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OAA Mars Section

THE present review deals with the Mars observations made during the period from 16 May to 15 June 2007, that is

from 16 May 2007 (λ=239°Ls) to 15 June 2007 (λ=258°Ls).

On 20 May the planet crossed the celestial equator and moved to the northern sky. On 15 June the apparent declination *D* read *D* =7.75°N. From our side the planet thus became much higher than before and easily caught by the naked eyes (magnitude +0.8 on 15 June). During the period the apparent diameter δ went up from 5.5" to 6.0". The central latitude φ was quite southern but decreased from 25°S to 22°S, and the phase angle ι went up from 37° to 40°.

The rainy season at the southern Kyushu district set in on 1 June. The Fukui district began to suffer from the rainy days from 21 June, while it is over at the Okinawa district on the same day.

♂……今回は16Mayから15June2007迄の期間をレヴューするが、20Mayには視赤緯 *D* が天の赤道を越え、以後北側に傾くようになった。15Juneには *D*=*7.75*°Nまでになった。冬にはどん底にいたことを思えば相當に高い。火星は充分朝方に肉眼でもそれを判るほど明るくなっている(15Juneで+0.8等級)。この間、視直徑δは5.5"から6.0"へ延び、季節はλ=239°Lsからλ=258°Lsに進捗した。中央緯度φは25°Sから22°Sへ、 位相角ιは37°から40°へ強くなった。

九州南部では六月1日に梅雨入りした。北陸の入梅は日本海に前線が發生して21日となったが、同時に沖縄は梅雨明けとなった。福井では5時前に日の出となる。尚、關東は14日入梅と言われたが、その後も晴が多いようで、見直しで22日に變更されそうである。氣象庁ともあろうものがである。福井の夜間(朝方)の豫報も當たらないことが多く、筆者(Mn)は普段は準備室で夜半前から待機するが、急遽3時くらいに天文臺へ車を奔らせることもあった。

♂……The observations we received this time are as follows: 今回の觀測報告は次の如くである。

BATES, Donald R ドン・ベーツ (*DBt*) 德克薩斯·休斯敦 Houston, TX, USA
4 CCD Images (16, 19, 20 May; 3 June 2007) *f*/15, 23, 25⊗25cm spec with a ToUcam Pro

BUDA, Stefan スティーファン・ブダ (*SBd*) 墨爾本 Melbourne, Australia
2 CCD Images (2, 9 June 2007) *f*/35⊗40cm Dall-Kirkham with ToUcam Pro

HEFFNER, Robert ロバート・ヘフナー (*RHf*) 名古屋 Nagoya, Aichi, Japan
4 CCD Images (30 May; 2, 3, 7 June 2007) *f*/45⊗28cm SCT with a DMK21AF04*

MAKSYMOWICZ, Stanislas スタニスラス・マクシモヴィッチ (*SMk*) 法國 Ecquevilly, France
1 Set of Drawings (10 June 2007) 250×10cm refractor

MINAMI, Masatsugu 南 政 次 (*Mn*) 福井 Fukui, Fukui, Japan
28 Drawings (20, 21, 23, 26, 28 May; 2, 4, 6, 7, 11, 12 June 2007)
350, 400×20cm Goto ED refractor* *Fukui City Observatory 福井市自然史博物館天文臺

MURAKAMI, Masami 村上 昌己 (*Mk*) 藤澤 Fujisawa, Kanagawa, Japan
2 Drawings (15 June 2007) 320×20cm *F*/8 speculum
NAKAJIMA, Takashi 中 島 孝 (*Nj*) 福井 Fukui, Fukui, Japan
7 Drawings (23, 26 May; 2, 12 June 2007) 350, 400×20cm Goto ED refractor*
* Fukui City Observatory 福井市自然史博物館屋上天文臺
SALWAY, Mike マイク・ソルウェイ (*MSl*) 新南威爾斯 Central Coast, Australia
4 CCD Images (11, 26 May; 1 June 2007) *f*/30⊗31cm speculum with a DMK21AF04
VALIMBERTI, Maurice モーリス・ヴァリムベルティ (*MVl*) 墨爾本 Melbourne, Australia
1 CCD Image (2 June 2007) *f*/30⊗35cm SCT with a ToUcam Pro

♂・・・・・・The main object to be observed was the check of the M Serpentis region from Iapygia Viridis to Noachis since the season of the southern summer dust has set in. During the period from 28 May (λ=247°Ls) to 9 June (λ=254°Ls), M Serpentis moved from the eastern side to the western limb if seen from the Oceania-Asian hemisphere, and the observations were reported almost every day due to several observers including HEFFNER (*RHf*) and BUDA (*SBd*) to whom we are thankful. Observations were made as follows: On 28 May (λ=247°Ls), the present writer (*Mn*) watched at ω=333°W, 343°W; on 30 May (λ=248°Ls) *RHf* took an image at ω=346°W; on 1 June (λ=249°Ls) SALWAY (*MSl*) at ω=308°W, 320°W; and a lot on 2 June (λ=250°Ls): *RHf* at ω=299°W, VALIMBERTI (*MVl*) at ω=300°W, *SBd* at ω=317°W; and visually at Fukui we observed at ω=289°W (*Mn*), 294°W (*Nj*), 298°W (*Mn*). On 3 June (λ=251°Ls), *RHf* produced an image at ω=299°W; on 4 June (λ=251°Ls), *Mn* observed at ω=274°W, 283°W; on 6 June (λ=252°Ls) *Mn* also at ω=261°W; on 7 June (λ=253°Ls) *RHf* shot at ω=256°W, and visually *Mn* watched at ω=239°W, 251°W, and finally on 9 June (λ=254°Ls) *SBd* took an image at ω=248°W where M Serpentis was already near the following limb. Since the diameter δ was under 6″, any small dust cloud was outside the scope, but fortunately M Serpentis was broadly so dark that if there possibly crossed a brightly onset dust streak it might have been possible for us to find the occurrence. The result was that no bright dust occurrence was detected across the area of M Serpentis during the period (from λ=247°Ls to λ=254°Ls). The planet was not very far from the Sun and we could not observe more than once or twice each morning, but since the observation was thickly done as possible as we could, the result should be said quite true. After 9 June (λ=254°Ls) the region went out of our sight, and it went to the European hemisphere. On 10 June (λ=255°Ls), MAKSYMOWICZ (*SMl*) timely observed at ω=330°W~334°W, but unfortunately the presence of M Serpentis is uncertain on his drawings and the light balance of Hellas looks not the same.

The south polar cap (spc) has been whitish bright and always evident, while it has been difficult to seize its size and shape exactly. Just *Mn* observed on 11 June (λ=256°Ls) at ω=187°W, 197°W, 207°W, 217°W that the spc looked narrower from these sides. It was also the same on 12 June. Hence we had an impression that it thawed as usual and the deviation of the centre of the spc had already begun. Otherwise it was the season for Novus Mons to detach from the spc, but it was beyond our observation.

Visually the northern limb is vaguly light while ϕ is too southern. On 7 June (λ=253°Ls) at ω=256°W, *RHf*'s IR-RGB image showed a little a light northern limb and particularly it proved that the limb Æria area following Syrtis Mj was whitish light.

We are thankful to BATES (*DBt*) who has been the only person who contributed from the American side so far. The most recent image of *DBt* was made on 3 June (λ=250°Ls, δ=5.8") at ω=160°W: it showed a

dark marking around M Sirenum, but M Cimmerium at the following side was weak.

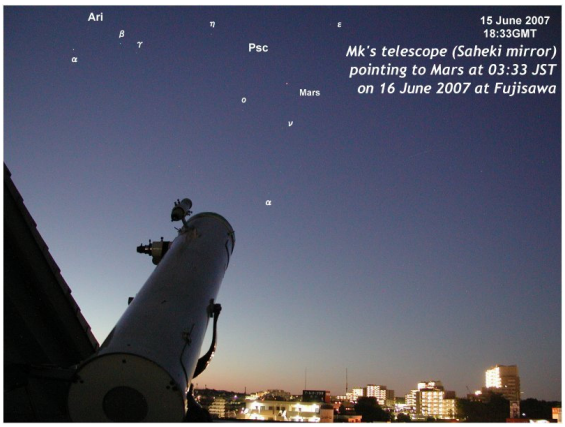
From Japan, MURAKAMI (*Mk*) newly joined. On 15 June he caught Mars ffor the first time and observed at ω=151°W (18:20 GMT) and at 160°W. *Mk* checked the roundish spc and the dark band of M Sirenum to M Cimmerium crossing the disk. At the Japanese corner below, we show his 20cm telescope (with a mirror Tsuneo SAHEKI polished) which pointed to the planet. It well shows the planet is now high up enough. We hope every other observer soon joins us.

♂……今回の注目點は南半球の黄雲の季節が到來したことで、先ずイアピュギアからノアキスが問題だが、恰度アジア-オセアニアでマレ・セルペンティスの邊りが觀測帶に入った。28May(λ=247°Ls)から9June(λ=254°Ls)迄マレ・セルペンティスは東端から西端へ移って行き、この方面が觀測可能であった。その間、次の様に殆ど連續的に觀測されたのは幸いなことで、參加されたヘフナー(RHf)氏、ブダ(SBd)氏をはじめとする諸氏に感謝する。28May(λ=247°Ls)には筆者(Mn)によってω=333°W、343°W、30May(λ=248°Ls)にはRHf氏によってω=346°W、1June(λ=249°Ls)にはソルウェイ(MSl)氏によってω=308°W、320°W、2June(λ=250°Ls)には數多く、RHf氏によってω=299°W(前頁參照)、ヴァリムベルティ(MVl)氏によってω=300°W、SBd氏によってω=317°W、福井でもω=289°W(Mn)、294°W(Nj)、298°W(Mn)の眼視觀測がある。3June(λ=251°Ls)にはRHf氏によってω=299°W、4June(λ=251°Ls)にはMnによってω=274°W、283°W、6June(λ=252°Ls)にもMnがω=261°W、7June(λ=253°Ls)にはRHf氏がω=256°W、眼視ではMnがω=239°W、251°W、9June(λ=254°Ls)にはSBd氏がω=248°Wで觀測している。δは未だ5秒臺なので、小黄雲などは埒外だが、幸いマレ・セルペンティスは大きく濃く出ているので、ここを横切る棒状黄塵が出れば(特に發生時には)確實に見える筈であるが、上の觀測でのどれにもマレ・セルペンティスは綺麗に見えていて黄雲の發生は見られない。一日一、二回しか觀測出來ない時期であるが、これだけ密にチェック出來たので結果は正鵠である。尚、次は歐羅巴へ移ったのであるが、10June(λ=255°Ls)にはマクシモヴィッツ(SMl)氏のω=330°W~334°Wの觀測がある。ただ、圖柄上マレ・セルペンティスが不明で、而もヘッラスの記述との關係がよく判らない。

