Volume 8, Issue 5
SOLAR ECLIPSE NEWSLETTER

May 2003

SOLAR ECLIPSE NEWSLETTER

The sole Newsletter dedicated to Solar Eclipses

Dear All,

The Transit of Mercury is due. Only a few days to go. Check instruments, change last bits and pieces, pack the bags and go ... We can not wait for it and look forward to see reports and pictures from you all.

Although, the SEML and this SENL does not reflect, it is quite busy on the SE front.

More then one year to go, but the program for the SEC2004 conference is nearly fixed. We had to keep some speakers on the waiting list. The entrance prices are known, but we are awaiting for a few confirmations on donations and sponsors. This time, it will be possible to pay with all major credit and charge cards direct to us. We will keep you posted, or keep an eye on our WebPages.

Once the Transit finished, it will take us only a short while for the Lunar Eclipse, and then the Annular Eclipse. A busy month truly.

One of our guest speakers for SEC2004, and a die hard eclipse chaser, Friedhelm Dorst (Germany) did send this twilight Moon picture. Besides chasing eclipses, Freddy is passionated about daytime star and planet observing. Currently, he observed over 50 eclipses. Worth while attending SEC2004 to listen and see his presentation.

That is it for know. We will keep you posted on the coming May activities. Please spread the news about our activities. And ... keep those solar eclipse related messages coming ...

Cheers,

Joanne and Patrick

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

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

The Solar Eclipse Mailing List

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

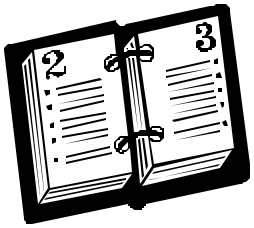
solareclipsewebpages@btopenworld.com

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

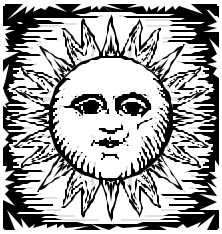
Thanks to the voluntary efforts of Jan Van Gestel of Geel, Belgium, the Solar Eclipse Mailing List (listserver) has been in operation since 10 December 1997. This is the first mailing list devoted solely to topic of solar eclipses on the internet.

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

SECalendar



MAY 2003



Dear All,

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

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

http://solareclipsewebpages.users.btopenworld.com

May 01, 0664 "In this year the Sun was eclipsed on the 5th of the Nones of May; and Earcenbryht, the King of the Kentish people died and Ecgbryht his son succeeded to the Kingdom." Refers to the total solar eclipse of 1 May AD 664. From: The Anglo Saxon Chronicles. Ref SW Solar Eclipses from Year 1.

May 01, 1185 "On the first day of the month of May, on the day of the Saint Prophet Jeremiah, on Wednesday, during the evening service, there was a sign in the Sun. It became very dark, even the stars could be seen; it seemed to men as if everything were green, and the Sun became like a crescent of the Moon, from the horns of which a glow similar to that of red-hoot charcoals was emanating. It was terrible to see this sign of the Lord." From: Lavrentievskaya Letopis. "On the first day of the month of May, during the ringing of the bells for the evening service, there was a sign in the Sun. It became very dark for an hour or longer and the stars were visible and to men everything seemed as if it were green. The Sun became like a crescent of the new Moon and from its horns a glow like a roasting fire was coming forth and it was terrible to see the sign of the Lord. Then the Sun cleared and we were happy again." From: Novgorodskaya II Letopis Both of these quotations refer to a total solar eclipse in Novgorod, Russia, of 1 May 1185. Ref. FRS 1997, page 395.

May 01, 1952 Minor planet (3428) Roberts 1952 JH. Discovered 1952 May 1 at the Goethe Link Observatory at Brooklyn, Indiana. Named in memory of Walter Orr Roberts (1915-1990), from 1960 to 1970 the founding director of the National Center for Atmospheric Research. In the early 1940s he established the Harvard College Observatory's Fremont Pass Station (which later became the University of Colorado's High Altitude Observatory), where he made solar observations with the first coronagraph in the western hemisphere. His interests soon broadened from solar physics to climatic research in general, and he served as president (and later president emeritus) of the University Corporation for Atmospheric Research. His final major activity was the Greenhouse Glasnost project between scientists in the U.S. and the U.S.S.R. (M 16885) Name proposed by F. K. Edmondson. Obituaries published in Bill. Am. Astron. Soc., Vol. 24, No. 4, p. 1331-1332 (1992); Q.J.R. Astron. Soc., Vol. 33, No. 1, p. 35-37 (1992). Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

May 03, -1374 (1375 BC) Syria: A clay tablet found at that site notes that "the day of the New Moon in the month of (Apr-May) was put to shame. The sun went down with Mars in attendance. This means the overlord will be attacked by his vassals." Ulysses 3/97" But: "was put to shame" was also translated as "on the sixth" (day) and again differently by others. "went down" is the same word as that used for "to set". Ref. ENB013. This is no solar eclipse, although mentioned by several references. (Reprinted, from Chasing the Shadow, copyright 1994 by Joel K Harris and Richard L Talcott, by permission of Kalmbach Publishing Co. Also appears in Total Eclipses of the Sun by Zirker. In Guide to the Sun, Phillips says that this might refer to the eclipse of 1223 BC.) Ref. SENL July 1999, FE 01/01.

May 03, 1715 "A few seconds before the sun was all hid, there discovered itself round the moon a luminous ring about a digit, or perhaps a tenth part of the moon's diameter, in breadth. It was of a pale whiteness, or rather pearl-colour, seeming to me a little tinged with the colors of the iris, and to be concentric with the moon." Refers to a total solar eclipse of 3 May 1715. From: Edmund Halley. Ref. Popular Astronomy by Newcomb, and in UK Solar Eclipses from Year 1 by Williams.

May 03, 1715 Edmond Halley (1656-1742 or 1743) England, 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).

(Continued on page 3)

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May 03, 1715 Probably the first map of a path of totality, drawn by the English astronomer Edmond Halley (1656-1742 or 1743). On a copper plate he engraved the totally paths of the total solar eclipses of 3 May 1715 and 11 May 1724. On top of the map, the date 22 April 1705 (i.o. 3 May) is mentioned, but that is because the Gregorian Calendar in England was introduced in 1751.

May 03, 1769 "It will be Eclipse first, the rest nowhere." Dennis O'Kelly (at Epsom, 3 May 1769) (Quoted in The Penguin Dictionary of Quotations by Cohen and Cohen. In UK Solar Eclipses from Year 1, Sheridan Williams says: "One of the world's most successful racehorses was born around the time of this [annular eclipse of 1 April 1764] and was named Eclipse. The Eclipse Stakes, named after that horse, are still run today, and the horse of the year awards in the U.S. are called Eclipse Awards after him.")

May 03, 1880 Death of Jonathan H. Lane, American physics and astronomer. Studied temperature and physics of the Sun and density of Sungas.

May 03, 1981 Hess 2844 (1981 JP): Minor planet discovered May 03, 1981 by Edward L.G. Bowell at Anderson Mesa. Named in honor of Frederick Hess, Prof. of natural sciences at the State Univ. of NY at Fort Schuyler and long time lecturer at the Hayden Planetarium-American Museum in NYC. Hess has directed a number of Solar Eclipse expedition and has accumulated more than 30 min in the shadow of the Moon. MPC 9215. Name proposed by the discoverer. Ref. VK6/97

May 04, 0292 Last total solar eclipse visible in Madeira. The next total solar eclipse in Madeira will be only in 18 September 2620. On 15 May 291 there was a total solar eclipse though, only a year before. A nearly miss with magnitude 0.99 was on 20 June 540 and a total solar eclipse before sunrise, (altitude -1) on 17 October 1781. Ref. More Mathematical Astronomical Morsels by Jean Meeus; Willmann-Bell, 2002.

May 05, 0840 "In the third year of the Indiction, the Sun was hidden from this world and stars appeared in the sky as if it were midnight, on the third day before the Nones of May (May 5) during the Litanies of Our Lord. There was great distress, and while the people beheld it, many thought that this age would last no longer. But while they were contemplating these simple things, the Sun shone again and trembling as it were began to escape from its former shade." Refers to a total solar eclipse of 5 May AD 840. From: Andreas Bergomatis Chronicon. Ref. FRS 1997, page 387.

May 05, 1361 " Chih-cheng reign period, 21st year, 4th month, day hsin-szu, the first day of the month. As the Sun was about to sink (i.e. set) suddenly it lost its light. It took the shape of a plantain leaf. The sky was as dark as night and the stars were shining brightly. For a short time (literally: for the duration of a meal)., the sky became bright again. Then in a short time (the light) disappeared once more." Refers to a total solar eclipse of 5 May 1361. From: Sung-chiang Fu-chih (History of the town of Sung-chiang, south-west of Shanghai). Ref. FRS 1997, page 259.

May 06, 1883 Carolina 235: Minor planet discovered 1883 November 28 by Johann Palisa at Vienna. Named for an atoll of the Line Islands, 450 miles northwest of Papeete, Tahiti, where the discoverer observed the Total Solar Eclipse of May 6, 1883. Palisa observed the solar neighborhood in order to find an intra-Mercurian planet. BAJ CIR 218. Ref. VK 6/97

May 06, 1883 Oceana 224: Minor planet discovered 1882 March 30 by Johann Palisa at Vienna. Named for the Pacific Ocean. The discoverer communicated from Honolulu on return from the solar eclipse expedition of May 6, 1883 that Governor von Dessarts of Tahiti has named this planet. BAJ CIR 210 (1883). Ref. VK 6/97

May 07, 1819 Birth of Otto Wilhelm von Struve (1819-1905) in Dorpat, Russian astronomer. Discovered 547 double stars, studied rings of Saturn and parallax of the Sun.

May 09, 1988 Minor planet (4899) Candace 1988 JU. Discovered 1988 May 9 by C. S. Shoemaker and E. M. Shoemaker at Palomar. Named for Candace P. Kohl, American chemist and a leading investigator of ancient solar activity through analysis of solar cosmic-ray-produced nuclides in lunar samples. She has also contributed importantly in the development of techniques for dating surface exposure of materials on the earth from cosmic-ray-produced nuclides. Through her popular lectures on meteorites, the moon and the solar system, Kohl has reached a wide audience ranging from primary-school children to high-school students and the lay community. (M 25443) Citation provided by K. Nishiizumi at the request of the discoverers. Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

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May 11, 1904 Minor Planet (536) Merapi Discovered 1904 May 11 by G. H. Peters at Washington. Named after a mountain in west central Sumatra, site of the U.S. Naval Observatory and other expeditions to the total solar eclipse of May 17, 1901. It gives off smoke more or less continuously and the name means "with fire". It should not to be confused with the nearby active volcano of the same name in central Java. The discoverer was a member of the eclipse expedition. (H 57) Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

May 11, 1916 Death of Karl Schwarzschild, German astronomer. Explained the difference in light intensity of the edge of the Sun in 1906.

May 11, 1924 Birth of Antony Hewish, British physicist and astronomer. Studied Solarwind. Got Nobelprice of physics in 1974.

May 11, 1956 Death of Walter S. Adams, American astronomer. Studied spectra of Sunspots and stars.

May 12, 1706 An English ship captain named Stannyan, on vacation in Switzerland, reports a reddish streak (chromosphere? prominence?) along the rim of the Sun as the eclipse becomes total.

May 12, 1706 If Duillier's account is to be trusted, the Moon's shadow was first seen in its swift approach. (ref. Total E of the S, Todd, 1894). "This was also the occasion when, if DUILLIER'S account is to be trusted, the Moon's shadow was first seen in its swift approach." (p 110)

May 13, 1733 As per (Sir) Patrick Moore, Guiness Book of Astronomy (1983), the shadow bands have been reported for the first time by H. Goldschmidt in 1820. The description is also mentioned in the book of Mabel Todd, Total Eclipses of the Sun, 1894. But during the total solar eclipse of 13 May 1733 (2 May 1733 Julian date), observations have been coordinated and collected by Celsius. The eclipse was visible in the north of Europe. In Forsheim, Sweden, the duration was a little more then 3 minutes. The Transactions of the Royal Society of Sweden do have the most physical nature observations of a solar eclipse of that time and before. Edmond Halley (1656-1742 or 1743) was the only whom noted a physical observation during the eclipse of 1715. Rydhenius, pastor of Forshem noted following: when the sun was about to lose his light, and also when he was about to recover it, he emitted rays that undulated like the aurora borealis, and were of a fiery red color. At the same eclipse, the pastor of Flo noted: towards the total obscuration stars were visible, and also a singular fluctuation in the air. (ref. History of Physical Astronomy)

May 13, 1733 Birger Wassenius (Sweden), observing an eclipse near Göteborg, is the first to report prominences visible to the unaided eye; he attributes them to the Moon.

