and bottom of spine slightly bumped and adjacent spine beginning to split, but nothing serious. Two ownership signatures on front end-paper, the last 'Passed on to Harriet Hill (nee Whatton) by J S Whatton 1932' - relatives of the author? An extremely good copy of an exceptionally rare work - I've never seen another copy, cited as the only primary source by David Sellers, author of The Transit of Venus: The Quest to Find the True Distance of the Sun, MagaVelda Press, 2001 - see <http://www.google.com/search?q=cache:pfMwxd2nNx0J:www.dsellers.demon.co.uk/venus/1639.pdf> - £320.00

Anyone interested should contact Peter Gill direct: [pbj.gill@LSSEN022004btinternet.com](mailto:pbj.gill@LSSEN022004btinternet.com) And - No, I don't get any commission!

Storm Dunlop Author, translator, lecturer (Visiting Research Fellow, Sussex University) Email: [storm.dunlop@LSSEN022004btinternet.com](mailto:storm.dunlop@LSSEN022004btinternet.com) [sdunlop@LSSEN022004pact.cpes.susx.ac.uk](mailto:sdunlop@LSSEN022004pact.cpes.susx.ac.uk) Home Page: <http://www.btinternet.com/~storm.dunlop/> [NB: Any attachments will be accompanied by a digital certificate.]

**Venus Transit Meet/Observe**

From: [rolf@LSSEN022004SANTAFE.EDU](mailto:rolf@LSSEN022004SANTAFE.EDU) To: HASTRO-LSSEN022004LISTSERV.WVU.EDU Date: Mon, 19 Jan 2004 13:00:03

History of Astronomy Discussion Group Fwd: [JASnews] Venus Transit Workshop

To HASTRO -- Here is the announcement of a Transit-of-Venus meeting and observation in the clear desert air of Jordan. Rolf Sinclair

>From: Mohammad Odeh <[odeh@LSSEN022004jas.org.jo](mailto:odeh@LSSEN022004jas.org.jo)>

>

>Greetings, The AUASS and JAS are glad to announce that we shall organize a workshop in Jordan in June for the purpose of observing the transit of Venus! For more information, please have a look at: ( <http://www.jas.org.jo/venust.html> ).

>

>Attending the workshop can be either by participating in the observation or by giving a talk in the first day of the workshop, or both of them!

>

>If you are interested in visiting Jordan to observe the event from the desert, then please fill in the registration form found at the above mentioned site. Best Wishes Moh'd \*\*\*\* Mohammad Shawkat Odeh. >Jordanian Astronomical Society (JAS). >P.O. Box 141568 Amman 11814 Jordan. >Fax: +1-707-2210918 (In USA). >Mobile: +962-79-5877225 >[odeh@LSSEN022004jas.org.jo](mailto:odeh@LSSEN022004jas.org.jo) >JAS URL: <http://www.jas.org.jo/> >JAS WAP: <http://www.jas.org.jo/wap/>

**Midnight Venus transit in northern Alaska**

From: Mike Simmons To: solareclipsesSENL022004Aula.com Date: Mon, 19 Jan 2004 19:12:52

The following was just posted in a Yahoo! group devoted to the upcoming Venus transit. The group is focused on India but all interested parties are invited to participate (<http://groups.yahoo.com/group/VenusTransit>). This Alaskan midnight transit observation presents not only a unique observing opportunity but a great compliment to those who observed a midnight TSE in Antarctica in November and don't yet have plans to observe it from the "daytime" side of the globe.

Mike Simmons Venus transit tour to Iran: <http://www.vtransit.com>

Hi guys. My name is Christopher Erickson and I am planning to see the transit in its entirety from Barrow, Alaska with a group of other intrepid astronomers from Alaska and even a few from the lower-49 states.

I plan to be using a Coronado h-alpha solar filter and to film the entire transit using a digital video camera in intervalometer mode.

If anyone here is interested in joining our expedition to Barrow, our planning discussions are taking place in the AlaskanAstronomy Yahoo group.