南極冠は白く輝いて見える。サイズは測定し難いが、順調に縮小していると思われる。但し南極冠の中心が極から既に離れていることは明白で、11June(λ=256°Ls)のMnのω=187°W、197°W、207°W、217°Wの觀測では、南極冠が薄っぺらになっている。12Juneの觀測でも然りである。尤も、細かなこと、例えばノウゥス・モンスの割れ目の出る時期であるが、これは確認されない。

北極方面はφが南寄りなので難しいが、眼視では明るい方である。7June(λ=253°Ls)ω=256°WのRHf氏のIR-RGB像では北端から朝方、シュルティス・マイヨルの後方アエリアあたりが白い。

美國側からはベーツ(DBt)氏の觀測のみである。最も新しいのは3June(λ=250°Ls, δ=5.8")のω=160°Wであるが、南極冠が弱く、マレ・シレヌム方面は濃いが、マレ・キムメリウム方面も淡く出る様である。



日本からは後半、マレ・シレヌム邊りまで見えた。期間末にはδも6秒になって、而も高高度になったが、Mk氏は15Juneに初觀測をし、シーイングが後半好くなって、ω=151°W(18:20GMT)、160°W(19:00GMT)で南極冠と圓盤を貫く暗帶を認めた。14日の梅雨入り宣言にも拘わらず關東は好く晴れて雲も露もなかったようである。火星に向けられた望遠鏡が寫っているのでここに載せるが、ご覽の通り火星は充分な高さである。

♂……In the next issue we shall review the observations made during a one-month period from 16 June 2007 (λ=258°Ls, δ=6.0") to 15 July 2007 (λ=277°Ls, δ=6.7"). On 15 July the apparent declination *D* will attain *D* =15°N

南　政次 M MINAMI

■CMO 2005 Mars Note (15)

Dust on 28 October 2005 at Aram

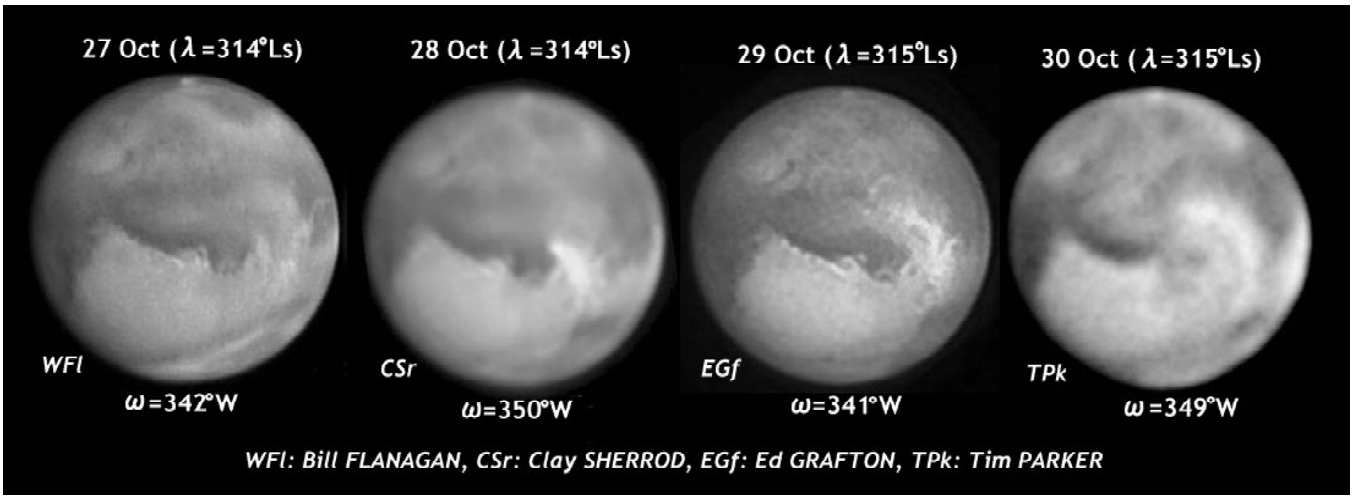
28 Octのアラム上の黄塵

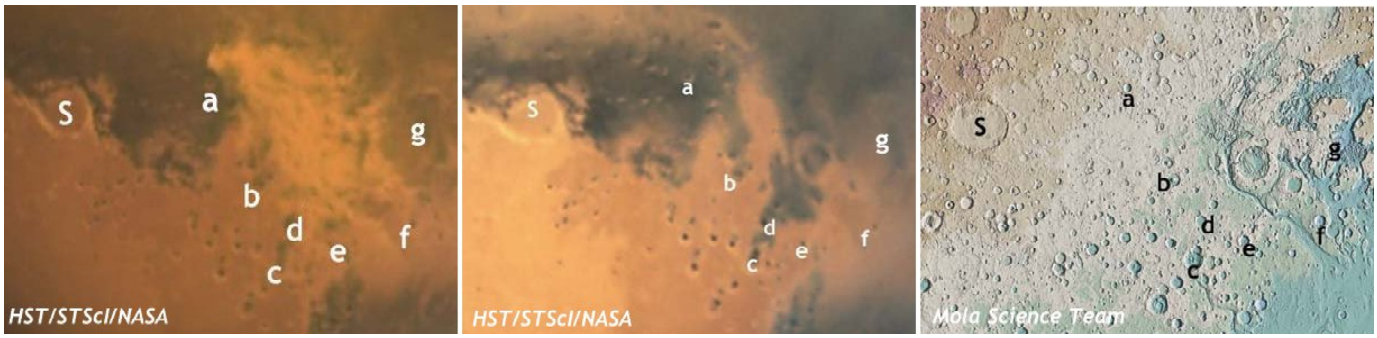
■ 南 政次 M MINAMI

THE schedule of the HST in 2005 was sent from Jim BELL on 17 October JST, and so it was supposed that it was not particularly concerned with the dust activity on Mars, but the announced shot on 28 October (λ=314°Ls) at 09:08 GMT (ω=012°W) accidentally shot out a bright dust which was kicked on at Aram. The occurrence belonged to the American time, but not so many observations were made in the US, perhaps because of the general bad weather on the continent. Fortunately however Joel WARREN (*JWn*) was able to get a good image earlier at 05:30 GMT (ω=319°W) which clearly showed that a resonant bright dust was already reformed at Aram. This image should be said important since it showed an initial status of the dust. Succeeding observations were made by Dr Clay (*CSr*) from 06:09 GMT to 7:59 GMT at ω=329°W, 333°W, 350°W, and 355°W. No other image was reported from the US unfortunately. After the gap of the Pacific Ocean, Masami MURAKAMI (*Mk*) in Fujisawa visually observed this dust at ω=057°W (12:10 GMT), and chased further at ω=067°W and 076°W. By ccd Yasunobu HIGA (*Hg*) at Okinawa took an image at ω=080°W, but even the Margaritifer dust had become dull buried in the evening haze. This was also the same at ω=076°W of *Mk*. The CMO report of the event was put in CMO #312 (made of 32 pages). See also

http://homepage2.nifty.com/~cmomn2/CMO312.pdf

This dust was one of several dust resonances seen from mid-October, but however independently from the preceding disturbances at Solis L area: It was rather caused from the dusty matter which was already onset around the region of Margaritifer S. Images on 27 October do not show any bright core around here, and hence it must have been onset on the very morning of 28 October [compare with eg Bill FLANAGAN (*WFl*)'s images at ω= 342°W, 345°W on 27 October which however prove well that the airborne dust was thick especially around Margaritifer S to Deucalionis R. We here pick out four images and displayed in a row in B&W from 27 Oct to 30 Oct, but they are originally not equal in quality and so here we tried to regulate: *Bad money drives out good money*. It should be supposed the airborne dust must have equally stayed for all images. We hope the reader to refer to the originals in the CMO Gallery: Especially T PARKER (*TPk*)'s image shows a condensed wine-coloured area on Noachis; cf Note (14)]





The detail of the newly kicked-on dust is described by HST. Here we arrange it with the same area in 2001 (in June by HST) and the MGS-Mola image to compare. The dust looks to have arisen from the south-western end of the right-hand side Aryn's nail, and then covered the south-western part of S Meridiani as well as nearly Brangaena (named by Shiro EBISAWA in 1956 after "*Tristan and Isolde*") and went down from Aram to Oxia P. Of course Margaritifer S was quite dusty and its northern part was concealed. However several spots are not buried, and so we may consider that the dust stayed rather low and was not so strong enough to further rise up. It did not invade the area of Niliacus L. The elevation rate of this area is low, but the area has a general trend that it goes gradually down from eastern-south to western-north to the direction of M Acidalium. It is possible the onset area must be rather geographically complex, but there is no elevation difference in the area from Brangaena to Aram (already lower). It appears a series of resonances of the dust disturbances went down on the day from eastern-south to western-north.

One of the Mars Exploration Rovers, Opportunity, landed on Mars (on 25 January 2004 at 05:05 GMT) and moved round to the eastern direction of Brangaena, and so it must have been affected by the Aram dust. According to
http://www.marstoday.com/news/viewsr.html?pid=18572
Opportunity's observation on sol 627 (29 October) indicated the optical depth τ of the dust to be 1.6 (τ=0 implies a perfect clarity). It was thus quite weaker than the maximal optical depth of the 2001 global dust which was estimated to be τ＝4~5 by the end of July 2001 [upto λ=210°Ls; MGS data in B A CANTOR *Icarus* **186** (2007) 60]. However the bright dust on 28 October must have been stronger than the diffused one on 29 October. [The above-cited URL also states that another preceding dust at Meridiani S on sol 489 (10 June 2005) was at the depth τ=2. However at that time, the diameter was only δ=8.3", and no effective terrestrial images were recorded in the CMO Gallery. Maybe it is in MGS-MOC data, but the present writer has never inquired yet].

Finally we note that the dust trend on 29 October (λ=315°Ls) was an expansion to Margaritifer S and the dust also preceded to the eastern direction to Deucalionis R. On 30 October (λ=315°Ls), as was reviewed in the preceding CMO #331, another dust disturbance occurred just over S Meridiani. Still a rather thick dust was covering over Margaritifer S. The dust at the Margaritifer S area also stayed even on 31 October (λ=316°Ls) and 1 November (λ=317°Ls). The marking of Margaritifer S looked to recover slightly on 2 November (λ=317°Ls).