May 13, 1733 The first person who makes mention of earthshine during totality is Bigerus Vassenius the Swedish astronomer. In the account of that eclipse which he transmitted to the royal Society, he asserts that with the telescope of 21 feet focal length, he perceived several of the principal spots on the moon during the total obscuration. Ferrer also states, that during the total eclipse of 1806, the irregulations of the moon's surface were plainly discernible. (ref. History of Physical Astronomy).

May 14, 1230 "On the 14th May, which was the Tuesday in Rogation Week, the unusual eclipse of the Sun took place very early in the morning, immediately after sunrise; and it became so dark that the labourers, who had commenced their morning's work, were obliged to leave it, and returned again to their beds to sleep; but in about an hour's time, to the astonishment of many, the Sun regained its usual brightness." Refers to the total solar eclipse of 14 May 1230. From: Rogerus de Wendover, Flores Historiarum, vol. ii. p.235. Ref. FRS 1997, 425.

May 14, 1973 Launch of Skylab, American spaceship. Got 3 times visitors of each time 3 astronauts. Research of the sun.

May 14, 1991 Minor Planet 5381) Sekhmet 1991 JY. Discovered 1991 May 14 by C. S. Shoemaker at Palomar. The daughter of the Egyptian god Ra and wife of Ptah {see planets (2100) and (5011), respectively}, Sekhmet was a lion-headed sun goddess. Her role was that as defender of the divine order, not as creator of it. Her title was the "Mighty One", and she was a fierce goddess of war and strife and bringer of destruction to the enemies of Ra. She was considered the Eye of Ra, representing the scorching, destructive power of the sun. (M 24917) Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg

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May 15, 1836 Francis Baily (1774-1844) UK, during an annular eclipse in Scotland, calls attention to the brief bright beads of light that appear close to totality as the Sun's disk is blocked except for the sunlight streaming through lunar valleys along the limb. This phenomenon becomes known as Baily's Beads.

May 15, 1921 First record of Aurora Borealis observation during day time? Aurora have been seen in New Zealand and surrounding islands. September 18, 1941, in the north, Michigan, Aurora Borealis have been reordered during daytime. (ref. SaT 3/1954 and 12/1953)

May 17, 1836 Sir Joseph Norman Lockyer (1836-1920), British physicist and astronomer was born at Rugby on May, 17th 1836 to Mr. Joseph Hooley Lockyer, a lecturer on scientific subjects at Rugby School and his wife Anne Norman. Sir Joseph Norman Lockyer (1836-1920) founded the magazine Nature in 1869. Observed the sun and discovered one unknown line in the spectra: helium. Observed 8 total solar eclipses. Passed away August 16, 1920 in Salcombe Regis, Devon England. Ref. Bibliography of Astronomers by Paul Luther, 1989.

May 17, 1882 A comet is discovered and photographed by Sir Arthur Schuster (1851-1934), Germany/UK, during an eclipse in Egypt: first time a comet discovered in this way has been photographed. The Total Solar Eclipse had been observed by Sir Joseph Norman Lockyer (1836-1920), Ranard and Schuster from England, Tacchini from Italy, Trépied, Thollon and Puiseux from France. Observation from Sohag at the Nile.

May 18, -0602 (603 Bc) ". . . there was war between the Lydians and the Medes five years. . . . They were still warring with equal success, when it chanced, at an encounter which happened in the sixth year, that during the battle the day turned to night. Thales of Miletus had foretold this loss of daylight to the Ionians, fixing it within the year in which the change did indeed happen. So when the Lydians and Medes saw the day turned to night, they ceased from fighting, and both were the more zealous to make peace." Probably refers to the total solar eclipse of 28 May 585 BC in Asia Minor. Herodotus, (c485-c420 BC) History I, 74. Quoted in Historical Eclipses and Earth's Rotation, by F Richard Stephenson, Cambridge University Press, 1997, page 242. Also in Greek Astronomy by Heath, and in Total Eclipses of the Sun, by Zirker, and referred to in The Fontana History of Astronomy and Cosmology by North. The Encyclopaedia Britannica CD 98 says that this eclipse must have been predicted by means of the Saros and the eclipse of 18 May 603 BC. Ref FE 01/01

May 18, 1901 Merapi 536: Minor planet discovered 1904 May 11 by G. H. Peters at Washington. Named after a mountain in west central Sumatra, site of the U.S. Naval Obs and other expeditions to the Solar Eclipse of May 18, 1901. It gives off smoke more or less continuously and the name means "with fire". The discoverer was a member of the Eclipse expedition. Ref. VK 6/97

May 18, 1901 Rainbow observed during the total solar eclipse on Mauritius. Early in the morning the eclipse was accompanied by a rainbow. It was unearthly, containing a bright pink line, a spectrum of the sun's chromosphere. (ref. The Under-standing of eclipses, Ottewell, 1991)

May 19, 1985 Dr. Rudolf Gulyaev, once made attempt to carry out photographic observation of the partial solar eclipse below the horizon (May 19, 1985). He put the task to estimate how much the sky brightness at the horizon is reduced during the eclipse occurring under the horizon. Maximum eclipse magnitude was about 0.8 by the Sun altitude of minus 3 degrees. The observations were made at elevation more than 2000 meters above the sea level (Mondy, near Irkutsk, Siberia). Regretfully, the sky was cloudy above the horizon, however there were small gaps between the clouds. Visually, it seemed that the sky above the horizon (towards the Sun) was more dark than at zenith on the contrary to normal conditions prior the sunrise. (ref. personal mail 7/98)

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.

May 20, 1903 Minor planet (510) Mabella Discovered 1903 May 20 by R. S. Dugan at Heidelberg. Named by the discoverer in honor of Mabel Loomis Todd, daughter of the mathematician and astronomer Elias Loomis. She was the wife of

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David P. Todd {see planet (511)}, the discoverer's professor of astronomy at Amherst College. (H 55) See the remark for planet (497). Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg. Her books about eclipses are well known.

May 20, 1947 George Van Biesbroeck did observe a comet the day of the total solar eclipse of May 20, 1947. The comet was of magnitude 4 to 5. Several sources do mention as he observed this comet during the eclipse. This is wrong. He observed the comet on the morning of eclipse day, before dawn.

May 22, 0133 Solar eclipse which is the nearest with Whitsunday (25 May 133). A solar eclipse can never be on Whitsunday. Easter is on a Sunday, 21 days after full moon. Whitsunday is 49 days after Easter. The age of the moon can only be between 5 to 11 days, or short before first quarter of short before full moon. On Whitsunday, or on Easter there will never be a solar eclipse. Whitsunday of 133 is only 3 days after new moon, or the solar eclipse of 22 May 133.

May 22, 1724 Giacomo Filippo Maraldi (Italy/France) concludes that the corona is part of the Sun because the Moon traverses the corona during an eclipse.

May 23, 1221 "On the first day of the fifth month (May 23), at noon, the Sun was eclipsed and it was total. All the stars were therefore seen. A short while later the brightness returned. At that time we were on the southern bank of the river. The eclipse (began) at the south-west and (the Sun) reappeared from the north-east. At that place it is cool in the morning and warm in the evening; there are many yellow flowers among the grass. The river flows to the north-east. On both banks there are many tall willows. The Mongols use them to make their tents. [Later] (Ch'ang-ch'un) asked (an astronomer) about the solar eclipse on the first day of the month (May 23). The man replied: 'Here the Sun was eclipsed up to 7 fen (6/10) at the hour of ch'en (7-9 h)'. The Master continued, 'When we were by the Lu-chu Ho (Kerulen River), during the hour wu (11-13 h) the Sun was seen totally eclipsed and also south-west of Chin-shan the people there said that the eclipse occurred at the hour szu (9-11 h) and reached 7 fen. At each of these three places it was seen differently. According to the commentary on the Ch'un-ch'iu by K'ung Ying-ta, when the body (of the Moon) covers the Sun, then there will be a solar eclipse. Now I presume that we must have been directly beneath it; hence we observed the eclipse to be total. On the other hand, those people on the sides (of the shadow) were further away and hence (their view) gradually became different. This is similar to screening a lamp with a fan. In the shadow of the fan there is no light or brightness. Further away from the sides (of the fan) then the light of the lamp gradually becomes greater." Refers to a total solar eclipse of 23 May 1221. From: Ch'ang-ch'un Chen-jen Tao-ts'ang('The Journey of the Adept Ch'ang-ch'un to the West'). Ref. FRS 1997, page 254.

May 25, 1267 "At that time the Moon obscured the Sun when it was in the 4th part (degree) of Gemini, at the 3rd hour before midday on the 25th day of May in the year 6775 (AD 1267). It was a total eclipse of about 12 digits or points. Also, such darkness arose over the Earth at the time of mid-eclipse that many stars appeared. No doubt this portended the very great and destructive calamities which were soon to be vented on the Romans by the Turks." Refers to a solar eclipse in Constantinople of 25 May 1267. From: Nicephori Gregorae Byzantinae Historiae. Ref. FRS 1997, page 404.

May 25, 1939 Sir Frank W. Dyson died off the coast of South Africa while on a sea voyage from Australia. He was an active member of several expeditions to study total eclipses of the sun and in 1906 he published a book in which he discussed data he had obtained on these occasions on the psectrum of the solar chromosphere. Born January 08, 1868 in Ashby de la Zouch, Leicestershire UK. Dyson proved that Albert Einstein (1879-1955) was right about light being bent by gravity. Co-writer of the book Eclipses of the Sun and Moon, 1937 (with R.v.d.R. Woolley). Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

May 25, 2142 Next total solar eclipse in Ostend, Belgium. The last total solar eclipse took place more than 11 centuries ago, 29 September 878. But only 9 years later, on 14 June 2151, there will be another one. Ref. JM 9/99.

May 27, -0668 (669 BC) "If the Sun at its rising is like a crescent and wears a crown like the Moon: the king wll capture his enemy's land; evil will leave the land, and (the land) will experience good . . . " Refers to a solar eclipse of 27 May 669 BC. Rasil the older, Babylonian scribe to the king. FRS 1997, page 125.

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May 28, -0584 (585 BC) ". . . there was war between the Lydians and the Medes five years. . . . They were still warring with equal success, when it chanced, at an encounter which happened in the sixth year, that during the battle the day turned to night. Thales of Miletus had foretold this loss of daylight to the Ionians, fixing it within the year in which the change did indeed happen. So when the Lydians and Medes saw the day turned to night, they ceased from fighting, and both were the more zealous to make peace." Probably refers to the total solar eclipse of 28 May 585 BC in Asia Minor. Herodotus, (c485-c420 BC) History I, 74. Ref. FRS 1997, page 242. The Encyclopaedia Britannica CD 98 says that this eclipse must have been predicted by means of the Saros and the eclipse of 18 May 603 BC.

May 28, -0584 (585 BC) A total eclipse in the midst of a battle between the Lydians and Medes scares both sides; hostilities are suspended, according to the Greek historian Herodotus (several other dates are possible).

May 28, -0584 (585 BC) The first known prediction was made by the Greek philosopher Thales, who forecast the eclipse of May 28, 585 BC (by year, day, place, time?). This occurred at sunset in the Mediterranean area, and is said to have put an end to a battle between the forces of King Alyattes of the Lydians and King Cyaxares of the Medes. It was in the midst of their battle and scared both sides. Ref. ENB013

May 28, 1900 ". . . the semi-darkness, for there was no real blackness, came on suddenly, and during totality, computed to last 1m 28s., everything terrestrial took on a cold iron hue, altogether different from the gloom of evening. The distant town and more distant mountains were almost blotted out from view, whilst in the heavens above round the moon's black disk, as if by the touch of a magician's wand, there flashed out the corona in grandeur of form and of pearly whiteness. Mercury, too, in close proximity, shone with the brilliance of a miniature sun, and enveloping the whole was a halo of soft white light; a spectacle whose unique beauty words fail utterly to describe." Refers to a total solar eclipse at Navalmoral, Spain, of 28 May 1900. From: T Weir, a member of the British Astronomical Association eclipse expedition. Ref JH and RT Chasing the Shadow.

