COMMUNICATIONS IN 東亞天文學會「火星通信」since 1986

MARS

25 July 2009

OBSERVATIONS

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CMO 2009/2010 Mars Report #04

OAA Mars Section —

This time we review the observations made during the one-month period from 16 June (λ =286°Ls) **2009 to 15 July (\lambda=304°Ls)**: The apparent diameter δ went up from δ =4.8"to 5.1". So δ went over 5", and the Martian season attained λ =300°Ls when the 1973 great dust storm occurred around Solis L. The central latitude φ went down from 17°S to 09°S during the period. The phase angle ι augmented from 30° to 34°. The apparent declination D went northwards from about 14°N to 20°N. They say the rainy season at Okinawa ended at the end of June, one week later than usual, and it ended at the Kantoh district on 14 July, though the Hokuriku district is still suffering from the rainy/cloudy days.

♂・・・・・今回のレヴューは16June(λ=286°Ls)2009から15July(λ=304°Ls)迄の一ヶ月間を扱う。この間視直 徑δはδ=4.8"から5.1"に延びた。δ=5"を越え、火星の季節も1973年のソリス・ラクス黄雲の季節を過ぎ たわけである。中央緯度φは17°Sから09°Sに落ちた。位相角ιは30°から34°に増している。火星の視赤 緯Dは14°N強から20°N強と北寄りになって來た。沖縄の梅雨明けは例年より一週間ばかり遅く、六 月下旬になったようである。関東は七月14日に明けたが、北陸は未だである。

・・・・ We received the observations this peroid as follows. 今回拝受の観測報告は次のようである。

AKUTSU, Tomio 阿久津 富夫 (Ak) セブ・フィリッピン Cebu, the Philippines 1 *Colour* + 1 *B* + 1 *IR* Images (25 June 2009)

36cm SCT @f/24 with DFK21AU04/DMK21AU04

BOSMAN, Richard リシャルト・ボズマン (RBs) オランダ Enschede, Nederland 1 IR Image (5 July 2009) 28cm SCT@f/50 with an ATK-2HS

GERSTHEIMER, Ralf ラルフ・ゲルシュトハイマー(RGh)ドイツHabichitswald, Deutchland 12 IR Images (20, 23~25, 30 June; 1~3, 5 July 2009)

32cm speculum @f/42, 57 with a DMK21AF04

PELLIER, Christophe クリストフ・ペリエ (CPI) フランス Seine-St-Denis, France

1 Set of RGB + 1 IR Images (30 June 2009) 25cm Cassegrain @f/50 with a SKYnyx 2-0M

SALWAY, Mike マイク・ソルウェイ (MSw) オーストラリア NSW, Australia

1 *Colour* Image (22 June 2009) 31cm speculum with a DMK21AF04

SMET, Kris クリス・スメト (KSm) ベルギー Bornem, Belgium

1 Colour Drawing (30 June 2009) 357×20cm speculum

♂······GERSTHEIMER (RGh) produced first this season an clear image which shot the area of the dark Solis L on 20 June (λ =289°Ls) at ω =063°W: Phasis is conspicuous and Auroræ S looks dark. On 22 June (λ =290°Ls) at ω =269°W SALWAY (MSw) in Australia made a small image where the colour of Hellas is shown different from that of Æria; the latter being more reddish. RGh's images on 23 June (λ =290°Ls) at ω =072°W, and on 24 June (λ =291°Ls) at ω =023°W were dull due to the seeing condition, but the image on 25 June (λ =292°Ls) at ω =034°W shows Solis L at the morning side. On the same day AKUTSU (Ak) took a set of images 15 hrs later at ω =253°W where the dark area from Syrtis Mj to M Tyrrhenum and M Cimmerium was shown, and Hellas is lighter than Ausonia. ι =31°. On 30 June (λ =295°Ls) a newcomer SMET (KSm) from Belgium observed visually at ω =303°W where the evening Hellas looks light. On the same day PELLIER (CPl) produced R G B images at ω =314°W and depicted the difference of colour of Hellas from the sand area around Æria. RGh more later took the image at ω =019°W where S Meridiani is dark near the evening terminator: Niliacus L is also shown and Margaritifer S looks normal while a part of M Erythræum is dark.

The *RGh* image on 1 July (λ =295°Ls) at ω =355°W is excellent: S Sabæus is definite on the afternoon side and there seems to exist a dust streak at Chryse on the morning side. *RGh*'s image on 2 July (λ =296°Ls) at ω =319°W is too early to reach Chryse, but a clear image with a bright Edom and the dark M Serpentis. On 3 July (λ =296°Ls) *RGh* chased for *four* hrs and produced the images at ω =288°W, 326°W and 348°W: The last one somewhat shows Chryse where a remnant dust looks to exist. Other images are also good: The inside of Hellas looks complex and Zea L seems to exist. On 5 July (λ =298°Ls) BOSMAN (*RBs*) and *RGh* took images respectively at ω =257°W and ω =261°W/278°W. Both shows the morning Syrtis Mj, while *RGh*'s image at ω =278°W is excellent and conspicuous in showing the inside of Hellas in the shape of light U letter encircling Zea L.

♂・・・・・20June(λ =289°Ls)ω=063°Wのドイツのゲルシュトハイマー(RGh)氏の影像は今季最初のソリス・ラクス附近を写し出す良像で、ソリス・ラクスが出ているほか、パシスが著しく、アウロラエ・シヌスも濃い。22June(λ =290°Ls)ω=269°Wのオーストラリアのソルウェイ(MSw)氏の像は小さいが、ヘッラスとアエリアの色の違いが出ている。RGh氏の23June(λ =290°Ls)ω=072°W、24June(λ =291°Ls)ω=023°Wはシーイングが悪かったのか、冴えないが、25June(λ =292°Ls)ω=034°Wでは朝方にソリス・ラクスが見えている。同日阿久津(Ak)氏がω=253°Wで撮っているがシュルティス・マイヨルからマレ・テュッレヌムからマレ・キムメリウムの方向を描写しヘッラスがアウソニアより明るいことを示している。=31°である。30June(λ =295°Ls)にはベルギーの新人スメト(KSm)氏のω=303°Wでの眼視観測があり、夕方のヘッラスが明るい。同日ω=314°Wにはペリエ(CPI)氏のRGB像が続き、夕方のヘッラスとアエリア方面の砂漠の色の違いを出している。RGh氏は同日後刻ω=019°Wで、シヌス・メリディアニが夕方に濃く出ている。ニリアクス・ラクスも見え、マルガリティフェル・シヌスは正常か。マレ・エリュトゥラエウムの一部が濃い。

01July(λ =295°Ls)のRGh氏の ω =355°Wは良像(IR)で、シヌス・サバエウスが濃く明確で、クリュセに東西に黄塵が流れているように見える。02July(λ =296°Ls)の像は ω =319°Wでクリュセには早いが、エドムが明るく、マレ・セルペンティスのあたりは濃い。03July(λ =296°Ls)にはRGh氏は四時間にわたり ω =288°W、326°W、348°Wと撮っているが、最後の像ではクリュセの明るさが殘っているように思える。なお、この三像は何れも良像でヘッラス内にはゼア・ラクスが見えるようである。05July (λ =298°Ls)にはオランダのボズマン(RBs)氏が ω =257°Wで、RGh氏が ω =261°W、278°Wで撮っている。両者共シュルティス・マイヨルが朝方だが、後者では特に ω =278°Wの像が秀逸で、ヘッラス内部がU字型に明るくゼア・ラクスを囲んでいるように見える。RGh氏はIRに限っているが、日の出後も追跡する形でるの小さい内ながら良像をコンスタントに得ている。

 δ · · · · · In the next issue we shall review the observations made during the period from 16 July (λ =304°Ls, δ =5.1") to 15 August 2009 (λ =322°Ls, δ =5.5").

南 政 次・村上 昌己 M MINAMI & M MURAKAMI

Forthcoming 2009/2010 Mars (5) -

Ephemeris for the Observations of the 2009/10 Mars. III

August and September 2009

-Masami MURAKAMI 村上 昌己(Mk) ┛

As a sequel to the preceding Ephemeris, we here list the necessary elements of the Ephemeris for the physical observation of Mars from 1 August 2009 to 30 September 2009: The data are listed for every day at 00:00GMT (not TDT). ω and φ denote the longitude and latitude of the sub-Earth point respectively. The symbols λ , δ and ι stand for the areocentric longitude of the Sun,

the apparent diameter and the phase angle respectively. we also add the column of the Position Angle Π of the axis rotation, measured eastwards from the north point: This is useful to determine the north pole direction from the $p\leftarrow$. The apparent declination of the planet is also given at the final column. The data here are basically based on *The Astronomical Almanac for the Year 2009*.