★2005年にHSTが火星を撮るというニュースが入ったのは十月17日(ジム・ベル氏から) で、一回目の豫定は28Oct(λ=314°Ls) 09:08GMT(ω=012°W)であった。アメリカ時間になるが、美大陸は全體に天候が優れなかったのか、この日は觀測が少ないのだが、幸いウォーレン(JWn)氏が05:30GMTω=319°Wで先鞭を附け、これにはアラムに黄塵が立っているのが明確で、而も早い觀測であるから重要であった。この日は他にシェロッド(CSr)氏の06:09 GMT~7:59GMTのω=329°W、333°W、350°W、355°Wがある。★尚、日本では村上(Mk)氏が眼視でω=057°W(12:10GMT)でこれを夕方に捉え、ω=067°W、076°Wと追っている。ccdでは比嘉(Hg)氏がこの日ω=080°Wで撮像したが、既にマルガリティフェル・シヌスの黄雲も夕靄に埋もれている。これはMk氏のω=076°Wでも同じである。レポートはCMO #312にある。この號は三十二頁建てであった。
http://homepage2.nifty.com/~cmomn2/CMO312.pdf

★この黄塵は十月中旬から起こっている一聯の黄塵の仲間内で、既にマルガリティフェル・シヌ

ス邊りは可成り黄雲で侵されており、27Octの様子を見ると未だ強い黄塵はこの周邊に見られないから[フラナガン氏のω=342°W、345°Wの像を參照。この像には浮遊黄塵と共にマルガリティフェル・シヌスの邊りの黄雲が好く描寫されている。但し、前々頁では四日連續の像を並べたが、それぞれ處理が違い、略(ほぼ)シヌス・サバエウス東部に合わせて調整した。その爲、像を劣化させている。悪貨は良貨を駆逐する類(たぐい)である。實際にはGalleryをご覧頂きたい。特にティム・パーカー(TPk)氏の像にはノアキスにワインカラーの凝縮帯がある。これに就いては前號Note(14)參照]、28Octの朝、アラムに黄塵が新たにキック･オンされたことは確かである。★詳細は當然 HSTの像を見ると判る。前頁では2001年六月のHST像、更にMolaの像と比べてあるが、朝方、シヌス・メリディアニの右側の爪の南部に發生しシヌス・メリディアニの西南部を削り、ブランガエナを略消し去ってアラムからオクシア・パルスも覆っている。勿論マルガリティフェル・シヌスは全體黄雲塗(まみ)れだし北部は消えている。然し、暗部を處どころ遺しているから、然程強い黄塵とは思えないし、高くもないようである。ニリアクス・ラクスの方には延びていない。★この領域の高低差は然程ではないが、ゆっくりと東南から北西にマレ･アキダリウムの方に下り坂になっている。シヌス・メリディアニの南西部の發生箇所は少し複雑な地形かも知れないが、アラムとブランガエナとは高低差はなく既に低地に近い。自然に發生の連鎖が低地に向かって擴がった様に見える。

★ローバーの「オポテュニティ」はブランガエナの東側にいたわけで、 この黄塵の影響を幾らか受けているわけである。例えば http://www.marstoday.com/news/viewsr.html?pid=18572 に依れば、sol 627(29Oct)の觀測では、光学的深さτが1.6だったようである(τ=0が完全に綺麗な場合)。2001年大黄雲のMGSからのブルース・カンターのデータでは八月始め迄に(λ=210°Ls迄に) τ＝4~5に達しているから比べて然程でないわけである。但し、29Octより28Octの方が「オポテュニティ」の處では弱くなっていると思う。★尚、上の記事に依ればsol 489 (10 June 2005)には同じシヌス・メリディアニでτ=2の黄塵があった由。當時δ=8.3"の大きさがあったが該當區の觀測が揃っていない。但し、MGS-MOCの像はあると思うが、筆者は未だ調べていない。

★最後にその後のこの領域の様子を纏めると、29Oct(λ=315°Ls)にはマルガリティフェル・シヌスの方に進捗し、亦東端も少し延びているように見える。そして30Oct(λ=315°Ls)には前號#331でレヴューしたようにシヌス・メリディアニに變形を齎すのである。依然マルガリティフェル・シヌスの邊りには強い黄塵がある。マルガリティフェル・シヌス地方の黄塵は31Oct(λ=316°Ls)、 1Nov(λ=317°Ls)にも引き繼がれる。2Nov(λ=317°Ls)になって模様がやや回復するようである。 □

Forthcoming 2007/2008 Mars **(8)**

Ephemeris for the Observations of the 2007/2008 Mars. IV

July and August 2007 (Revised)

***Masami MURAKAMI* 村上 昌己(*Mk*)**

AS a sequel to the Ephemeris III (in CMO#330), we here list the necessary elements of the Ephemeris for the physical observation of Mars from 1 July 2007 to 31 August 2007. The data are listed for every day at 00:00 GMT (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. From this apparition, 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*←. The apparent declination *D* of the planet is also given at the final column. The data here are basically based on *The Astronomical Almanac for the Year 2007*.

Date (00:00GMT)	ω	φ	λ	δ	ι	*Π*	*D*
01 July 2007	085.70°W	18.5°S	267.82°Ls	06.33"	41.4°	-37.8°	+11°37'
02 July 2007	075.88°W	18.3°S	268.45°Ls	06.35"	41.5°	-37.9°	+11°52'
03 July 2007	066.07°W	18.1°S	269.08°Ls	06.37"	41.6°	-38.0°	+12°07'
04 July 2007	056.26°W	17.9°S	269.71°Ls	06.39"	41.7°	-38.1°	+12°21'

Date (00:00GMT)			ω	φ	λ	δ	ι	Π	D
05	July	2007	046.46°W	17.6°S	270.34°Ls	06.42"	41.8°	-38.1°	+12°35'
06	July	2007	036.65°W	17.4°S	270.97°Ls	06.44"	41.8°	-38.2°	+12°49'
07	July	2007	026.85°W	17.2°S	271.60°Ls	06.46"	41.9°	-38.2°	+13°03'
08	July	2007	017.06°W	16.9°S	272.23°Ls	06.48"	42.0°	-38.3°	+13°17'
09	July	2007	007.26°W	16.7°S	272.85°Ls	06.51"	42.1°	-38.3°	+13°31'
10	July	2007	357.47°W	16.5°S	273.48°Ls	06.53"	42.1°	-38.4°	+13°45'
11	July	2007	347.69°W	16.2°S	274.10°Ls	06.55"	42.2°	-38.4°	+13°58'
12	July	2007	337.90°W	16.0°S	274.73°Ls	06.57"	42.3°	-38.4°	+14°11'
13	July	2007	328.12°W	15.7°S	275.35°Ls	06.60"	42.4°	-38.4°	+14°24'
14	July	2007	318.34°W	15.5°S	275.98°Ls	06.62"	42.4°	-38.4°	+14°37'
15	July	2007	308.57°W	15.2°S	276.60°Ls	06.64"	42.5°	-38.4°	+14°50'
16	July	2007	298.80°W	15.0°S	277.23°Ls	06.67"	42.6°	-38.4°	+15°03'
17	July	2007	289.03°W	14.7°S	277.85°Ls	06.69"	42.7°	-38.4°	+15°15'
18	July	2007	279.27°W	14.5°S	278.48°Ls	06.72"	42.7°	-38.4°	+15°28'
19	July	2007	269.50°W	14.2°S	279.10°Ls	06.74"	42.8°	-38.4°	+15°40'
20	July	2007	259.75°W	14.0°S	279.72°Ls	06.77"	42.9°	-38.4°	+15°52'
21	July	2007	249.99°W	13.7°S	280.34°Ls	06.79"	43.0°	-38.3°	+16°04'
22	July	2007	240.24°W	13.5°S	280.96°Ls	06.82"	43.0°	-38.3°	+16°16'
23	July	2007	230.49°W	13.2°S	281.58°Ls	06.84"	43.1°	-38.3°	+16°27'
24	July	2007	220.75°W	13.0°S	282.20°Ls	06.87"	43.2°	-38.2°	+16°39'
25	July	2007	211.00°W	12.7°S	282.82°Ls	06.89"	43.2°	-38.1°	+16°50'
26	July	2007	201.26°W	12.4°S	283.44°Ls	06.92"	43.3°	-38.1°	+17°01'
27	July	2007	191.53°W	12.2°S	284.06°Ls	06.94"	43.3°	-38.0°	+17°12'
28	July	2007	181.79°W	11.9°S	284.68°Ls	06.97"	43.4°	-37.9°	+17°23'
29	July	2007	172.06°W	11.6°S	285.29°Ls	07.00"	43.4°	-37.9°	+17°33'
30	July	2007	162.34°W	11.4°S	285.91°Ls	07.02"	43.5°	-37.8°	+17°44'
31	July	2007	152.61°W	11.1°S	286.52°Ls	07.05"	43.5°	-37.7°	+17°54'
01	Aug	2007	142.89°W	10.9°S	287.13°Ls	07.08"	43.6°	-37.6°	+18°04'
02	Aug	2007	133.17°W	10.6°S	287.75°Ls	07.11"	43.6°	-37.5°	+18°14'
03	Aug	2007	123.46°W	10.3°S	288.36°Ls	07.14"	43.7°	-37.4°	+18°24'
04	Aug	2007	113.74°W	10.1°S	288.97°Ls	07.17"	43.7°	-37.3°	+18°34'
05	Aug	2007	104.03°W	09.8°S	289.58°Ls	07.20"	43.8°	-37.2°	+18°43'
06	Aug	2007	094.33°W	09.5°S	290.20°Ls	07.23"	43.8°	-37.1°	+18°52'
07	Aug	2007	084.62°W	09.3°S	290.81°Ls	07.26"	43.9°	-37.0°	+19°01'
08	Aug	2007	074.92°W	09.0°S	291.42°Ls	07.29"	43.9°	-36.8°	+19°10'
09	Aug	2007	065.23°W	08.7°S	292.03°Ls	07.32"	43.9°	-36.7°	+19°19'
10	Aug	2007	055.53°W	08.5°S	292.64°Ls	07.35"	44.0°	-36.6°	+19°28'
11	Aug	2007	045.84°W	08.2°S	293.24°Ls	07.38"	44.0°	-36.4°	+19°36'
12	Aug	2007	036.15°W	08.0°S	293.85°Ls	07.41"	44.0°	-36.3°	+19°44'
13	Aug	2007	026.47°W	07.7°S	294.46°Ls	07.44"	44.1°	-36.1°	+19°52'
14	Aug	2007	016.78°W	07.4°S	295.06°Ls	07.48"	44.1°	-36.0°	+20°00'
15	Aug	2007	007.11°W	07.2°S	295.67°Ls	07.51"	44.2°	-35.8°	+20°08'
16	Aug	2007	357.43°W	06.9°S	296.27°Ls	07.54"	44.2°	-35.7°	+20°15'
17	Aug	2007	347.76°W	06.6°S	296.87°Ls	07.58"	44.2°	-35.5°	+20°23'
18	Aug	2007	338.09°W	06.4°S	297.47°Ls	07.61"	44.3°	-35.4°	+20°30'
19	Aug	2007	328.42°W	06.1°S	298.07°Ls	07.65"	44.3°	-35.2°	+20°37'
20	Aug	2007	318.76°W	05.9°S	298.67°Ls	07.68"	44.3°	-35.0°	+20°44'
21	Aug	2007	309.09°W	05.6°S	299.27°Ls	07.72"	44.3°	-34.8°	+20°51'
22	Aug	2007	299.44°W	05.3°S	299.87°Ls	07.76"	44.3°	-34.7°	+20°57'
23	Aug	2007	289.78°W	05.1°S	300.47°Ls	07.79"	44.3°	-34.5°	+21°04'
24	Aug	2007	280.13°W	04.8°S	301.07°Ls	07.83"	44.3°	-34.3°	+21°10'
25	Aug	2007	270.48°W	04.6°S	301.66°Ls	07.87"	44.3°	-34.1°	+21°16'
26	Aug	2007	260.84°W	04.3°S	302.26°Ls	07.91"	44.3°	-33.9°	+21°22'
27	Aug	2007	251.19°W	04.1°S	302.85°Ls	07.94"	44.3°	-33.7°	+21°28'
28	Aug	2007	241.55°W	03.8°S	303.44°Ls	07.98"	44.3°	-33.5°	+21°33'
29	Aug	2007	231.92°W	03.6°S	304.03°Ls	08.02"	44.3°	-33.3°	+21°39'
30	Aug	2007	222.28°W	03.3°S	304.63°Ls	08.06"	44.3°	-33.1°	+21°44'
31	Aug	2007	212.65°W	03.1°S	305.22°Ls	08.10"	44.3°	-32.9°	+21°49'