May 28, 1900 Total Solar eclipse where Mercury is very close or touching the corona or only 7 radii from the eclipsed sun. For a Mercury corona transit you have to wait till 3269 and 3853. (ref. ENB 9/1998)

May 28, 2291 Regarding the reoccurance of eclipses observable from the same location on a 300 year cycle, but looking in to this, one finds that eclipses 6 saros numbers higher, and 6 to 7 series numbers higher are frequently visible at the same location. One might be total and the others partial, but still visible from the same location. The path of the 2291 May 28 total eclipse of saros 142 nearly duplicates that of 1991 July 11 saros 136 eclipse over the Baja and mainland Mexico. More interesting is the fact that it too will be a Great eclipse in that it will be more than 6 minutes in duration. DB 09/01

May 29, 1919 Albert Einstein (1879-1955) predicted that light passing the Sun would be bent a certain amount by the object's gravitational field. The Solar Eclipse of this date gave the light from the stars in Hyades were bent by the gravity of the Sun according to Einstein's theory. Thus Einstein was propelled into permanent and worldwide celebrity. Prediction of Einstein confirmed by Eddington, Cottingham, Crommelin and Davidson.

May 29, 1919 Arthur S. Eddington (UK) and Co-workers, (Cottingham, Crommelin and Davidson) observing a total solar eclipse from Principe, an island W of Africa and Sobral, NE coast of Brazil, confirm then bending of starlight by gravity as predicted by Einstein in his general theory of relativity. Pictures of the stars near the sun compared with star pictures months later.

May 30, 1903 Minor planet (511) Davida Discovered 1903 May 30 by R. S. Dugan at Heidelberg. Named by the discoverer in honor of David P. Todd (1855-1939), professor of astronomy and director of the Amherst College Observatory (1881-1920). (H 55) See the remark for planet (497). Dictionary of Minor Planet Names - ISBN 3-540-14814-0 - Copyright © 1999 by Springer-Verlag Berlin Heidelberg. David Todd was the husband of Mabel Todd, who wrote books about solar eclipses. David has also a drawing of a painting of a solar eclipse in one of his books.

May 31, 1921 Death of John Herschel. During the eclipse of 18 August 1868 from the Red Sea through India to Malaysia and New Guinea, prominences are first studied with spectroscopes and shown to be composed primarily of hydro-

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SECalendar

gen by James Francis Tennant (1829-1915), UK, John Herschel (1837-1921, UK - son of Sir John Frederick William Herschel 1792-1871, grandson of Sir William Herschel 1738-1822), Jules Pierre Jules Cesar Janssen (1824-1907, France), George Rayet (France), and Norman Pogson (UK/India). (Ref Rc 1999)

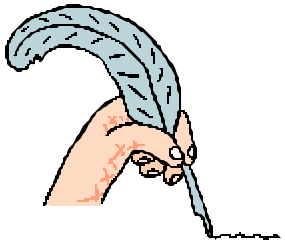
May 31, 2003 Some central eclipses are so extreme, so they do not have a northern or southern limit. An example is the annular eclipse of 31 May 2003.

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

Best regards,

Patrick and Joanne

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



The Dark Day (Duistere Dag)

From: Katherine Low To: SOLARECLIPSES@AULA.COM Date: Thu, 03 Apr 2003 19:16:06

Hi all, This message will certainly interest the Belgians and Dutch readers from this list.

I just happen to read in the astronomical magazine 'Heelal' that there will be another 'Duistere Dag' organised on Saturday 3-May at the people's observatory Mira at Grimbergen, starting at 13:30.

For the complete program see the web site of the VVS: http://www.vvs.be/ned/index.html Cheers, Kris Delcourte

SENL April Index

Dear all, Please find herewith the Index of the April 2003 issue of the Solar Eclipse Newsletter (SENL). Beside the topic, the page number is listed. Please post your solar eclipse related contributions to us.

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@btopenworld.com

SEScannings

SENL 2003 April NOW ONLINE!

From: Fred Espenak To: SOLARECLIPSES@AULA.COM Date: Tue, 08 Apr 2003 14:33:39

Joanne Poitevin has prepared a new issue of the SENL (Solar Eclipse Newsletter) for the month of 2003 April. The details are: SENL - 2003 April (1.0 MB pdf file*)

This issue may be downloaded via the SENL index page of MrEclipse.com:

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

Other recent issues currently linked from the above page include:

SENL - 2003 March (1.3 MB pdf file*)
SENL - 2003 February - Part A (0.7 MB pdf file*)
SENL - 2003 February - Part B (0.7 MB pdf file*)

SENL - 2002 Total Eclipse Special - Part A (0.9 MB pdf file*)
SENL - 2002 Total Eclipse Special - Part B (0.9 MB pdf file*)
SENL - 2002 Total Eclipse Special - Part C (0.9 MB pdf file*)

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

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

Physics World, Apr 03

From: Andrew J White To: SOLARECLIPSES@aula.com Date: Wed, 09 Apr 2003 19:51:25

Dear all, In the latest copy of Physics World (Apr 2003) there is a one page article by Habatwe V Mweene of the University of Zambia under the section of "Lateral thoughts" and titled "Confessions of an eclipse consultant".

As Scientific Consultant to the Zambia National Tourist Board for the solar eclipse of 2001 (and 2002) this is his story of the two eclipses. Andrew

SETalk

Subject: Delta T

From: Jean Meeus Date: Thu, 03 Apr 2003 06:44:52

On 2003 March 1, the difference between the uniform Dynamical Time and the Universal Time was

2002 dec 04 total solar eclipse.

From: astrocomets To: solareclipseweb-pages@btopenworld.com Date: Tue, 01 Apr 2003 22:27:10

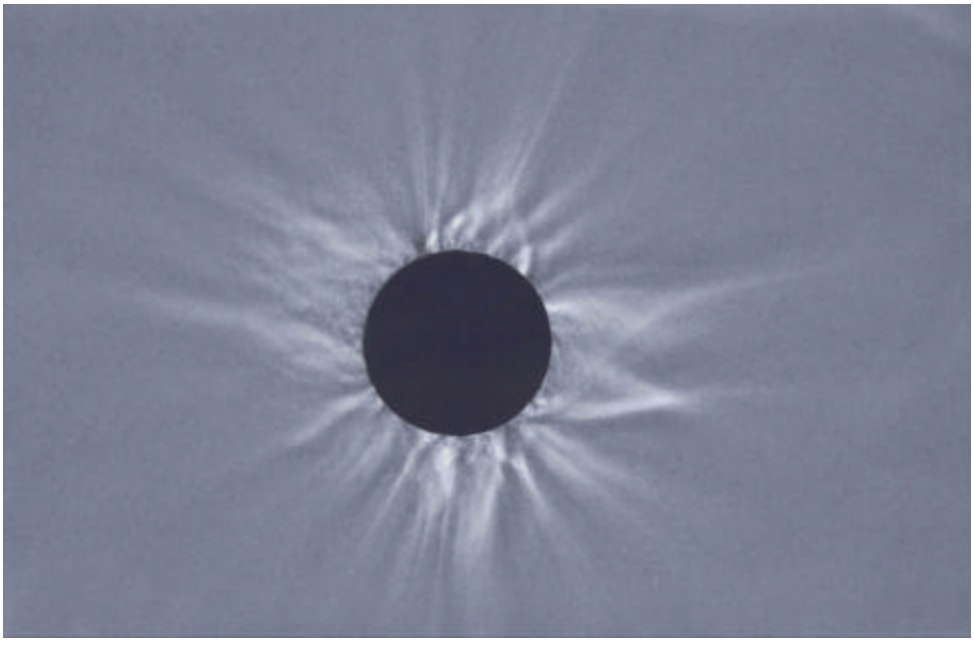
Sir, On Societe Astronomique de France Web site we have several pictures of 2002/12/04 total solar eclipse at the adress :

http://www.astrosurf.com/saf/ Best regards. Philippe Morel.

From: astrocomets

Sir, Found of total solar eclipses I also took pictures of 2002 dec 04 eclipse near Messina, with a simple 300mm telephoto objective on azimuthal pier. 11 images were composited with a personal process of contrast enhancement with the unexpected result presented on the attached file.

The other pic is a computerised suite of images taken with the same optic. Best regards. Philippe Morel.



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Vinnige bomen - eclips 19990811

From: Valentin.KINET@sidmar.arcelor.com Date: Sun, 30 Mar 2003 13:55:30

Besten, hier een artikeltje dat zopas werd opgevist uit de laatste Knack-editie:

Knack, woensdag 26 maart 2003, Dirk Draulans, p. 89, 20030326c

VINNIGE BOMEN

Bomen reageren snel op veranderingen in hun leefomgeving. Dat konden Kathy Steppe en haar collega's van het Laboratorium voor Plantecologie van de Universiteit Gent op 11 augustus 19999 - de dag van de zonne-eclips - duidelijk vaststellen.

In het vakblad Agricultural and Forest Meteorology beschrijven ze hoe een 75 jaar oude beuk in een bos in het Oost-Vlaamse Gontrode op de zonsverduistering reageerde. De boom hangt vol sensoren waarmee sapstromen in twijgen en takken gemeten worden. Deze stromen zijn een essentieel onderdeel van de waterhuishouding van een boom. Via zijn wortels zuigt een boom water op uit de bodem, dat gedeeltelijk in bladweefsel opgeslagen wordt om droogteperiodes op te vangen. Op elk blad zitten tal van huidmondjes waarlangs waterdamp kan ontsnappen (een soort zweten) om de boom voor oververhitting te behoeden. Langs die huidmondjes wordt ook koolstofdioxide opgenomen als motor voor de fotosynthese waarmee planten energie vergaren. Tijdens de zonsverduistering viel de sapstroom in de bovenste takken stil. Lager in de boom werd hij meer naar de bladeren geleid. Daar waren de huidmondjes gesloten - zoals ook 's nachts meestal het geval is, omdat er dan toch geen fotosynthese kan gebeuren bij gebrek aan licht. Alles samen bespaarde de boom 32 liter water op een totaal dagelijks verbruik van 128 liter. Het was verrassend hoe vinnig de beuk op de eclips reageerde.

Really great video clips

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Sat, 05 Apr 2003 07:12:07

Dear friends, please go check this page http://www.live-eclipse.org/index.html.en

where you can watch high quality video clips of last December 4 . It shows totality from Botswana, and Ceduna. The sound in Ceduna is hilarous, all those yells and screams, the countdown, just wonderful ! Enjoy, specially if you have hispeed access, go for the 500k version. Olivier "Klipsi"

1998/1916VenezuelanSolarEclipsesPaper

From: mpenaloa@ula.ve Date: Thu, 10 Apr 2003 20:38:53

Dear colleagues and friends: Enclosed you will find in a PDF file, via attachement, an electronic copy of the paper "Optical Response of the Atmosphere During the Caribbean Total Solar Eclipses of 26 February 1998 and 3 February 1916 at Falcón State, Venezuela", published in EARTH, MOON AND PLANET (2002), 91: 125-159, which I hope will be of high interest for you.

At the moment I am still working with the 1999 TSE using data taking in Bucharest, Rumania, trying to produce a couple of papers more. The data of the 2001 African TSE from Lusaka, Zambia, stand by on cue.

Again, thanks a lot to those colleagues and friends who gave me, and still give, support to my work in the area of environmental response to TSEs. Regards, Marcos A. Peñaloza M. University of Los Andes Faculty of Science Interdisciplinary and Interdepartmental Team of Atmospheric Research La Hechicera Mérida, Edo. Mérida VENEZUELA.-

Original copy "Canon der Finsternisse" for sale

From: Wil Carton To: SE <SolarEclipses@Aula.com> Date: Fri, 04 Apr 2003 21:44:14

Wanted: interested people for the famous eclipse-bible "Canon der Finsternisse", original copy (Vienna 1887).

