

From: Chris Malicki

It was Ivan Semeniuk. He is one of the editors of the Canadian Astronomy magazine named Skynews. He also works for the Discovery Channel in Canada. He is a very avid eclipse chaser and was on our expedition to Turkey for the solar eclipse in August 1999 with the Calgary Centre of the Royal Astronomical Society of Canada. Chris Malicki (my new website <http://members.rogers.com/kmalicki/>)

Interesting item on eBay web site item#2964481546: Solar Eclipse - 2003 Antarctic Postcard

From: Jean-Paul GODARD To: solarECLIPSESenl200312AULA.COM Date: Sat, 29 Nov 2003 08:58:12

Look at this... SomeBody bought one? Auction were closed on Nov 18... A banker might call this a "call option"

> I saw this item for sale at eBay, The World's Online Marketplace TM, and thought that you might be interested.

> Title of item: Solar Eclipse - 2003 Antarctic Postcard

> Starts: Nov-11-03 20:55:14 PST

> Ends: Nov-18-03 20:55:14 PST

> Price: Currently \$37.50

> To bid on the item, go to: <http://cgi.ebay.com/ws/eBayISAPI.dll?ViewItem&item=2964481546>

> Item Description: 23 November 2003 postcard from Casey Base in the Australian Antarctic territory, commemorating the total solar eclipse. Standard airmail postage up to a maximum of US\$2.00 to anywhere in the world. Don't forget, you can combine lots and save on postage. We will ship to anywhere in the world! PayPal, direct credit (Australian buyers), MasterCard, Visa, Amex and cash accepted.

Antarctica in HDTV

From: Bob Morris To: SE from LRM <solareclipsesSenl200312Aula.com> Date: Thu, 27 Nov 2003 19:56:12

Am I the only one who saw the Discovery eclipse coverage in HDTV?

I certainly would like to compare notes.

IMO the corona detail rivalled (or bettered) naked eye being there without any scope in that one shot where they showed about one quadrant on the screen.

The diamond ring was well portrayed, too. Comments? Bob Morris

From: Robert B Slobins

I saw the clip online as well on TV.

Sunday's coverage reminded me of that for the 1991 solar eclipse on The Weather Channel. I have a recording of that coverage.

The 1991 tape showed the moon moving off the sun at third contact, with the big prominence. The detail in the closeup was awesome.

I wonder if NHK has all of the recordings from its several cameras, and if these recordings can be obtained. cheers/rbs

From: Jan Sládeček

Yes, I am curious about the live coverage NHK by several cameras. After time I would like to obtain these records of Antarctic Solar Eclipse, too. Greetings, Jan

From: Jen Winter - ICSTARS Astronomy

(Continued on page 97)

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We had the kids video the US broadcast of the Discovery Eclipse in Antarctica program in HDTV.

I wish we could see the Canadian broadcast of the original program. (Note that Discovery claimed the broadcast was live. We had already finished viewing the eclipse, David Levy had called in his interview, and we had packed-up our equipment, walked a 1/2 mile back to our vehicles and placed a Satellite phone call home to the kids almost 2 hours before it was broadcast in the US.) I think there may have been some editing time included.

I would note to all eclipse chasers that NHK was given a pretty bad rap for loudly excluding all amateurs from access to them, their equipment or their observing sites... after watching the tape of the broadcast on their instrumentation and investment for the broadcast... I can wholeheartedly understand the pressure. We were impressed they had received permission to bring down their Gulfstream aircraft, much less that they had re-fitted it with \$2 million in equipment and replaced all the windows with flouirite for clearer viewing in advance! YOW! I wouldn't expect they want a bunch of pesky tourists straggling by and asking a lot of dopey questions.

Most of the footage we saw on the broadcast was from the Gulfstream plane. The eclipse on the horizon was, however, probably prettier. Seeing the disk rolling right-to-left on the horizon made it seem larger in perspective - much like a rising moon seems bigger near earth-bound objects. I noticed also, that the camera was often panning down onto the cloud-tops, as-if the cameraman was able to see the shadow-bands - even if the camera could not. The constant glimmering effect of the shadow-bands was in everything. The sliver of sun itself seemed to glisten and twinkle like fluttering foil reflecting light.

One comment I would have about the footage is that the high definition video revealed some of the best video footage I have ever seen of the inner-corona detail. It greatly resembled the effect of viewing totality through the eyepiece of a low-medium powered telescope - in the path. Our color on the ground was just a little different than the plane experienced, though - due to the atmospheric refraction. The top of our corona had green tints, where the sides and lower corona were golden orange-red.

We'll see what the scans reveal! Clear Skies, Jen & Vic

From: Bob Morris

The Discovery Canada HDTV broadcast was live.

My HDTV cable box clock is right on an atomic clock, which I can confirm by my radio sync WWVH watch.

The Weather Channel Canada, which has a seconds timer on screen, is within a second of my watch time. It also must be synced.

BTW, the Canadian atomic time radio signal station CHU is within 1 mile of my home in south Ottawa! Years ago its signal came through on my telephone! I could pick up the phone, dial one number to get rid of the dial tone, and listen to CHU!

We don't know where the HDTV plane was, but totality was within 1 minute of the 6:16 EST time for totality at Novo. Bob Morris

From: Jen Winter - ICSTARS Astronomy

The HDTV plane was out of the Novo/ALCI airstrip and flew overhead.

After totality was over, we saw _a_ airplane perform a U-Turn from westbound to Eastbound at an altitude appropriate for either the NHK plane or either of the intersecting flights. Originally, our expectations were that the NHK plane was a back-up plan in the event that the ground crew would be clouded out and that the plane seen must be a commercial flight... in retrospect, it is more likely that we observed that NHK plane rather than the Quantas or Lan Chile flight directly overhead.

It would be interesting to see the Canadian broadcast and how much was changed before it came to the US. I have just spoken with Jay Anderson, who indicated that they interviewed him as well. This makes 3 Canadian interviews that were eliminated (David Makepeace, David Levy and Jay Anderson) for the US broadcast. Did those interviews run in the Canadian Version? Jen

(Continued on page 98)

TSE 2003

From: Bob Morris

I recall Levy and Makepiece (audio only, with photos) but not Anderson. Perhaps I was on a "break." :-) Bob

From: Chris Malicki

Both David Levy and David Makepeace were interviewed in the Canadian Discovery live broadcast, both by satellite phone. David Levy described the total eclipse shortly after totality. David Makepeace's interview was aired AFTER totality at his location, but BEFORE totality at Novo. However, David Makepeace was talking about his anticipation of the eclipse and therefore the recording must have been done before his totality. Both David's were only interviewed once each, and briefly. Chris Malicki

Pictures Michael Gill

QF2901 Image #1: Melbourne Tullamarine Airport. Left to right: Jay Friedland, John Beattie, Craig Small, Carter Roberts

QF2901 Picture #2: On Board QF2901. Left: Daniel Lynch, Dublin, Ireland . Right: Bengt Alfredsson, Goteborg, Sweden

QF2901 Picture #3: Onboard QF2901. Fore-ground: Derryl Barr sets up his camera in 69A. Background: Joel Moscowitz prepares in 68A.

QF2901 Picture #4: Post Flight at Melbourne Airport. Left to right: Captain Meade, Michael Gill, Glenn Schneider, Steve Kolodny, Captain Dennis (pilot in command).

QF2901 Picture #5: Jay Pasachoff distributes questionnaires to participants while we wait for



take-off.

QF2901 Image #6: Left to right: Jay Pasachoff, John Beattie (behind), Glenn Schneider, Jay Friedland. Eighty (80) TSEs between them. Melbourne Airport Qantas Club Lounge, prior to boarding.

QF2901 - Snapshots - #7: Left: Joerg Schoppmeyer, Right: Matthew Poulton. Melbourne Airport Qantas Club Lounge

Another snapshot : A snapshot of Ray Brooks (left) and Craig Small on board QF2901.

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**Ray Brooks (left) and Craig Small
on board QF2901**

TSE 2003 totality picture

From: Joel Moskowitz To: SOLARE-CLIPSESen1200312AULA.COM
Date: Wed, 03 Dec 2003 05:33:41

OK, here is a frame grab from my video out the window of Qantas flight 2901: <http://homepage.mac.com/joelmoskowitz/TSE2003/PhotoAlbum14.html> More to come

Picture by Joel Moskowitz



New Eclipse pix

From: Jen Winter - ICSTARS Astronomy To: Date: Sat, 29 Nov 2003 01:58:56

We have posted a few more eclipse images from the Novo Eclipse Expedition.

They can be found at: <http://icstars.com/Antarctica/Eclipse2003.html> Note that the image to the top of this page links to a somewhat larger version

a shadow progression can be seen at: <http://icstars.com/Antarctica/ShadowProgression.html>

These latest images were taken with a Pentax 6x7 with a 45mm wide-angle lens. Fuji Color Neg film ASA 800 f/4 1/250 sec.

The scans were rather low resolution proof scans done by the processing house in Cape Town. We expect to have higher resolution detailed images after spending time with the film here at the shop. Clear Skies, Vic & Jen

From: Jen Winter - ICSTARS Astronomy

We have posted a few more eclipse pix in a higher-power, narrower field in progression.