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便　り
Letters to the Editor

●・・・・・・・***Date: Thu, 24 May 2007 22:22:14 +0900***
Subject: ドキュメント

拝啓　初夏を思わせる陽気の今日この頃ですが、益々ご健勝のご様子にて大慶に存じ上げます。いつも『火星通信』をお送り頂き、有難く存じておりますが、この度は、まことにご丁重なお便りを頂戴致し恐縮いたしおる次第です。
さて、お便りにありました2009年のムードンでの火星会議の件、もし実現するなら、ぜひ参加したいと存じます。ただ小生の年齢になりますと鬼が本気で笑うかもしれません。珂珂。

佐伯さんのお宅を訪問される事がありましたら、ぜひお供をさせて頂きたいと思いますのでまたご連絡下さい。なにか機会がないとついついご無沙汰してしまいます。

暖かく成りましたが時候不順の折から、ますますご自愛下さいますよう衷心よりお願い申し上げます。敬具

松本　達二郎 (Tatsujiro MATSUMOTO 尼崎Hyogo)

●・・・・・・・***Date: Fri, 25 May 2007 15:36:22 +0000***
Subject: Yahoo! Auto Response

I am away overseas until June 10th so will not be able to answer e-mails during this time.

○・・・・・・・***Date: Tue, 12 June 2007 07:36:22 +0100***
Subject: Jupiter from Barbados - Preliminary Images.

Hi all, Here are the first Jupiter images from the latest trip from which i returned a couple of days ago. Weather was mostly excellent, but had some deterioration near the end as the hurricane season kicked off.

I've attached links to an RGB sequence as well as a slightly more contrasted G image for nice visualisation of the smaller details. Image data/info is found below the mail footer.

Many more images to come in the weeks ahead....

http://www.damianpeach.com/barbados07/j2007_05_23rgb_seq_dp.jpg

http://www.damianpeach.com/barbados07/j2007_05_23green05_dp.jpg

Best Wishes

JUPITER IMAGES, MAY 23rd, 2007.
D. A. Peach. St. Phillip, Barbados, W.I. 14" (36cm) SCT @ F34. Lumenera SKYnyx 2.0M.
True Technology & Astronomik Filters (RGB.)
Seeing excellent-perfect (p9-10.) Transparency excellent (6.0mag) scattered cumulus. Wind ESE - 13-18kts. No dew. 27c (80F.) 76% RH. Altitude= 52 degs.

○・・・・・・・***Date: Sat, 16 June 2007 17:18:27 +0100***
Subject: Jupiter from Barbados - Some from Night #2

Hi all, Here is another set of Jupiter images, these from the second night. The area p. the GRS is presented.

http://www.damianpeach.com/barbados07/j2007_05_24rgb06.jpg

Some interesting details across the Planet, such as the closed circulation ahead of the GRS, and a serrated appearance to the SEBN. Overall, the dynamic activity is rather less on this hemisphere of the Planet, especially in the placid SEB. Best Wishes

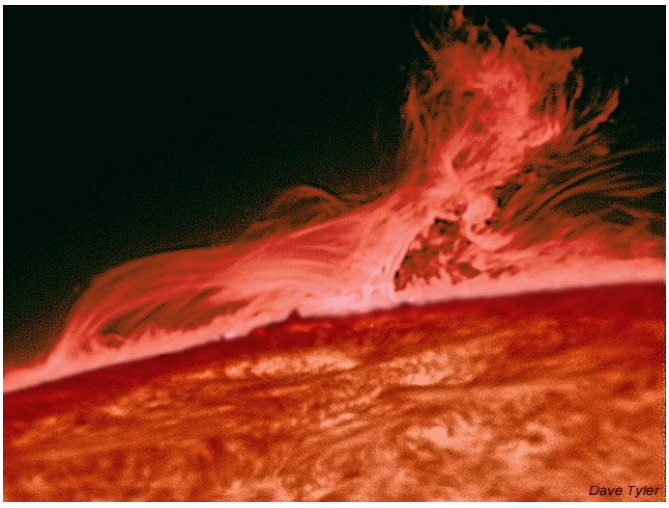
JUPITER IMAGES, MAY 24th, 2007.
D. A. Peach. St. Phillip, Barbados, W.I. 14" (36cm) SCT @ F34. Lumenera SKYnyx 2.0M. True Technology & Astronomik Filters (RGB.)
Seeing excellent-perfect (p8-10.) Transparency excellent (6.0mag) scattered cumulus. Wind E - 12-16kts. No dew. 27c (80F.) 75% RH. Altitude= 54 degs.

Damian PEACH (ﾃﾞﾐｱﾝ･ﾋﾟｰﾁ Bkh 英)
http://www.damianpeach.com/

●・・・・・・・***Date: Fri, 25 May 2007 21:04:04 +0100***
Subject: very active promenence

Hi Guys, I was greeted with a spectacular event this morning, as the filter warmed up. The prominence was very bright , as bright as the chromosphere "skin".

The images are only 4 mins apart, and looks it like someone just switched on a magnet and put its hair on end. These were captured through cloud breaks. I have more to process of this fascinating spectacle, but as the cloud cleared some 15 mins later, it was a far lesser beast. It seemed to be associated with the 0956 disturbance, as it went over the limb. Best wishes



○・・・・・・・***Date: Thu, 31 May 2007 13:34:33 +0100***
Subject: solar images from 29 May

Hi Guys, Poor weather has meant no solar observing, but the 29th allowed a glimpse or two with poor seeing at the higher mags. New spot 0958 was in view. There was a nice filament about 50 000 miles long and a reasonable sized Prominence. Filament was 90"focal length *F*20 @ 4.5" Dia 4 and the other two 180" *F*30 @ 6" Dia. Daystar ATM ,6A. Best wishes

○・・・・・・・***Date: Sat, 2 June 2007 17:59:44 +0100***
Subject: What a show

Hi guys, The sun put on quite a show today. Here are a couple of shots of the event. A white light, well green actually, Trutek type two green off Herschel wedge with ND filters, 09:00 UT. Ha Daystar .60A ATM 10:45 UT 6" *f*15 achromat at *f*30. Best wishes

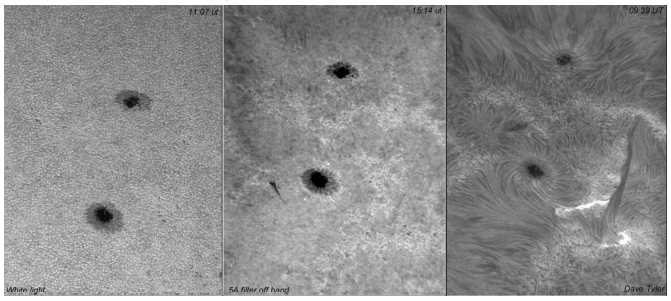
○・・・・・・・***Date: Mon, 4 June 2007 12:16:56 +0100***
Subject: Spot 0960 3rd June

Hi Guys, 0960 group is a splendid sight , in white or Ha. Comparing the two is interesting, the arcs and the rings of the plages / faculae, seem to tie up with similar shaped features in the ha cloud tops, where the otherwise smooth "flow" is disrupted. Best wishes

○・・・・・・・***Date: Wed, 6 June 2007 14:56:45 +0100***
Subject: Solar activity 5th June

Hi Guys, 0960 was very active yesterday during my day. It grumbled throughout see 0919 (90" fl 4.5" *f*200, then erupted. Images 1556 and 1602 show the rapid increase in brightness and size of the outbreak . I had to lower the camera settings to avoid burnout on the very bright detail, hence the gloomy background reminicant of a fine burr walnut! It quietened down by 1700, when the seeing did also, allowing the aftermath to be captured in decent detail, (180" *f*30). Best wishes

○・・・・・・・***Date: Mon, 11 June 2007 00:12:45 +0100***
Subject: Solar images from today



Hi Guys, These three images are in white light, one off band with my Daystar, and one on band.