For sale: "Canon der Finsternisse", author Prof. Theodor von Oppolzer, published 1887 by the Imperial Academy of Sciences in Vienna, Austria. This unique book is a very rare, original copy of the famous 'eclipse-bible' that contains calculated details of all 8000 solar eclipses and 5200 lunar eclipses from 1208 BC untill 2162 AD. With 34 pages geometrical introduction in the German language, 320 pages solar eclipse elements enabling you to compute exact contacttimes and locations, 160 charts approximated solar eclipse paths, 52 pages lunar eclipses (date, times, magnitude). The american monthly "Sky and Telescope" of November 1989 dedicated a four pages memorial paper to this monumental book.

The present rare copy was part of the inheritance of the Dutch professor George van den Bergh (1890-1966) and is now put up for sale by his descendant family.

The demand price is $ 800 or EUR 800, which of course is negociatable to a lower price deal.

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Interested people are invited to send an e-mail with their name, adddress and telephone-number to mr. Wil Carton in Holland: wil_carton@hotmail.com who will communicate your interest to the family Van den Bergh here in Holland.

Book by Van den Bergh

From: luca quick To: SOLARECLIPSES@AULA.COM Date: Fri, 04 Apr 2003 22:19:16

Dear Eclipse Friends, I'm looking for the book "Periodicity and Variations of Solar (and Lunar) Eclipses" by Professor Van den Bergh. Does anyone know where I can get a copy of that wonderful book? Thank you very much to everyone!!! Sincerly, Luca

An eclipse by chance? June 363 CE

From: Axel Harvey To: HASTRO-L@LISTSERV.WVU.EDU Date: Sat, 05 Apr 2003 18:41:37

This is a call for any information that might be extant on the total solar eclipse of 27 June 363. Probably there isn't, but in case...

(Robert Newton mentioned somewhere how disappointed he was, early in his career, to find that some famous eclipses of the past were "magical", i.e. fictitious, invented to accompany a great historical event. This one is the negative of a magical eclipse; it really happened on the day following the death of Julian the Apostate, and nobody ever heard of it.)

From: Michael L. Gorodetsky

I do not understand the point as the eclipse of 27 June 363 was visible only in Central and Southern America. The nearest observable eclipse of 16 June 364 was indeed observed by Theon.

From: Axel Harvey

Was it a point? I suspected the eclipse might be visible only in the Western hemisphere, but I wanted to make sure. I also thought it was funny that there was *any* eclipse the day after Julian died.

I couldn't find eclipse maps for the 4th c. and don't have software that draws them.

From: Smerillo

Consult: http://sunearth.gsfc.nasa.gov/eclipse/SEcat/SE0301-0400.html There is more there. feliciter, Lorenzo Smerillo Research Lector Late Antiquity Biblioteca Nazionale Protocenobio Sublacense (ROMA)

From: Axel Harvey

Is there a site where I could generate an eclipse map online for an event before 1000 CE? There is Calsky, but it will accept input only for years with four digits. There is Fred Espenak's World Atlas of Solar Eclipse Paths, but it starts in 1001.

I am always told that uncertainties about delta-T make it impossible to provide very early maps unless the eclipse happened to be carefully described. But it seems to me that a program could either draw the outside boundaries of the eclipse according to extreme possible values of delta-T (it would be much fatter than a real path), or else draw several paths according to the different hypothetical values (for example, according to the formulas listed in Robert van Gent's site). Or maybe one could click to get one path for one hypothesis at a time.

From: Eduardo Vila Echague

>Is there a site where I could generate an eclipse map online for an .../...

I don't know it there is a site to do that, but I am sure that there are lots of not too expensive softwares that can meet your requirement. I am using Guide 8 from Project Pluto (http://www.projectpluto.com/)

>I am always told that uncertainties about delta-T make it impossible .../...

(Continued on page 13)

SETalk

Many of these softwares allow you to 'customize' the formulae for delta-T, allowing you to try several alternative values. Regards, Eduardo Vila-Echague Santiago, Chile

From: Michael L. Gorodetsky

The best and most precise software for this purpose is definitely EmapWin. And it is free. http://www2c.biglobe.ne.jp/~takesako/index_e.htm (You should download all the bases to use it for ancient eclipses) As for delta-T, your extreme statement may be referred only to the second millennium BC and not to the first millennium AD.

From: Axel Harvey

Thanks to Frank, Ed K, Eduardo, Michael, and others I may have forgotten. It looks as if I should get EmapWin if I ever decide to install a Windows or OS/2 emulator in my box.

Solar eclipse on The Science Channel

From: Dale Ireland To: Solar Eclipse List <SOLARECLIPSES@aula.com> Date: Sat, 12 Apr 2003 03:27:39

The Science Channel is showing as I type an episode "Stars" of its Universe 2001 series that includes a section on Solar Eclipses featuring Francisco Diego of the University College of London whom many of us know and video of various eclipses. The eclipse segments are in the first 15 minutes of the show but the rest is worth watching. The schedule for replays of the episode in the next couple days is below, times are eastern daylight Time

http://science.discovery.com/schedule/episode.jsp?episode=1&cpi=50110&gid=8544 Dale

From: Dale Ireland

Please note that long url's are often word-wrapped by e-mail programs, as below, and you must add the last part to the rest of the url or it will not work

Annual Eclipse Viewing / Photography

From: Nick Quinn To: SOLARECLIPSES@aula.com Date: Sat, 12 Apr 2003 21:15:27

Andrew and all, I have now got around to putting my 1994 annular eclipse pictures up on the web. They can be found at http://www.shadowchaser.demon.co.uk/eclipse/1994/index.html

The eclipse took place at sunset at an altitude of 3 or 4 degrees, so similar to the next one. I was very lucky in having just the right amount of cloud to dim the Sun enough to be able to take photographs without any filters. The film used was either Kodachrome 64 or 200, the lens aperture was f8.8, and shutter speeds were the usual 'daylight' ones, i.e. 1/1000 to perhaps 1/125. Clear skies, Nick Quinn.

From: Dale Ireland

Nick Very nice images. So... if you get some shots of the May annular I guess we can plan on seeing them about 2012. I am going to mark my calendar(s). :) Dale

SETalk

Finally online: the sunset 'ring of fire' of 1992

From: Daniel Fischer To: SOLARECLIPSES@AULA.COM Date: Sun, 13 Apr 2003 20:51:00

Here it is: at http://www.astro.uni-bonn.de/~dfischer/skyreports/cal92 you can get some impressions on what an annular eclipse can look like almost exactly on the horizon - when the skies are as nice as they were in La Jolla that evening. Daniel

An ecliptomaniac wedding

From: Chris O'Byrne To: SOLARECLIPSES@AULA.COM Date: Wed, 16 Apr 2003 11:20:32

Congratulations are due to ecliptomaniacs Mark Dowling and Sinead Cawley, who got married on 15th March. So, apart from the fact that they are both eclipse-chasers, what does their wedding have to do with eclipses?

Well, check out their wedding cake - http://www.ecliptomaniacs.com/2003/wed/cake.htm

It was (i.e. it didn't last!) a beautiful cake made with different coloured icing that was painted onto the cake. The artist/baker was working off a photograph (probably http://www.ecliptomaniacs.com/2001/md/5.htm) taken during totality by Mark himself! It was Sinead's idea - the first (and last!) the rest of us saw of the cake was at the wedding.

Also, check out the ecliptomaniacs at a wedding - http://www.ecliptomaniacs.com/2003/wed/shades.htm

That was Brian Seales' idea, and I think it worked a treat!

P.S. I've received a report that the second link doesn't work. Of course, it works for me! If anyone else experiences problems, drop me a note. Thanks, Chris.

Left to right - Liam Staunton, Chris O'Byrne, Liz Morris (behind), John Bateson, Clodie Johnson (in the hat), Sinead Cawley (the bride), Olivia Flynn, Natalie O'Shaughnessy, Jean Kane, Mark Dowling (the groom), Barry Cooke (at the back), Mary Gillick, Laura Seales, Geraldine Keogh, Brian Seales (at the front).

Digital Composition by Chris O'Byrne.

SETalk

AstroStop.com

From: Dave Schmahl To: SOLARECLIPSES@AULA.COM Date: Mon, 14 Apr 2003 10:13:44

Hello All, Just a note to say that I have opened a new website www.astrostop.com This site replaces schmahlconsulting.com as the place to find my eclipse images.

When time permits, I will be putting my own images of the 01/04/92 Annular on AstroStop. Hopefully, it will be sooner rather than later, but don't hold your breath. ;-)

The best of luck to all going to see next month's annular! Dave Schmahl Vista, CA

Paul Gerber and transits

From: jan Vandenbruaene To: HASTRO-L@LISTSERV.WVU.EDU Date: Tue, 15 Apr 2003 12:59:29

Dear List, Now the Mercury-transit is coming nearby, I have a question about the discovery of the real reason of the additional displacement of the perihelion of Mercury. It is normally accepted that Einstein was the first to explain the reason of this additional displacement.

But I read a short article about a certain German physicist Paul Gerber who 18 years before Einstein gave an explanation for the phenomenon. (In Zeitschrift für Mathematik und Physik, Leipzig; Teubner, 1898 volume 43 p.93-104, title "Die räumliche und zeitliche Ausbreitung der Gravitation").

Can anybody give me more information about Paul Gerber or about his explanation? Thanks, Jan Vandenbruaene Flemish astronomical society

From: Axel Harvey

Stargard, Pomerania, to 1945; now Stargard Szczecinski, Poland.

From: Allan Adler

I got interested in Paul Gerber not very long ago when I ran across a brief comparison of his work and Einstein's on the precession of Mercury in Harold T. Davis' book, Introduction to Nonlinear Differential and Integral Equations, published by Dover. On p.180, he writes (and to render it I will freely make use of the notation of Knuth's typesetting package TeX):

> In his investigation of the orbital motion of planets under the assumptions .../...

On p.549, Davis gives a reference to Gerber's article: "Die r \"aumliche und zeitliche Ausbreitung der Gravitation." Zeitschrift f\"ur Math. und Physik Vol.43, 1898, pp.93-104.

I obtained a copy and have been looking forward to having time to translate it for myself. I can read German but I find I read more carefully when I write out a full translation for myself. Looking the article over, I noticed that one of his conclusions is that gravity must propagate at the speed of light. I was planning to work through the details of the article after translating it, so I haven't checked anything in it yet. Apart from astronomy and physics, it is always nice to see elliptic functions put in an appearance.

In Maxwell's Treatise, he gives some of his reasons for believing that light must be an electromagnetic phenomenon. One of them is that electromagnetic waves propagate at the speed of light. Another was Faraday's demonstration that magnetism can rotate the plane of polarization of polarized light. Faraday himself had been led to this experiment by his conviction that all of the fundamental forces of nature must be related to each other. It must have been natural for Gerber to wonder whether the identification of the speed of light and of gravity signified a further step in Faraday's "unified field" philosophy. I wasn't aware of any of Gerber's later writing but I would guess that the fact or the claim that gravity can bend light must have looked at some point as though both of Maxwell's reasons had analogues for a connection between light and gravity. That in turn must have raised the question of re-evaluating Maxwell's argument and of trying to put it in a new perspective.