Image details: Nikon D-100 / Nikor 600mm f/4 lens (equivalent to 900mm due to reduced chip size) / 1/1000 to 1/20th sec.

We are somewhat disappointed due to the quality effects of the poor seeing at low altitude, but realize that it's a trade-off for the coloring and shape effects seen.

<http://icstars.com/Antarctica/MidnightEclipseSeries/>

We also watched our wide-field eclipse video last night and noticed that we captured the con-trail from the NHK plane high overhead. There is no possibility that it was either the Lan Chile or Quantus flights, but we waved to it from the ground anyway!

More pix as they become available! (we still need to scan the fish-eye film and re-scan the med. format stuff) Clear Skies, jen & Vic

From: Robert B Slobins

Vic, Jen: The eclipse images are very interesting. Maybe some of the people on this list who have been on Antarctica can answer why it is the best place for interesting atmospheric optical phenomena. What was your elevation above sea level?

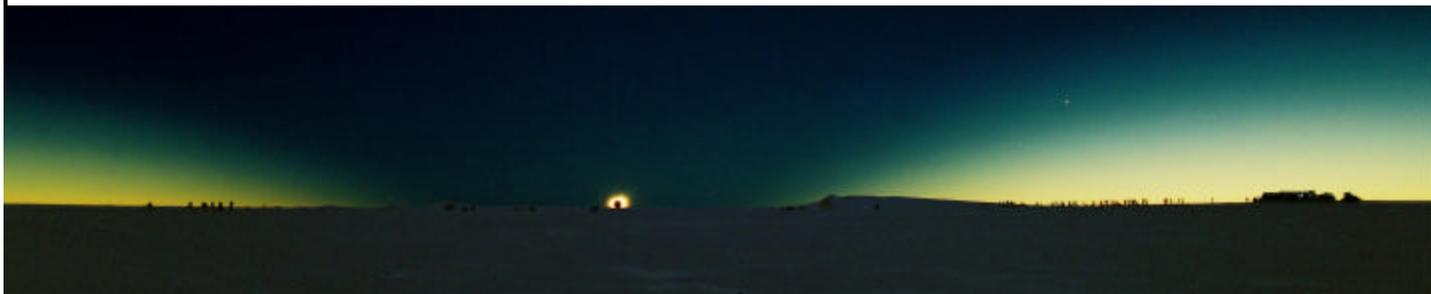
For instance, I read somewhere that the sunsets can sometimes be green. Is this related to the green flash?

To keep this thread from deviating, for other than personal experiences, perhaps respondents can cite URL's. cheers/rbs

From: Dale Ireland

jen and vic I think your results are excellent for that sun elevation and conditions. I have a couple pho-

new eclipse pix novo



tography questions. Was the 600ED lens at f/4 for all the images? Are you using the older AIS 600 f/4 or the newer AF digital compatible version? I would like to get a Nikon D100 or the new D2 with wireless image file transfer but there are apparently some serious compatibility issues with the older Nikon lenses like mine. I used to have the Nikon non-AF 600 f/4 but went to the 500 ED f/4 due to weight. It has the cpu connections but no AF and only limited function with digital bodies. If you are using the older AI non-AF 600 can you tell me if it was difficult to use, focus, can you use aperture priority exposure if you want? Dale

From: Robert B Slobins

Jen: Some thoughts:

1--I never saw any green coronal streamer in Bolivia. It did not record on my images. Even the 5303 A line was not visible on the negatives (solar activity was near minimum).

2--Your discussion brings up important issues regarding electronics in cold places. Those operating limitations have to be taken seriously. I am considering the purchase of a digital SLR, and I have heard that the Nikon chip is noisy. Not too good if you want to image stars near the corona (you can get to +3 magnitude with a 1 second exposure on ISO 400). What about the Fuji chips?

3--Those monster lenses are heavy enough to create a lot of stability. I would not use anything less than my Tamrons that add the order of ten pounds (4.5 kg) to the weight, even though they are a pain to transport through airports and to bring on planes.

4--The next cold eclipse will be Spitzbergen, 2015. Other than that, it will be a matter of one's choice to observe eclipses in the cold, e.g. the high Andes in 2020, the high Arctic of Canada in 2008, the mountains of Turkey and the Caucasus in 2006. Does any one have any ideas on how to make resistor tape to keep equipment warm--like Kendrick's dew shield? Also, I am sure that we have had nature photographers shoot polar bears and the like in Canadian chill; what do these people do with their digital cameras?

By the way, I never had film break in my cameras, and I have shot aurorae with the temperatures to 9 F / -13 C. How cold was it down there? cheers/rbs

From: Glenn Schneider

Jen, This has me wondering (and thinking), when combined with your comment that the temperature at totality was -24C. Did you (or someone there) do a color (wavelength vs. quantum efficiency) calibration at that temperature? The Nikon D100 uses the Sony 6 Mpix CCD sensor with a Bayer mosaic filter. This is a consumer grade CCD which has roughly equal quantum efficiencies in the mid-optical spectral region at warm temperatures. Note: NIKON defines "normal" operating temperature as 20C (buried on page 12 of their glitzy product brochure which lacks much technical information, and under the context under "autofocus"). For this application these CCDs are not run cooled, but wavelength dependent QE changes with temperature.

I do not have the specifications for this particular device, but you may be seeing a "chromatic effect" in the sensor due to the operating temperature. I suggest you may want to run some color calibrations with the same camera at the temperature you experienced at Novo. Does anyone at SEML have QE vs. wavelength vs. temperature data for this device?

Also, food for thought, I also note that the D100 has an automatic "Tone Compensation" mode. I haven't a clue as to what that actually does, or how it would react to try to "correct" for the true chromatics of the TSE at the horizon at -24C! I presume it is some sort of real-time histogram renormalization (???) which would be wholly inappropriate for this. But maybe you had that turned off? There are also three different options for TTL white balance correction - all scene dependent. What modes were selected for your imaging program? -GS-

From: eclipse98

Jen, I have seen all of your pictures and those of many others on the ice and in the air. I am sooooo jealous. But I am glad you had what can truly be said was the trip of a life time. Thanks for sharing all of this with those of us who could not join you physically, but travelled with you spiritually! Jerry

(Continued on page 104)

From: Jen Winter - ICSTARS Astronomy

Dale and Robert, We did note some unusual imaging circumstances in our location near Novo. First, we should note that we ultimately did not end-up at our desired observing spot. The GPS coordinates did not quite match with our proposed spot, but with only a few hours on the ice before first contact, there wasn't time to wander around to find the best view. This is why our disc intersected the horizon. The storms ALMOST stole our shot to view totality, but if all we got was 95% unobstructed with the gorgeous view, then so be it...

First, the issue of the colors at the horizon... We are still looking over our shots to try to understand exactly what happened. We were expecting to see red to the bottom and green to the top. With the corona, we did just that... I have never observed a more GREEN coronal streamer than we saw to the 1:00 position. Many remarked that it was much greener than Bolivia 1994. - the inner corona was golden and the areas close to the horizon were reddish. - - However... the chromosphere and diamond ring images are still very confusing. Both diamond rings occurred very near the horizon on the disk, leaving what should have been a "ruby ring"... but it wasn't. To the contrary, our images revealed a chromatic progression from a more green color back to the remaining visible chromosphere in Red... This can be seen in the image on the right at: http://icstars.com/Antarctica/Total_Eclipse2003.html

Regarding equipment... We use an older model Nikon 600mm f/4. It's a pig and weighs about 13lbs... but we wouldn't trade it for the world. It doesn't meter properly with the D-100, so we have to set the camera on Manual exposure and either "click and check" or bracket. There are no metering capabilities whatsoever in the D-100 if you don't let it set your exposure. In most instances, the click and check method works. This means image, then look at the view-screen to estimate exposure. Because the D-100 is not a full chip size... this makes the effective focal length 900mm at F-4... not shabby and as easy to configure as any equipment we've brought to date. The only drag is the metering. We still do it the same way with the old 8mm fisheye, but it's worth the price tag of new lenses to use our brains. On the ice, we hit a snag with the D100. It started getting cold during totality and wouldn't bracket well. Once it dropped to 1/20th sec, it wouldn't go any further or change. This meant we couldn't get much corona detail from slower exposures with this lens. Our corona rig malfunctioned and failed to fire 1/2 way through. Our wide-angle camera's (Pentax 6x7 w/45mm) back clasp broke, so we sealed it shut with duct-tape and surprisingly only fogged 3 shots at the beginning (either that or the aurora was HUGE!). The fish-eye shots worked fine, but totality was cropped by the scan technician in cape town.

As usual, we have lots of scanning, cropping and editing left to do. Clear Skies, jen

From: Dale Ireland

Jen How cold is "cold". Just wondering how far outside the recommended operating range of the camera. When it froze at 1/20 could you reset it by power the camera off and then on or did you have time to try it. You were just stuck at 1/20th after that?
Dale

From: Robert B Slobins

As I may have mentioned before--what do the wilderness photographers--those who are doing polar bears do?