Date (00:00GMT)		ω	φ	λ	δ	ι	П	D
01	August 2009	307.40°W	4.0°S	313.43°Ls	5.31"	35.1°	-33.3°	+22°10'
02	August 2009	297.69°W	3.7°S	314.01°Ls	5.33"	35.2°	-33.1°	+22°15'
03	August 2009	287.98°W	3.4°S	314.59°Ls	5.34"	35.3°	-32.8°	+22°21'
04	August 2009	278.27°W	3.1°S	315.16°Ls	5.36"	35.4°	-32.6°	+22°26'
05	August 2009	268.57°W	2.8°S	315.74°Ls	5.37"	35.5°	-32.4°	+22°31'
06	August 2009	258.86°W	2.5°S	316.31°Ls	5.39"	35.6°	-32.1°	+22°36'
07	August 2009	249.16°W	2.2°S	316.88°Ls	5.40"	35.7°	-31.9°	+22°40'
08	August 2009	239.46°W	1.9°S	317.45°Ls	5.42"	35.8°	-31.6°	+22°45'
09	August 2009	229.76°W	1.6°S	318.02°Ls	5.43"	35.9°	-31.3°	+22°49'
10	August 2009	220.06°W	1.3°S	318.59°Ls	5.45"	36.0°	-31.1°	+22°53'
11	August 2009	210.36°W	1.0°S	319.16°Ls	5.46"	36.1°	-30.8°	+22°57'
12	August 2009	200.67°W	0.8°S	319.73°Ls	5.48"	36.2°	-30.5°	+23°01'
13	August 2009	190.97°W	0.5°S	320.30°Ls	5.49"	36.3°	-30.3°	+23°04'
14	August 2009	181.28°W	0.2°S	320.87°Ls	5.51"	36.4°	-30.0°	+23°07'
15	August 2009	171.59°W	0.1°S	321.43°Ls	5.53"	36.5°	-29.7°	+23°10'
16	August 2009	161.90°W	0.4°N	322.00°Ls	5.54"	36.5°	-29.4°	+23°13'
17	August 2009	152.21°W	0.7°N	322.56°Ls	5.56"	36.6°	-29.1°	+23°16'
18	August 2009	142.53°W	0.9°N	323.12°Ls	5.58"	36.7°	-28.8°	+23°18'
19	August 2009	132.84°W	1.2°N	323.68°Ls	5.60"	36.8°	-28.6°	+23°21'
20	August 2009	123.16°W	1.5°N	324.24°Ls	5.61"	36.9°	-28.3°	+23°23'
21	August 2009	113.47°W	1.8°N	324.80°Ls	5.63"	37.0°	-28.0°	+23°25'
22	August 2009	103.79°W	2.1°N	325.36°Ls	5.65"	37.1°	-27.7°	+23°27'
23	August 2009	094.11°W	2.3°N	325.92°Ls	5.67"	37.2°	-27.4°	+23°28'
24	August 2009	084.44°W	2.6°N	326.47°Ls	5.68"	37.2°	-27.1°	+23°30'
25	August 2009	074.76°W	2.9°N	327.03°Ls	5.70"	37.3°	-26.8°	+23°31'
26	August 2009	065.09°W	3.2°N	327.58°Ls	5.72"	37.4°	-26.5°	+23°32'
27	August 2009	055.41°W	3.4°N	328.14°Ls	5.74"	37.5°	-26.1°	+23°33'
28	August 2009	045.74°W	3.7°N	328.69°Ls	5.76"	37.6°	-25.8°	+23°33'
29	August 2009	036.07°W	4.0°N	329.24°Ls	5.78"	37.7°	-25.5°	+23°34'
30	August 2009	026.40°W	4.2°N	329.79°Ls	5.80"	37.8°	-25.2°	+23°34'
31	August 2009	016.73°W	4.5°N	330.34°Ls	5.82"	37.9°	-24.9°	+23°34'
01	September 2009	007.07°W	4.8°N	330.89°Ls	5.84"	37.9°	-24.6°	+23°34'
02	September 2009	357.40°W	5.0°N	331.44°Ls	5.86"	38.0°	-24.3°	+23°34'
03	September 2009	347.74°W	5.3°N	331.99°Ls	5.88"	38.1°	-23.9°	+23°34'

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Dat	e (00:00GM		ω	φ	λ	δ	l	П	D
04	September	2009	338.07°W	5.6°N	332.53°Ls	5.91"	38.2°	-23.6°	+23°33'
05	September		328.41°W	5.8°N	333.08°Ls	5.93"	38.2°	-23.3°	+23°33'
06	September	2009	318.75°W	6.1°N	333.62°Ls	5.95"	38.3°	-23.0°	+23°32'
07	September	2009	309.09°W	6.3°N	334.16°Ls	5.97"	38.4°	-22.6°	+23°31'
08	September	2009	299.44°W	6.6°N	334.71°Ls	6.00"	38.4°	-22.3°	+23°30'
09	September	2009	289.78°W	6.8°N	335.25°Ls	6.02"	38.5°	-22.0°	+23°28'
10	September	2009	280.12°W	7.1°N	335.25°Ls	6.04"	38.5°	-22.6°	+23°27'
11	September	2009	270.47°W	7.3°N	336.33°Ls	6.07"	38.6°	-21.3°	+23°25'
12	September	2009	260.82°W	7.6°N	336.87°Ls	6.09"	38.7°	-21.0°	+23°24'
13	September	2009	251.17°W	7.8°N	337.41°Ls	6.12"	38.7°	-20.6°	+23°22'
14	September	2009	241.52°W	8.1°N	337.95°Ls	6.14"	38.8°	-20.3°	+23°20'
15	September	2009	231.87°W	8.3°N	338.48°Ls	6.17"	38.9°	-20.0°	+23°18'
16	September	2009	222.22°W	8.6°N	339.02°Ls	6.20"	38.9°	-19.6°	+23°15'
17	September	2009	212.58°W	8.8°N	339.55°Ls	6.22"	39.0°	-19.3°	+23°13'
18	September	2009	202.94°W	9.0°N	340.08°Ls	6.25"	39.0°	-19.0°	+23°10'
19	September	2009	193.29°W	9.3°N	340.61°Ls	6.28"	39.1°	-18.6°	+23°08'
20	September	2009	183.65°W	9.5°N	341.15°Ls	6.31"	39.1°	-18.3°	+23°05'
21	September	2009	174.02°W	9.7°N	341.68°Ls	6.33"	39.2°	-18.0°	+23°02'
22	September	2009	164.38°W	10.0°N	342.21°Ls	6.36"	39.2°	-17.6°	+22°59'
23	September	2009	154.74°W	10.2°N	342.74°Ls	6.39"	39.3°	-17.3°	+22°56'
24	September	2009	145.11°W	10.4°N	343.27°Ls	6.42"	39.3°	-16.9°	+22°52'
25	September	2009	135.48°W	10.6°N	343.79°Ls	6.44"	39.4°	-16.6°	+22°49'
26	September	2009	125.85°W	10.8°N	344.32°Ls	6.47"	39.4°	-16.3°	+22°45'
27	September	2009	116.22°W	11.1°N	344.84°Ls	6.50"	39.5°	-15.9°	+22°42'
28	September	2009	106.59°W	11.3°N	345.37°Ls	6.54"	39.5°	-15.6°	+22°38'
29	September	2009	096.97°W	11.5°N	345.89°Ls	6.57"	39.6°	-15.3°	+22°34'
30	September	2009	087.34°W	11.7°N	346.41°Ls	6.60"	39.6°	-14.9°	+22°30'
01	October	2009	077.72°W	11.9°N	346.93°Ls	6.63"	39.6°	-14.6°	+22°26'
02	October	2009	068.10°W	12.1°N	347.45°Ls	6.67"	39.7°	-14.3°	+22°22'
03	October	2009	058.49°W	12.3°N	347.97°Ls	6.70"	39.7°	-13.9°	+22°18'
04	October	2009	048.87°W	12.5°N	348.49°Ls	6.73"	39.7°	-13.6°	+22°14'

07/08 CMO Note (14)

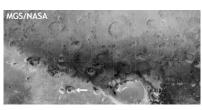
Fons near Sigeus Portus

シゲウス・ポルトゥス近傍の泉

★ We have hitherto claimed that it may be a retrospective for any ground-based Mars observer to adhere to a minute structure of markings on Mars. It is still so, but here is a dark spot which may clarify the quality of the ccd images and as well which may suggest a meteorological change of the area. ★

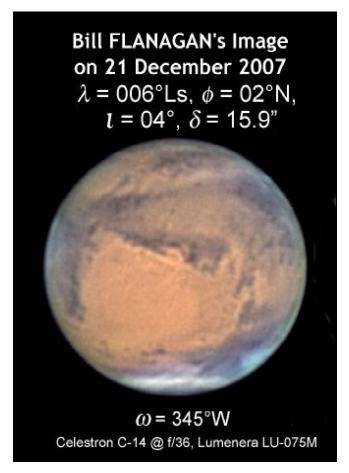
The present writer has never tried to squeeze out the spot and do not know any other visual observ-

ers including the old generations witnessed it, but it has been always apparent on any HST images of appropriate angles as well as on the MGS mappings. It is a clearly isolated spot





located to the north-west of Sigeus Portus. ★ Here the first image is a clipping from the MGS general map (south upward) and the spot of Fons is indicated by an arrow. ★ The second image is from the MRO- MARCI movies made dated 23 December 2007: the dark Fons is also indicated. Both will show the spot (Fons) is quite considerable. ★ The third full image is one of the best images made in



2007 showing the spot (though faintly) and the one made by Bill FLANAGAN on 21 December 2007. It may be difficult to look for any other clearer one at least in 2007. ★ That is to say, it is enough at present if the spot was similarly depicted from the terrestrial basis when S Sabæus prevails. If not, the ccd images are inadequate or the seeing condition is simply poor.