The off band one shows the plages that are quite easy to image near the limb in white but not so easy near the centre of the disc. You can read across from the two images and see the "visual" relationship between the plages and the patterens in the Hα clouds. Note the two "owl eyes" in Hα round the spots, the edges of these are related to the plages shapes. The widely different times are due to picking the seeing at its most cooperaive thoughout the day. All images 180" fl *f*30. Best wishes

○・・・・・・・***Date: Wed, 13 June 2007 22:22:51 +0100***
Subject: goodbye 0960

Hi Guy, I grabbed a shot of the last component of 0960 about to go over the limb this morning. I was quite intriuged with the stability of the Hα cloud pattern surrounding the spot. The some basic features can spotted in both images. I suppose I should not be too surprised, as Pete's excellent sequence of Cak images show that stability in the plages, which seem to be all part of the same phenomenon, from observations this past week.

Seeing was very poor this morning. between the clouds.

What's next I wonder? Cheers

○・・・・・・・***Date: Thu, 21 June 2007 22:32:48 +0100***
Subject: Solar stuff on the Solstice

Balding Bearded Bespectacled pensioner, Dave Tyler, of Buckinghamshire UK, eagerly anticipated what the blue sky would reveal today, the Summer solstice , on our star. And what did he see? Not a lot is the answer !

A little puff of a prom at the 9 oclock position, and a smal bright one on the south west. Oh well better luck next time. Best wishes

Dave TYLER (ﾃﾞｳﾞｨﾄﾞ・ﾀｲﾗｰ Bkh 英)
http://www.david-tyler.com/

●・・・・・・・***Date: Mon, 28 May 2007 09:26:44 +1000***
Subject: Mars from Australia - 27th May 2007

Hi all, These image were taken on Sunday morning, between 5:30am and 6:10am localtime. Mars was between 380 and 430 and has grown to a massive (!) 5.67 arcseconds in diameter. I used a 12" newt, EQ6, DMK21AF04 + 5× powermate + Astronomik RGB filters. The red channel was the only channel that revealed detail, and was the brightest by a long way. The first attachment was at approx 10,350mm FL and the second used an extension tube as well, giving over 13,700mm FL. No resampling was done. Thanks for looking.

○・・・・・・・***Date: Mon, 04 June 2007 09:33:23 +1000***
Subject: Mars from Australia - 1st June 2007

Hi all, These image were taken on Saturday morning 2nd June localtime, between 5:30am and 6:30am. Mars was between 380 and 450 and has grown to 5.77 arcseconds in diameter.

I used a 12" newt, EQ6, DMK21AF04 + 5x powermate + Astronomik RGB filters. Location: Central Coast, NSW Australia.

The first attachment was at approx 10,500mm FL and the second used an extension tube as well, giving over 13,700mm FL. No resampling was done.

The SPC looks to be breaking up a bit?

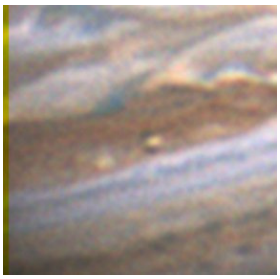
Thanks for looking.

○・・・・・・・***Date: Tue, 05 June 2007 07:57:19 +1000***
Subject: Ganymede and Io - 26th May 2007

Hi all, I captured this data on the night of excellent seeing on the 26th May. Ganymede and Io were in the same FOV of the DMK, but were a few Jupiter distances to the West. I captured several runs. The first (top row) was captured with the extension tube (FL > 13,700mm) but the seeing was not yet at its best. The other runs were captured without the extension tube (FL > 10,300mm), and by now the seeing had improved.

Each run is shown in its native scale and with a 250% resized version. Also shown is a comparison to the Starry Night Pro view at the same time.

To me, the surface markings are unmistakeably real. In moments of great seeing (especially with Ganymede), the albedo features were even seen during raw capture. The features are also comparable to other captures of Ganymede over the past few months.



I believe the "egg" shape of Io is due to the darkened pole regions, and against "black" space, the camera isn't sensitive enough to pick it up - thereby giving the oval appearance. When Io transits across Jupiter, you can see these dark pole regions against the obviously bright Jupiter. The second attachment shows this from a capture of an Io transit on the 15th March. Comments are always welcome. Thanks for looking.

○・・・・・・・***Date: Wed, 06 June 2007 08:36:58 +1000***
Subject: Oval BA Animation - 26th May from Australia

Hi all, I finally got around to processing all the data from the 26th May session. I created this animation of 10 frames (and back) showing Red Jr (Oval BA) rising and just crossing the CM. It was from this same session I captured the images of Ganymede and Io.

The quality improves as the altitude and seeing improve, and the last 2 frames are the best of the bunch.

The animation is a 1.5meg gif file and can be downloaded from:

http://www.iceinspace.com.au/downloads/20070526-jupiter_anim.gif

All frames prepared in Photoshop. Animation created using Jasc Animation Shop 3. Thanks for looking.

○・・・・・・・***Date: Wed, 06 June 2007 13:26:03 +1000***
Subject: GRS + WSZ + Io - 1st June from Australia

Hi all, This data was captured on the 1st June in very good seeing. Unfortunately the session was cut short by clouds so I only have 2 images to show for it.

The first image shows the WSZ at the NEBn crossing the CM. The second image shows the GRS, a FFR, and a couple of reddish spots can be seen right up into the South pole. Io (with albedo markings) has just emerged from behind Jupiter. Thanks for looking.

Mike SALWAY (マイク・ソルウェイ NSW 澳)

●・・・・・・・***Date: Mon, 28 May 2007 15:53:19 +0200***
Subject: Venus 22, 23, 24 may 2007

Hi all, Here a few images rescued from a very diappointing month of may - we even had a small storm:
http://www.astrosurf.com/pellier/V070522-CPE
http://www.astrosurf.com/pellier/V070523-CPE
http://www.astrosurf.com/pellier/V070524-CPE

Note some darker markings in R and G on the 23th.

Best wishes,

○・・・・・・・***Date: Mon, 04 June 2007 21:46:35 +0200***
Subject: Venus 2nd june 2007

Hi guys, A double "C", Psi-Like, structure is observed on june 2nd. It must be that one imaged on may 21th, two 4-days rotations later.
http://www.astrosurf.com/pellier/V070602-CPE

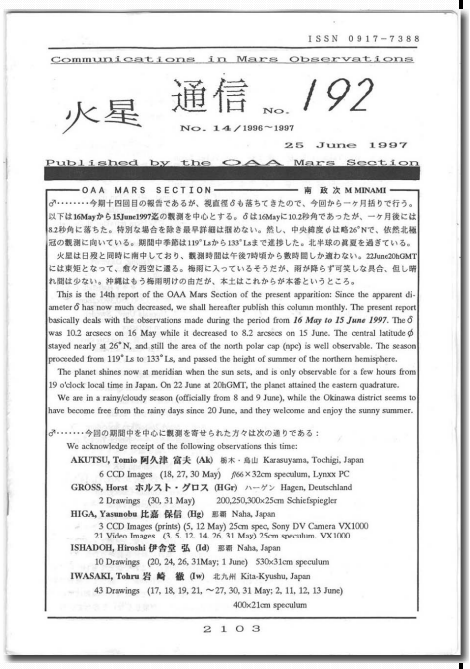
A kind of "front" or dark line, is observed in R, G, and IR, near to the south polar region. This feature was also visible on my may 24th image with a similar, but differ

TEN YEARS AGO (142)

----CMO #192 (25 June 1997) pp2103-2122----

CMO#192には、五月後半と六月前半の観測報告がまとめられている。観測期も後半に入り、今回から一ヶ月括りとなった。この期間、視直径はδ=10.2"から8.2"と小さくなり、季節、中央緯度、位相角も、それぞれλ=119°Ls→133°Ls, φ=25.5°N→26.3°N, ι=35.1°→39.9°と変化した。

この期間には追加報告も含め、国内からは十名、国外からも十名の報告者があった。沖縄では梅雨入りになっていたが、本土では雲の多い日が続いたものの梅雨入り前だった。日本からは、Syrtis_Mjが中央にある所から見え始めて、Tharsis、Chryse-Xantheを眺めて、S Meridianiが夕方に見える景色までが観測出た。北極冠は北半球の夏になっていたがまだ健在で、Olympiaも捉えられている。位相が変わり、午後遅くが見えなくなっていて、山岳雲の振る舞いは捉え難くなっていた。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25 June 1997
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2103

COMING 1996/97 MARS (8) には「1996/97年の火星観測暦表(その4)」として、July～September 1997 のデータが掲載されている。LtEでは、Alan HEATH氏(UK)からの1996/97年の観測要約を含めたものが、André NIKOLAI 氏(Germany)からは、初めてe-mailで送られてきている。また、Jim BELL氏からはIMW News_Letterの送付があり、HSTによる火星観測のことなどが取り上げられている。ほかに外国からは、Johan WARELL (Sweden)、Sam WHITBY (USA)、Frank J MELILLO (USA)、David L GRAHAM (UK)、Elisabeth SIEGEL (Denmark)、Giovanni QUARRA (Italy)の各氏のものが見られる。国内からは、石橋(Is)氏が追加報告を、比嘉(Hg)氏がヘール・ボップ彗星の眼視観測レポートを寄せられた。ほかに、岩崎徹(Iw)、伊舎堂弘(Id)、大場与志男(Oh)の各氏からの便りが紹介されている。

全体廿頁建て(OAA_Mars_Section十頁)だが、最後に埋め草として南氏のコラム「時時間間」があり、「同姓同名」と題して、いくつかの面白いエピソードが紹介されている。

TYA(22) はCMO#034 (10 June 1987)、CMO#035 (25 June 1987)の二号の紹介である。20年前の火星は八月に「合」を控えて観測不可能な時期になっていた。記事は写真資料の紹介と来信が中心とある。南氏の臺北回想なども掲載されていた。

村上 昌己 (Mk)

ent, UV marking. Best

○・・・・・・・***Date: Sun, 10 June 2007 18:46:16 +0200***
Subject: Jupiter 9 june 2007

Hi all, Finally a correct night after more than one month. The low altitude is mercyless.

http://astrosurf.com/pellier/J070609-CPE

The chain of dark spots coming from the SEB outbreak looks to be running on the jet itself no? Best wishes

Christophe PELLIER (クリストフ・ペリエ *nr* Paris 法)
http://pellier.christophe.club.fr/index.htm

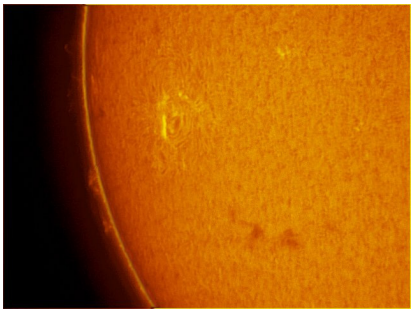
●・・・・・・・***Date: Tue, 29 May 2007 11:37:34 -0700***
Subject: Venus 5/28

Fair seeing last night, with details across the spectrum. More images from the past week to follow.