The preceding paragraph is speculation that traces of a certain kind of dialogue might be found in the literature from the time of Gauss and Faraday and then Maxwell to the confirmation that light is bent by gravity. I don't really have any idea whether a dialogue along those lines ever actually took place. It just seems like a nice unifying (no pun intended) thread if one could find it. Ignorantly, Allan Adler ara@zurich.ai.mit.edu

From: Dr. B. Pfeiffer Tel.: 06131/3925317

Dear all, with www.google.de and "Paul Gerber" and perihelion (or was it precession) one can find some articles, as http://www.mathpages.com/home/kmath527/kmath527.htm

In catalogues of German university libraries I found a small booklet

Paul Gerber
Gravitation und Elektrizitaet

(Continued on page 16)

SETalk

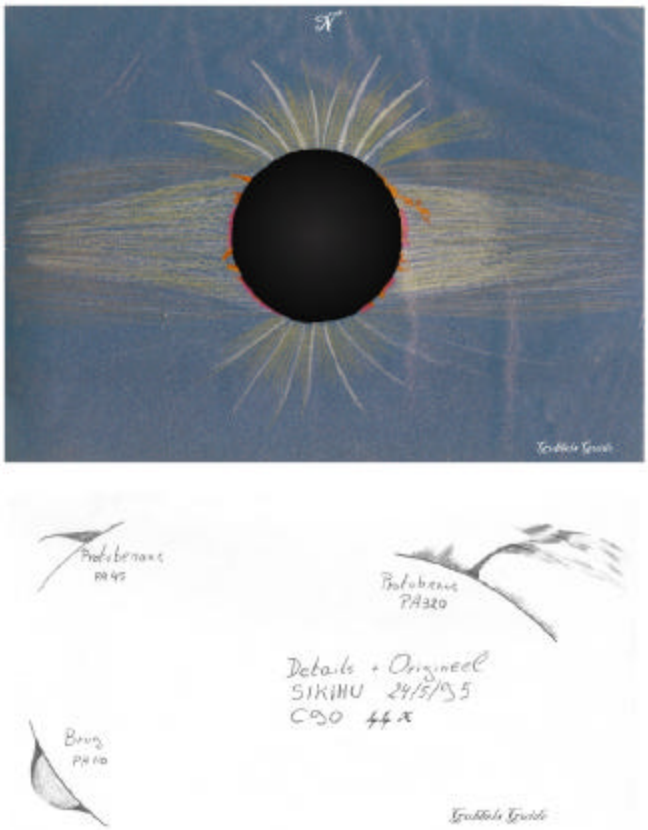
(Continued from page 15)
Stargard 1910
17 pages

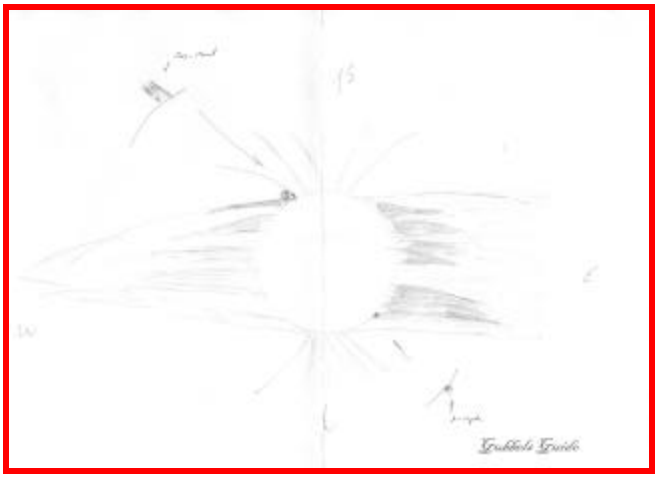
It seems, Paul Gerber was a school teacher in Pommerania. As far as I know, Stargard is also situated in Pommerania or nearby. Best regards Bernd Pfeiffer

Tekeningen totaliteit

From: Gubbels GuidoTo: "Poitevin Patrick (PePe)" <solareclipsewebpages@btopenworld.com> Date: Wed, 16 Apr 2003 12:53:12

Het eerste bestand bevat twee tekeningen van de totaliteit in Thailand 1995. Een tekening is een kleurentekening van de gecombineerde waarnemingen met het blote oog en een C90. De tweede is een potloodschets van details aan de zonnerand tijdens die eclips met de C90 (vergroting 44x). Het tweede bestand bevat mijn originele zwart-wit schets van de eclips van 1998 te Venezuela. Het gaat hier om de schets die ik ter plaatse vervaardigde.





Webcast

From: klipsi@bluewin.ch To: SOLARECLIPSES@AULA.COM Date: Sat, 19 Apr 2003 09:29:02

dear friends, I just learned that www.astronet.nl

might possibly try a webcast of the Mercury transit and/or the Lunar eclipse and/or the solar eclipse in coming May. This would be from Amsterdam (where the solar eclipse is partial , but deep - almost annular, at sunrise). It is not certain yet. The webcast might take place from a different website but it would be linked to from above page. Keep an eye on it. best regards, Klipsi

Webcast Mercury transit and annular eclipse

From: klipsi@bluewin.ch To: SOLARECLIPSES@AULA.COM Date: Sat, 26 Apr 2003 09:53:29

dear friends, bookmark this site : http://www.live-universe.org/index.html.en transit of Mercury and annular solar eclipse webcast are being prepared by our japanese friends. Klipsi ... and also found these sites which announce more Mercury transit webcast http://www.mira.be/ http://home.freeuk.net/dgstrange/transit.mercury.2003/ best regards, Klipsi

SETalk

Award to Pasachoff and Meeus

From: solareclipsewebpages@btopenworld.com To: SOLARECLIPSES@aula.com Date: Mon, 21 Apr 2003

On behalve of Kim Hay, National Secretary-RASC

We have two distinguished list members who have been awarded an Honorary Members in the RASC (The Royal Astronomical Society of Canada). Prof.Jay. M. Pasachoff, and Dr. Jean Meeus.

On February 22, 2003 the council approved the nominations, and both gentlemen have accepted the Honorary title.

The RASC was originally founded in 1890, but received its charter in 1903. We are celebrating our Chartered Centenary this year, 2003. Our membership is strong, and currently over 4600 people. For more information on the RASC please visit http://www.rasc.ca

Welcome to the RASC gentlemen, it is an honour to have you as Members. Kim Hay National Secretary-RASC

Concorde, RIP

From: Crocker, Tony (FSA) To: '"gschneider@mac.com"' <gschneider@mac.com> SOLARECLIPSES@AULA.COM Date: Fri, 18 Apr 2003 02:10:58

I guess we lost our chance for 1 hour+ totality (in 2010?) with the Concorde retirement announcement.

From: Jay.M.Pasachoff@williams.edu

I heard an interview with Richard Branson today. He is trying to get BA to sell him the Concordes for the same price they paid for them to the British govt: 1 pound.

From: Dale Ireland

The news here in Seattle is that one of the Concordes will be coming here to the Seattle/Boeing Museum of Flight http://www.museumofflight.org/collections/craftindex.html Perhaps we could get an hour of totality in 2017 Dale

From: Crocker, Tony (FSA)

Only certain eclipses have the proper geometry to be viewable from airplane windows for an extended period of time.

Requirements:

1) Path must be in the tropics for earth's rotation to slow the shadow speed down within reach of the Concorde.

2) It must be winter in the tropical region in question or else the eclipse would be directly overhead and not visible from windows.

We know that the above conditions are met for Saros 127 (2001, 2019 etc., Glenn Schneider's aborted proposal) and Saros 146 (2010, 2028 etc., almost identical geometry), but I'm sure Glenn can tell us if any others would work. Saros 130 (1998, 2016 etc.) would be the next most likely IMHO. The SW to NE tilt of the center of the path increases shadow speed, but I don't know whether it pushes it beyond Concorde limits.

From: Michael Gill

Another factor making the 2001 and 2010 TSEs so "Concorde-friendly" is that the point of greatest eclipse (where the umbra's velocity projected onto the Earth's surface is at its least) is out at sea with long airstrips (Ascension Island, Tahiti) reasonably close by:

http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot2001/SE2001Jun21T.gif
http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot2001/SE2010Jul11T.gif

This means that an eclipse expedition does not need to obtain permission to fly supersonically over a country (often prohibited).

The retirement of Concorde (assuming there is no reprieve for it) will mean there is no future prospect of an airborne eclipse-chase getting >1hr of totality for moderate numbers of eclipse-chasers.

The only aircraft approaching this capability (speed with range) can only offer airborne eclipse-chases with a typical aircrew to eclipse-chaser ratio of 1:1.

The Concorde tragedy of July 2000 ended the project that Glenn was working on:

http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_01/CONCORDE_ECLIPSE.html

This crash ruled out the only chance in our lifetime for many of us to get 60+ minutes of totality at a single TSE.

I suspect that Concorde 001's 74-minutes of totality

(Continued on page 18)

SETalk

achieved on June 30th 1973 (when the airframe was modified to enable observation of the totally eclipsed Sun near the zenith) will remain a record for many more decades. Michael Gill

From: Jay.M.Pasachoff@williams.edu

On the subjects of eclipse airplanes, wonderful observations were made some years ago at the 1981 and 1988 eclipses (near the Kuril Islands north of Japan and near Indonesia, respectively) by Eric Becklin and others aboard the Kuiper Airborne Observatory, an instrumented NASA airplane with a telescope for use in the infrared. The observations were between 30 and 200 micrometers in the infrared (where ordinary red is 0.6 micrometers). Its successor, SOFIA (Stratospheric Observatory for Infrared Astronomy) is now being built, as a joint NASA/German project, for use in late 2004. It will carry a 2.5-m telescope for use in the infrared.

Though SOFIA won't fly at supersonic speeds, it should nonetheless give interesting solar eclipse research possibilities. See sofia.arc.nasa.gov. Jay Pasachoff

PS. The paper by Lindsey, C.; Becklin, E., and others about Submillimeter extensions of the solar limb determined from observations of the total eclipse of 1981 July 31 Astrophysical Journal 264, L25-30, 1983 Authors: Lindsey, C.; Becklin, E. E.; Jefferies, J. T.; Orrall, F. Q.; Werner, M. W.; Gatley, I. can be found by searching at adswww.harvard.edu under Browse References, as can other articles about eclipse work published by lindsey et al. in 1986 and Roellig et al. in 1988.

From: Glenn Schneider

The news of the early retirement of the Concorde did indeed sadden me. Let us not forget it was Concorde in 1973 that lead to a 74 minute totality. Of course, that Concorde was outfitted with special windows for the LANL equipment so "viewing out the passenger windows" was not a concern.

Jay P. is quite right about Richard Branson (Virgin Atlantic) making a bid to acquire the Concorde - and I hope he succeeds. VA is one of the few airlines which has managed to remain not just afloat, but profitable, so we may indeed yet see another long duration Concorde eclipse flight. Theairframe should be good for another appx. 15 years by some estimates.

2001 was indeed nearly ideal, and we could have gotten an hour or more of totality (if Angola would only have allowed us to overfly their airspace), but the loss of that flight opportunity:

http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_01/CONCORDE_ECLIPSE.html

pales in comparison to the loss of AF 4590, so let us keep our perspectives.

I am not quite sure what Tony means by "would work", as I suppose there is some cost/benefit criterion to pushing the duration. Is an hour+ the "working" criterion? I certainly would hold that to too high a standard. In any event, I would be happy to try for 8 Aug 2008. At maximum eclipse the Sun is only 34 degrees above the horizon - quite well suited for an aircraft. At maximum eclipse the umbral velocity will be appx. 3275 km/hr - i.e., only 49% faster than the nominal 2,200 km/hr cruise speed of Concorde at 2,200 ft. 22 Jul 2009, with a 6m40s ground duration is tempting but with the Sun only 4 degrees from the zenith when the shadow is slowest moving - unless we can get permission to cut a hole on the top of the aircraft...

One might want to wait for 11 July 2010, though with the Sun 47 degrees up that becomes a bit of a challenge.

Perhaps we should first be patient and see how Mr. Branson's proposition is received. -GS-

From: Glenn Schneider

I sit here drinking from my SOFIA coffee mug as I write this reply. We all have GREAT hopes for SOFIA (beyond the immediate interests of this forum) which by the end of next year should see first light. It is not clear that the SOFIA telescope system will allow a similar configuration (then putting 1/4 inch of polyethylene over the KAO primary mirror) for heat rejection, to allow it to point toward the Sun. The cryogenics and thermal constraints on other SOFIA subsystems may preclude this. Then again, Eric Becklin who is the chief scientist and director designee for SOFIA is a pretty remarkable guy (and it has been my privilege to have worked with him, so I know first hand), and if it can be done... Cheers, -GS-

From: Jay.M.Pasachoff@williams.edu

Not only did Concorde have special windows in 1973 but also some or all of those special windows were on the top(!) of the airplane. I had the privilege of being in the airframe of Concorde #1 in Toulouse when I took a class on a tour there in 1973, and at that time the test model Concorde (perhaps "B") was being retired, which was the unique circumstance that led to permission for holes to be drilled and windows to be placed on the top of the plane. In order for Concorde to be able to keep up to the eclipse,

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the eclipse not only had to be at the equator at noon but also it was necessarily high overhead, invisible out the ordinary windows.