Another thought: Post a message on the discussion forum of www.spacew.com. Ask the question about dealing with digital cameras and cold. There are plenty of people who do wonderful aurora images from Alaska and Yukon, or like Jan Curtis, used to do that work, in frightfully cold conditions.

We have to prepare for Spitzbergen, 2015! ;-) cheers/rbs

From: Glenn Schneider

Glenn asked: >"Did you (or someone there) do a color >(wavelength vs. quantum efficiency) calibration at that temperature? "

That's a Riot! We had one guest who summed up his eclipse on the ice experience... "Ok, I'm breathing and I can see... OH! I'm watching the eclipse now! Awesome!"

(Continued on page 105)

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OK, Jen, I am sufficiently chided! But I didn't really mean in situ or in real-time! It was your fascinating comments and follow-up on the color gradients in the corona which lead me to ask that. It was clear, however, from your more recent post that you actually SAW those color gradients, not just captured them in digital images. THAT needs some thinking about!

Still, I think the color calibration exercise may be worth doing, post-facto. Not suggesting a return to Novo, though! How cold is your freezer? Likely not down to -24C, but if you still have your cold weather gear maybe you can take your D-100 into the deep freeze at your local grocery store and do that test. (Don't laugh, twenty years ago we did that to cold-test some equipment destined for the South Pole. We looked pretty odd walking into Albertson's in heavy parkas and gloves, during the summer in Florida.)

The experience you describe is what many who have worked on the ice call the "A factor" (A for Antarctic), which simply is a corollary to Murphy's Law. ANYTHING you try to do is a lot harder there than you anticipate, and even if you anticipate it is still harder than you would have imagined. The payoff IS the experience and the eclipse - you had a truly unique one. Photos, as wonderful as the ones we have seen truly are, are secondary. I don't have to tell you to treasure the memory. I am sure it is etched indelibly within. Congratulations again to you and all who were with you. -GS-

From: Jen Winter - ICSTARS Astronomy

Jim Huddle was doing the weather data and we're waiting back for a full report... but an amateur recording on the ice showed that 2 minutes after 3rd contact, we were -24deg C.

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The fast change in weather conditions was one surprise and affecting factor. Everything about this event was fast. We flew into the airstrip about 36 hours later than expected, rushed up to the observing site, struggled to select our final viewing positions, had a mix of vehicles and bi-planes delivering bodies in a constant stream of excitement, lots of rushed fumbles to erect equipment with winter gloves and gear on, eyeglasses and optics fogging, 2 frozen contact lenses ejected from observers' eyes, a much faster progression from first to second contact, a temperature drop and wind pick-up that was perhaps standard in volume, but coupled with the already low temperature and short contact timespans exaggerated, and all on top of the fleeting circumstances of ordinary eclipse euphoria as it all happens so fast...

The wind on the ice has nothing to block it. We don't know exactly why the D100 got stuck at 1/20 second, it could have been operator / frozen finger error - but it didn't matter with such a little amount of time. One guy chose to change camera bodies during totality and missed 30 seconds and got no pictures from either camera. One lady had just bought a new "big" camcorder battery in Cape Town, but forgot to turn the camera off after her scenic flight and it drained in the "on" position exposed outside for 20 minutes. - while at the same time, our camera recorded 45 minutes sitting on the ground...

Glenn asked: >"Did you (or someone there) do a color >(wavelength vs. quantum efficiency) calibration at that temperature?

That's a Riot! We had one guest who summed up his eclipse on the ice experience... "Ok, I'm breathing and I can see... OH! I'm watching the eclipse now! Awesome!"

The entire experience was so fast and furious, that most of us weren't able to process and comprehend the mere fact that we were observing totality until it was over. Pictures were a bonus. -- much less pictures like Fred got.

If you think you're jealous of us for going, think how jealous we all are after enduring all that, having 3 out of 4 cameras malfunction - and sitting in the passenger bulldozer with King Fred on the way back to camp, having him click through his camera viewscreen and say "Oh, look! I got people in my corona images". - cool stuff, Fred... jen

Antarctic partial eclipse

From: Kelly Beatty To: SOLARECLIPSESen1200312AULA.COM Date: Tue, 02 Dec 2003 18:47:35

gang... the partial eclipse was magnitude 0.86 at the South Pole, and deep partials were visible at McMurdo and elsewhere. it was a big deal down there (as was our jumbo jet buzzing the pole at 2500 feet). there's a nice write-up of eclipse-day happenings in the current issue of the "Antarctic Sun" -- here's the article: <http://www.polar.org/antsun/solarPhenomena.htm> clear skies, Ke lly

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From: Mike Simmons

Thanks for posting that Kelly. Very interesting. Too bad they couldn't travel the short distance into the path of totality. But one statement really got my attention:

"Without protection, looking at the sun would burn through the retina of a person's eyes."

Yikes! Burn *through* the retina??? I guess the ozone hole is a much bigger problem for Antacticans than I thought! :-)
Mike Simmons By Kristan Hutchison, Peter Rejcek and Brien Barnett Sun staff

---> picture

From: Glenn Schneider

It was a great, and comprehensive article. But Mike, LC 8001 flew 1316 km to get from the closest (at altitude) point on centerline to South Pole. That's a non-trivial distance - particularly if you think about doing that overland on the Polar Plateau.

BTW - For those on LC 8001, perhaps this was readily apparent, but the reason for the 23:06:02 UT intercept? That minimized the flying distance to the South Pole after the eclipse - as well as absolutely assured the two eclipse flights would be operating in completely different air spaces without any significant compromise to the duration of achievable totality. This also means that those on LC 8001 can make another "claim" - that they observed, from the most southern extremity on centerline of the path of totality (at least at 38,000 feet).

Also, I recently wrote to Kelly, but may be of interest to others (as pointed out to me by Michael Gill, though I suspect unknown to most on QF 2901):

=====

Now I am jealous. Nobody got a picture of our plane {QF 2901} as we went over the Antarctic as they did yours {LC 8001} when you went over Pole.

Pity. We had the newest B747-400 in the QANTAS fleet, which had just gone into service in September. Just a couple of days before we had used it for our flight, in unfulfilled anticipation of Australia winning the Rugby World cup, a different kind of overflight had been planned in Sydney. Just before we were to use the plane and this was painted on its underbelly:

<http://www.airliners.net/open.file?id=462729&WxsIERv=Qm91aW5nIDc0Ny00MzgVrVI%3D&wdsYXMg=UWFudGFz&QtODMg=U3lkbmV5IC0gS2luZ3Nmb3JkIFNtaXRoIEludGVybmF0aW9uYWwgKE1hc2NvdCkgKFNZRCAvIFITU1kp&ERDLTkt=QXVzdHJhbGhIC0gTmV3IFNvdXRoIFdhdGVz&ktODMp=Tm92ZW1iZXIzMjIsIDIwMDM%3D&BP=1&WNEb25u=Q3JhaWcgTXVycmF5&xsiERvdWdsY=VkgT0VI&MgTUQtODMgKE=IkdPIFdBTExBQkIFUyIhISEhI SBPRUggaXMgc2VlbiBoZXJIIG9uIHNob3J0IGZpbmFscyBmb3JgUnd5IDE2UiBhdCB0aGUgZW5kIG9mIGZsaWdodCBRRjQ0 NiBmcm9tIE1lbGJvdXJuZS4gU2FkbHkgdGhIFdhdGxhYmllcyBuZXZlciBnb3QgdG8gc2VlIHRoaXMgc3BIY2lhbCBtZXNzYWdlIC0gdGhIGZseXBhc3QgdGhpcyBhaXJjcmFmdCB3YXMgc3VwcG9zZWQgdG8gZG8gd2FzIGNhbmNlbGxIZCBkdWUgdG8g YmFkIHdlYXRoZXIh&YXMgTUQtODMgKERD=MTQ1MA%3D%3D&NEb25uZWxs=MjAwMjY0xMS0yMw%3D%3D&static=yes&size=M>

{sorry for this long URL, it may wrap around}

We were quietly toying with the idea of overflying the Khleb if they had been close enough to the coast (which they weren't) so we could take a picture of them, and they of us - but that was not to be. Still, I wonder what they on the ice breaker would have thought of the message we carried into the Moon's shadow. -GS- Go Wallabies!

From: James Huddle

"Travelling short distances" is a whole 'nother ball game in the Land of the Big Ice. Shackleton did it, but he was much man. Jim Huddle

(Continued on page 107)

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From: Mike Simmons

Just for clarification before this spawns a discussion of Antarctic ground travel, that's what I meant. The distance is short. The effort is very great. Unfortunately for those that were so close, yet so far. Mike Simmons

From: Dale Ireland

Glenn The same image is at this much more manageable url <http://www.airliners.net/openfile/462729/L/> Dale

From: Glenn Schneider

Thanks, Dale. I had just cut and pasted the URL which came back from my search! -GS-

QF 2901 ECLIPSE VIDEO IMAGE PROCESSING

From: Glenn Schneider To: SOLARECLIPSESenl200312AULA.COM Date: Wed, 03 Dec 2003 23:31:48

FYI, There has been some recent discussions on the use of various image processing applications for "enhancing" eclipse imaging. I remain a photometric purest, but certainly the idea is to put the photons back in place where they belong without introducing artifacts.