○・・・・・・・***Date: Thu, 31 May 2007 11:30:22 -0700***
Subject: Venus 5/29 (5/30 UT)

Only captured two UV clips before I was clouded out.

○・・・・・・・***Date: Thu, 31 May 2007 11:33:03 -0700***
Subject: Sol 5/30



Excellent seeing yesterday- too bad I only have a 40mm scope. Also unfortunate was that it clouded up before evening.

○・・・・・・・***Date: Fri, 8 June 2007 16:14:59 -0700***
Subject: Solar activity, June 8th

Decent activity this morning. Both images recorded through a 104mm *f*/15 Jagers objective and <1 angstrom filter. 11:55 UT, 7/8/2007

○・・・・・・・***Date: Mon, 11 June 2007 07:50:59 -0700***
Subject: Venus June 10

Good conditions last night. Note the similarity between UV and IR details.

○・・・・・・・***Date: Fri, 15 June 2007 19:09:23 -0700***
Subject: RE: Venus 11 June

Seeing was quite good this evening. Attached is a UV and IR result.

○・・・・・・・***Date: Sat, 16 June 2007 06:24:28 -0700***
Subject: Jupiter June 15

Attached is a brief series of Jupiter taken from 42.9N under exceptionally good conditions.

○・・・・・・・***Date: Sat, 16 June 2007 19:11:11 -0700***
Subject: Venus 6/16

Not as good as last night, but still worth the effort.

Sean WALKER (ショーン・ウォーカー *S&T* 美)
http://masil-astro-imaging.netfirms.com/home.html

●・・・・・・・***Date: Thu, 31 May 2007 16:14:03 -0500***
Subject: Fw: fox possession or dissociative disorder

Dear Masatsugu, As someone interested in Percival Lowell, the following investigation may be of interest. I have started doing some work on the neurobiology of Japanese "fox possessions", with a Japanese physician (psychiatrist) I met at a research meeting two weeks ago.

○・・・・・・・***Date: Sat, 16 June 2007 19:51:31 -0500***
Subject:Re:FW:RE:Fw:1874 Transit of Venus in Japan

Dear Masatsugu, The message about the transit of Venus stations came through. I have sent them to Steven van Roode in the Netherlands, and he has written back already with his appreciation (see below)

I thank you for all the effort on determining the exact coordinates of the sites of these transit stations, and will write again shortly. I am hopeful that we may get together in Paris in 2009. Best wishes,

Bill SHEEHAN (ウィリアム・シーハン MN 美)

●・・・・・・・***Date: Thu, 31 May 2007 21:21:58 +0100***
Subject: Solar (h-alpha / calcium-K), May 30th

Hi all, A restbite from the clouds on the 30th May allowed me to take a few shots of the activity in H-alpha and Calcium-K. Best regards,

○・・・・・・・***Date: Wed, 6 June 2007 23:39:24 +0100***
Subject: 10960 activity comparison

Hi all, Here's a comparison image of this morning's avtivity compared with what was going on during the flare this afternoon. Both CaK and H-a are shown but at different image scales. Both sessions were performed under relatively poor seeing and the H-a PST just doesn't like going to 5x unless the atmosphere is still.

The changes in the CaK images are there but they are incredibly subtle. The "S" shaped southern H-alpha flare component is just noticable outlined in the later CaK image. I'm preparing a fade animation between the CaK images to highlight any changes and I'll post a link to this later as it's likely to be a bit large.

A full size version of this image is available from:
http://www.digitalsky.org.uk/solar/2007/2007-06-06_activity_comp.jpg

Best regards,

○・・・・・・・***Date: Thu, 7 June 2007 00:39:23 +0100***
Subject: AR960 Cal-K animation June 6, 11h22m/ 17h43m UT

Here is an animation between two frames taken with a calcium-K PST on June 6th 2007 (11h22m & 17h43m UT). The latter shot captured AR10960 when flare activity was present. This frame can be identified by the bright sideways "S" pattern visible below and to the left of the left-most prominent spot. The changes in CaK are far more subtle than what would be seen in two H-alpha views taken over 6 hours apart but they are still quite noticable in the animation.

http://www.digitalsky.org.uk/solar/2007/2007-06-06_11-22-17_CaK_4.gif

(~0.5Mb) Best regards,

○・・・・・・・***Date: Fri, 8 June 2007 23:39:03 +0100***
Subject: Solar activity, June 8th

Hi all, Here are a couple of shots from June 8th. A curious double penumbra is currently visible around AR10960 in calcium-K. Apparently, this is referred to as a "moat". Full disk:

http://www.digitalsky.org.uk/solar/2007/CaK/2007-06-08_08-23-24_CaK_flat.jpg

Best regards,

○・・・・・・・***Date: Wed, 13 June 2007 10:14:09 +0100***
Subject: Photo diary of AR10960 (part 1)

Here's my first compilation from the recent passage of AR10960 - a complete 13 day sequence of the region across the face of the Sun collected using a calcium-K PST and a 5x Powermate. For a larger version please click here:

http://www.digitalsky.org.uk/solar/2007/CaK/2007-06-01_to_12_Calcium-K_1024.jpg

A full disk sequence is also being prepared but as this contains 13x 6-frame full disk mosaics it may take a while. Perhaps the most remarkable thing about the sequence is that I managed to get 13 consecutive days where the Sun could be seen in the UK! Best regards,

○・・・・・・・***Date: Wed, 13 June 2007 13:50:09 +0100***
Subject: Re: solar images 12 June

That's lovely Dave. I've just compiled a 13 frame animation of AR10960 moving limb-to-limb in calcium-K. Probably not wise to view this if you've just eaten ;-)

http://www.digitalsky.org.uk/solar/2007/CaK/2007-06-01_to_12_anim3.gif

Best regards,

Pete LAWRENCE (ﾋﾟｰﾄ・ﾛｰﾚﾝｽ Selsey 英)

http://www.digitalsky.org.uk
http://www.sunwatching.co.uk

●・・・・・・・***Date: Thu, 31 May 2007 21:28:21 +0900***
Subject: Mars - 2007/05/30 UT

Dear CMO, Here is a Mars image from this morning. I took some color captures though processing the blue and green channels is proving to be time-consuming due to the bright background. I will send them later if I get a chance. I saw some cloud features on the morning limb in the blue in the preliminary processing but no dust to report. Best regards as always,

○・・・・・・・***Date: Thu, 31 May 2007 22:28:54 +0900***
Subject: Re: RE:Mars - 2007/05/30 UT

Dear Minami-san, Thank you for your e-mail. Last night the jet stream was weak over Japan, but it was cloudy for Jupiter imaging. I therefore decided to try for Mars this morning; there was some moments of good seeing but it wasn't constantly steady. I'm looking forward to taking all the R-G-B channels in a dark sky later this summer.

Please let me know if there is an angle (CM), or date you want me to image Mars.

Given the current conditions, I'm only trying to image when seeing can be forecasted as good, unless some developments take place. Best regards,

○・・・・・・・***Date: Sun, 03 June 2007 21:12:59 +0900***
Subject: Mars - 2007/06/02

Dear CMO, Here is a Mars image from this morning.

I finally got a fairly-decent RGB image, though the clouds ruined what was almost my best early season Mars ever. Just as seeing was really improving a bank of clouds from the West covered Mars entirely. It was frustrating but better luck next time. I will try to image Mars on June 7-8 if the weather etc. permits. Best regards and have a good Sunday,

○・・・・・・・***Date: Tue, 05 June 2007 19:08:54 +0900***
Subject: Mars - 2007/06/03

Dear CMO, Here is another Mars image, this one from June 3rd UT. The seeing forecast according to the jet stream map here:

http://cimss.ssec.wisc.edu/tropic/real-time/westpac/winds/wgmsdlm4.html

seemed really good!, so I made another attempt.

However.... similar circumstances as the previous day, with sudden clouds just before sunrise. I was unable to get a green or blue capture this time.

Anyway, at least some more practice imaging Mars with the DMK, until better conditions arrive.

Best regards, as always

○・・・・・・・***Date: Thu, 07 June 2007 22:18:40 +0900***
Subject: Re: RE:Mars - 2007/06/03

Minami-san, I had the telescope and imaging equipment set up this morning (seeing was good last night for Jupiter), but again clouds unfortunately. I guess this is typical for this time of year though around the onset of the rainy season. This time the sky was totally overcast so I couldn't get any imaging in. I will take a break for a while until later this summer.

Please e-mail me if some urgent event/imaging opportunity emerges. Best regards,

○・・・・・・・***Date: Mon, 11 June 2007 20:32:07 +0900***
Subject: Mars - 2007/06/07 UT

Dear Minami-san, Sorry for not replying sooner to your e-mail. I will send a reply to you in Japanese later this week. In the meantime, here is a Mars image from last week.

Finally!! a small miracle and I was able to get an image in between clouds. The IR capture was very good, but the other G-B captures were taken through clouds and only fair seeing. Anyway, I was extremely ecstatic to get an image in finally after a few failed attempts last week. If possible please post both images under my section "*RHf*" as both were very hard fought for.

The color image shows some cloud features and a blue NPH. Best regards,

Robert HEFFNER (ﾛﾊﾞｰﾄ・ﾍﾌﾅｰ 名古屋 Aichi)

●・・・・・・・***Date: Fri, 1 June 2007 00:57:03 EDT***
Subject: Mercury: May 29, 2007

Hi all - I know this has been a slow year for Mercury. But hopefully, things will pick up here real soon!

I managed to image Mercury last Tuesday night (May 29th at 23:45 UT). The seeing was more toward the poor side but I may have captured during the fine moments.

Mercury displayed a fat crescent and the greatest elongation will occur on June 1st. At CM 116 degrees longitude, I'm not sure if any details are captured. Mercury was taken about a half hour before sunset which was 30 degrees above the west-northwest horizon.

http://hometown.aol.com/frankj12/mercuryindex.html

Ed Lomeli and Carl Roussell did some fine observations back in mid-May. Hopefully some of you have observed Mercury also.

Looking ahead, Mercury will have two morning apparitions which should be favorable. I am looking forward for the November morning appearance where we can observe the white spots and the 'Skinakas basin' area again. More later...

○・・・・・・・***Date: Sat, 9 June 2007 01:05:19 EDT***
Subject: Venus: June 6, 2007

Hi all- Here's my latest image of Venus of June 6, 2007. In spite of good seeing, very little details can be seen in UV light.