Photos of TLE1982

From: Fred Espenak To: SOLARECLIPSES@AULA.COM Date: Tue, 22 Apr 2003 16:46:43

Hi - With the up-coming total lunar eclipse of May 15-16 fast approaching, I decided to scan the slides of a total lunar eclipse I photographed back in 1982 and to put them on the web. The results can be found at: http://www.mreclipse.com/LEphoto/TLE1982.html Please take a look and enjoy! - Fred Espenak

Web Page: Total Lunar Eclipse of 2003 May 15-16

From: Fred Espenak To: SOLARECLIPSES@AULA.COM Date: Wed, 23 Apr 2003 15:16:54

Web Page: Total Lunar Eclipse of 2003 May 15-16 I have just launched a special web site for May's total lunar eclipse:

http://sunearth.gsfc.nasa.gov/eclipse/extra/TLE2003May15.html

This event will be widely visible from North and South America as well as Europe and Africa.

The web site features eclipse diagrams for several Time Zones (both US and Europe) as well as maps of global visibility.

This web page is targeted for the general public and news media so it is a little less technical than some of my other web pages.

I hope to add links to live web-camera sites on eclipse night. Please let me know of any and I will add links to them.

Many thanks to Michael Gill for proofreading this web site for me. Clear skies, - Fred Espenak

TSE 2002 - Images revisited

From: Glenn Schneider To: SOLARECLIPSES@AULA.COM Date: Sat, 26 Apr 2003 18:35:35

TSE 2002 remains one of my most esthetically pleasing eclipses. (Of course, I note that I tend to say that about each "last one").

FYE/I (Enjoyment/Information) I have made a single photo mosaic composition from all of processed images I had posted on my website* which you can see at:

http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_02/TSE_2002_ALL_IN_ONE.jpg

Note it is rendered down to 72 dpi for web-based viewing, so does not convey the information content (resolution) of the original images, but does give the flavor of this wonderful (but too shorty) "golden" eclipse. The original Photoshop composite file is 640 Mbytes, as it was rendered at 550 dpi and designed to produce a 36" x 42" poster, just a tad too large for a web download...

* http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_02/TSE2002.html

Cheers, -GS- http://nicmosis.as.arizona.edu:8000

From: Geoff

Wow, Total incredible images! So

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beautiful, and so golden. Well done! --Geoff

From: Glenn Schneider

Thanks, Geoff. Sorry for use of SEML for this, but I have gotten a number of off-line queries. Yes, my server is down. The north part of campus at the University of Arizona has had a big power failure. All of Steward Observatory (and many other buidlings) are without power. I just got home and am writing from here - so if you cannot get to those images - just try again later. Sorry - but at least I got an "early day" home from work! -GS-

The Saros

From: Cliff Turk To: Solar Eclipses List <solareclipses@aula.com> Date: Wed, 23 Apr 2003

A friend has just asked me: " What is the origin of the word 'Saros,' and why is it used in this context? All I have found so far is a Gulf of Saros in the Aegean, and in a very old encyclopaedia, 'Saros was the number 3600 in the Babylonian numerical system.' "

Can anyone supply the answer? Cliff

From: Glenn Schneider

The Etymology of Saros according to the Oxford English dictionary implies that our use is due to a historical MISTAKE. Here it is verbatim, note (2):

Source: OED Second Edition 1989 - Etymology SAROS

1. Antiq. The Babylonian name for the number 3600, and hence for a period of 3600 years.

The notion expressed in quot. 1662, that the saros consisted of 3600 days , is due to the desire to rationalize the incredible statements of Berossos with regard to the lengths of the reigns of the antediluvian kings of Babylon. Other expedients for the same purpose were adopted by early writers on chronology.

1613 PURCHAS Pilgrimage (1614) 54 Sarus with them is three thousand sixe hundred yeares. 1662 STILLINGFL . Orig. Sacræ I.v. §4. 80 The learned Monks, Panodorus and Anianus,..make a Saros to contain 120. months of 30. dayes a piece.

2. Astr. Adopted by modern astronomers as the name of the cycle of 18 years and 10 days, in which solar and lunar eclipses repeat themselves.

This use is founded on the statement of Suidas (app. due to some mistake) that the length of the saros was 18 years.

1812 WOODHOUSE Astron. xxxv. 353 The period of 223 lunations, called by the Chaldean Astronomers, the Saros. 1868 LOCKYER Elem. Astron. iii. §18 (1879) 102 This period of 18 years 10 days is a cycle of the Moon, known to the ancient Chaldeans and Greeks under the name of Saros. Glenn Schneider

From: Evan Zucker

According to this web site, it is "after the Babylonian term for repetition": http://216.239.37.100/search?q=cache:aVuDguqXwdQC:www.lightmatrix.org/Daulo/Solar_Eclipse99.html+saros+eclipse+origin&hl=en&ie=UTF-8 Evan H. Zucker

From: Jay.M.Pasachoff@williams.edu

Here is history on the word "saros," just asked about, which I found out about in preparing my book Nearest Star: The Exciting Science of Our Sun, by Leon Golub and me (www.williams.edu/astronomy/neareststar). Jay Pasachoff

The French eclipse astronomer Dr. Serge Koutchmy wrote me: The name Saros was used by Babylonians to design something (like a cycle I guess) which has nothing to do with solar eclipses. E. Halley did a small error in computing eclipses and got a period of time close to that and used the word to design this sort of periodicity in eclipses... everything is well explain in the book on "Les eclipses de Soleil" of the Bureau des Longitudes (EDP Sciences 1999) in a chapter by Michel Lerner and Denis Savoie. The important point is that the Babylonians did NOT know how to precisely compute an eclipse, something that many authors ignored since E.Halley.

Ann Davenport translated the relevant passage of the book Koutchmy cited as: from Les Eclipses de Soleil et ... by "Institut de mecanique celeste"

It is interesting to note that Ptolemy nowhere uses the period of 223 lunations -- improperly called "Saros" by Edmund Halley (1656-1742) -- in order to predict a solar eclipse. A clarification must be made here concerning this period, which was allegedly used by the Babylonians to predict solar eclipses. In 1692, Halley published a memoir

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in "Philosophical Transactions" in which he proposed to correct a passage in Pliny the Elder (23--79 C.E.) that mentions a certain period after which eclipses reoccur again in the same order. A number of variant--containing manuscripts of the "Natural History" were in circulation at the time. In the manuscript in his possession, Halley would have read: ``It is certain that eclipses reoccur again in the same order after 222 months (Defectus CCXXII mensibus redire in suos orbes), and that the sun is eclipsed only when the moon either finishes or starts its course, which is to say at the time of conjunction" (Natural History, II 56). Halley, quite appropriately, changed 222 to 223 (CCXXIII). But when he consulted the "Souda", a Xth century Byzantine encyclopedia written by a group of scholars (long believed to be a single sage named Suidas), he found the name mentioned in the following terms: ``Saros, measure and number among the Chaldeans. A Saros contains 222 lunar months adding up to 18 years and 6 months. 120 saros correspond to 2,222 (sic! instead of 2,220) years." In the mistaken belief that the Souda relied for this information on Pliny (who never uses the term Saros), Halley concluded that the Babylonians considered a period of 223 lunations to bring back eclipses. The Souda however expressly says that 222 months add up to 18.5 years, i.e. a year of exactly 12 months (222/18,5 = 12). But the Babylonian calendar is lunar, and the length of months is variable.

As we can see, the period labelled Saros by the Babylonians has nothing to do with eclipses. Halley's error had indeed been pointed out by the French astronomer Guillaume Le Gentil de la Galaisiere (1725-1792) in two very critical articles published in 1756: but no one paid any attention and since then, in spite of corrections by a number of historians of science, the word "Saros" is still used to designate a period of 223 lunations, or 18 years and 11 days, or again 6,585 days, at the end of which solar and lunar eclipses occur again in the same order.

2002 TSE souvenir by Geoff Sims, Australia

Eclipse seasons with SE only?

From: Marc Weihrauch To: SEML <SOLARECLIPSES@aula.com> Date: Thu, 24 Apr 2003

Dear friends, as we know eclipses occur in seasons. Chapter 2 of "Totality - Eclipses of the sun" shows very nicely that the sun cannot pass a lunar node without being eclipsed. I do know that an eclipse season may pass without an umbral lunar eclipse (partial or total), but I wonder whether an eclipse season can be purely total. Can there be eclipse seasons that don't even bring a penumbral lunar eclipse but only one single SE? Best regards Marc

From: Crocker, Tony (FSA)

2003 is a rare year in that both seasons (May and November) have central solar and total lunar eclipses. In November both are total. For this to occur the solar eclipses tend to be in polar regions and totality of the lunar eclipses tend to be shorter than normal. When the solar eclipse is central at low latitude (2002), the corresponding lunar eclipse will be partial or penumbral. When the lunar eclipse is of long duration (2000), the corresponding solar eclipse(s) will be partial.

From: Crocker, Tony (FSA)

I would presume there is always at least a penumbral lunar eclipse. For the July 1991 TSE which was precisely centered, there were 2 penumbral lunar eclipses.

From: Jean Meeus

No, an eclipse season with a solar eclipse only is not possible. In each eclipse season there is at least one solar eclipse (maybe partial only) and at least one lunar eclipse (maybe penumbral only).

At least, this is the situation with the present value of the eccentricity of the orbit of the Earth. This value is now 0.017 and is decreasing. But at some epochs (in the very past or in the far future) the eccentricity of the Earth's orbit can be as large as 0.05. I have found that, when the eccentricity is equal to or larger than 0.033, it is possible that there is *no* solar eclipse during an eclipse season! See Chapter 18 of my book "More Mathematical Astronomy Morsels".

I didn't investigate the case of lunar eclipses, but I presume that here too it is possible that no lunar eclipse occurs during an eclipse season, provided the eccentricity of the Earth's orbit is large enough. Jean Meeus

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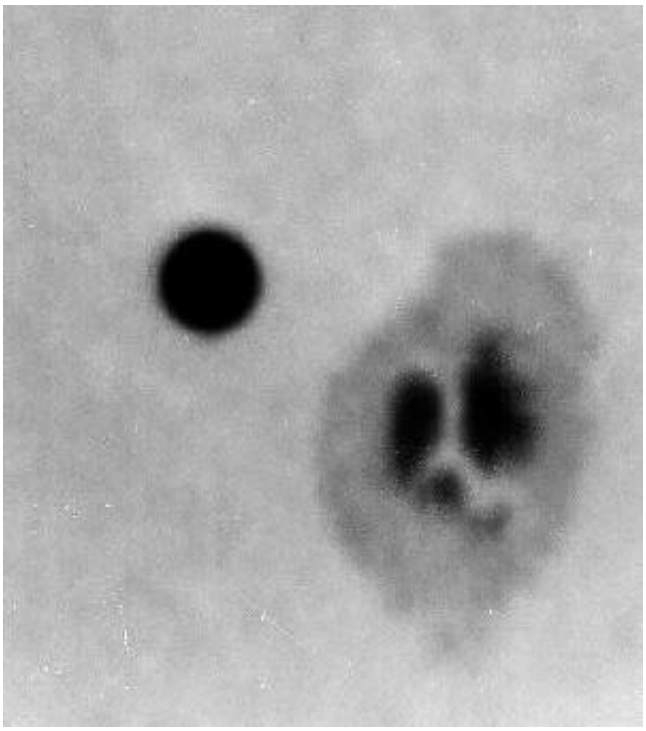
Mercury transit ESO webpage

From: F.Podmore To: Solar Eclipses Mailing List <solareclipses@aula.com> Date: Mon, 28 Apr 2003

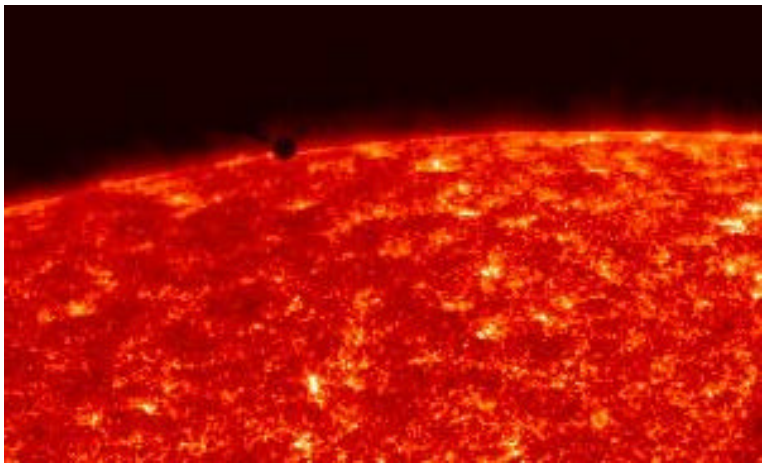
In preparation for next week's transit of Mercury I found the following very informative and helpful website, esp the advice on projection.

http://www.eso.org/outreach/eduoff/vt-2004/mt -2003/mt -intro.html

There's another for the Venus transit in 2004 Wishing you clear skies! Francis



1970, Paris



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Space Station Moon Movie (fwd)

From: F.Podmore To: Solar Eclipses Mailing List <solareclipses@aula.com> Date: Tue, 29 Apr 2003 10:43:11

Perhaps list members would like to see this NASA image and movie - just like a lunar eclipse (squashed). Francis

Forwarded message Date: Mon, 28 Apr 2003 12:42:54 -0500 From: NASA Science News <snglist@snglist.msfc.nasa.gov> Subject: Space Station Moon Movie

Astronaut Don Pettit looked out the window of the International Space Station earlier this month and saw the full moon setting behind Earth's edge-on atmosphere. Using a handheld digital camera, he captured a rapid-fire sequence of images. The resulting movie reveals a moonset like nothing you've seen on Earth.