I have done some first-cut processing on "de-jitterng" and combining imagery from the shaky hand of an anonymous eclipse chaser on QF 2901 (OK, you forced me, it's Jay Friedland), which may be of general interest. there will be more to come, but I am playing catch-up. http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_03/DIGITAL_MAGIC/DIGITAL_MAGIC.html

Comments and suggestions, good or bad, er for the comments, I don't want any bad suggestions ;-) are welcome. -GS-



**antarctic partial
DicksNPX-
eclipse**

Khlebnikov due in...

From: Jen Winter - ICSTARS Astronomy To: SOLARECLIPSESenl200312aula.com Date: Tue, 02 Dec 2003 20:16:59

Just a reminder... 110 tired and seasick eclipse chasers are due to arrive Hobart in another few hours.

Klipsi has been posting updates to his site - with some fun audio clips when you click on his picture thumbnail - <http://www.staigerland.com/eclipse03/>

The ship is arriving about 15 hours late after having to make a course correction to avoid the low of a large storm. Meanwhile, the ship has been rocking and rolling - enduring some high seas with up to 4 meter waves!

We've seen some pictures back from one of the guests who photographed the water at his toes in the bathtub... In a double exposure, you can see the rolling at nearly 35 degrees in each direction.

They still, however, enjoyed an outstanding Antarctic experience - one that dwarfs our meagre time on the ice at Novo.

Welcome home to the Icebreaker guests! Clear Skies, jen

From: Christiaan

If my memory doesn't fail me, some of the Khlebnikov-people will tell thngs about their trip and show slides and video's tomorrow

9.30 AM in the University of Tasmania in Hobart. Will this continue, even if they're behind of schedule (they won't enter the harbour till later this evening) and where will this event be held. The Antarctic-division of the university? I went there today, but the person working at the administration of that department wasn't able to tell me. Regards, Chris.



klebnikov due in danceswithpenguin

Photos Qantas Flight

From: eclipseclatSen1200312comcast.net To: SOLARECLIPSESen1200312aula.com Date: Wed, 03 Dec 2003 12:00:23

A half dozen photos are now listed on my website <http://home.comcast.net/~eclipseclat>

My wife Dori's photo of the shadow came out pretty nice.

Corona was very reminiscent of July 1991 just smaller. Cheers Raymond Brooks

From: Harvey Wasserman

What I really like about this shot, Ray, are the reflections from the window. Just above the eclipsed sun is a reflection which shows the inner corona, while off to the left is another reflection showing the corona out to perhaps 2 radii. Harvey Wasserman

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**photos qantas
flight brooks
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Sub-Zero (Eclipse) Photography

From: Glenn Schneider To: SOLARECLIPSESenl200312AULA.COM Date: Tue, 02 Dec 2003 17:05:15

> --Original Message----- On Behalf Of Jen Winter - ICSTARS Astronomy

>

> On the ice, we hit a snag with the D100. It started getting cold during totality and wouldn't bracket well. Once it dropped to 1/20th sec, it wouldn't go any further or change. This meant we couldn't get much corona detail from slower exposures with this lens.

In Siberia in 1997 I had used some self-heating liquid crystal "heat packs" similar to those shown offered by many vendors (also sold as "hand warmers"), for example:

<http://www.hobbytron.net/lheatpack.html> (reusable)

<http://www.northcoastmarines.com/htpc.htm> (one shot)

I taped a couple of small ones to the bottom and screen back of my PowerBook, and to the back of my camera and it kept them both happy as we shivered in our boots. Too bad I didn't think to use one to keep myself warm; see my comment under the thumb-nail mosaic on: http://nicmo.sis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_97/ECLIPSE_1997.html

Sometime back I had suggested that these might be useful for the Antarctic eclipse. Did anyone on the ground or at sea use them? -GS-

From: Jen Winter - ICSTARS Astronomy

We brought about 30 of these chemical heat packs. We call them hot-hands. (A little skeptical about bringing them along since they are filled with ammonium nitrate) - But we use them all the time for impromptu dew zappers for things like wide-angle photography. They're ideal for leonid imaging if you zip-tie two of them to a taped-down focused lens. Once we tried a butchered tube-sock over the outside, but it didn't let enough oxygen in for the exothermic reaction. Now, we just use a zip-tie around them.... there is a lot of heat-loss.

Fred saved his laptop batteries by keeping them inside his coat. I don't think the chem heat-packs would have lasted out in the wind to provide much thermal assistance... way too much air and wind...

We didn't end-up tying them to equipment, but rather saved them for post-eclipse and distributing them to observers who had taken their gloves off to handle equipment. Immediately after 3rd contact, we cracked open about 20 of them and passed them around. We had a kid from South Africa (a popular radio show host) who had never heard of them before and had to show a few people how to use them... but I fear without them, many people could have had advanced finger damage from the frost-bite. Vic and David Levy both noted that their fingertips felt bruised the following day after just a few minutes exposed in the cold and wind. Others, however, reported to feel fine under the same conditions. I think some people's circulation re-routed blood to the brain and eyes in the excitement.... Maybe this effect is the E-Factor..... jen

From: solareclipsewebpagesSenl200312btopenworld.com

Hi, I tried to use these hand warmers during the total solar eclipse of 9 March in Chinese Siberia, where I recorded the lowest temperature at 30 degrees C. They did not work.

See http://solareclipsewebpages.users.btopenworld.com/SECalendar_files/19970309.html

I went to Svalbard, Spitsbergen for the partial eclipse of 21 May 1993 and did not had that many problems. The temperature was "only" minus 25. See

http://solareclipsewebpages.users.btopenworld.com/SECalendar_files/19930521.html for more details. PP

From: Daniel Fischer

In Urulga, Russian Siberia, it was also -20 degrees C before and perhaps -30 deg.C during totality, but we didn't suffer back then:

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Perhaps it helped that Russian police had arrested us and set us free just in time to arrive at the site 20 minutes before totality? Check out <http://www.astro.uni-bonn.de/~dfischer/eclipse97trip.html#9> for what it was like: no camera (or personnel :-) failures whatsoever.

So which eclipse was the coldest of all? Apparently not the Antarctic one, but probably the 1997 eclipse when viewed from either eastern Siberia (I think a group that went even further north than us got -40 deg.C) or northern China under perfectly clear skies. Or are there other contenders from decades past? Daniel

From: Glenn Schneider

It was pretty darned cold just north of Chita, Siberia. But I would think Jen and company have us both beat with wind chill! -GS-

From: AlcovedbaseSenl200312aol.com

You don't have to go to the bottom of the globe or Siberia to see that much cold. Just this morning, it was - 9oC in Boston. It felt like - 17oC with windchill effect. The coldest eclipse we had been to with my wife was the Xmas partial solar eclipse in December 2000 (<http://members.aol.com/himenali/astro/xmasolar.html>). The temperature was - 10oC, while windchill dropped to - 20oC during the maximum eclipse (brrrrrr). So, prior to your next polar TSE, come to Boston for your dress rehearsal! Haldun I. Menali

From: eclipseclatSenl200312comcast.net

Glenn; It got to -20 F (-19F on one thermometer) in Cita, Siberia. wind was about 7 to 8 mph so wind chill was about -39F.

I remember wincing for 20 minutes after totality because my uncovered hands were killing me (uncovered to fiddle with optics) What were the conditions in Novo?



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3**Japanese NOVO report - NHK**

From: Jen Winter - ICSTARS Astronomy To: SOLARECLIPSESenl200312aula.com Date: Wed, 03 Dec 2003 20:08:46

We have just received correspondence from an associate, Mr. Shigemi Numazawa, photographing with NHK at their mountaintop site near Novo. The NHK team was the group featured in the Discovery Channel Special. Mr. Numazawa has seen several eclipses before and noted to us:

"I felt the another planet's landscape in Antarctica. Very very exciting experience!!"

He invites us to view his images at: <http://www.jplnet.com/03eclipse/>

I will note that NHK has been very explicit in their concerns to protect copyrighted materials and hope everyone give Mr. Numazawa the courtesy of an inquiry prior to any republishing of images. I just don't want to be the one in trouble if NHK discovers their images floating around.