★ It is unknown how this kind of Fons suggests any meteorological condition around the area of S Sabæus. It is at least interesting to check how it is shaded. Once in 1937 T SAHEKI discovered a precursory state of Anginones Fons and in 1939 E C SLIPHER quite definitely shot it out. As far as we know any secular intensity estimates of Antigones

Fons have not been made, and within the long-term period it looks disappeared unnoticed. As to the present Fons near Sigeus Portus it is also interesting to know how it gives some trend in the future. If it happens to be related with any sand storms near S Sabæus it is further interesting to be checked by the ccd. (*Mn*)

★兼ねてより火星觀測者が最早火星模様の詳細 に拘るのは時代遅れだと述べて來たが、今回は(如 何にも常々の主張と抵觸するようだが)その「詳 細」の一つを紹介がてら、幾らか現状のccd畫像 の能力を見てみようというものである。★未だ筆 者も眼視で注視したこともなく、寡聞にして他で の肉眼観測に掛かったという話は聞かないし、古 典地圖では無名だと思うが、HSTやMGSでは當初 からシゲウス・ポルトゥスの北西にクッキリとし たフォンスとも言うべき獨立暗點が見えている。 ★ここに掲げる最初の圖ではMGSの綜合地圖か らのもので、その部分を切り抜き、矢印で示して おく。★二番目の圖はMRO-MARCIの23 December 2007からの切り抜きで、矢張り矢印で示す。兩者 から可成りの暗點であることが分かるであろう。 ★三圖にはフラナガン(WFI)氏の21 December 2007 の全體像を示す。この像は問題の暗點を微妙に示 す一枚で、逆言えば、これ以上のものは捜し辛い。 ★從って現在のところ、シヌス・サバエウスの周 邊についてはこの斑點をこれだけ出せれば充分と いうことになろうし、そうでなければccd像とし ては落第か、シーイングが悪いということになろ うと思う。

★こうした斑點が火星の氣象と如何に拘わるかは好く分からない。ただ、濃淡の變化が常時あるかもしれないのでccdでは注意する。嘗て、1937年に佐伯恆夫氏が前兆を捉え、1939年にスライファー氏の写真に表れたアンチゴネス・フォンスがその後どういう經過を辿って消えて行ったか、摑めていないように(濃度測定がない、見えれば濃く描く傾向がある)、この斑點もいかなる經過を辿るか分からないが、シヌス・サバエウスの近辺に黄塵が立ち籠めた際にはccd觀測では重要な働きをするかもしれない。 (Mn)

Ser2-1122 CMO No. 360



Letters to the Editor

• · · · · · Subject: Saturn last night, June 22 Received: Tue 23 June 2009 08:10:08 JST

The fog rolled in last night just on sunset, but I did get a chance for some Saturn data before it got too thick. Nothing too interesting here, please excuse the few artifacts in the image - most from registax multipoint alignment but also the colour channels did not want to align for some reason...

http://www.acquerra.com.au/astro/gallery/saturn/20090622-080235/large.jpg

O····Subject: Saturn, July 8 Received: Fri 10 July 2009 21:30:09 JST

Here is some data from 2 nights ago, July 8 UTC. Saturn is getting low in the west just after sunset, making it very difficult to get good images. Here's the first image, red channel data only. There'll be no more colour images of Saturn from me until next apparition, it's a waste of time trying to get anything in blue: This image shows a pair of very small, bright storms in the STrZ (top centre) and a bright equatorial spot just below the rings to the left of centre. I'll try and make a 2 frame animation if I can find another usable set of data from this session.

http://www.acquerra.com.au/astro/gallery/saturn/20090708-075652/large.jpg

O····Subject: Saturn, July 18 Received: Sat 18 July 2009 20:30:00 JST

Earlier this evening I found some good seeing just after sunset and grabbed some data on Saturn for half an hour until it disappeared behind our big old yellowbox tree into the west. The seeing was surprisingly good, and despite my earlier declaration to the contrary there are some more colour images possible. Titan shows up nicely in this image as well. Thanks to the heroic efforts of the peltier cooler on the scope there was only a 2C difference in temp between the mirror and ambient. Here is the very first image of the session, more to come.

http://www.acquerra.com.au/astro/gallery/saturn/20090718-075428/large.jpg

O····Subject: Re: [hstjupiter] Jupiter impact Received: Thu 23 July 2009 17:32:07 JST

Thanks Dave, I'm also itching to have another look, have to wait for a break in the weather. cheers,

O·····Subject: Re: Impact scar on Jupiter Received: Fri 24 July 2009 08:34:10 JST

Greetings Masatsugu, thank you for your interest. You can find the earliest images and other information at jupiter.samba.org, let me know if that is enough for you. regards,

Anthony WESLEY

(アンソニィ・ウェス゛リー Murrumbateman, NSW 澳)

(註) Closeup (155537UTC) of the scar in colour. 3 small dark spots can be seen in addition to the main one, possibly more. Still looking for better quality raw data



from other imaging runs around this time.
\$\display Wesley's\$
Impact mark on Jupiter made on 19th July 2009



• · · · · · Subject: Jupiter, GRS and new NEB spots/outbreak Received: Tue 23 June 2009 09:41:52 JST

Hi all, Finally - the first clear night in weeks and my first imaging opportunity since May 25! I've got loads of data to process, but I wanted to quickly process this one and get it there because a) I won't get much time to process many more images in the next day or two, and b) it's an image showing the GRS and the new spots and NEB outbreak in high resolution, thanks (finally!) to some good seeing conditions. This is just the first of many from the session, so check back for more in the next few days.

http://www.mikesalway.com.au/2009/06/23/jupiter-grs-and-neb-outbreak-june-23

O····Subject: My first Mars for 2009 - at a tiny 4.9" in diam. Received: Thu 25 June 2009 07:55:43 JST

Hi all, On Tuesday morning, 23rd June 2009 I captured my first image of Mars for 2009. It's still very early in the season, with Mars still 288 million kilometres away, subtending a tiny diameter of a 4.9" on the sky. Mars doesn't reach opposition until late January, 2010 when it will be 14 arcseconds in diameter - a lot smaller than it was at its closest in 2003, when it grew to 25" in diameter. No polar cap is visible, but the features of Syrtis Major and the Hellas Basin can be seen.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090622/MSw22June09.jpg

O····Subject: Jupiter, GRS and NEB Upheaval Animation Received: Sat 27 June 2009 16:22:00 JST

Hi all, Captured on the 23rd June (local time), this animation represents 3 hours of rotation on Jupiter, as the Great Red Spot (quite a bit paler this year) transits across the face of the gas giant. Also visible, down lower on the NEB, is the new "NEB Upheaval" - a series of new spots and disturbances that are likely to change the look of the NEB for the remainder of the season. Click the link to

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see the full 17-frame animation which covers 3 hours of rotation. It's a 2.4mb gif file.

http://www.mikesalway.com.au/download/20

Also attached are 3 stills from the animation, showing near the start, middle and end of the sequence. More

http://www.mikesalway.com.au/2009/06/27/jupiter-grs-and-neb-upheaval-animation

O·····Subject: Jupiter and Oval BA Received: Fri 10 July 2009 12:49:46 JST

Hi all, It's been a while between images - I'm currently up on the Sunshine Coast for a work conference, and have finally had a few spare moments to finish off this image. This image was captured on Monday morning, 6th July local time (5th July UT), in slightly above average seeing. It shows Oval BA still with a darker orange/red ring inside it, and the continuing upheaval of the NEB. I've also got some images of the Ganymede + Callisto close approach that occurred on the same night, but I'm still going through that data and need to create an animation, so it could be a few more days yet before I'll get a chance to post the final result. Thanks for looking

http://www.mikesalway.com.au/2009/07/10/jupiter-and-oval-ba-from-july-5th

Mike SALWAY (マイク・ソルウェ NSW 澳)

• · · · · · Subject: spots and flares 22-jun-2009 Received: Tue 23 June 2009 19:37:15 JST

Hi Guys AR1022 although small, produced some flares and sunspots today. Changes were very fast but seeing was very poor, with rare more settled moments in which to capture. Best wishes

O····Subject: Solar activity 23rd June Received: Wed 24 June 2009 06:38:00 JST

Hi Guys the two current AR's are shown here. The wide shot gives some Idea of scale and position and the close up show the sunspot activity within them. This morning no decent sized prominences were seen. Best wishes

O····Subject: solar action 24th June Received: Thu 25 June 2009 08:18:07 JST

Hi guys, time for your daily dose of solar wonders. We still have photogenic AR1023 with what looks like three sunspots at the root of gorgeous displays of sweeping fibrils of super hot hydrogen gas, faithfully following the magnetic field lines associated with the spots. AR 1022 "the centipede" is not half as much fun, but has a character all of it own. Been a bit of a dearth of prominences in recent days, This one needed awakening with a bit of mag. Best wishes

O····Subject: Solar images 25 June Received: Fri 26 June 2009 18:01:58 JST

Hi Guys, The spots have faded from AR 1023 but at least a nice prominence was on view. Best wishes

O····Subject: Solar images 28th June Received: Mon 29 June 2009 08:03:43 JST

Hi Guys, Here are some current solar activity images. A1023 is about to leave us moving off the limb to the right (W) only to be replaced by a new Active Region in the NE quadrant, that is as yet unnamed. We have had two months of constant Active Regions. Let's hope they become even more active. Wide field Smax scope 60 DS,

and the two close up similar images and the prominence were taken with A 5" AP at f32 with a 4x powermate and a Daystar .6 A H α filter. Best wishes

O····Subject: Solar images 29th June Received: Wed 01 July 2009 01:16:04 JST

Hi Guys, the new North Eastern Active Region is quite spectacular on high power. The wider field shot gives a good idea of it's location with respect to the rest of the sun. It's interesting to look from one to the other, picking out the features on both magnifications. Any differences are due to movement of the surface over time. Along with resolution of course. The wide field was taken with a 60mm lens on 62 inch focal length and the Hi mag was with a 127mm lens on 160 inch focal length. The hi mag image is actually a 4 frame mosaic.