For FULL STORY see http://science.nasa.gov/ppod/y2003/28apr_moonmovie.htm

(Continued on page 23)

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TEXT:

April 28, 2003: This is what a moonset looks like from the International Space Station (ISS).

On April 16, 2003, ISS science officer Don Pettit looked out the window and watched the full moon sink behind Earth's edge-on atmosphere. In only 30 seconds it was transformed from a bright pale disk into a dim pink pancake--like no moonset on Earth.

The explanation is simple: As the moon sinks, moonlight enters our planet's atmosphere and exits again on its way to the ISS. The atmosphere acts like a giant lens. Refraction pushes the moon's lower limb upwards to create the squashed shape. The moon looks red (or pink) because blue light is scattered out of the direct ray path by air molecules and aerosols.

"The colors across the moon are almost like those of a total lunar eclipse--and for similar reasons," says atmospheric optics expert Les Cowley. "They're both produced by light which has grazed in and out of Earth's atmosphere."

In fact, sky watchers on Earth can see red squashed moons, too, if the moon is close enough to the horizon. "But the effect is much stronger on orbit because of the double passage of light through the 'atmospheric lens,'" explains Cowley.

Using a handheld digital camera, Pettit recorded more than 30 individual pictures of the vanishing moon.

NASA scientist David Hathaway stitched them together using a software tool called VISAR--short for Video Image Stabilization and Registration. VISAR was developed by Hathaway and colleague Paul Meyer to create smooth-running movies from jittery video or still images. Scientists use VISAR to study explosions on the Sun and storms like hurricanes on Earth. The FBI uses it to catch criminals. NASA recently named VISAR the agency's Commercial Invention of the Year for 2002.

Hathaway chose the upper edge of the Moon as a fiducial point and aligned the images accordingly. The effect is that of a camera tracking the Moon's upper limb as it sinks behind Earth's atmosphere. Cowley has prepared a composite image showing how the sequence might look if the camera had been trained on the edge of the atmosphere rather than on the edge of the Moon.

Pleased with the success of this movie , Don is now taking rapid-fire pictures of rising and setting constellations. Just as the Moon is distorted, so are the stars! We'll show them to you in a future Picture of the Day.

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Test image of sun

From: Klipsi To: SOLARECLIPSES@AULA.COM Date: Mon, 21 Apr 2003 06:05:43

In my quest of ultra-mobility and miniaturization, I found a way to get a pretty acceptable image of the Sun with a very small camera.

Bought me the Sony PC101 miniDV cam, which has a optical zoom equivalent to 50-500mm. Add a x2 teleconverter, resulting in 1000mm. Kick in x2 digital zoom. Result is 2000mm focal length. Like a Celestron C8 in your palm ! Result visible at

http://eclipse.span.ch/testimage.jpg

From: Dale Ireland

Klipsi First, nice image.. If you are going to use this setup to grab still images you would better off not to use the digital zoom but rather to just use the maximum optical magnification and then increase the image size in Photoshop. If you double the image size in Photoshop it is the same thing as the 2X digital zoom except Photoshop gives various choices as to how you want the image resampled, and more control over the interpolation process. Also I am wondering how steady you will be able to hold a 1000mm system while pointing it out an airplane window. I have found that it can be very difficult to get the Sun back in the field of view once you have lost it, without zooming way out, finding the Sun and then zooming back in. Even harder when using a solar filter. Dale

From: Stig Linander

As you said yourself: pretty acceptable image. However, I would suggest not using the digital zoom.

I suppose you've stretched the image? If your miniDV cam is a PAL, it has 720x576 pixels, which isn't 4:3. Stretch it instead of using the digital zoom.

(Continued on page 25)

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Compare with http://science.nasa.gov/spaceweather/images2003/20apr03/midi512_blank.gif Where're the sun spots? Best regards, Stig.

From: klipsi@bluewin.ch

>As you said yourself: pretty acceptable image. However, I would suggest not using the digital zoom.

of course, without the digital zoom it will be finer. but also smaller.

>I suppose you've stretched the image?

no. Just set in video mode, press photo button, it takes a jpeg 640x480 to the memory stick. Of course image is better without digital zoom, but then Sun is smaller.

I could also take megapixel size photo, but in that case the zoom ratio is slightly different, resulting in a smaller image (I believe the 10x zoom in video function is 50-500 mm , while in photo mode it is 42-420mm). So, if I don't use digital zoom, but in memorystick position megapixel with x2 converter, still get 840mm equivalent. Or 1000mm in videomode.

I'd say don't use the digital zoom for a total eclipse, because the corona makes the Sun look larger. But for the annular eclipse, all you got is the Sun's disc, pretty small.

by the way, Sony has a new interesting camera coming , a miniDV with 2 megapixel CCD. Getting better for photos, and allows real 16/9 video. see the new TRV 60 and TRV 80 models. but then again, they are not as compact as the PC101...

>Compare with .../...

I took the image a few days ago, where there were no sunspots. Will test again, with sunspots, as soon as clouds are gone here ... ;-) Klipsi

From: Dale Ireland

Klipsi If you use Photoshop to do the digital zooming you can select Bicubic interpolation which is slow but creates better detailed, smo other images. I am sure that the camcorder uses one of the coarser but faster interpolation algorithms because it has to quickly resize images on-the-fly in the motion video mode. Also I would confirm the performance of a 2X teleconverter before using it at an eclipse. Teleconverters are not just doublers but also must maintain an erect image, requiring more optics. Some of the longer ones even have erecting prisms. This can create internal reflections, flare, and ghost images, especially in the demanding eclipse situations. A good way to check is to take some video of headlights or streetlamps at night and check for these problems. Sometimes a little smaller solar image size is really better, especially if you have flare or ghost problems as there is less chance of the ghost image being superimposed directly on the primary image, and then cropping and resizing in Photoshop gives a good result. Dale

From: Jay Friedland

Hey Klispi, Nice image! I agree that it would be better to use Photoshop rather than digital zoom on any camcorder. It turns out that I also have a Sony PC100 with a nice Kenko 2x teleconverter which I used successfully for the December 4, 2002 Eclipse in Australia. You can see the results in a Quicktime Movie (3.5mb) at http://gallery.cinemagic.com/ There is also a short movie of the Cockatoos flying in front of 2nd contact! I just wish that I had boosted the exposure for totality (but you may be able to hear a few cameras running using Umbraphile in the background). I also decided that I wanted to watch this one - and thanks to Umbraphile - I did!

I'm investigating two new Kenko teleconverters for Eclipse and other Astrophotography - a 3x (KUT-300HI) and a 5x!!! (KUT-500) These both screw onto the 37mm front filter threads so they are solid. Since these are optical, I'm hoping they will yield better results, however the 5x may be subject to vignetting, so we'll see. If anyone has tried these teleconverters please post, or I'll share my results as soon as I test with the upcoming Transit of Mercury.

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Here are the information links and links for the descriptions at B&H Photo and Video (a reliable US source).

http://www.thkphoto.com/products/kenko/cdc-09b.html KUT-300HI
http://www.bhphotovideo.com/product/152615/KEKUT300HI/REG/2102 About $100

http://www.thkphoto.com/products/kenko/cdc-18b.html KUT-500
http://www.bhphotovideo.com/product/123580/KEKUT500/REG/2102 About $115

Finally - there is also an 8x too! http://www.thkphoto.com/products/kenko/cdc-21.html KUT-832 Hope this helps... - Jay

Likes Shadows...
Totals: 1991 Baja, 1994 Bolivia, 1995 Thailand, 1998 Galapagos, 1999
Austria, 2002 Australia
Annulars: 1992 Catalina Island (clouded out), 1994 Erie, PA,
2002 Puerto Vallarta (mostly clouded ;-)

From: Dale Ireland

Jay both of those lenses a 3x (KUT-300HI) and a 5x!!! (KUT-500) are for 37mm video lenses. If you adapt them to 52mm lenses the vignetting is serious. I have the 500. You have to use it with the camcorder lens zoomed to maximum telephoto because as soon as you start to reduce the zoom the field of view simply collapses into a small circle like really bad tunnel vision. I also have the kut400 which has a much larger lens but is still hard to use. The dedicated Sony 2x high end teleconverters are very good. If you use a high magnification teleconverter you need a rock solid mount preferably driven because a little jiggle and the Sun is out of the field and nearly impossible to find again. Even if you zoom out you have the teleconverter producing just a small illuminated circle that is still magnified. Dale

From: Mick Wolf

Hand held Sony PC101with 10x zoom and 2x tele exten der seems to me rather optimistic. With a steady tripod it may be OK, but if a steady tripod is available, why not use catadioptric systems with 35 mm SLR cameras and 100 ASA films which would give a much better resolution. Is the "Steady Shot" system so good or am I missing something? Mick .

From: Klipsi

yes, of course the use of a tripod is better. of course 100 ASA or 50 ASA has better resolution. but my point is : how do I find an acceptable comprise between the need for quality and magnification , and my natural state of hazyness (i.e. carry a lightweight smallvolume camera that does it all, video, photo, webcam in one.) the pc101 also works as a webcam (streaming function). the ultimate goal would be to be able to travel to antarctica on a 4 week cruise with just a carry-on handbag... ;-) and still be able to do video, photo, and webcast. Of course, the pc101 is no match to the quality of a 6 megapixel photocamera with a 600mm lens . Or a good telescope. but then again... carry-on luggage only !

about the steady shot . yes of course, a tripod is better. but the steady shot is not bad. yes, canon's optical stabilization is, i heard, better. Klipsi

ASE 2003

Tolkien's eclipse

From: Marc Weihrauch To: SEML <SOLARECLIPSES@aula.com> Date: Thu, 10 Apr 2003 08:15:56

Dear friends, let's have another look at the eclipse of May 31st: There will be a fiery ring and a shadow coming from the East. Much of it will happen in a barren land where vulcanos exist and which is hidden most of the time under thick clouds. The same can be said about Tolkien's "Lord of the Rings"!

Of course nobody believes that Tolkien thought of the upcoming eclipse when writing his book; that is pure coincidence. But at least it's a coincidence both remarkable and amusing :) Best regards Marc

From: Jean Meeus

Although in Iceland the lunar shadow will indeed be coming (approximately) from the East, actually no 'shadow' will be visible! Because the eclipse is annular, there will be no dark shadow at all. Jean Meeus

Hedgehogs at the eclipse site

From: Jay.M.Pasachoff@williams.edu To: solareclipses@aula.com Date: Sat, 05 Apr 2003 16:24:59

Those going to the annular eclipse in Scotland will be interested in the article in the April 3, 2003, New York Times (www.nytimes.com) about North Uist, Scotland, and the hedgehogs that are overrunning the place. From the www.nytimes.com page, search (near the top) for "hedgehogs." You may have to register (free) to read the article. It includes a map, which seems to me to show that the region (Hebrides) is in annularity.