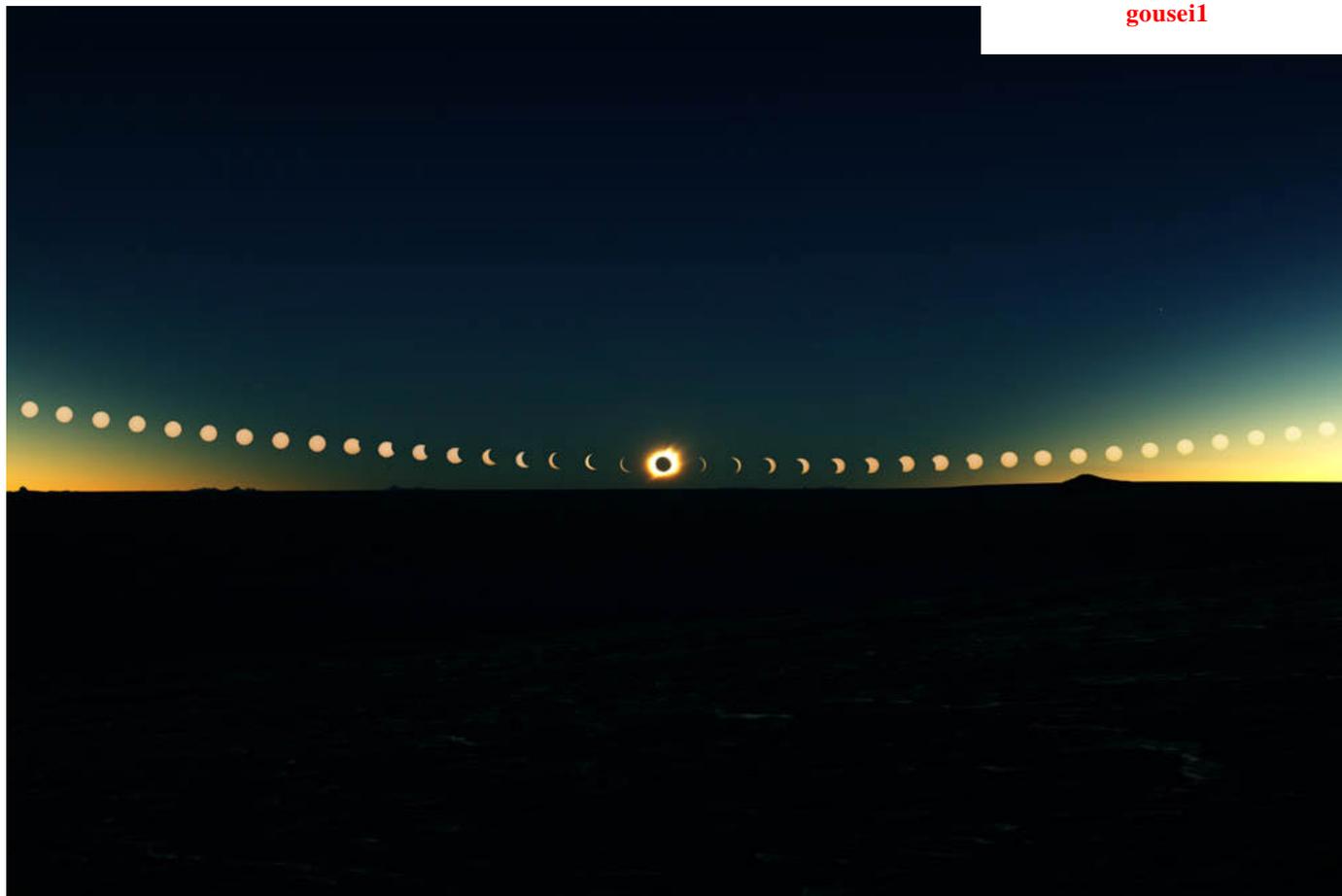
The NHK group flew-in 2 weeks ahead of our group and camped at the runway basecamp to erect all of their equipment and prepare for the broadcast. They endured the white-out blizzard conditions prior to the eclipse, but earned a higher elevation viewing position and a disc clear of the horizon.

Mr. Numazawa's impressive home page is at: www.jplnet.com Clear Skies, jen

From: Michael Gill

Numazawa-san's pictures are incredible. His composite images are surely unique in the annals of eclipse-chasing (anyone know of any other composites of a Midnight Sun total eclipse?). Bravo. Michael Gill

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Total Solar Eclipse in Antarctica ©2003 Shigemi Numazawa / NHK

japanese novo report composite 03eclipse5

ell me on Apple, either.

Amazing video, bad stories from Qantas plane

From: Daniel Fischer To: SOLARECLIPSESenl200312AULA.COM Date: Mon, 01 Dec 2003 15:06:53

Last night I had the opportunity to watch an excellent video shot by a friend of mine from the Qantas flight: He had put the camera onto a tripod that sat on the floor of the business class - and it worked. The quality of his window was so good and the plane flying so smoothly during totality that the video *really* looks like it was shot from the ground, even at full zoom. I would not have believed that such a feat was possible from a regular airliner, especially since earlier attempts to shoot the 1992 total and 2003 annular eclipses from the air had yielded far worse results.

My friend, though, confirmed the earlier impression that the organizational abilities of Croyden for separating the high-paying eclipse flyers from the regular Antarctic sightseers on that plane were questionable, to put it mildly. E.g. while he had paid for two business class seats so that he would have a free seat next to him for all his gear, two (!) other passengers showed up with reservations for that very seat! The first one was reseated by a Croyden rep. but the other one stayed - and demanded window access. Which raises the question: Were there more 'eclipse' seats sold at their elevated prices than were actually available? Daniel

From: Joel Moskowitz

HMM... In economy, I had an "A" (window) seat. We (and occupants of the B and C seats) were informed that the main window was exclusive to the A seat holder. B and C seat holders would make do with what ever else was available. I also know that Business class had 2 seats per window and the B seat holder had exclusive use of the second window. However, if he bought the B seat in addition to the A seat, I assume that the other person should not have been in it. The eclipse was absolutely gorgeous with coronal streamers at least 3 solar diameters out. Chromosphere just before CIII just hung there. and reached around about 120 degrees before diamond

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However, most astro software runs on the PC. Registax and K3CCD Tools do not work on Apple. The Apple users on the QCUAG Yahoo! group have fits. (There is, however, a stacking program for the Apple, which is very nice, but without the sophistication of Registax. cheers/rbs

From: SchoppmeyerSenl200312kwsoft.de

I have also a video, almost fully zoomed (25 optical with 1.5 converter) which is not shaky and which was done in the economy with a tripod ! I was lucky because I had the first row in economy with plenty of legroom. But I also had a "visit" during totality from somebody of the non-eclipse viewers. Bye Joerg Schoppmeyer

From: Joel Moskowitz

Choke, Choke, Choke... I think Glenn will understand this reaction. Actually, there is a Mac program that does what registax does. It's called KeithsImageStacker. I have it. I haven't tried it yet, but I guess the eclipse video would make a good trial. Just a little too busy at the moment trying to catch up after the trip.

From: Daniel Fischer

Hi Glenn, it was Friedhelm Dorst, sietisSenl200312gmx.de (please keep the e-mail address under wraps; he's a bit shy :-), the one eclipse chaser I know who has been to more total eclipses than both you and Jay, even though he only started in 1970.

Will there be a 'best of Qantas' tape? Friedhelm would really appreciate getting some wide-angle video material from the flight because his 2nd camcorder he brought for that purpose failed completely. I also understand that Aussie TV was on board and will distribute a (mainly human interest, I suppose) tape to all passengers. Regards, Daniel

From: solareclipsewebpagesSenl200312btopenworld.com

I have also a video, almost fully zoomed (25 optical with 1.5 converter) which is not shaky and which was done in the economy with a tripod ! I was lucky because I had the first row in economy with plenty of legroom. But I also had a "visit" during totality from somebody of the non-eclipse viewers. Bye Joerg Schoppmeyer

From: Glenn Schneider

Hi Daniel,

>it was Friedhelm Dorst...

Thanks, I know Freddy, we have corresponded before and even crossed track (or should I say paths) a few times.

As you know I am not drawn to solar eclipses for bookkeeping. But unless Friedhelm managed to skunk all of us at the last Antarctic eclipse (1985), we must be tied as the first TSE I saw was also in 1970 and except for the 1985 Antarctic eclipse I've haven't missed any. Well, clouded out three times, but nobody is perfect. Except Craig Small, that is. I *THINK* he is up to 22 TSEs now and NEVER has been clouded out (the rat!) ;-)

Every once in a while someone asks "who has the most". Definately not me, nor Jay P., as TSEs are concerned despite Sheridan's keeping tabs on us. I don't know myself, but Daryll Nye must be up around 28/29? But he is not on this list, and I don't know if he made it to the Antarctic. Did anyone who did elsewhere encounter him?

I understand that the videographer which Croydon had on board will be making an "official" tape, and offering it for sale. Beyond that I don't know of any plans for other general distributions, but having missed a lot (actuyally all) of the goings on in the passanger cabin, I would like that myself. I suspect Joel Moskowitz may be making an "unofficial" tape of some sort when he has time. Perhaps he can advise us if and when. Cheers, -GS-

From: KCStarguySenl200312aol.com

(Continued on page 114)

Glenn etc I too use Apple. I have a variety of software that I use and Apple users can also use Keith's Image stack program which many learn and use. In the webcam story in the Sky & telescope, Keith talks about that program too. I am still trying to use it and currently use photoshop and some other programs for astrophotography. There are program for the mac that use pc programs as well. Since I can't see eclipses lately, I am imaging comets. Dr. Eric Flescher (kcstarguySenl200312aol.com)

ESA claims role in Khlebnikov cruise

From: Daniel Fischer To: SOLARECLIPSESenl200312AULA.COM Date: Wed, 03 Dec 2003 21:33:55

www.esa.int/export/esaCP/SEMXXVFXLDMD_index_0.html - "Envisat images delivered to Antarctic eclipse spotters"; links also to www.antarctica2003.ch in French. Daniel

From: Jen Winter - ICSTARS Astronomy

Daniel, We did coordinate a team of 4 professionals from the international polar foundation on the Khlebnikov expedition. Their team leader was Dr. Didier Raboud of Passerelle Science-Cité as mentioned in the article. Loren Coquile was another passenger.