The Barrow transit starts with the sun at 17 55' altitude, down to 3 53' at 1:28am and then back up to 4 20' at 2:21am. Local Barrow midnight will be at 1:28am. But the sun will not set on that date above the arctic circle.

Seeing the entire transit from Barrow is quite unique because we will be viewing it from over the top of the Earth, looking North. Quite a unique perspective if we can manage to get good weather.

Venus will be traveling the opposite direction across the sun from the perspective of someone in South Africa (or anywhere in the Southern Hemisphere). That will be cool too.

The ice should have receded quite a bit out to sea in June so we shouldn't have to worry about ice. Just the cold Arctic Ocean. That also means that the threat of polar bears in town should be minimal.

The Barrow spit isn't a great idea. That is usually where the polar bears hang out and since they are one of the few predators that won't think twice about munching down on a human, we will probably plan to avoid it. The older, abandoned village site might be a good location. There are also a number of utility roads that head out of the village for a number of miles that might be interesting. I have not explored all of them but I remember that there were a few good spots to be had away from people (and polar bears).

Either way, it will be a unique adventure for anyone who has never been to Barrow and the Arctic Circle in summer and had a chance to see the true Alaskan midnight sun. In fact, the sun won't be setting at all while we would be there.

Every time I have been in Barrow it has been a clear and windy day, but weather will always be a concern. We plan to have a chartered plane standing by to take people above the clouds if we end up under overcast skies.

The low altitude of the sun will impact the quality of imaging and I am working now to determine what kind of h-alpha image quality to expect.

"My advice is free and worth every penny!"

-Christopher Erickson Network Design Engineer 5432 E. Northern Lights Blvd., Suite 529 Anchorage, AK 99508 N61ý 11.710' W149ý 46.723' [www.data-plumber.com](http://www.data-plumber.com)

TRANSIT OF VENUS

**Venus transit**

From: Jean Meeus To: Solar Eclipses <solareclipsesSENL022004aula.com> Date: Tue, 20 Jan 2004 09:03:21

Christopher Erickson wrote: "Venus will be traveling the opposite direction across the Sun".

This is incorrect. For *\*all\** places on the Earth, Venus will enter the solar disk from the East and move westward across it.  
Jean Meeus

From: Gerard M Foley

From: "Jean Meeus" <JMeeusSENL022004compuserve.com>

Sent: Tuesday, January 20, 2004 4:03 AM

Christopher Erickson wrote: "Venus will be traveling the opposite direction across the Sun".

This is incorrect. For *\*all\** places on the Earth, Venus will enter the solar disk from the East and move westward across it.  
Jean Meeus

I think he means that looking at the sun from the northern hemisphere, east is usually on the left, but looking across the pole, east will be on the right, as if the viewer were in the southern hemisphere. Gerry

From: Gerard M Foley

Sorry I said that. I should have said that looking toward the north pole from the northern hemisphere, east is to the right?  
Gerry

From: Jean Meeus

When the Sun is seen above the northern horizon, "over the pole", the left limb of the Sun is still the eastern one, although it is facing west, and nothing special will be seen: Venus will still enter the solar disk at the left and exit at the right.

Suppose the Sun is seen above the *\*eastern\** horizon (shortly after sunrise). Then the left limb (the limb which is facing north) is still called the eastern limb (east on the celestial sphere), not the "northern" limb.