O····Subject: solar images 30th June Received: Wed 01 July 2009 07:59:23 JST

Hi Guys here are a few white light and Ha image of a new South Eastern AR and some progress images of the North Eastern one, showing a new filament. As predicted by my learned friend Zbig,:- "29th June image clearly show a prominence forming. There is a wiggly but almost straight line crossing the picture top to bottom, dividing the picture in two. It is all to do with fibril orientation, and this line marks a discontinuity in the way the fibrils lie. It marks a magnetic discontinuity, called a PIL or polarity inversion line." Thank you Zbig.

The new South Eastern Active Region revealed a spot when imaged off a Herschel wedge in a red filter (07:41ut image) and white light (09:34ut). Turbulence was bad in White light at higher mag, but the actual spot faculae was better, so I reggi'd it on that, as bits of the whole images were in and out of focus. Best wishes

O····Subject: Polarity Inversion Line Received: Wed 01 July 2009 23:16:44 JST

Hi Guys, Zbig, going through my 20 unmanned captured frames in time lapse mode, that were intended for an animation, I came across these later clearer images of your PIL and filament formings. This is 1024x 768 so you can go full frame with it without over blowing it.

O·····Subject: Solar images 1st July Received: Fri 03 July 2009 20:11:47 JST

Hi Guys, Bit of an imagefest on the 1st. Nothing to spectacular, just different views of some interesting features. I think the sunspots only lasted two days in the South Eastern AR, (which got quite lively on the 2nd). The other quite large un-named AR in the N.E. had some nice filaments and fibril detailing. There was one fair sized sunspot imaged at 108inches fl 4.5 OG and daystar /ss hybrid .65A. The two scopes used on the AR's were, 1. A Coronado solamaxscope 60mm DS with straight blocking filter and 4x powermate.

2. A 5 inch f8 AP Starfire with 4x powermate and Daystar .6A ATM. Best wishes

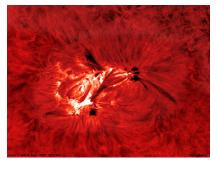
O····Subject: solar images 2nd July Received: Sun 05 July 2009 08:48:36 JST

Hi Guys, nothing much to report on the 2nd, other than the now designated AR1024 had a small flare. Nothing like the 4th's outburst, which was fantastic. Best wishes Ser2-1124 CMO No. 360

O····Subject: The 4th of July Flare Received: Tue 07 July 2009 20:47:21 JST

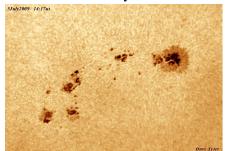
Hi Guys, Wow, these past few days has been fun. After a brief brightening on the 2nd the AR now 1024, really let go. With so much data gathered, I am spoilt for choice, but here is some of it. The large 08:09 ut 1024 x 768pix image is a 5 frame montage taken at 216 inches

efl, Using my 6inch Vixen at full aperture with a 4x powermate for f36, with a Daystar / solar spectrum Hybrid .65 H α filter. The 13:41ut image with the white light spots was also with



the Vixen, but at 108 inches efl. An Intes Herschel wedge was used with ND filters and an IR block coated red filter from my Trutek rgb set.

O····Subject: Solar images 5th July Received: Wed 08 July 2009 22:23:30 JST



Hi Guys, Here are some progress images of the current spectacular active region. The larger one is a 5 frame montage. The white light

image, to my untrained eye, shows no hint of what's going on in Hydrogen alpha wavelengths. It's interesting how the higher level Hydrogen made visible by the narrow band filter, obscures the smaller spots.

O····Subject: Solar images 7th July Received: Wed 08 July 2009 22:53:26 JST

Hi guys, These two images were taken between heavy downpours of thundery rain. The 0734UT Image was taken before the filter had fully warmed, so was off center band in the blue wing. Note how some Hydrogen gas fibrils are visible, but so are all of the sunspots in the group. The slightly later 0818ut image shows masses of sweeping fibrils and only the major players in the sunspot group. Best wishes

O····Subject: solar images 7th July Received: Thu 09 July 2009 04:47:23 JST

Hi Guys, These are images from the 7th July (honest). Seeing was good at times in spite of the squalls. I was very fortunate to get a good clearing for the 5 frame montage in Hα'. An Intes wedge with ND's and a red filter was used on the spots. The group has stretched about 25%. Our weather has turned wet and cold, much more like our normal England, 12°C this morning!

O····Subject: solar images 9th July Received: Fri 10 July 2009 07:14:19 JST

Hi Guys, Wow Erika, a beautiful Lunar Work of Art there. A good day for chromosphere Junkies again. There was enough early morning sun to get a good fix, The seeing produced a lot of movement but the detail was there. The miracle known as registax did us proud again. The wide field image was with the 60mm DS Solar Max Scope, with 4x powermate, and the other three with my inch Vixen @ f36 and a Daystar /ss hybrid .65 A H α filter. Best wishes

O····Subject: solar images 10July Received: Sat 11 July 2009 06:11:08 JST

Hi Guys, AR 1024 is near the edge of the disc. There was also a couple of nice prominences lets not forget those. The blue wing image is showing an Ellerman bomb, which corresponds to a brightening on the $H\alpha$ (on band) image. Best wishes

O·····Subject: solar 14th July and NLCs Received: Wed 15 July 2009 22:56:43 JST

Hi Guys I always seem to miss NLCs, but caught this display last night shining down though the lower clouds. The sun has been quiet now for three days, even the constant flow of active areas seems to have stopped. This was the only decent Prom. There was a spiky one on the other side. The wide field shot was with my 60mm Coronado at 40 inches focal length, and the close up was with a 6inch Vixen at 216inches focal length and a Daystar / ss $H\alpha$ filter.

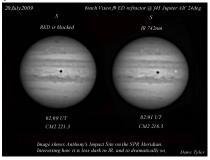
NLC with Nikon D40 18-55 zoom.Photoshop cropped for smaller file and 16 x 9 format. Must be viewed full screen to share my experience! Best wishes

O····Subject: 4th July animation Received: Fri 17 July 2009 01:28:35 JST

Hi Guy, Here is a busy little animation of the 4th July solar fireworks in AR 1024. Best wishes

O····Subject: Impact in Jupiter Received: Mon 20 July 2009 19:05:35 JST

Hi Guys, On the 19th July Anthony Wesley in Australia, discovered a new Impact site on Jupiter. Here's an image of the Anthony Impact Site, taken in two "red" filters I



notice there is some "residue" to the right of the main marking, I wonder if this indicates that it entered the atmosphere from the left, and boiled up stuff subsurface on the right. One can only imagine. Scope used was my 6 inch that is currently on the mount, with others, for Solar imaging. Best wishes

O····Subject: Jupiter impact Received: Thu 23 July 2009 17:09:06 JST

Hi guys. Just for the record, here is a bit more of the data I captured during the morning of the 20th July. I was fortunate enough to visually observe with my 15 inch Newtonian, the Shoemaker-Levy 9 impacts at this time in 1994 and at about the same Declination too. Some impacts were a little larger pity I never had a webcam in those days. It will be interesting to see how or if, it has spread out at all at our next opportunity to image it. Best wishes

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O····Subject: TODAYS SUN Received: Fri 24 July 2009 06:52:23 JST

Hi guys. There was a little bit of surface activity today, i.e. a small AR. Here is a wide field shot showing its size in relation to the solar disc. Funny, they always look bigger in relation to the disc visually! Coronado, 5A 2,5x powermate and Lumenera 075. The close up shot was 216 inches efl, where the seeing was more stable through fast moving thin clouds. 6 inch Vixen at *f*36 Daystar SS hybrid Ha filter .65A. Best wishes

Dave TYLER (デヴィド・タイラー Bkh 英)

• · · · · · Subject: Maria Lane Received: Tue 23 June 2009 20:06:05 JST

Dear Nicolas et al., I have just learned that Maria Lane, a historian at the University of New Mexico in Albuquerque, whose important book *Geographies of Mars* is being published by the University of Chicago Press, has confirmed that she will be in attendance at the meeting in Paris. This is excellent news. I am thinking that we might include her on the panel discussion that I am planning to lead as one of the respondents.

Also - by the way - Nicolas, have you heard anything from Patrick Fuentes about my visiting Juvisy? Best,

O····Subject: FW: Mars Observers meeting Received: Fri 17 July 2009 23:18:15 JST

Dear Co-presenters, Maria Lane, whose Ph.D. Thesis "Geographies of Mars" is being published by U of Chicago Press and is going to join our Mars group, contacted me with some clarification of what our presentation will consist of and the roles we are to play in this discussion. I jotted the following thoughts that I wish to share with you—they are, needless to say, tentative, and will undergo revision and elaboration.

I think the thing that weds us to one another is a shared interest in what might be called "visual culture" in astronomy — something that is now become a quite fashionable area of history of astronomy research, after long neglect (the neglect was partly owing to the fact that — though Galileo himself clearly asserted that astronomy should be a visual science — it ended up being sent into a somewhat oblique orbit as a branch of mathematics and positional astronomy like surveying during the post-Newtonian period, until Wm Herschel and his successors developed telescopes powerful enough to allow consideration of the Moon, planets, and nebulae as worlds or extended objects in space to be understood in terms of structure and detail rather than characterized as mere idealized point-masses).