Annular eclipse Webcasts

From: Jean Marc Larivière To: SOLARECLIPSES@AULA.COM Date: Fri, 04 Apr 2003 00:20:48

Since Klipsi will be observing the annular eclipse from the air, I suppose we can't count on him for a webcast (or maybe he'll try to tap into the plane's communication system, now wouldn't that be something -- no Olivier, dont even think about it !), so is anyone aware of other eventual webcasts ? Jean Marc

From: Dale Ireland

It might be interesting to keep an eye open for Klipsi's plane as it flies directly over Iceland about 30 minutes before the eclipse and over northern Scotland about 30 minutes after the eclipse. He sent me a flight path,.. Klipsi,, is that map on your web site?... It will be a NW flight with a large solid red vertical stabilizer at about 36,000ft. Dale

From: Klipsi

> Since Klipsi w.../...

hehehe... that is exactly what I was hoping to try to do ;-) link up my laptop to the satphone in the aircraft for a couple of minutes . But I am not certain it will work. I don't know if the satphone in the NWA aircraft has a modem jack. It is a MC DC-10, a pretty old aircraft (not even a MD-11, no , a DC-10 !!!). More recent aircrafts may have modern phones with possibility to connect a PC. But I am almost sure that this DC-10 doesn't . Anyway, here is the page where you can find the maps of "theoretical" flight plan : http://eclipse.span.ch/2003ase.htm .

> It might be.../...

Yes, as Dale wrote, if anybody sees that aircraft , I'd love to get a picture. The aircraft , DC-10, has 3 engines. So if you see a plane with 3 engines high above, please take a pic and send it to me ;-)

flight path http://eclipse.span.ch/NW34route.gif
position at 3.50 UT http://eclipse.span.ch/NW34.gif
close approach to terminator near Iceland http://eclipse.span.ch/NW34terminator.gif

let us keep in mind that these images are highly subject to change, depending on jetstream location and timing. If all goes well (if jetstream does not de-route us away from target area, if flight is not delayed, if flight is not cancelled !, if I see the eclipse, if, if, if,.... I should arrive 2 hours later in Amster-

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dam, and will upload asap at least one picture. The report would follow later in the day. If all goes according to flight plan I should arrive back home in Geneva at noon on 31 May saturday. (and start working immediately , June 1st, for the G8 summit , unless THAT gets cancelled....)

hey, is anybody else from this list on flight NW34 on May 30? Klipsi

From: Jen Winter - ICSTARS Astronomy

Dale, I think you have discovered Klipsi's secret plot to frame himself in an eclipse photo. You know, like his self-portraits with comets on his website! The question is if he has a partner in crime who has plans to click the shutter from below while Klipsi photographs the eclipse chasers from the air! jen

From: Marc Weihrauch

Hi there, I am convinced someone has been assigned the task to take a photo of Klipsi's 3-jet-plane within the solar ring. Best regards Marc

Annular eclipse 31-May, Scotland - Durness

From: Hans Zekl To: SOLARECLIPSES@aula.com Date: Tue, 01 Apr 2003 22:25:03

Katherine Low wrote: Hi, I noticed from some recent mail exchange that quite some eclipse chasers will be going to Durness to observer the annular eclipse on 31-May. Katherine and myself will also be located in Durness around that time. Shall we arrange a get together at a pub in Durness the day before? By preference not too late since the eclipse is in the early moming!

Very good idea. I will fly with my wife, her girl friend and my son to Glasgow on the 29th. Then we will drive up to Durness and arrive there in the late afternoon on the 30th. Regards Hans Zekl

From: Katherine Low

OK. Thanks for the tip Sheridan. We will be in the bar of the Smoo Falls Hotel on 30-May, at 19:00. We will see who will turn up. Pls, check whether web sites before our gathering so we can discuss the optimal observation possibilities. Best regards, Kris & Katherine

From: brian seales

Hi All, It seems that the Smoo Falls Hotel bar is the place to be on Fri.30th May from 1900 onwards. We will make our way there providing the weather predications for the Durness area favourable of course. The best thing is to keep in touch up until we all travel and make final plans before departure. There should be no problem using cellphones in Scotland either so we could all keep in touch that way while we travel on the 30th. We are going to have at least 3 vehicles in our group and that's what we plan to do. Regards, Brian Seales www.ecliptomaniacs.com

From: Jay.M.Pasachoff@williams.edu

I have decided to go to Iceland, arriving on the overnight flight from Boston on the morning of May 30. I would be glad to hear from others on this list who are going to Iceland. I will be staying at the Radisson SAS in Reykjavik. Jay Pasachoff

From: HENRIK GLINTBORG

Hi Jay - and others! I have organised a tour to Iceland with a danish group (25 people). We will arrive in Reykjavik May 27th and will begin a roundtrip the day after. We are going to observe the eclipse (hopefully!) from the northwestem part of Iceland, near the Tjörnes peninsula. I think Fred will be with his group around that spot too...

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We will arrive in Reykjavik again June 1st and will return to Copenhagen again in the afternoon June 2nd. Clear skies to all... :-) Henrik Glintborg

From: Geert Vandenbulcke

Hi, A group of 8 Belgians will have "base-camp" near Fort Williams and we hope to see the eclipse from somewhere along the west side of Loch Ness, of course with Nessie in the foreground... ;-) We had a meeting saturday night about practical travel issues; we'll be in Scotland from 28th May to 2nd June. Best regards, Geert Vandenbulcke Belgium

From: Andrew Wells

Hi We'll be going to Orkney for the eclipse, 26 May - 2 June - anyone else going to be there?

Anyway, my real questions:
- where can we get Mylar film, either by mail order or in Bedfordshire?
- do we need to use Mylar while the eclipse is in its annular phase?
- do we need to use Mylar for the camera while the eclipse is in its annular phase?
- any hints on best combinations of f-stop / shutter speed / focal length for photography? Thanks Andrew

From: Geert Vandenbulcke

Andrew, An annular eclipse is the same as a partial one for photography, so normally you need to use an suitable filter during the whole eclipse. However, I saw an annular at sunset in Morocco and because the sun was very low and there was some cirrus cloud I could photograph without filter an exposure times of 1/4000 to 1/2000 second on 50 ISO film. The low altitude of the sun at the time of eclipse is what makes it difficult to give you a straightforward good combination of f-stop/shutter speed. With Mylar or Baader Astrosolar filters (density 5, 100 ISO film) exposure time theoretically is 1/125 s at f/11, but be sure to make a series of exposures around that value. Focal length? Anything between 35 mm and 2000 mm can give good results, depends on what you want as a final result (all phases on one photo or the "ring of fire" in detail)... Good luck, Geert Vandenbulcke Belgium

From: Daniel Fischer

Well, we (7 Germans) hope see the annular (:-) eclipse in the Shetlands (i.e. with the Sun 4 degrees up instead of 2-3 in the Orkneys and 0-2 on the Scottish mainland); the ferry booking from Aberdeen to Lerwick on May 25 has just been confirmed.

Is anyone else from this list going there - and does anyone know how to track down other astronomy buffs in these islands? Numerous web directories (e.g. Lycos) list www.astronomy.shetland.co.uk as "Britain's most northerly virtual society", but the website does not respond. And searching for Shetland+observatory yields only *bird* observatories ...

Daniel (who also didn't manage to track down any local astronomers on Curacao in 1998, only to learn 5 years later that there is apparently even an astronomical society on that Caribbean island)

P.S.: Regarding annular eclipse photography, one response was that an "annular eclipse is the same as a partial one for photography" - which is not the case! The most exciting events during an annular eclipse happen right at the Sun's edge - which has a significantly lower surface brightness (due to limb darkening) than the average disk surface. So forget all (well, most) of what you may have learned about sunspot photography and dare to go to much longer exposures or less dense filters for the 2nd and 3rd contacts: E.g. the pictures of 1999's Baily's Beads on http://www.astro.uni-bonn.de/~dfischer/aus99/first.html were taken through only one layer of mylar with the remainder of the ring heavily overexposed. "Normal" exposure settings or the usual filtering with two mylar layers would have lost all this fascinating detail (as I experienced during the annular of 1994 when I made just that mistake). The lesson here: Try out a lot of settings, but err towards the bright side - and take care of your eyes all the time: You *cannot* look safely into the viewfinder anymore. BTW, the vagaries of sky transparency on May 31 may render all previous experiences moot anyway ...

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From: Sheridan Williams

Is Geert sure he will be able to see the Sun rise from Locj Ness?

From: Geert Vandenbulcke

No, not from Loch Ness, but we will be in that vicinity somewhere higher up we hope.... Geert

From: Nick Quinn

Andrew, David Hinds http://www.dhinds.co.uk is the best (UK) source of Baader AstroSolar film. Regards, Nick Quinn.

From: Michael Gill

Daniel, The Shetland Astronomical Society has contacted the RAF at Saxa Vord who have offered 3 sites on higher ground for public viewing. E-mail Peter Kelly of the Shetland AS for more details:

theglebe@zetnet.co.uk

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And... http://www.fedastro.freeserve.co.uk/eclipse/peter_kelly.html

Cheers, Michael Gill

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Antarctic Eclipse Flight(s)

From: Glenn Schneider To: SOLARECLIPSES@AULA.COM Cc: phil.asker@croydontravel.com.au Date: Mon, 21 Apr

1) For those interested, or are participating in, either the Croydon/QANTAS or TravelQuest(S&T)/LanChile flights to view the 23 Nov 2003 TSE over the Antarctic I recently have updated my server with some more up-to-date "technical" information.

I will maintain the page: http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_03/ECLIPSE_03.html

and links therein for "technical" information regarding these flights. This will continue to expand in content in the months to come. A few particular items (to save hunting around):

A provisional FAQ page for the Croydon/Qantas flight: http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_03/FAQ_747.html

Baseline eclipse intercept flight plans for both flights: http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_03/TWO_FLIGHTS.html

Map (image) of the region, path of totality, and baseline flight plans: http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/ECLIPSE_03/2FLIGHTS_DETAIL_FULL.jpg

Updated info on EFLIGHT (X) S/W: http://nicmosis.as.arizona.edu:8000/ECLIPSE_WEB/EFLIGHT/EFLIGHTX.html

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Joanne & Patrick

The sole Newsletter dedicated to Solar Eclipses

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

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2) The FAQ page (above) was designed to be linked from Croydon's web server. That server has not been updated for several months, and several have asked about that. I understand the information from Croydon is undergoing revision pending final negotiations with QANTAS. Indeed, Phil Asker has asked me to pass along the following (excerpted from a longer email):

>Dear Glenn, ... I agree with 2244 UT intercept for the baseline... If we have a delay in .../...

As you likely know I have been working on the technical (not contractual) part of this flight, so I don't know what the cost adjustments may entail (but understand they are driven, at least in part, by recent large increases in fuel costs). Given Phil's 27 April return date, we should all have that final information soon. Cheers, and Clear Skies, Glenn Schneider http://nicmosis.as.arizona.edu:8000/

TSE 2006

Visit to Turkey

From: KidinVS@aol.com To: SOLARECLIPSES@aula.com
Date: Mon, 14 Apr 2003 12:54:04

I was going to leave for Turkey on March 29th, but for obvious reasons, I postponed the trip, and I will instead, be leaving this Friday evening, for 1 week. I will be doing my site inspection for the March, 2006 eclipse, spending time in Istanbul, Antalya, and Cappodocia. If anyone has any specific things that you would like me to investigate while I am there, please let me know before this Friday. I will report my findings to you when I return the following week. Eric Brown EclipseSafaris

From: Harvey Wasserman

Eric, Will you be able to check out the coast to the west of Antalya? Looking at the sat photos this past month, it seems that the Kas area may offer a bit better prospects. Then again, what is one set of data points worth? Have a great trip. I envy you! Harvey Wasserman