What Christopher Erickson wrote was that Venus will go in the opposite direction, from the right to the left. At least this is what I understood. Jean

**NASA Transit of Venus website**

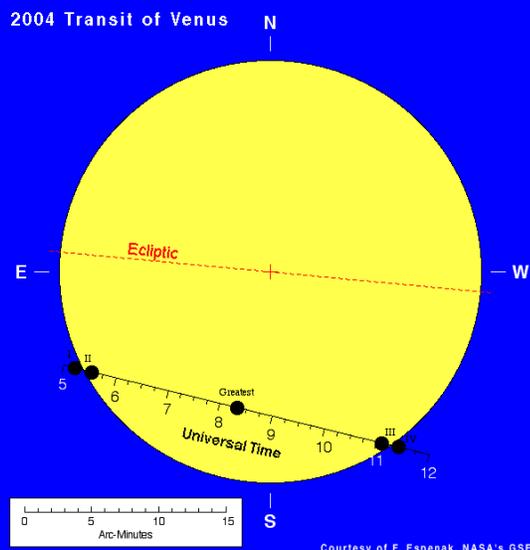
From: Fred Espenak To: SOLARECLIPSESENL022004AULA.COM Date: Fri, 23 Jan 2004 20:57:23

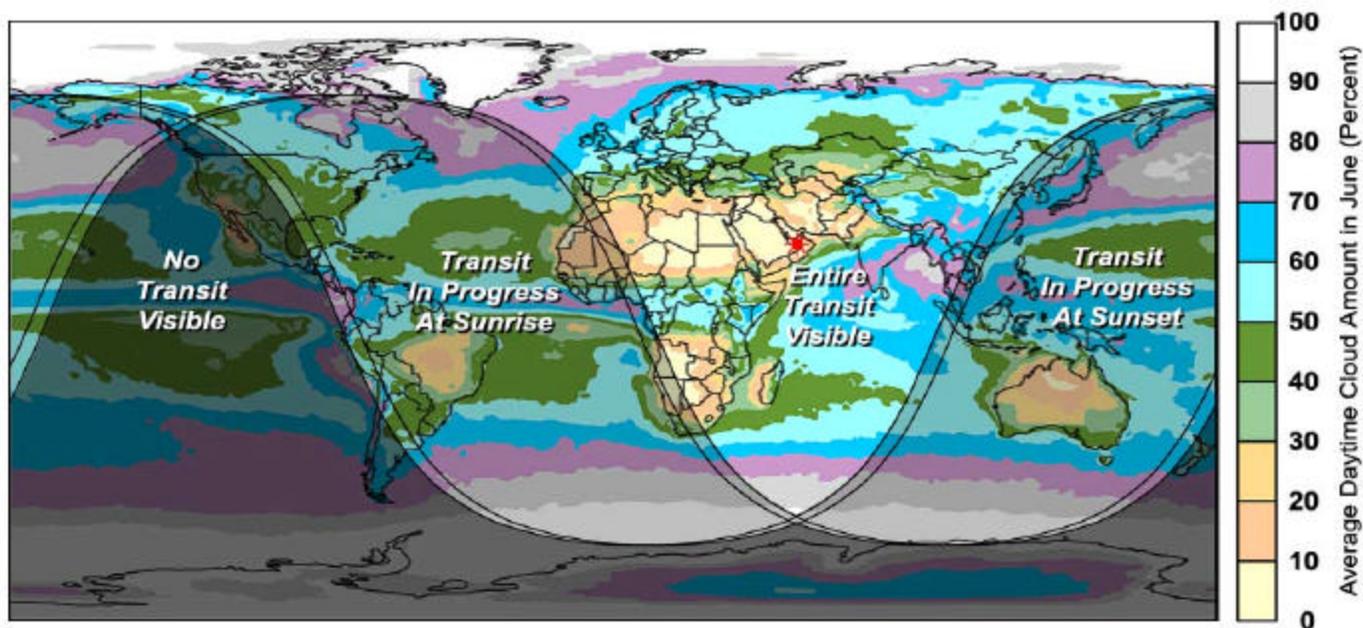
Jay Anderson and I have just launched a new web site for the 2004 transit of Venus. It includes some material that we've each published at other locations as well as some new predictions and figures. Our goal was to produce the most comprehensive site of predictions for the transit.