My own interest in this area begins with the work of artists like the late eighteenth century portrait and land-scape artist John Russell who used a Herschelian telescope to study and depict the surface of the Moon, followed by a number of artists and engravers (notably John Herschel, William Lassell, the Rosse team at Birr Castle, and G.P. Bond) to master and represent the massed and granular structure of the nebulae. I am hoping that Randall can help us to better understand the techniques (stippling, mezzotint, engraving techniques

etc.) developed and employed in these endeavors and the strengths and limits of each. It seems that John Philips, Father Secchi, Nathaniel Green and others began to employ similar techniques for representing the lunar and planetary surfaces they studied but then: this rather natural development was suddenly diverted into what eventually turned into a long digression by the color-blind, micrometric- eyed positional astronomer and cartographer Schiaparelli whose 1877 map presented the world with a geometric and linearized rendering of Mars. Schiaparelli's chart reasserted for the rendering of that planet the positional astronomer's preoccupations with measuring points and angles and subordinated the study and rendering of a naturalistic surface to the conventions and aims of cartography. I am hoping that Maria Lane can educate about that development which really forms the heart of her Ph.D. Thesis.

The rest of the presentation will be concerned with how developments in telescopic and observing techniques eventually led — through the work of Barnard and Antoniadi — to a more naturalistic, landscape-like apprehension of the Martian surface. I think also that the challenge of capturing what was revealed in short periods of crystal-clear images presented these astronomerartists with a problem similar to that faced by the Impressionists at the time; without suggesting direct influence I propose that these astronomers shared the Impressionists' aspiration to capture the fleeting and evanescent revelations occurring from moment to moment, under conditions of changing light and seeing. (In this respect, their aspiration was shared by the astronomer Jules Janssen, whose famous revolver photographique which I hope we can actually look at—was designed to capture the moment of the contact between the limbs of Venus and the Sun for the determination of the value of the Astronomical Unit. Janssen has rightly been described as a forerunner of cinematographie... We needn't linger on the fact that the cinematographic illusion of seamless movement was itself to be founded on the eye-brain's behavior as a digital-device with limited capacity to freeze and isolate individual images, which is the same thing that tends to sharply limit what is revealed in telescopic images which may remain steady for only a fraction of a second because of atmospheric disturbance).

We might profit in considering the evolution of Martian art from Schiaparelli through Antoniadi as the counterpart of that exemplified between Meissonier, who was the most famous and celebrated painter of his era and who worked meticulously to produce finished historical canvases accurate in every detail, and Impressionists like Monet and Pisarro. Ross King, in his book The Judgment of Paris, throws out the intriguing suggestion that "the hasty-looking landscapes of Monet and Pissaro owed something to the brief vistas glimpsed as they loomed and then dissolved in the window of a train carriage." Certainly developments such as trains (and balloons) changed these artists' sense of their relationship to

the subjects of perception, and removed the sense of "ultimate reality" sought by a Meissonier with one of fleeting and evanescent "impressions." I am hoping that practicing artists like Greg and Laurie who have actually rendered Mars at the telescope can inform us of how they go about their difficult task—one which they both have accomplished with great results.

My role will be to provide an overall organization—and a thread of continuity and transitional leaps—between the different aspects of the presentation. Best,

Bill SHEEHAN (ウィリアム・シーハン MN 美)

• · · · · · Subject: Mars 23.6.09 Received: Wed 24 June 2009 00:46:07 JST

Dear Masatsugu, here the latest image of mars. Transparency was poor today with a lot of cirrostratus clouds, so i cannot say if mars is dusty or my conditions are so For the next days, the weather forecast predict clear sky (i hope so). With best wishes

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090623/RGh23June09.jpg

O·····Subject: Mars 24. / 25.6.2009 Received: Fri 26 June 2009 15:21:32 JST

Dear Masatsugu, in the attachement two images from 24. and 25. June 2009. Conditions were poor (especially transparency). With best wishes

'EN YEARS AGO (1

---CMO#221 (25 July 1999) pp2563~2578 ---

去りゆく火星は、1999年七月には「おとめ座」にあって、夕方からの観測対象だった。七月 上旬には視直径が10秒角台となって、欠けも大きくなりみすぼらしくなったとしている。 CMO#221より一ヶ月ごとの纏めになって、16Juneから15Julyまでの報告がレビューされて いる。この期間、本土では梅甭が本番となったが、6月下旬に梅甭明けした沖縄の観測がおぎ なって、途切れることなく火星面の観測が得られた。季節は 155° Lsから 171° Lsへと進み、北 極冠最後の姿と北極雲の出現を見極める大事な時期となっていた。この期間の報告者は、追加 報告を含めて18名を数えた。レポートには、北極領域の様子、特にマレ・アキダリウムが朝方 にあるときの特異的な様子が取り上げられている。他に、ヘッラス・南極雲の様子、マレ・ア キダリウムの北の朝霧などに注目している。

追加報告には四月から六月までの石橋力(Is)氏の写真、 ヴァレッル(JWr)氏のスケッチなどが寄せられている。

LtEの、外国からの便りは、Alan HEATH (UK), Dave GRAHAM (UK), Sam WHITBY (USA), Elisabeth SIEGEL (Denmark), Myron WASIUTA (USA), Don PARKER (USA), John ROGERS (UK), John BARNETT (USA)の各 氏から、国内からは、長谷川一郎(兵庫)、佐藤健(広島)、 岩崎徹(福岡)、常間地ひとみ(神奈川)、阿久津富夫(栃木)、 石橋力(神奈川)、神崎一郎(東京)、永井靖二(大阪)、伊舎堂 弘(沖縄)、比嘉保信(沖縄)の諸氏からの来信が紹介された。

世年前のTYA(47)CMO#074(10July1989)とCMO#075 (25July1989)からで、#074には、浅田正氏による労作 「1988年火星面観測リスト」第1部、国内関係・上半期分 が32ページにわたり掲載されていたことが記録されてい る。この期間の観測数は1895点、観測者は34名に違して COMMUNICATIONS IN 東亞天文學會「火星通信」since 1986

OBSERVATIONS Published by the OAA Mars Section

CMO Mars Report # 14 (1998/99)
 OAA Mars Section
 火湿は完全にタ方に移った。今號から報告は一ヶ月毎に構める。今回は16Jmm(155* La)かさ
 いか(71* La)な必要剤を安か。この間、投産係のは123が約から10.45かと落ちた。位倍剤、は35*が
 べと返済、長年度学らしくなってきた。衛色模似は45*で
 らりして来ている。中央機能とは35*で
 ら立* Nとなったが、依然を根域は好く見える。折しも100* Laを経過し、北極賞が發生し、北極質

と関す季節になって、特に重要な時間であった。米土は梅雨の季節 - 異なったが、率い沖縄は六月23日に梅間明けし、中でも伊舎変立 - 8付別氏の遊散により、途切れることなく1984年以来の呼い結果が - 6れた。尚、九州から嗣東、北陸は七月22日から24日に掛けて梅雨

pan to see overeed by a nazy canopy. We were however attrid because we were in the midst of ya season at the Japaneses main islands, but fortunately on 23 fure the raily season ended at ea, and ISHADOH (1d) led the observations of the npr at the important period. We also had sev is in the rain at the beginning of July, and, helped also by the overseas observations we naturally led to obtain good results similar to the ones made in June 1984. At the main islands, ys eason became over on 22 to 24 July, and hot summer is come.

今期『火星通信』へ報告及び追加報告のあった観測者及び観測状況は次の通り 'e are thankful to the following observers who directly contributed this period to the CMO: AKUTSU, Tomio 阿久津 窩夫 (Ak) 栃木・鳥山 Karasuyama, Tochigi, Japan 4 Sets of CCD Images (7, 9 July 1999) fi60x32cm spec equipped with a Teleris 2
HIGA, Yasunobu 比基 保信 (Itg) 那朝 Naha, Okinawa, Japan
18 Video Images (17, 23, 24, 25 June; 4 July 1999) 25cm spec + Sony DCR-TRV900 ISHADOH, Hiroshi 伊含堂 弘 (Id) 那覇 Naha, Okinawa, Japan 38 Drawings (16, 17, 24, ~27, 29, 30 June; 1, 2, 4, 5, 12, 15 July 1999) 340, 400, 530x31cm sp

いた。また、1988CMO観測ノート(4)として「青色フィルターについて」も掲載された。 #075には「LtEスペシャル」の三回目として、1998年9月・10月中の便りがまとめて紹介さ れていた。22名の方々から47通の便りがあった。他には、1988CMO観測ノート(5)として 「観測地分布について」が掲載されていた。日本の観測者の国内の分布状況を日本地図の上に 載せて、国外の観測者に示した。#074にあるリストの付録としている。

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/221/tya047.html (Japanese)

#221の巻末には筆者の藤沢便りも掲載された。此の頃に福井の御両所に還暦祝いの赤いベス トをお送りしたことが判る。 村上 昌己 (Mk)

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http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090624/RGh24June09.jpg http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090625/RGh25June09.jpg