They consisted of scientists and a news agent to report back through the polar foundation, their university in Switzerland and the ESA. The team conducted a sizeable number of scientific investigations and interviews during the voyage - all of which required a significant amount of documentation and permissions in advance through the Australian Antarctic Division, the US EPA and the Swiss Antarctic authorities.

The organization also conducted some type academic contest for which the winning student was awarded participation in the voyage. For quite some time, we had to hold a booking under the name, "Student Passenger".

The group solicited associations and partnerships throughout the European scientific community. Clear Skies, jen

URL's updated

From: Jay.M.PasachoffSenl200312williams.edu To: solareclipsesSenl200312aula.com Date: Thu, 04 Dec 2003 01:18:40

We have updated our list of photos and other URL's available showing the November 23/24 eclipse under that heading at www.eclipses.info. Jay Pasachoff

Novo Eclipse Animation

From: Jen Winter - ICSTARS Astronomy To: SOLARECLIPSESenl200312aula.com Date: Thu, 04 Dec 2003 16:43:05

Vic just prepared a small animation and posted it to the page: http://icstars.com/Antarctica/Animations/EclipseAnimations_400.html

Note that he included a cover-slide with circumstance details. It may look like the animation isn't working, but it's just giving you time to read. It moves a little faster than totality, but sometimes the event feels like it was that short...

The high resolution animate .gif is seen at: http://icstars.com/Antarctica/Animations/EclipseAnimations_800.html jen

Novo Eclipse Report

From: Fred Bruenjes To: solareclipsesSenl200312aula.com Date: Tue, 25 Nov 2003 12:48:46

Fellow Eclipse Chasers, As Jen has already reported we had a resounding success in observing the eclipse on the ice in Antarctica. I've put together a quick report of our day in Antarctica and some eclipse pictures at:

<http://www.moonglow.net/eclipse/2003nov23/updates.html>

There were some eclipse chasers standing in front of me in the distance so I got some spectacular shots of corona, etc. with humans superimposed. Be sure to take a look. I will post more stuff when I get home and have a faster internet connection.
Fred Bruenjes

From: Fred Bruenjes

I've updated my Novo eclipse webpage after spending a few days processing images more carefully. In addition to new & improved shots of totality I added some pictures of our observing site and a sound recording. Here's the address:

<http://www.moonglow.net/eclipse/2003nov23/index.html>

I did a four-image composite, to bring out coronal details and give a "feel" for the eclipse. I couldn't get the colors right so this image is still a work in progress. I'd appreciate comments on whether or not I overdid the processing.



novo eclipse report bruenjes untitled

I ran Registax on my video footage and was very pleased with the result. The image isn't much sharper, but the blotchiness of the seeing was taken out, and averaging frames allowed me to really pull out the corona. After using curves in Photoshop I am getting a full solar radii of corona, which I think is very good from a video camera that is known for poor latitude.

I also added an MP3-format audio file of totality. Fred Bruenjes fredSen1200312moonglow.net

From: Robert B Slobins

Fred: What you need to do is to make the corona white. And it looks as if you did that.

Otherwise, you really did a great job with the composite, and I encourage you to shop it around to the astronomy publications. cheers/rbs

From: Robert B Slobins

Dale, et al: Fair enough.

Now, the best way to get the real color from a scene is to image a standard colour calibration card obtainable at good photographic stores. You need to take the image of the card at the correct ISO (calibrate the film) during full daylight. The film you use ought to be from the same batch as that for the eclipse, or anything else that you are shooting that critically. Then you match the card when you make the scan and print. You are fully calibrated, and the colours you then get are true.

Would you be willing to do this? :-) However, I did not see much colour shifts in Fred's image. cheers/rbs

From: Dale Ireland

Robert Although the corona may in fact be white it doesn't appear white at the horizon. Some of the images look white due to over exposure. You don't want to change the properly exposed red-yellow-green corona to white if that isn't the way it looked. The corona we saw in Australia last year with the sun just above the horizon was deep yellow, orange, and red. Adjusting the color balance to make it white would ruin the image. Dale

From: Jay.M.PasachoffSen1200312williams.edu

This situation is similar to that of the green flash, with extreme differential refraction. In the green flash, low altitude of the sun

(Continued on page 116)

(what you had) makes the equivalent of overlapping solar images, with the blue image lowest, the green image in the middle, and the red image lowest. The blue image is scattered away in the atmosphere, and the yellow and orange are absorbed by water vapor and ozone. So we basically have green and red images left. For a green flash, when the red image sets, the green is left for a few seconds. At this eclipse, the atmospheric refraction was apparently so great that what Jen saw occurred: a green image highest and red, yellow, and orange (whatever wasn't absorbed) lower, with separation of as much as 1/4 solar radius, which is 4 arcmin. Jay Pasachoff

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From: Robert B Slobins

Dale: I meant that the colour card be photographed at high clear noon in normal daylight. Then with the settings for the proper printing or scan of the card, then print or scan the image, unless you can balance on something you *know* is pure white or pure black.

I must caution: Your colour perception will differ from others'. Films' colour perception differs from others. Unless you use a totally objective means of determining colour perception, then getting objective colour is not possible.

Your solution of using a colorimeter is sound, but I am sure that in the moments before totality no one would be taking such measurements.

Also, the rendering of any first generation image is somewhat subjective. This is similar to music, as each performer puts his stamp on the piece he is playing. cheers/rbs

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From: Harvey Wasserman

Jay, Thanks for the lucid explanation. Would this "extreme differential refraction" be caused by the extreme cold? If not, why didn't people report this from Australia - or did they? Was this seen from the airplane flights? If not, what was special about Jen's location? I mean, other than the obvious, for which I shall be forever jealous! ;-) Harvey Wasserman

From: Jen Winter - ICSTARS Astronomy

But the Corona WASN'T white!!! That's just it!

The top-right streamers of the corona was vivid GREEN and the lower-sections rainbowed into yellow, orange and Red...
jen

From: Dale Ireland

RB Sorry but I don't agree. I think the best way is to take color slide and "trust" the images in the slide and try to reproduce them in the digital image. That is one problem with going purely digital, you have few reference points. The problem with a color calibration card is that it will get you back to normal daylight but not the actual scene if the actual scene HAS a color cast. For instance, I have a shot I took at the summit of Mt. Rainier at sunset, the sky is clear but the ice is red, as it was to the eye, lit by the reddened Sun. With a calibration card you would end up correcting the ice back to white, considering the entire scene has a red cast. With a digital camera you would be trying to adjust the image to get the correct redness just from memory, the slide film did it perfectly and for any digital scanned version I can look at the slide for reference. I would just set the digital for "daylight" and trust the results. The really best way would be to record the scene with a colorimeter or take light meter readings through RGB filters to find the real color balance of the scene. In Australia last year everything in the landscape was orange, if you take out the orange you have a nice boring daylight scene but not what it looked like. Dale

From: Fraser Farrell

Lots of us saw a non-white corona in Australia, especially between Lake Torrens and the sunset end of the path. But some of the published images have "corrected" the coronal colour back to white...obviously reporting what they -expected- to see, rather than what they -actually- saw. Also bear in mind that many images overexposed the inner corona, wiping out the colours there.

If you were using film, there was also the risk of a well-meaning but naive film lab making this "correction" for you when printing your photos!

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As for the colours in Australia, here's part of my own report of totality between Lyndhurst and Lake Torrens. Sun altitude 4.6 degrees:

"...the last stellar points of sunlight above the moon vanished in flashes of blue - I had never seen that at an eclipse before! - to be replaced by tiny pink festoons of solar prominences all around the black disc of the moon. The near-perfect match of solar and lunar disc sizes meant that we were seeing the entire corona practically all the way down to the sun's surface. The dust in the air was having a noticeable effect on the corona colours. Its inner portions were a lovely citrine yellow, formed into four unequal lobes, fading outwards through yellow and tan ochres to pale browns and then into the blue-black sky...."

Some of the Australian images that -did- get the colours right include:

(1) David Gray's famous pictures from Lyndhurst. 3rd contact: <http://www.guardian.co.uk/international/story/0,3604,853706,00.html> Totality image: <http://www.time.com/time/potw/20021206/index.html> (The camera was positioned east of a former railway embankment....)

(2) Dale and the other astronomers on Rob's Expedition from Arkaroola.

(3) Just about everyone who was at the sunset end, eg: Philippe Jacquot, Glenn, Jay Friedland etc.