For instance, you will find contact times for over a thousand cities world wide. The URL of this site is: <http://sunearth.gsfc.nasa.gov/eclipse/transit/TV2004.html>

Please take a look and pass on any comments or corrections to me off-line. Sincerely, Fred Espenak

**nasa transit of venus website TV2004-Sun1b**





<http://sunearth.gsfc.nasa.gov/eclipse/transit/rv2004.html>

F. Espenak (NASA's GSFC) and J. Anderson (Environment Canada)

### nasa transit of venus website TV2004-Weather1b

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#### SOHO transit of Venus

From: Dale Ireland To: Solar Eclipse List <SOLARECLIPSESEN022004AULA.COM> Date: Mon, 26 Jan 2004 22:22:56

Is there a timetable of events somewhere regarding the passage of Venus through the SOHO fields of view during the upcoming transit? Dale Ireland

From: Jay.M.PasachoffSEN022004williams.edu

re: "Is there a timetable of events somewhere regarding the passage of Venus through the SOHO fields of view during the upcoming transit? Dale Ireland"

I am sorry to report that the transit will not be visible from SOHO. It will be in the wrong place in its halo orbit and it is too expensive in expendables to change its location.

The transit will be visible from TRACE, and my group will use those data as we did with the past transits of Mercury. See <http://www.transitofvenus.info> for a link to our paper, now in press in Icarus.

I am happy to report that I just received a grant from the Committee for Research and Exploration of the National Geographic Society to work with my students and colleagues in Greece to observe the transit in collaboration with the University of Thessaloniki and TRACE scientists. Jay Pasachoff

#### Venus Transit Tour to Iran

From: Mike Simmons To: solareclipsesSEN022004Aula.com Date: Mon, 26 Jan 2004 22:32:55

The Venus Transit Tour to Iran is still open, and for those in Europe there is now an agency in the UK handling the tour. Iran is a country of unparalleled cultural and historical diversity with a very enthusiastic amateur astronomy community that we'll be interacting with throughout the tour. The Venus transit will be observed at the site of the 2500-year old first capital of the Persian Empire. Price for the land package, including all internal transportation, is \$1950 US. Air fares from the US

(Continued on page 34)

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are currently \$780 to \$880 plus tax round trip from US destinations.

For those who may have inquired previously, we've found a problem with some email and phone messages that were lost at the agency handling bookings in the US . The problem has been corrected, so if you're still interested please contact the agency again or write directly to me at [mikeSENL022004vtransit.com](mailto:mikeSENL022004vtransit.com).

See [www.vtransit.com](http://www.vtransit.com) for details on the itinerary, westerners traveling in Iran, making reservations and more on the country and its people from first-hand accounts. Mike Simmons Venus Transit Tour to Iran -- [www.vtransit.com](http://www.vtransit.com) [mikeSENL022004vtransit.com](mailto:mikeSENL022004vtransit.com)

### Update to Africlipse Website, including Libya tour for 2006

From: Peter Tiedt To: Solar Eclipse Mailing List <[SOLARECLIPSESENL022004AULA.COM](mailto:SOLARECLIPSESENL022004AULA.COM)> Date: Sun, 01 Feb 2004 16:19:23

There has been an update to the Africlipse website with regard to the upcoming Transit of Venus and the 2006 Total Solar Eclipse.

Pages added include the following.

2004 transit of Venus

<http://www.eclipse.za.net/html/tov.html>

Also, predictions and contact timings for places in Africa (generated using WinOccult).

<http://www.eclipse.za.net/html/tovpreds.html>

For the 2006 Total Solar Eclipse, you can visit the following pages.

2006 Main Page (updated)

<http://www.eclipse.za.net/html/2006.html>

Maps of the Umbral Path for the TSE.

[http://www.eclipse.za.net/html/2006\\_maps.html](http://www.eclipse.za.net/html/2006_maps.html)

Tables of Local Circumstances for all African Countries experiencing an eclipse.

[http://www.eclipse.za.net/html/loc\\_cir.html](http://www.eclipse.za.net/html/loc_cir.html)

Further details on the Eclipse (including mapping co-ordinates and GPS Waypoints).