O·····Subject: Mars 30.6.2009 Received: Wed 01 July 2009 03:59:32 JST

With best wishes

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090630/RGh30June09.jpg

O·····Subject: Mars 1.7. / 2.7. Received: Fri 03 July 2009 04:58:05 JST

Dear Masatsugu, here the images from the last two days. The white fog at the Schiaparelli Crater is eyecatching (on the image from 2.7.) With best wishes

 $\label{limit} $$ $ $ \begin{array}{l} http://www.hida.kyoto-u.ac.jp/\sim cmo/cmons/2009/090701/RGh01July09.jpg \\ http://www.hida.kyoto-u.ac.jp/\sim cmo/cmons/2009/090702/RGh02July09.jpg \\ \end{array} $$ $$ $$ \begin{array}{l} http://www.hida.kyoto-u.ac.jp/\sim cmo/cmons/2009/090702/RGh02July09.jpg \\ \end{array} $$ $$ $$ \begin{array}{l} http://www.hida.kyoto-u.ac.jp/\sim cmo/cmons/2009/090702/RGh02July09.jpg \\ \end{array} $$ \begin{tabular}{l} http://www.hida.kyoto-u.ac.jp/\sim cmo/cmons/2009/090702/RGh02July09.jpg \\ \end{array} $$ \begin{tabular}{l} http://www.hida.kyoto-u.ac.jp/\sim cmo/cmons/2009/090702/RGh02July09.jpg \\ \begin{tabular}{l} http://www.hida.kyoto-u.ac.jp/\sim$

O·····Subject: Mars 3./5.7.2009 Received: Mon 06 July 2009 06:52:24 JST

Dear Masatsugu, here my images from 3. July and 5. July. A dark feature at Hellas is noticeable.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090703/RGh03July09.jpg http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090705/RGh05July09.jpg

O····Subject: Mars 16.7.2009 Received: Fri 17 July 2009 21:54:00 JST

Dear Masatsugu, i send you mars-images from yesterday, 16. July 2009. The morning startet with poor seeing at four o'clock, but two hours later, i had 6-7/10. The images show M. sirenum, hesperia and tharsis. The cloud above olympus mons is clearly visible. With best wishes http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090716/RGh16July09.jpg

Ralf GERSTHEIMER (ラルフ・ケールシュトハイマー

Habichtswald 德)

• · · · · · Subject: Re: 2009 06 23 Sun Received: Wed 24 June 2009 04:12:33 JST

2009 June 23, 1500UT - 1625UT, Solar h-alpha and White light, ARs 1023 & 1022, PCW Memorial Observatory, Zanesville, Ohio USA

H-alpha 1546 UT, DS 60mm Maxscope, LXD75, 21-7mm Zhumell Temp: 27.7°C; Seeing: Wilson 4.5, Transparency: 5/6; Clear with light cirrus, light breeze N. Alt 52.1, Az 103.5; Sketch created scopeside with black Strathmore Artagain paper, white Conté crayon and pencil, white Prang watercolor pencil, black oil pencil. White light 1621 UT, ETX70-AT with tilt plate, 21-7mm Zhumell and 2.5x. SA Barlow, Temp: 30.2°C, Humidity 84%, Seeing: Wilson 2.8, Transparency: 5/6, Clear with light cirrus, winds NE 9mph, Alt 58.5, Az 112.1; Sketch created scopeside with white photocopy paper and #2 pencil.

This morning, I moved the solar rigs outside for better seeing conditions. After all the rains and then full sun today, the coolness of the grassy fields would be a significant improvement over the hot wood and carpet from inside the observatory. It appears my decision was the correct one because I started the solar session off with h-alpha and was able to not only increase mags to a 7mm, but used a 2.5x Barlow toward the end of the h-alpha session for deeper observing. The seeing became much worse about an hour later when I began my white light filter observation. Both active regions were obvious and 1023 almost looked like an "X" shaped plage with a hint of a spot to the western crook of it. There was another plage on the other side of that spot with a very prominent filament reaching to the west, although very small with a more obvious spot at the eastern start of it.

Moving west across the disk, AR1022 was almost a "U" shaped plage resembling a pair of oxen horns with the way each side of it curved outward.

There were many prominences, all fairly small, but they popped in and out as I moved the Sun in my FOV for optimum clarity of features. Speaking of the tilting of the

Maxscope's Etalons, I observed with Alan Traino at a star party this weekend and had the chance to use a pres-



sure tuner on their 60 mm Lunt h-alpha scope. What a great design! And I was very impressed with the flat FOV, making it so much easier to pull out details.

Thanks Alan for supplying the scopes for us to try out.

Wish I had had more time to play with the pressure tuning scope as well as the CaK.

The solar disk was speckled with network details and there were several filaments, although again, very slender or very small.

The view with the white light filter was a little harder to discern because of the dramatic change in seeing. Although I got a good focus, I only had slight moments of seeing to make out a little bit of detail within AR1023. What first looked like two oblong sunspots in that active region became two pairs of sunspots. The preceding pair was the larger with the following pair the smaller.

There may have even been a third little spot in the preceding pair but seeing prevented me from really honing in on those two sets. There were no faculae that I could make out, although there was a hint of contrast around both sets of spots as well a faint line reaching from the preceding to the following pairs.

Erika RIX (エリカ・リックス Zanesville OH 美)

• · · · · · Subject: RE: Invitation to the IWCMO Received: Wed 24 June 2009 07:32:19 JST

Dear Masami and Masatsugu, I have managed to arrange my schedule this September to enable me to attend the IWCMO in Paris this fall. Sorry for the late reply, but if it is not too late I would like express my desire to attend the meeting. Please let me know if this is okay and I will make arrangements to travel to Paris this September. Best regards,

Bill FLANAGAN (ビル・フラナガン Houston TX 美)

• · · · · · Subject:Re: Fw: RE: Invitation to the IWCMO Received: Wed 24 June 2009 17:03:08 JST

Thanks Masatsugu - this is good news. Now it is time to everybody to register for the meeting and send abstracts for contributions so that we can build the scientific program. Deadline is end of July, but the sooner the better (we will be mostly away from July 9 to 26 for part of the LOC)

Nicolas BIVER (ニュラ・ビヴェール Meudon 法)

·····Subject: Jupiter 20 June



Hi All, I have attached a Jupiter image from 20 June.

O····Subject: Jupiter 21 June Received: Sat 27 June 2009 08:23:10 JST

Hi All, I have attached some RGB, methane band and ultraviolet Jupiter images from 21 June showing the NTrZ spots. Best,



○····Subject: Jupiter 28 June

Received: Sun 05 July 2009 05:50:33 JST

Hi All, I have attached some belated RGB, CH4 and UV images from 28 June. Seeing and transparency was poor. Best,

O····Subject: Jupiter 4 July Received: Tue 07 July 2009 12:19:25 JST



Hi All, I have attached an RGB Jupiter image from 4 July. CH4 and UV images to follow. Best,

O····Subject: Jupiter Images 4 July Received: Wed 08 July 2009 08:55:41 JST Hi All, I have

attached some CH4 and UV images of Jupiter from 4 July. The Johnson-Cousins UV filter has a bit wider spectral range (~300-400nm) and required only 0.71 of the exposure employed with the Astrodon Venus filter. Best.

O····Subject: Jupiter 8 July Received: Fri 10 July 2009 02:24:31 JST

Hi All, I have attached an RGB Jupiter image from 8

July. CH4 and UV images to follow. Best,



O····Subject: Jupiter 8 July Received: Fri 10 July 2009 13:11:17 JST



Hi All, I have attached some CH4 and UV Jupiter images taken on 8 July. The CH4 image shows some interesting bright ovals in the northern GRS hollow. Best,

O····Subject: Re: Jupiter 8 July Received: Sat 11 July 2009 02:57:55 JST

Hi Damian, Yes, the 18nm filter is a good trade-off. My integration times are 5-6 seconds at f/22. With the 5nm filter I needed a calendar!

O····Subject: Jupiter 14 July Received: Thu 16 July 2009 07:03:10 JST

Hi All, I have attached rgb and CH4 images of Jupiter from 14 July. Best,

O····Subject: Jupiter 15 July Received: Fri 17

July 2009 14:38:59 JST

Hi All, I have attached two RGB

images of Jupiter from 15 July. Ganymede is in transit.