Frank MELILLO (ﾌﾗﾝｸ・ﾒﾘｯﾛ Holtsville NY 美)

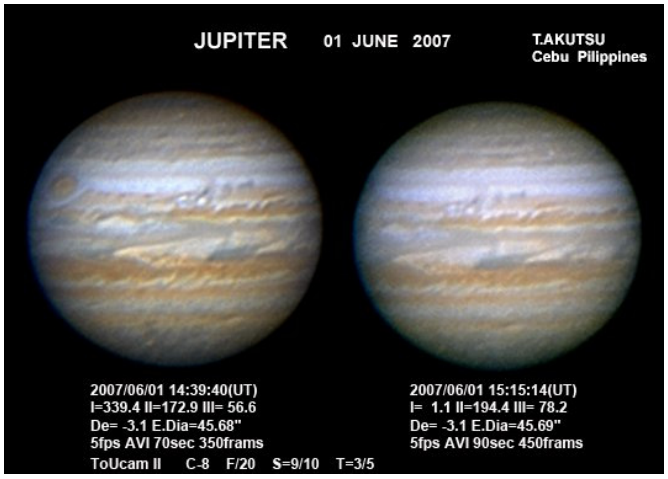
●・・・・・・・***Date: Fri, 01 June 2007 16:01:01 +0900***
Subject: 『火星通信』#331拝受

『火星通信』#331、本日の午後届きました。いつもありがとうございます。お礼まで。

浅 田　正 (Tadashi ASADA 宗像 Fukuoka)

(註)　28日印刷、29日発送でした。横浜は31日着だそうですが、九州はモー一つ遠いですね。(*Ed*)

●・・・・・・・***Date: Sat, 2 June 2007 11:18:07 +0900***
Subject: 木星(Jupiter)画像　070601　(C-8)



こんにちは。5月に18階建ての屋上のあるコンドミデアムに変え、生活も落ち着き、昨夜初めての木星を撮ってみました。今迄の住まいと比べ気流は格段に良くなり、大変良い条件です。丁度木星のSEB撹乱が正面に見えて圧巻でした。ただし、屋上に出すのが重労働、腰を痛めそうですので屋上に置けるよう交渉の予定です。赤道儀だけでも保管できる場所はありそうです。屋上からの眺めは絶景で、セブのイメージが変わりました。この場所ならばもっと大きな口径が欲しくなります。

○・・・・・・・***Date: Mon, 4 June 2007 13:53:26 +0900***
Subject: 木星(Jupiter) 070602

こんにちは、先週末の6月2日の木星像です。友達のChrisのC-11は良く調整され、良く見えます。フィルターワークにはC-11が必要です。SEBsが無い(淡化)のは不気味。

○・・・・・・・***Date: Tue, 5 June 2007 18:02:00 +0900***
Subject: 木星(Jupiter)画像　070604

こんばんわ、木星画像です。気流は良い条件ですが、屋上の風が気になります。

○・・・・・・・***Date: Sat, 9 June 2007 11:48:12 +0900***
Subject: 木星(Jupiter)画像　070608

こんにちは。昨夜は気流･透明度共に良好で拡大率を上げて撮像しました。このくらいの気流になるとC-8でも相当解像度のあるものが撮る事ができます。STrZの撹乱は淡くなってしまいました。

○・・・・・・・***Date: Tue, 12 June 2007 10:42:33 +0900***
Subject: 木星(Jupiter) 070609

こんにちは。6月9日の木星画像です。Chris宅のC-11は良く調整された光学系でいつも良く見えます。彼の住まいと私の新しい住まいのSeeingの差は無いようです。

○・・・・・・・***Date: Wed, 13 June 2007 14:58:39 +0900***
Subject: 木星(Jupiter) 070612

こんにちは。昨夜の木星像です。気流は少し悪かったのですが、淡くなったSEBs、複雑なSEBZが判ります。

○・・・・・・・***Date: Sat, 16 June 2007 12:13:25 +0900***
Subject: 木星(Jupiter) 070615

こんにちは。昨夜の木星です。気流は普通でしたが、透明度が後半になって落ちてしまい、その後撤収しました。RS出現の前方が見えています。

○・・・・・・・***Date: Sat, 16 June 2007 14:59:09 +0900***
Subject: 夏至が近い

こんにちは。住まいを変えてから、朝の東空が良く見えるようになりました。セブでは夕方よりも朝のほうが色鮮やかになります。夏至が近くなり、北東から太陽は昇り、天頂を越えて北の空を通過してゆきます。ここ一週間の間特に、朝焼けがきれいだったので撮ってみました。南国の朝焼けの雰囲気が出ているでしょうか？　ではまた。

阿久津 富夫(Tomio AKUTSU セブThe Philippines)

(註) Tomio moved to a new residence, 18 stories high, in Cebu which commands a vast view of the eastern city as well as the morning sky. (*Ed*)

●・・・・・・・***Date: Sun, 03 June 2007 12:34:00 +1000***
Subject: Mars 2nd June UT

Here is an image of Mars taken this morning in fair seeing, but at only 30 degrees in altitude. Best wishes

Maurice VALIMBERTI (ﾓｰﾘｽ･ｳﾞｧﾘﾑﾍﾞﾙﾃｨ Melbourne 濠)

●・・・・・・・***Date: Sun, 3 June 2007 18:21:24 -0500***
Subject: Mars CCD observation 06/03/2007

CMO Friends: I hope this e-mail find you well. Mars is beginning to rise above the trees a bit earlier in the morning. Conditions were average, with fairly stable air. Best,

Don BATES (ﾄﾞﾅﾙﾄﾞ･ﾍﾞｰﾂ Houston TX 美)

●・・・・・・・***Date: Sun, 3 June 2007 20:28:59 +1000***
Subject: Mars image 2007-06-02

Please find attached my Mars image from the 2nd of June 2007 taken in poor seeing.

○・・・・・・・***Date: Sun, 10 June 2007 21:57:30 +1000***
Subject: Mars image 2007-06-09

Hello All, Please find attached my Mars image from the 9th of June 2007 taken in very poor seeing.

This is probably my last image for the next few months as I'll be off to Europe this coming Saturday and after I return my telescope will be stripped down for maintenance and to implement some improvements. Regards

Stefan BUDA (ｽﾃｨｰﾌｧﾝ･ﾌﾞﾀﾞ Melbourne 濠)

●・・・・・・・***Date: Mon, 4 June 2007 00:26:52 +0100***
Subject: Jupiter 2007 May 23

Here is an extensive set of images obtained on the morning of May 23 in unusually good seeing for 17 deg. alt. The IR-R images and the 01:54 R image are in particular quite detailed. The region of the new SEB outbreak is captured in the later images. In the second colour composite, the S equatorial disturbance is seen as a white spot in the SEB two-thirds of the way across, and S tropical disturbance 2 follows this as a dark projection S of it.

In the first colour composite, where the GRS is central,

the oval in the NNTB, almost level with it, is seen as slightly pink.

Also, not to be overlooked, the fact that we no longer have a traditional bright EqZ at all. The remaining light part is to the S, where it exists at all, but, in the higher longitudes imaged here, that is also disrupted.

Unfortunately there are also a few artificial spots in the images due to dirt on the chip, in in the latitudes of the GRS and NPR.

○・・・・・・・***Date: Sat, 9 June 2007 00:08:02 +0100***
Subject: Saturn 2007 April 17

I am not imaging Saturn any more this apparition, but I have a few more images from the last couple of months as yet unseen. This is not a particularly interesting one, but some future issues will be. This just shows how transparent the rings started to seem in April.

○・・・・・・・***Date: Thu, 14 June 2007 00:44:11 +0100***
Subject: Jupiter 2007 June 13

A late clearance meant a observation at an even lower altitude than culmination: down to 13 deg. for the last shot. Still the IR shows some decent detail. GRS just on the *p* limb.

I have gone back to using the Celestron. It is easier to image colours in quick succession than with the Dall-Kirkham-Dall Cassegrain, which requires time for refocusing.

○・・・・・・・***Date: Wed, 20 June 2007 00:42:09 +0100***
Subject: Jupiter 2007 June 18

Seeing typical for 17 deg. alt. I tried the 807nm filter, going down to 5fps to compensate for the low signal at that wavelength, at the end of the sequence, with some success. (Focal length is slightly greater for that image for instrumental reasons). The colour image uses a R-IR image taken 3 mins before the R as its luminance.

The activity of the SEB revival is central in these images, but not well-resolved. STrD II is visible faintly as a bridge across the STrZ, almost on the CM by the last image, sweeping into the narrow STB like smoke deflected by a wind. The "angled belt" effect produced by the SEB activity is also prominent. Neither of these features really appear like this in high-res images from the same period, but these distortions caused by limited resolution are instructive.

David ARDITTI (ﾃﾞｳﾞｨｯﾄﾞ・ｱｰﾃﾞｨﾁ Edgware ME 英)
http://www.davidarditti.co.uk/observatory.html

●・・・・・・・***Date: Mon, 04 June 2007 04:27:34 +0200***
Subject: First Cloud-Maps of Venus from April

Dear Colleagues, here in Germany it is cloudy since several days, so this is my first try in creating cloudmaps of venus...

http://www.sternwarte-zollern-alb.de/mitarbeiterseiten/kowollik/venus/venus-uv-karten.htm

best wishes

○・・・・・・・***Date: Wed, 06 June 2007 05:00:41 +0200***
Subject: Jupiter from 4. June 2007

Hi all, here my RGB Jupiter from 23:14 UT, it is nearly the same CM as Tomio Akutsu's Jupiter, just one rotation later... best wishes

○・・・・・・・***Date: Sat, 09 June 2007 18:25:53 +0200***
Subject: Jupiter from June 7th 2007

Hi all, here is my jupiter from 7.6.07. Note, that Jupiter reaches only an altitude of 18° over the horizon for German Observers...

http://www.sternwarte-zollern-alb.de/mitarbeiterseiten/kowollik/jupiter/jupiter-07-06-07.htm

best wishes

○・・・・・・・***Date: Wed, 20 June 2007 22:14:48 +0200***
Subject: Re: Start please

Daer Masatsugu,

>At present we have less report from Europe, and so I hope you will take > the lead. We will need and appreciate your images on the CMO Gallery.

that's not suprising, we had mad weather the last days - thunderstorms and a lot of rain. For tomorrow morning we have a weather-warning, extream heavy rain and maybe Tornados!

Most Observers I know, are busy with Jupiter in june/july. Mars on blue morning sky is hard to catch, one need a IR-Passfilter for contrast and a fix mounted telescope ("goto" helps a lot :-))...).