<http://www.eclipse.za.net/html/2006det.html>

Details of Tours to observe this eclipse. Only one tour listed at this time.

<http://www.eclipse.za.net/html/2006tours.html>

And, last but not least, I am pleased to announce that Wild Frontiers and myself have successfully negotiated possibly the prime spot in Libya (with easy road access) to observe the eclipse. The observation location experiences just 2 sec off maximum duration, to the south of Benghazi, and about 60 km to the south of Jalu Oasis. This tour has had to be restricted to 100 participants only and is already 20% subscribed.

Full details are on the following URL. <http://www.eclipse.za.net/html/2006tour.html> Peter Tiedt

Transit of Venus Education Program

From: solareclipsewebpages-SENLO22004btopenworld.com To: SOLARECLIPSES-SENLO22004aula.com Date: Thu, 05 Feb 2004 04:55:22

>From SPA SECTION NEWSLETTER, Volume XI, Issue 12 Co-editor: Guan Le . Email: editorSENLO22004igpp.ucla.edu

1. Transit of Venus Education Program

From: Lou Mayo <lmayoSENLO22004pop600.gsfc.nasa.gov> and Jim Thiem <thiemSENLO22004nssdc.gsfc.nasa.gov>

**Transit of Venus - 2004 June 08**  
**Circumstances for Cities (International)**

On 2004 June 08 Venus will transit across the disk of the Sun. This rare event will be visible from many locations around the world. Table 1a presents the topocentric contact times (Universal Time) and corresponding altitudes of the Sun for 125 cities (international). For locations in the USA, see [table 1b](#).

Table 1a delta T = 65.0 s

Location Name	External Sun		Internal Sun		Greatest Sun		Internal Sun		External Sun	
	Ingress	Alt	Ingress	Alt	Transit	Alt	Egress	Alt	Egress	Alt
	h m s	°	h m s	°	h m s	°	h m s	°	h m s	°
Asuncion	--	--	--	--	--	--	11:13:12	8	11:32:30	11
Addis Abeba	05:18:54	30	05:38:03	34	08:22:35	70	11:06:02	62	11:24:55	58
Adelaide	05:08:05	23	05:26:47	21	--	--	--	--	--	--
Algiers	05:20:25	9	05:40:15	13	08:23:52	49	11:05:35	74	11:24:54	75
Al-Kuwayt	05:18:40	48	05:37:56	47	08:21:00	81	11:03:28	59	11:22:35	65
Aman	05:19:28	33	05:38:52	37	08:21:59	71	11:04:05	68	11:23:14	64
Amsterdam	05:19:49	15	05:39:40	18	08:22:27	42	11:03:40	60	11:23:30	60
Athens	05:19:58	24	05:39:33	28	08:22:36	60	11:04:19	73	11:23:34	70
Baghdad	05:18:56	40	05:38:16	44	08:21:11	76	11:03:23	61	11:22:33	57
Baku	05:18:33	44	05:37:55	48	08:20:26	72	11:02:29	55	11:21:45	52
Bangkok	05:13:07	81	05:31:57	80	08:15:51	47	11:01:23	9	11:20:36	5
Barcelona	05:20:21	10	05:40:10	13	08:23:32	43	11:05:06	69	11:24:29	71
Beijing	05:13:12	69	05:32:23	66	08:15:02	37	10:59:24	6	11:19:00	3
Beirut	05:19:29	33	05:38:54	37	08:21:56	70	11:03:57	68	11:23:07	64
Beograd	05:19:53	23	05:39:33	27	08:22:21	55	11:03:50	67	11:23:11	66
Berlin	05:19:42	20	05:39:29	23	08:22:06	47	11:03:27	60	11:22:55	60
Bern	05:20:04	15	05:39:53	18	08:22:51	46	11:04:16	65	11:23:41	64
Birmingham	05:19:50	11	05:39:45	14	08:22:39	39	11:04:02	58	11:23:34	59
Blacktown	05:07:23	17	05:26:10	14	--	--	--	--	--	--
Bogota	--	--	--	--	--	--	11:10:38	5	11:30:03	10
Bombay	05:16:15	64	05:35:13	68	08:18:39	73	11:02:33	35	11:21:36	31