Lads, I really like those pictures of a refraction-squashed totality poised above the mulga :-) Any chance of obtaining bigger copies, for educating the masses here for our 2012 sunrise eclipse?

I suspect that all TSE and annulars are inherently colourful at low altitude, weather permitting. No doubt even more so when you see them through the polar atmosphere, which is notorious for mirages and refraction. Early explorers' journals contain many "discoveries" of mountain ranges, islands, coastlines etc which turned out to be false.

The scarcity of reports of coloured coronas is, I think, simply because umbraphiles (and other tourists) historically congregate along the central sections of the path. Where refraction & absorptions are minimal. And who has succeeded, before now, in observing an inherently low-altitude polar TSE?

But low-altitude eclipses have other attractions too. The "black tunnel in the sky" last December was amazing, quite unlike the umbra at my 3 previous TSEs. And sunset featured a deep-orange shark fin of sun disappearing into the sand. Many observers along the path reported a Green Flash from its tip.

Now that the artistic aspects of a low-altitude eclipse are being appreciated we may see more people going to the sunrise/sunset ends in future. Just like some umbraphiles now observe from the edges of the path to get maximum Baily's Beads.

From: Harvey Wasserman

> Harvey Wasserman wrote: Would this "extreme differential refraction" be caused by the extreme cold? If not, why didn't people report this from Australia - or did they? Lots of us saw a non-white corona in Australia, especially between Lake Torrens and the sunset end of the path. But some of the published images have "corrected" the coronal colour back to white....obviously reporting what they -expected- to see, rather than what they -actually- saw. Also bear in mind that many images overexposed the inner corona, wiping out the colours there.

Yes, these pics of coloured coronas were quite lovely, but I am taken by the "extreme differential refraction" that Jay speaks of in a previous post, and of its cause. Here is Jen's comments on what she saw:

"The top-right streamers of the corona was vivid GREEN and the lower-sections rainbowed into yellow, orange and Red..."

This seems like a remarkable colour change over a relatively small distance.

> "...the last stellar points of sunlight above the moon vanished in flashes of blue - I had never seen that at an eclipse before! - to be replaced by tiny pink festoons of solar prominences all around the black disc of the moon.

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Perhaps this is a hint of what Jen describes.

> I suspect that all TSE and annulars are inherently colourful at low altitude, weather permitting. No doubt even more so when you see them through the polar atmosphere, which is notorious for mirages and refraction. Early explorers' journals contain many "discoveries" of mountain ranges, islands, coastlines etc which turned out to be false.

So what is it about the polar atmosphere that makes it "notorious for mirages and refraction"? Sure, low altitude eclipses are colorful like sunsets are colorful. What made this one so much more so? Harvey Wasserman

From: Jay.M.PasachoffSenl200312williams.edu

In answer to your question, I think the extreme temperature variations make the mirages large in extent.

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To quote from my old book "Invitation to Physics," which I wrote with Mark Kutner 20 years ago,

"Many of you have looked out over hot dry land and seen a shimmering that looks like the glistening surface of a pond. However, as you walk toward the sight, you never seem to get closer and eventually it disappears. This little trick of nature is called a mirage. Mirages can be quite convincing. For example, in his 1906 trip toward the North Pole, the explorer Robert E. Peary 'discovered' a beautiful range of mountains in the Arctic. When another team came to explore these mountains, a few years later, they again 'saw' them. But when they approached the mountains, the mountains turned out to be a mirage. A mirage is an example of refraction of light by the earth's atmosphere. The atmosphere is acting as a lens. The index of refraction of air depends on the density of the air, which in turn depends on the temperature. When light passes from air of one temperature to air of another temperature, it bends. The greater the change in temperature, the greater the bending. There are often large temperature changes near the ground, so light passing near the ground can be subject to large bending. Thus mirages usually appear close to the ground. The exact nature of the mirage depends on how the temperature changes in a given situation." Jay Pasachoff

From: Fred Bruenjes

OK I think I've finally got the corona image matching the colors I remember, take another look: <http://www.moonglow.net/eclipse/2003nov23/index.html>

Bandwidth-challenged folks can go straight to the image here: <http://www.moonglow.net/eclipse/2003nov23/composite2.jpg>

It now shows the green thru red effect we saw. And no I didn't have to force it in Photoshop, these colors really are in the original images. I just needed to be more careful with the saturation control and initial color balancing. Fred Bruenjes

From: Robert B Slobins

Fred: Do not, please do NOT paint in any green. This is your image, and you know the colours. Your medium also has limitations.

I have not tested video responses to colours. Just remember that you are not shooting Fuji print film, so that there are a lot of colours that may well be missing. You can test this by photographing the moon with a diffraction grating filter in front of the lens to see the response. Also, you can make the same shots at moonrise and moonset and see what colours get lost.

Perhaps someone can get to high altitude and do the same experiment.



novo eclipse report bruenjes CRW_4632a

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You may also do analyses of the regions that are greenish and determine just how much green is in the original. cheers/rbs

From: Glenn Schneider

Hello Fred, That is truly a beautiful and stunning image.

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The colors of the corona, as it appears the way you have now shown it, in your composite2.jpg image appear to be are very close to what we saw at Lindon Station in Australia in 2002 with just Sun just a bit below 2 degrees from the astronomical horizon as in the photo: http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_02/H14_20_RGB_MED_L10_25.jpg I tried too to produce the colors there as true as I could. Bring the two up side by side; contrast and radial brightness gradients on the azimuthal average are different, but the colors similar. Others who were with may want to comment if that is what they remember. However, in your image I don't see the "vivid Green" Jen had mentioned, and though there is a green colorimetric component, in your coronal image, I have to confess I don't really see it as green. Could you comment?

Also, I presume here you did some sort of radial intensity filtering, as the structure of the coronal streamers? The did not appear with such high contrast from the QANTAS aircraft (sun altitude 15 degrees). Of course, for us the coronal was white. We did see those coronal structures, which show so well in your image, but I would expect the radial brightness gradient to be much stronger. Was it really suppressed as shown? An effect of differential extinction -- at least vertically from the "top down"? Cheers, and keep the great images coming! -GS-

From: Fraser Farrell

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Fred, that looks surreal. Did the cold affect your camera -that- much? cheers,

From: Harvey Wasserman

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So then, it is not the extreme low temperature, but rather the extreme temperature variations? That confuses me. Where is the variation? Is it with altitude, over time, or from place to place? I would think (perhaps wrongly) that surface temperatures from place to place, as well as over time, would be moderated by the ice itself; that is that the ice would tend to keep temperatures within some margin like the ocean does, say around San Francisco. That would seem to imply that you are talking about a difference in temperature with altitude, in fact near the ground as you say. What would account for these extreme temperature variations?

Also, Re: Fred Bruenjes photo. <http://www.moonglow.net/eclipse/2003nov23/composite2.jpg> Very, very nice shot, but I also don't see the green you talk about. Could you clarify? Thanks, Harvey Wasserman

From: Fred Bruenjes

> Very, very nice shot, but I also don't see the green you talk about. Could you clarify?

> I don't really see it as green. Could you comment?

I was trying to keep it true to what I remember and what I see in the raw camera images, which means a very subtle green. Maybe I should go in with a green paintbrush...

Where to look: There are two bright streamers at the 1 o'clock and 2 o'clock positions. At one solar radii from the limb and outwards they have a green tint. Perhaps I should manually paint them green closer in (in the brighter part of the streamers) if folks can't see it.

> Also, I presume here you did some sort of radial intensity filtering,

...

> I would expect the radial brightness gradient to be much stronger. Was it really suppressed as shown?

Of course I did a radial gradient filter, and of course it didn't look like that to the eye. Computer screens are *extremely* limited in dynamic range capability compared to the corona, so I had to subtract a strong radial intensity function so that corona all the way out to 3-4 radii would be visible. I can look up the function if anyone is interested, from memory it is along the lines of "new pixel value

(Continued on page 120)

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= log10(pixel value) - (1 / dist from center)". Fred Bruenjes

From: Mike Simmons

Mirages are caused by thermal gradients and such gradients can take many forms (thermal "discontinuities" are in reality very steep gradients). Cold regions are known for unusual such conditions and thus some unusual phenomena. A good primer on mirages can be found at <http://mintaka.sdsu.edu/GF/mirages/mirintro.html>. This is just one page of a site devoted to effects of atmospheric refraction near the horizon. The site is primarily about the green flash but the author goes into all associated phenomena in very good detail, with many links described (site overview at <http://mintaka.sdsu.edu/GF/bibliog/overview.html>). Browsing this site should provide either an answer or link to an authoritative page on any and all phenomena being discussed here. Mike Simmons

From: Glenn Schneider

Jen... Cool animation - thanks. Can you provide more accurate co-ordinates for your location? I would like that to run a limb profile and also for the solar altitude/refraction problem consideration. it also occurs to me now that we may have been virtually at the same latitude as we respectively watched the eclipse. -GS-

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From: Fred Bruenjes

I just found out that the person in my coronal composite photo is the Japanese painter and illustrator Kagaya. He saw the photo on my website and contacted me. He showed me his photos and video and there is no question whatsoever that he is the person.