The most observers are at work when Mars reaches a good altitude and I am sleeping...

I got an IR Filter, but my Sphinx Mount is out of order. The Starbook dont work and I brought it back to the dealer. I hope, I will get it back soon, but in the meantime I have to use my old "New Polaris" and work with the 6" Newtonian; the bigger one is too heavy for that old NP Mount... best wishes

○・・・・・・・***Date: Thu, 21 June 2007 21:27:40 +0200***
Subject: Venusoccultation observed

Dear all, I was lucky and observed the reappearance of Venus on June, 18th 2007. Pictures and a movie on:

http://www.sternwarte-zollern-alb.de/mitarbeiterseiten/kowollik/venus/venusbedeckung/venusoccultation-07-06-18.htm

best wishes

Silvia KOWOLLIK
(ｼﾙｳﾞｨｱ・ｺｳﾞｫｯﾘｸ Ludwigsburg 德)

●・・・・・・・***Date: Mon, 4 June 2007 06:45:15 +0900***
Subject: Re: 金星凌日観測地

たいへんお待たせして申しわけありません。琴平山も大平山も、それぞれの事情で正確には判定できないのですが、大雑把なところでお返事致します。結果は次です。

琴平山　32°45′ 51″ .0N, 129°52′ 59″ .0E
大平山　32°43′ 17″ .5N, 129°52′ 37″ .5E

琴平山: 観測用台座が現存しているので、観測地点はほぼ正確に特定できますが、Google Earthで見ると、目標として確実なのは金比羅神社の社務所くらいで、観測地付近は一面の林です。林の中に見える空間が展望台だと思われます。展望台から北の広場へ通じる小径も見えていますので、これはたぶん確実でしょう。この空間の西側に北接して記念碑があり、その北東(路よりも東側)に観測台があります。琴平山観測点はズレても0.3秒程度と思います。

大平山: 琴平山と逆に、山頂にNTTの巨大な建物がありますので目印は間違いようがありませんが、そのどこいらで観測したのかとなると？？です。原口さんは建物の南西側と考えているようです。実際の観測点とはかなりの差があるかもしれません。こちらは1.0秒程度はズレる可能性があ

ります。

Google Earth と佐世保付近の国土地理院の地形図を見比べると、緯度・経度ともに10″程度のズレがあります。測地系の違いかもしれませんが、武石さんがGPSで求めた値とも差があるのはよく理解できません。GPS衛星は米国製では？　日本製のGPSは外国では使えないのでしょうか？

松本　直弥 (Naoya MATSUMOTO佐世保Nagasaki)

●・・・・・・・***Date: Mon, 4 June 2007 12:37:55 -0400***
Subject: Re: Spot 0960 3rd June

Excellent! Nice to see you caught the proms as well - there was a nice display Saturday:

http://www.avertedimagination.com/img_pages/edge_060207.html

though AR960 certainly got all the attention. best -

○・・・・・・・***Date: Mon, 11 June 2007 12:26:20 -0400***
Subject: Jupiter at 25 degrees

Hi all - Here is my recent image of Jupiter at meridian from 43 degrees N. latitude:

http://www.avertedimagination.com/img_pages/jupiter_053007.html

Working with Jupiter at 25 degrees is a wrestling match for sure. best wishes,

Alan FRIEDMAN (ｱﾗﾝ・ﾌﾘｰﾄﾞﾏﾝ Buffalo NY美)

http://www.avertedimagination.com

●・・・・・・・***Date: Tue, 05 June 2007 23:37:55 +0000***
Subject: Jupiter 4 June

Hi All,　I have attached some Jupiter images from 4 June. Best,

○・・・・・・・***Date: Thu, 07 June 2007 02:16:59 +0000***
Subject: Jupiter 5 June

Hi All, I have attached some Jupiter images from 5 June. Best,

○・・・・・・・***Date: Tue, 12 June 2007 03:32:02 +0000***
Subject: Venus 10 June

Hi All,　I have attached an ultraviolet image of Venus from 10 June. I used a new fused quartz Barlow (Melles Griot) for improved UV transmission. Best,

○・・・・・・・***Date: Wed, 13 June 2007 01:12:42 +0000***
Subject: Venus 11 June

Hi All,　I have attached a Venus image from 11 June.

○・・・・・・・***Date: Thu, 14 June 2007 03:45:15 +0000***
Subject: Jupiter 11 June

Hi All,　I have attached some Jupiter images from 11 June. Best,

○・・・・・・・***Date: Fri, 15 June 2007 02:56:30 +0000***
Subject: Jupiter 13 June

Hi All, I have attached some Jupiter images from 13 June. Best,

Don PARKER (唐那･派克　Miami, FL 美)

●・・・・・・・***Date: Sun, 10 June 2007 16:58:52 -0500***
Subject: Re: AR 960

Hi friends: Managed to get some images in H-alpha today, using a full aperture 6" *f*/12 A-P refractor working @ *f*/28. I did not use an outboard ERF, just a Baader UV/IR Blocker placed well inside the light cone. From objective down, the optical train was a blocking filter screwed to an extension, then an A-P Barcon Barlow, then an A-P Telecentric, then the DaysStar ATM 0.45Å then the LU-075M.

I have been experimenting (like some of my dear friends)since long and the results are O.K., but the seeing was not good enough again to find out if there is an increase in contrast using my usual 5.1"outboard ERF or not, and if the spatial resolution looks better.

The raining season has started and I have to image through cloud holes and a high atmospheric humidity, just during brief moments. Best regards to all.

○・・・・・・・***Date: Fri, 22 June 2007 18:06:32 -0500***
Subject: Re: solar from 31st 1st & 8th

Hi: Imaged the Sun today between clouds, there was a nice prominence that I am sending. Best regards,

Eric ROEL (ｴﾘｯｸ・ﾛｴﾙ México　墨西哥)

●・・・・・・・***Date: Mon, 11 June 2007 09:04:01 +0200***
Subject: Re: Venus 9 june 2007

Chris, Nice images!

Nice also to hear you fixed the B channel mistery!

Christophe PELLIER wrote:

> A few images from yesterday evening :
> http://astrosurf.com/pellier/V070609-CPE
> This session has solved the "mystery" of my strange B image >from april 18th :
> http://astrosurf.com/pellier/V070418-CPE
> I had again the same problem for my visible images ; a few in-
> vestigation proved that those bands are merely dirt on the chip:
> so Paolo was right !　> Chris

Paolo LAZZAROTTI (ﾊﾟｵﾛ・ﾗｯｻﾞﾛｯﾃｨ Massa 義)

http://www.lazzarotti-optics.com

●・・・・・・・***Date: Tue, 12 June 2007 08:38:05 +0200***
Subject: last mars observations

Dear Murakami san, dear Minami san, I have the pleasure to transmit you my first observation of Mars last 10th for the CMO/ OAA/ Mars survey 2007-2008. Still a little difficult from this period, as the planet heigth at the time is 20-25° locally, to get good images but this was actual last 10th. I will try nextly if possible the 8" aperture newly acquired for. ・・・・

Hope you receive this matter in good condition.

Clear skies and best regards.

○・・・・・・・***Date: Tue, 12 June 2007 10:53:56 +0200***
Subject: RE:10th june mars obs.

Dear Minami san, Thanks a lot for your exhaustive email. I will return you the views in the proper presentation, what I sent you was the raw drawings monitored at the eyepiece. They looked like mirrored effectively.
Apologizes from me for the sent raw given drawings only. Effectively, in spite of the small aperture and heigth of the planet here (20-25°) and the small window for watching (about 20min not more) I had monitored what you watched and commented kindly. The planet is exhibiting a 25' of arc only through the eyepiece. The refractor I am using is a 100mm diameter and *F*10 aperture done by vixen and orthoscopic eyepiece by vixen also. The seeing conditions were average globally to fair few seconds. The CM values I gave you was those calculated with mars previewer program, but I will check it as the difference of CM is quite hudge, something wrong is possible in this software.

Returning on the notes I mentionned down to the sketches:

- sinus sabaeus was seen distinct as a small thin line,
- syrtis major near the edge was for me incompletly seen and it should be normally seen at the time of observation,
- south polar cap: I didnot see it frankly speaking but the area where it is normally is for me actually bright and white yellowish,
- north polar regions near, nothing was reported from me,
- chryse area: a bright area was seen on the region but more extended than the normal thread,
- hellas was seen clear.

For answering you more consistently, I will resend you the observations in the proper format with clearer notes showing the details/ trays seen at the time mentionned.
However I have to get back home to reformat these data before (email: stsma at tiscali.fr).

On receipt I will leave to your kind judgement if this can be published or not. Sincerly yours.

○・・・・・・・***Date: Wed, 13 June 2007 08:54:21 +0200***
Subject: Fw: RE:10th june mars obs.

Dear Minami san, Following our mail exchanged yesterday here are the documents reformated to your attention:・・・・

Apart this matter, the mars previewer software shows effectively a shift on the calculated CM one year after installation (strange but actual). After re-installation, this is OK. Thanks sir for advising me this error about CM values.

Here are them, hope this meet now your wishes and this may me published by your means. Nevertheless I will continue to send you directly my observations when something will be done because I am not to-day a SAF member. I left these planetary commissions 20 years ago now.
Thanks a lot for considering the present mater as you wish for the issue. Trully yours.

○・・・・・・・***Date: Tue, 19 June 2007 17:01:55 +0200***
Subject: mars obs. 18th.

Dear sir, Please find my last mars observation done on 18th with the 100mm refractor at 250×:

Notes during the observations:

- syrtis major incompletly seen and it should be more contrastly seen at the time of observation,
- south polar cap: seen on an area bright and white yellowish,
- north polar regions near, nothing was reported,
- hellas was seen clear
- bright area greater than aeria regio near syrtis major.

Thanks a lot for considering the present mater as you wish for the issue.

Weather in north France remains unfortunately often cloudy and rainy since days, 18th was just a little oportunity with not a long time window clearance of the morning sky. Hope this will get better as the planet becomes a little high, around 30° height at the best.

Trully yours and best regards.

Stanislas MAKSYMOWICZ

(ｽﾀﾆｽﾗｽ･ﾏｸｼﾓｳﾞｨｯﾁ Ecquevilly 法)

☆ ☆ ☆

シー・エム・オー・フクイ **中 島 孝 *Nj***

★前号報告以降、**神崎 一郎**(393)様よりカンパを頂戴しました。有難うございました。不一

☆ Kasei-Tsûshin CMO (*Home Page*: **http://www.mars.dti.ne.jp/~cmo/oaa_mars.html**)
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