WebPages Fred Espenak: Circumstances for Cities (International)

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As many of your are aware, June 8th, 2004 will bring the first transit of Venus since 1882. For this important event, the NASA Office of Space Science is launching an international education program aimed at teaching students, teachers, and the public about the historic scientific importance of the transit as well as giving them the opportunity to view the transit through a live webcast from Greece and to replicate the calculation of the Astronomical Unit through solar observatory images from Nova Scotia down through Uruguay. Other elements of the program include a re-orchestration and performance of the 1883 John Phillips Sousa Venus Transit March, a section on comparative planetology of the inner planets, expanded content on calculations of stellar parallax and transit detection methods for extrasolar planets, connections to Native American cultures, and amateur astronomer involvement through a Venus Transit Observing Certificate Program. We are anticipating a huge response from schools, museums and sciencecenters, and researchers.

AGU members interested in participating through talks and presentations in schools, science centers, or other public venues are welcome to browse our web site and to register at:

<http://sunearthday.nasa.gov>

You can register by clicking on the "For Scientists" link. For more information, please contact Lou Mayo (301) 286-0165, [lmayoSENLO22004pop600.gsfc.nasa.gov](mailto:lmayoSENLO22004pop600.gsfc.nasa.gov). Free CDs of the Sousa March are available for participating scientists!!

Please add link

From: MALEY, PAUL D. (JSC-DO511) (USA) To: "solareclipsewebpagesSENLO22004btopenworld.com" <[solareclipsewebpagesSENLO22004btopenworld.com](mailto:solareclipsewebpagesSENLO22004btopenworld.com)> Date: Mon, 02 Feb 2004 11:47:04

Hello Patrick: I received your SEL list of links and was wondering if you can add our NASA Johnson Space Center Astronomical Society expedition link to the Transit of Venus, April 2005 and March 2006 links? <http://www.eclipsetours.com> I regret that I cannot attend the August conference. Thanks, Paul

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**2005 Total Eclipse**

From: Roy Mayhugh To: Eclipse Chaser <roySENL022004mayhugh.com> Date: Sun, 18 Jan 2004 00:21:27

Greetings Eclipse Chasers, Details are now available for my 16 night 2005 Total Eclipse Cruise from Tahiti to Peru. Here is a link to more information: <http://www.mayhugh.com/>

Save \$345 to \$1000 per person if you sign up now. Introductory cruise only prices start at just \$2,900 per person double occupancy. Introductory prices end February 29, 2004.

Low single supplement for single guests as the sole occupant in a cabin. The supply of these cabins is limited.

Lowest Price Guarantee and Price Protection Guarantee apply to introductory prices. Cheers, Roy --- Roy Mayhugh Astronomy Vacations by Mayhugh Travel Toll Free (888) 412-5317 Direct (760) 446-0050 Fax (760) 446-0049 <http://astronomyvacations.com>