His website is <http://www.kagayastudio.com/>, but no public eclipse photos are posted there yet. He says he'll be doing a report on the eclipse for the Japanese Hoshi-Navi astronomy magazine. It's very nice to be able to put a name with the photo. Fred Bruenjes

Fred's eclipse shot

From: Jen Winter - ICSTARS Astronomy To: SOLARECLIPSES@aula.com Date: Thu, 04 Dec 2003 16:40:00

Wow, Fred... That's absolutely gorgeous!

The colors here I would agree are representative of the corona shown... Of note is the accuracy of the color in the Yellow parka of the "foreground object". For those of us who've seen eclipses, I believe Fred's captured the feeling of scale that the sun presents during totality. It always FEELS this large to us even if it's only an illusion.

As to the mystery of the green, A: I moved my browser from the little laptop screen to my big color-accurate monitor and the image color changed completely! On the accurate monitor, the golden hues are more subtle and there's more green in the upper-right.

B: I would note that the streamers seen at 1:00 and 2:00 extended much farther out. You can see them in wider-field imagery that is blown-out in the inner-corona. The green was the tint of the streamers, not as much in the corona.

<http://icstars.com/Antarctica/Wide.jpg> This shot (if you look at the eclipse in tight) reveals overexposed inner corona (which Fred did a great job capturing) and streamers that extend beyond that golden area in wisps of green. We still don't have the super-mondo-huge scan from that neg back yet. It's medium format and our big scanner is being contrary.... But the green wasn't in the area of corona represented by Fred's image.

As an exercise in imagination - in that same wide image of ours above... scroll to the left and observe the chromatics in the penumbral shadow on the horizon.... see how it moves from gold to green to blue to black? That's not unlike the span of colors seen live in the corona.

I don't think temperature or temperature change had anything to do with the color refraction. Forget about surface temperature stabilizing anything... all the surface did was give the wind a zero-friction surface to whiz across in whatsoever flurry it wanted. Our altitude was relatively low, at 745 meters. We could turn around behind us and in the distance, SEE the icy ocean hundreds of miles off.

jen

From: Glenn Schneider

Hi Jen, The first thing I noted in your wide field shot which includes the umbral/penumbral boundary in the sky was the transitional green color which you discuss (below). Here is the real question for you and/or Fred - as not being there I am a bit confused between descriptions of what was seen (by eye) and interpatation of what was captured on film and/or digitally:

Did you SEE that green transitional color in the umbral/penumbral boundary, or is this an "artifact" of the color mapping in the digital image?

FYI: I didn't have to scroll very much as I am viewing this on my 24" Apple Cinema flat panel display set to 1900 x 1200 pixels. I has truely excellent color rendition for RGB mapped images. Is your wide field image RGB or CMYK mapped? In any event, I have a lesser quality Sun Microsystems 19" flat panel display physically just to the right of it, and logically contiguous to the right, so except for a small spatial gap of a few inches for the monitor frames I have the whole thing in front of me at once. It is clear as viewed here, that the "left" side penumbral/umbral shadow interface is much more green than the right side which is a bit puzzling, but maybe not as this looks like it is not quite at mid-totality (as the sun is asymmetrically placed at that moment in the umbra).

What are those "things" on the rise to the right silluhetted against the much-less green right-side bright area of the sky. Is that more people?

This green thing is bugging me. I really want to know if it is real, or if it is Memorex (so to speak).

Also, was this (the wide field image) with a D100 or other CCD sensor camera, or digitized (scanned) from film? Cheers, -GS-

From: Dale Ireland

Glenn My read is that the green is not completely natural but not an "artifact". I think the color saturation has been boosted just a bit to get a better rendition of the corona. This can even be done on the D100 pre -exposure settings. Increased saturation, sharpness etc can be applied to each image as they are exposed and saved. If you reduce the saturation a little it looks more "natural" (easy for me to say, I wasn't there) but you lose a little of the excitement in the image. Dale

SOHO Observations

From: Jay.M.PasachoffSenl200312williams.edu To: solareclipsesSenl200312aula.com Date: Thu, 04 Dec 2003 22:32:57

Dr. Joseph Gurman of NASA's Goddard Space Flight Center was kind enough to assemble SOHO observations from as close as possible to the eclipse, and he has put them on the page:

http://umbra.nascom.nasa.gov/eit/eclipse_2003.html

I was able to look at the LASCO current image at the Qantas Club in Melbourne Airport shortly before we took off, so I wasn't surprised by the configuration of the corona that we saw.

I have added that to the list of URL's at www.eclipses.info, and also added links to my videos, which come across streaming. I remain grateful to Jean-Luc Dighaye for including me in Project EurAstro, and these videos can be considered part of that effort.

[they can be played in QuickTime]

First diamond ring, realtime

<rtsp://wmserver.williams.edu/eclipse/11-03secondcontact.mov>

Whole eclipse, speeded up

<rtsp://wmserver.williams.edu/eclipse/11-03speedy.mov>

Second diamond ring, realtime

<rtsp://wmserver.williams.edu/eclipse/11-03thirdcontact.mov>

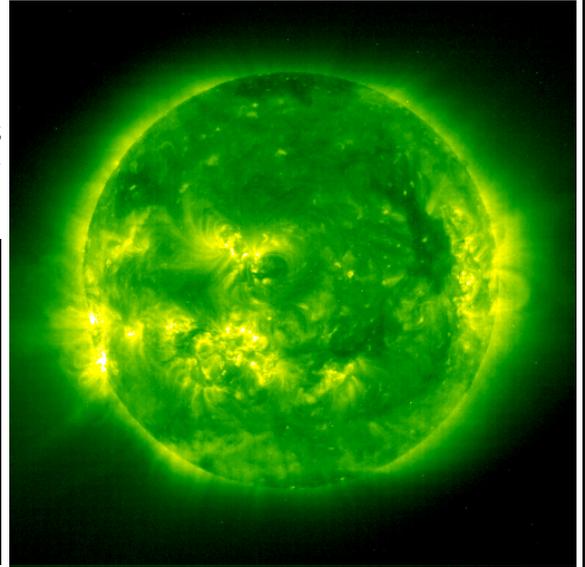
TSE 2003

Antarctic scenery

<rtsp://wmserver.williams.edu/eclipse/11-03AntarcticaLand.mov>

I found that RealPlayer tried to usurp the role of playing them but didn't work; I was able to play them in QuickTime. Perhaps various members of this list are more expert than I in seeing streaming videos. Jay Pasachoff

soho observations
during totality
eit_20031123_223
6_195



ASE 2005

Annular eclipse of 2005

From: Sheridan Williams To: SOLARECLIPSESenl200312@ula.com Date: Wed, 26 Nov 2003 16:36:44

In my view annular eclipses are not best viewed from the centre line, so I must disagree with Nicki's "best" viewing point being Javea.

By the way my web site gives quite detailed maps of all total and annular eclipses from 2005 to 2012 inclusive (plus 2015):www.clock-tower.com/eclipse.htm

From: Nicki Mennekens

Sheridan, I agree that, if you want special effects or have a special purpose, you shouldn't pick the center line. But as I looked for the longest annular phase possible in Europe, I chose Jyvea... Greetings, Nicki

From: Glenn Schneider

Sheridan, To save you some book keeping work, everyone on QF 2901 should have the same duration of totality - unless of course you realize that the B747-400 ER from tip to tail is 70.67 meters long, so those on the flight deck saw a very slightly longer eclipse (being further SE) than those in the back of the plane ;-) But, unless you are now doing your book keeping in milliseconds, I won't fret over that. I've yet to review the videos, and I suppose we will have to have to reach consensus on that. For this, how about we use Fred E's criterion of total photospheric extinction, i.e., as empirically measured taking into account the limb profile as seen at location? Agreed? -GS-

From: Daniel Fischer

Nicki Mennekens wrote w.r.t. the October 2005 annular: I looked for the longest annular phase possible in Europe

Don't do it! Especially if you have seen at least one total eclipse before. The annular phase itself then comes out as quite depressing: The fading of the overall light level just before 2nd contact is rather similar to the decline of light prior to a totality. Your brain will thus expect one. And then: Nothing! Just a dazzling ring of light in the sky you can't even look at without a filter. The annular phase



Joanne & Patrick

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itself is actually pretty boring.

It really makes much more sense to head for the edge of the zone of annularity to enhance the Baily's beads effects and get - photographically - more time to hunt for the chromosphere and inner corona. This has been done successfully several times now; see www.astro.uni-bonn.de/~dfischer/aus99/first.html - the next three annular ones were clouded out, unfortunately, but I keep trying ...

So, in a nutshell: For total eclipses head for the center/central line, to maximize the viewing time of the corona because THIS, the white-light corona in full detail all the way down to the chromosphere, is the one phenomenon you cannot get anywhere else, not even from current spacecraft. But for annular eclipses, head for the edge to enjoy the 'running Baily's beads' (i.e. running along the lunar limb - it's BETTER than 2nd contact of a total eclipse, believe me) and the chromosphere. Just my two (Euro-)Cents, Daniel

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@btoopenworld.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, 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.

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