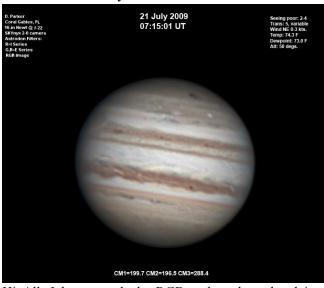
O····· Subject:
Jupiter 17 July
Received: Sun 19
July 2009
12:54:26 JST



Hi All, I have attached some RGB, CH4, and UV images of Jupiter from 17 July. Oval BA remains faded but is still very bright in the methane band. Best,



O·····Subject: Wesley's Impact 21 July Received: Tue 21 July 2009 21:25:35 JST



Hi All, I have attached RGB and methane band images from 21 July. The impact site appears to have expanded a bit and appears to have developed two nuclei. It is only moderately bright in the methane band. However the seeing was poor, with nearby thunderstorms on the leading edge of a tropical wave. Best,

O····Subject: Jupiter UV Received: Fri 24 July 2009 10:07:41 JST

Hi All, I have attached a UV Jupiter image from 21 July. Very poor seeing. Best,

Don PARKER (ドナルド・パーカー Miami FL 美)

•••••Subject: Mars Ak25June09 Received: Fri 26 June 2009 17:41:31 JST

南様、こんばんは。病院へ検査入院中とのことですが、今朝の火星を送ります。火星は高度が少し上がり、その分、Seeingが良くなってきました。無事の退院を願っています。

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090625/Ak25June09.jpg

O····Subject: Jupiter J090625 Received: Fri 26 June 2009 17:58:36 JST

今朝の木星画像です。BA付近が見えています。 SEBは穏やかですがNEBは顕著な活動がありま す。北半球は暗い様相です。アニメーションにす ると回転に伴う模様の変化が良くわかりますね。

O·····Subject: Venus V090625 Received: Fri 26 June 2009 18:04:21 JST

UV、IR画像には横じまの模様があります、UVとIRでは模様が逆転しているようです。見ている高さに違いによるものでしょうか。アニメーションにしました。

○・・・・・Subject: Re: 退院しました Received: Sat 11 July 2009 09:45:47 JST

南様、退院された由、良かったですね。今後の経過がよくなる事を願っております。火星の方は明け方、雨期特有の雲が多くなり、木星同様、見えるチャンスが少なくなりました。日本の梅雨に似た、天気です。

さて18日から中国の杭州市に日食を見に、Chrisと出かけます。帰りは24日で往復、香港経由となります。・・・問題は天気だけですが、台風が来なければ見えるかな?と願っています。

南様も体には十分、留意し、今後の活動を期待 しています。

阿久津 富夫(Tomio AKUTSU セブThe Philippines)

• · · · · · Subject: (My last ?) Saturns 2009.06.23/24 Received: Sat 27 June 2009 06:48:10 JST

Dears, Here are probably my last Saturns for this apparition (my 25th and 26th respectively), there is not much too see anymore, too much noise, elevation too low, too much turbulence at the time of the day when i can still image Saturn ...

This was a very nice apparition anyway, with much spots/storm activity, seasonal effects and transits ... Now it's Jupiter's turn! Clear skies,

O····Subject: Jupiter, Europa shadow transit, Ganymede and Io Received: Thu 02 July 2009 06:13:43 JST

Dears, These are only leftover of my main aim that night (an eclipse of Io by Ganymede, i'll post the results in a separated mail): Under a bad seeing, an addition of 2 images in IR with from right to left gauche Io after the eclipse, Ganymede, Jupiter with the shadow of Europa and Europa itself:

 $http://astrosurf.com/delcroix/images/jupiter_2500_5000_sat_ondx2_1_3_1-5_5_11_2_lev_80pc.jpg$

Same in RGB without Io:

http://astrosurf.com/delcroix/images/jupiter_20090624_rgb_rgb_rgb_bal_lev_2reg_lev_80pc.jpg

O····Subject: Io eclipsed by Jupiter, 2009.06.24 Received: Thu 02 July 2009 06:22:31 JST

Dears, Here are the results of my first galilean satellites mutual phenomenon. The situation of the satellites a few minutes after the event, with from right to left Europa and its shadow on Jupiter, Ganymede and Io:

 $http://astrosurf.com/delcroix/images/jupiter_20090624_ir_2500_5000_sat_ondx2_1_3_1-5_5_11_2_lev_inv.jpg$

A 59 frames animation of the event, each frame being the addition and processing of 250 unitary 1/8.3s longpass red images

http://astrosurf.com/delcroix/videos/phemu20090624.gif
The magnitude drop of Io is clearly visible in the beginning of the movie, and with a lot of imagination one
might guess the eclipse ... nothing to do with the magnificent occultation movie of Mike! The resulting lightcurve,
not very accurate, showing a large timing difference
compared to what was predicted, i'll have to check if it
comes from bad observations from my side:

http://astrosurf.com/delcroix/images/phemu_20090624_3ecl1.jpg

O····Subject: Re: Io eclipsed by Ganymede, Received: Fri 03 July 2009 05:42:03 JST

Dears, That was an IO eclipse by Ganymede, not by

Jupiter as the previous title stated. After providing the observations to Jean-Eudes Arlot from IMCCE and asking a couple of questions, i got clarification on what i measured:

- the time of the minimum of the lightcurve is only -14s from the IMCCE prediction (which is in terrestrial time, not UTC), which now sound more possible (differences of 20s between observations and predictions is not uncommon according to him)
- the magnitude drop i observed is estimated as 0.013 mag from the IMCCE prediction (which is a prediction for Io+Ganymede magnitude drop, not only Io)

I corrected the lightcurve accordingly:

http://astrosurf.com/delcroix/images/phemu_20090624_3ecl1.jpg Sorry for the mistakes,

Marc DELCROIX(マルク・デ ルクロアTournefeuille法)

• · · · · · Subject: Mars images - 30 june 2009 Received: Thu 02 July 2009 06:24:50 JST

Hi all, This is my second try at the planet this season, and the first time with the RGB image.

http://www.astrosurf.com/pellier/M090630-CPE

No false alert for dust storm this time! Steady skies

O····Subject: Jupiter images - 30 june 2009 Received: Sat 04 July 2009 21:58:13 JST

Hi all, Finally the improving conditions allowed me to use a better focal lenght, for the first time on Jupiter since 2006! The set of images show the NTZ spot. It's the darkest feature of the planet in every wavelenght. http://www.astrosurf.com/pellier/J090630-CPE

O····Subject: Jupiter images 04/07/09 Received: Sun 05 July 2009 22:28:25 JST

Hi all, The seeing was a bit better than on the 30th june.

http://www.astrosurf.com/pellier/J090704-CPE

The set offers a good view on BA and the NNTZ orange spot. This last one is remarquable in UV light, very dark!

O····Subject: Jupiter images, 9 july 2009 Received: Thu 09 July 2009 20:39:24 JST

Hi all, Once again in four years the month of july is turning to a low-pressure influence in northern France and the seeing deteriorates.

http://www.astrosurf.com/pellier/J090709-CPE

The 1-micron image shows the orange NNTZ spot slightly bright. Best

O·····Subject: Jupiter on 20 july with the impact Received: Tue 21 July 2009 22:36:09 JST Hi all,

http://astrosurf.com/pellier/J090720-CPE

Here are some images taken on july 20th; I'm in hollidays with no internet so I wasn't aware of what was going on. I immediately suspected an impact on the images and back to "civilization" I see that it should be the case! Congratulations to Anthony for the first shots...

Note that the impact is more conspicuous in the short wavelenghts; its appearance with the IR 800 filter is almost uneven. I would suppose this is because the superficials, higher layers of the atmosphere are more affected. Good observations to everyone

Christophe PELLIER (クリストフ・ヘ゜リェ nr Paris 法)

• · · · · · Subject: July 1st Activity Received: Thu 02 July 2009 07:22:52 JST

Hi all, The heat of the day took its toll during this imaging session with the image frame taking large translational leaps which kept everything in constant motion. Registax did a good job of keeping it all together but the motion has caused some loss of detail. The 'new' active region continues to appear bright in h-alpha. Two noticeable filaments currently grace the northern region of the disc. Prominence activity appeared low today with the possibility of something happening around the southeastern limb. Best regards,

O·····Subject: H-alpha, Calcium-K and white light views of AR11024, Received: Mon 06 July 2009 06:27:11 JST

A bit of a solar fest today despite many clouds trying to spoil the view. Here are some of the results, AR11024 imaged through a h-alpha, calcium-k and white light filter. A tremendous amount of flaring going on in the centre of this active region. Best regards,

O·····Subject: Comparative AR11024 image, July 5th Received: Mon 06 July 2009 17:32:08 JST

Here's a comparative image showing AR11024 through h-alpha, calcium-k and white light filters. The bottom right image was taken through a de-tuned Solarscope SF-70 filter and shows a pseudo white-light rendition of the region. It's quite close to the white light appearance but also includes the start of a number of h-alpha features as well. Best regards,

Pete LAWRENCE (ピート・ローレンス Selsey 英)

• · · · · · Subject: jupiter 09-07-03 Received: Sat 04 July 2009 05:49:54 JST

Hi all, this is my Jupiter between thunderstorms, the humidity was so strong, that my 665 nm Filter was nearly complete blocked... CS

Silvia KOWOLLIK

(シルウ ィア・コウ オッリク Ludwigsburg 徳)

• · · · · · Subject: MARS: the 2001 opposition Received: Sun 05 July 2009 18:28:18 JST

Dear All: I attach for your possible interest two parts of the BAA final report on Mars in 2001. The first was published in the June 2009 BAA Journal and the second will appear in the August number. A report on 2003 is complete and was submitted for publication yesterday. I am working on the later years.

For those on this email list who are not aware of it, there will be a Mars conference in Paris in September, and Nicolas Biver sends the following note and weblink: 'We have issued a second announcement with registration form and more practical information about this meeting that will take place in Paris and Meudon from the 17th to the 20th of September 2009.'