**2005 Galapagos Eclipse Cruise**

2005 galapagos FrameHead

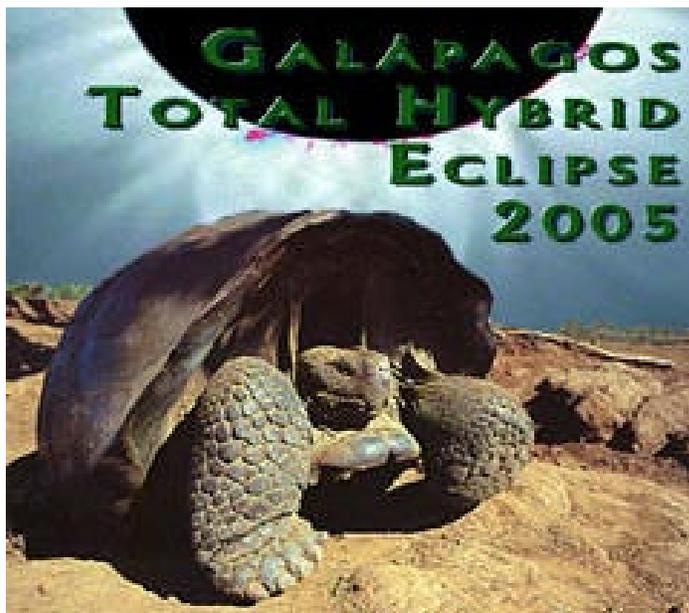
From: Jen Winter - ICSTARS Astronomy To: SOLARECLIPSESEN022004aula.com Date: Wed, 28 Jan 2004 01:11:35

Well, folks - As promised, we have yet another option for the world to consider for eclipse viewing in 2005.

We have specially chartered the MS Galapagos Legend to intercept the path of totality directly west of the Galapagos islands for approximately 34 seconds of totality. Prof. Jay Pasachoff and Fred Espenak have graciously accepted our invitations to lead the expedition. Naturally, we'll take time exploring the islands on our way.

Anyone seeking details can find them on [www.AstronomicalTours.net](http://www.AstronomicalTours.net) It's linked by either the "Current Tours" link in the top banner or below as: "Next Total Eclipse: Galapagos and Tahiti in April, 2005"

If anyone has questions, please contact me off-group for details. Clear Skies, Jen Winter - Owner, Astronomical Tours LLC



2005 galapagos Image86b



# 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.**



**THE ELECTRONIC VERSION OF THE SOLAR ECLIPSE NEWSLETTER IS AVAILABLE ON THE WEB PAGE OF FRED ESPENAK.**



**THE SOLAR ECLIPSE NEWSLETTER IS FREE OF CHARGE, BUT IS NOT AVAILABLE IN HARD COPY.**

## Galapagos

From: Jen Winter - ICSTARS Astronomy To: SOLARECLIP-SESENLO22004aula.com Date: Tue, 03 Feb 2004 19:26:46

Folks, An SEML member inquiring about space on the Galapagos Legend Eclipse Cruise is seeking roommate(s) to share a triple cabin.

The ship has triple cabins only in the Jr. Suite and Legend Suite level, and if shared by 3 persons the triple Jr. Suite fare is less than an outside cabin. All inside cabins are now booked and wait-listed, so the triple is the next best choice. We have a few guests who have inquired about this option seeking cabin-mates interested in sharing.

Anyone with an interest should contact me directly, as we can't broadcast client details. I will put triple-share details up on the website at: [www.astronomicaltours.net](http://www.astronomicaltours.net) [jenSENL022004astro-nomicaltours.net](mailto:jenSENL022004astro-nomicaltours.net) Clear skies, jen

### Only three ships going for the 2005 eclipse?

From: Daniel Fischer To: SOLARECLIPSES-SENLO22004AULA.COM Date: Thu, 05 Feb 2004 20:08:21

Going through the SEML postings I saved over the last few months, I've seen three cruises offered that will dip into the zone of totality of the 2005 hybrid eclipse; I've listed them all in <http://www.astro.uni-bonn.de/~dfischer/2005> - did I miss other offers or is that it? Regards, Daniel

## SUBSCRIBING TO THE SOLAR ECLIPSE MAILING LIST

### 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](mailto: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 (listserver) 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 email message to the list server [solareclipses@Aula.com](mailto:solareclipses@Aula.com), which will then forward your e-mail to all the subscribers on the list. Likewise, you'll receive email messages that other subscribers send to the listserver. Only subscribers can send messages.

### HOW TO SUBSCRIBE:

IN THE BODY OF THE MESSAGE TO [listserv@Aula.com](mailto:listserv@Aula.com) SUBSCRIBE SOLARECLIPSES name, country.