See: http://www.usr2.obspm.fr/~biver/IWCMO/

I shall be attending this meeting and giving a presentation. With sincere regards

JBAA119123-143McKim.pdf,JBAAMcKimpt2finalproof.pdf

Richard McKIM (リチャート、・マッキム Peterborough 英)

• · · · · · Subject: Jupiter 2009 June 18 Received: Tue 07 July 2009 03:41:18 JST Good conditions on this morning (in strong twilight) showed the action in the NTrZ well. The dark spot and the projection were obvious visually. The imaging adopts a technique I used successfully last year when the planet was very low, of a relatively short focal length on the C-14 (1.6x Barlow only), 17fps rate, and IR 742nm and blue filters used only to construct a similar-to-true colour image.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-06-18-DLA.jpg

O····Subject: Jupiter 2009 June 19 Received: Tue 07 July 2009 06:23:08 JST

This is the less-interesting side of the planet, but BA is making an appearance.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-06-19-DLA.jpg

O····Subject: Jupiter 2009 June 24 Received: Tue 07 July 2009 10:22:09 JST

Oval BA and other spots visible, plus a bit of a red barge in NTrZ preceding. Shadow transit of Europa just starting.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-06-24-DLA.jpg

O····Subject: Jupiter 2009 June 30 Received: Wed 08 July 2009 08:54:11 JST

Another good seeing morning in June. One thing that strikes me is how in blue light the new NTrZ dark spot is continuous with the NEB and seems part of the general turbulence following on the N edge, but how in IR (and R) it is completely separate and unique, the difference not being attributable to any difference in sharpness of the images. The vortex in the GRS is resolved, pleasingly for this altitude.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-06-30-DLA.jpg

O····Subject: Jupiter 2009 July 04 Received: Thu 09 July 2009 00:29:52 JST

Nicely detailed seeing (for the altitude) on this morning. Here we see not only Oval BA, but a white spot following it and broken reddish areas of the STB following that. Also visible are four anticyclonic white ovals in the SSTB with a red oval between the second and third. In the NPR there is the usual red spot plus a smaller one slightly to the S and preceding. Seeing being good I later decided to take R, G and B images at 34 fps in addition to my usual IR and B at 17 fps. These are given in the second attachment. The results are very similar. By this time Io was commencing a shadow transit.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-04-DLA.jpg http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-04-DLA2.jpg

O····Subject: Jupiter 2009 July 06 Received: Fri 10 July 2009 23:48:39 JST

Again, good conditions for 25 deg. alt, with BA and the spots around it well-seen.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-06-DLA.jpg

O····Subject: Jupiter 2009 July 10 Received: Fri 17 July 2009 08:56:28 JST

Decent conditions again on this night.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-10-DLA.jpg

O·····Subject: Jupiter 2009 July 14 Received: Sat 18 July 2009 06:04:10 JST

Seeing here deteriorated in mid-July compared to earlier in the Summer, this was the best set of several taken this night. GRS half on, half off.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-14-DLA.jpg

O····Subject: Jupiter 2009 July 16 Received: Sat 18 July 2009 21:54:35 JST

There was a brief period of good seeing on this morning which I managed to catch before more clouds came over. After these had passed the seeing was poor again. BA is seen centrally here with a white spot following it at the same latitude and a dark red patch between. SSTemperate ovals also well-seen and an oval also in the S(3)Temperate belt, plus red and black spots in the NNTB.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-14-DLA.jpg

O····Subject: Jupiter 2009 July 20 Received: Tue 21 July 2009 08:15:41 JST

Here are my images from last morning. Conditions were fair but not excellent for the 26 deg. altitude. I IR/B pairs at approximately 20 minute intervals. Initially I was interested in the GRS and the Io transit and shadow transit, but my attention was also caught by the unusual dark spot in the south polar region. I observed visually from about 02:10 to 02:30 with binoviewers and could clearly see the dark spot, as well as the orange Io against the equatorial zone. It was not until the afternoon that I got news of Anthony Wesley's discovery of the suspected impact site. I agree that it does look very like a smaller version of the Shoemaker-Levy impact, with the dark red colouring and the smeared appearance. I hear that Andrew Robertson and Mark Turner also observed it visually from Norfolk at the same time, and Ian Sharp imaged it from Sussex. My images are presented as sets of IR 742nm, blue and I(synth. G)B images.

http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-20I-DLA.jpg http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-20B-DLA.jpg http://www.davidarditti.co.uk/astro/images/jupiter/09/jup2009-07-20ISGB-DLA.jpg

O····Subject: Venus 2009 July 22 Received: Thu 23 July 2009 08:01:29 JST

Frank's alert at least got me looking at Venus, which is now very well placed for observation about 8-9 BST before the day starts to warm up. Conditions were poor, with much thin cloud, but we see features in the UV clouds here: the common 3-pronged fork pattern (or psi marking) with the two northern prongs closer together. Stacks of about 2500 images taken at 34 fps.

http://www.davidarditti.co.uk/astro/images/venus/09/ven2009-07-22-DLA.jpg

David ARDITTI (デヴィット・アーディチ Edgware ME 英)

• · · · · · Subject: Mars 30/06/09 Received: Wed 08 July 2009 01:35:49 JST

Hi, this is my sketch from 30 June. i don't know if the blue background is accepted, it is blue because of the sky color at dawn.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090630/KSm30June09.jpg

Kris SMET (クリス・スメト Belgium 比利時)

●·····Subject: Re: お訊ね Received: Tue 14 July 2009 11:52:02 JST

南 政次様、メール有難うございました。ご体 調悪い中をいろいろお骨折り申し訳ありません。 まずお尋ねの件。

(1)ドルフュス氏との写真、ノートを調べましたら1968年5月18日で場所は東京国立博物館の庭で

した。

- (2) 木辺さんが中村さんに鏡面研磨の教えを受けたのは確かですが、火星観測の指導を受けたかどうか、お話を伺った事はありません。中村さんが急逝されてから東亜天文協会の遊星面課が動き出すまでちょっと断絶があったのではないでしょうか? 新しい方々が出てきたのは山本先生のお勧めがあったのだろうと想像しております。
- (3) 1941年の黄雲は前田氏ばかりでなくあまり注意されてないように思います。伊達さんのご報告にもほとんど書かれていないと思います。私も96枚ほどスケッチをかきながらさっぱり記録がありません。我が国で黄雲が注目され始めるのはやはり1956年以後のように思います。
- (4) 堀口令一君の生年をはっきり尋ねたことはありませんが、私のところに熱心に来てくれていた1970年ころはまだ大学生だったと思いますので生まれは1950年代の初めごろではないかと思います。当時は毎週のように博物館にきておられ、火星の観測での鋭眼といい美しいスケッチといい果ては鏡面研磨に至るまで私の一番弟子だと思っておりましたが、・・・近年はめったに連絡はありません。はなはだ不十分なお答えですが以上です。

次に貴兄のご体調、先日ご入院とのこと耳にしまして心配しておりましたが心からお見舞い申し上げます。最近は心臓外科の治療も大変進歩して来ましたので大丈夫と存じますが、不整脈は十分コントロールが必要かと思います。私も2003年の大接近のときにはしゃぎすぎてかなりひどい不整脈が出ましたのをほっておいたため血栓が脳に取っても飲んでいたら今も元気だったかもしれません。ワーファリンは現在も3mgを毎日服用しておりますが、一寸切り傷をしてもなかなか血が止ま

らないのと痣がすぐにできるのは不愉快です。

フランスまでの長旅、どうか十分お気をつけて おいでになるよう願っております。以上お返事と お見舞いまで。

村山 定男 (Sadao MURAYAMA 東京Tokyo)

●・・・・・Subject: Re: 有難うございました Received: Fri 17 July 2009 22:29:37 JST

・・・ 私の身体は、ご心配の発作もなく、今まで どおりの生活を送っています。今は木星を撮って いますが、もうすぐ梅雨が明けたら火星を狙って みようと思っています。南先生もお体お大事にな さって下さい。火星は先生だけが頼りですから。

森田 行雄 (Yukio MORITA 廿日市 Hiroshima)

• · · · · · Subject: Mars Observation (July 20, 2009) Received: Wed 22 July 2009 10:41 JST

Dear Mr. Murakami, I was able to make my first observation of Mars on July 20, 2009 at 10:15 U.T. using my 9-inch (23-cm) *F*/13.5 Maksutov-Cassegrain. I was excited to observe the red planet once again after the last opposition. I hope to follow Mars as much as possible.

See* Data and Notes in (*Ed)

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/090720.html Notes:The SPR appears to be obscured by a very bright to extremely bright (8-9/10) haze. M Cimmerium appears dark to dusky (3-4/10) towards the south-preceding (Sp) limb. Electris, Eridania, and Ausonia appear dusky to bright (4-7/10). Zephyria, Æolis, and Æthiopis appear bright (7/10). Amazonis and Arcadia appear mottled and dusky to shaded (4-6/10). Elysium, Ætheria, Libya, Cebrenia, and Panchaia appear bright (7/10). Syrtis Major appears as a thin, dusky (4/10) streak along the following limb and partially obscured by a very bright to extremely bright (8-9/10) morning limb haze (MLH). The NPC appears brilliant (10/10) along the northern limb. I was unable to make an observation of Mars using a blue (Wratten 38A) due to excessive sky lighting.

I would like to wish you, Dr. Minami, CMO staff, and all CMO members. my best wishes. Regards,

Carlos HERNANDEZ (カルロス・ヘルナンデ、ス FL 美)



シー・エム・オー・フクイ -

-中島 孝 *Ni* ──

- ★前回報告以降、**神崎 一郎**様(424)よりカンパを頂戴しました。有難うございました。不一。
- ★前号は6月25日に印刷・丁合し、国内は翌日発送しました。藤沢(Mk氏)には27日、宗像(As氏)には29日に配達された様です。南編集長の入院は長引きましたが、7月10日に無事退院されました。

★ Kasej-Tsûshin GMO (http://www.hida.kyoto-u.ac.jp/~cmo/cmo/oaa_mars.html)

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中 島 孝(Nj)、西田 昭徳(Ns)



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