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OBSERVATIONS

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The Arsia Evening Cloud in 2005

2005年のアルシア夕雲

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Introduction

1) Arsia-Mons evening cloud behaves differently from the case of Olympus Mons:

The behaviour of the so-called orographic cloud of Olympus Mons has been talked frequently and rather well known, while the evening clouds around at Arsia Mons have not been much pursued, especially less about its behaviour during the latter term of the Martian year. Both roughly behave similarly from the northern spring equinox to the autumnal equinox or to $\lambda=200^\circ\text{Ls}$. However as observed in 1988 the difference was very obvious at around $\lambda=275^\circ\text{Ls}$ seen from Japan (the opposition was at $\lambda=280^\circ\text{Ls}$): Through B light, the Arsia area was covered by a cotton-ball like cloud, while Olympus Mons was not known. On the other hand in R light Olympus Mons was roundish bright because of the opposition effect. In 1990 (similar to the 2005 case), also the Arsia evening cloud was evident at $\lambda=309^\circ\text{Ls}\sim 318^\circ\text{Ls}$ and $\lambda=333^\circ\text{Ls}\sim 338^\circ\text{Ls}$ as observed from Japan (the opposition was at $\lambda=340^\circ\text{Ls}$).

In the latter case, Olympus Mons was roundish bright in R and Int (observed also visually by H ISHADOH (*Id*), T NAKAJIMA (*Nj*), M MINAMI (*Mn*) and others). We should also remark that on 18 Oct 1990 ($\lambda=318^\circ\text{Ls}$, $\iota=32^\circ$) I MIYAZAKI (*My*) produced a set of images at $\omega=108^\circ\text{W}$ where the Arsia cloud looked to be made of a

butterfly-shaped cloud (to be noted below) in B (by the use of TP2415 and B390 filter).

2) Some problems and possible answers of the Arsia-cloud behaviour:

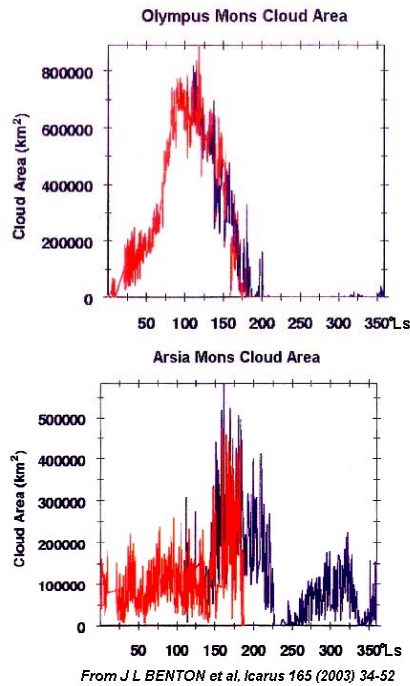
It is difficult to establish the whole-Martian-year behaviour of the evening cloud on Montes if we don't spend considerably long-long terrestrial years. The whole-year activity of the Olympus-Mons orographic cloud was compiled in S A SMITH and B A SMITH, *Icarus* **16** (1972) 509 based on the terrestrial data mainly obtained by observatories in the US and at Pic from 1924 to 1971, but unfortunately it missed the case of the Arsia-Mons cloud activity. Recently the observation stations of Mars spread rather world-widely, but even then we will need several cycles of apparitions. Furthermore the spontaneous outbreaks of dust storms give different behaviours even if the Martian season is identical.

It is notable that the MGS is very suited for the observations of the afternoon activity of the clouds at the Tharsis region. We here refer to a recent result supplementing SMITH and SMITH's and cite two Figures showing the cloud behaviours of Olympus and Arsia Montes in "*The seasonal behavior of water ice clouds in the Tharsis and Valles Marineris regions of Mars: Mars Orbiter Camera observations*" by J BENTON and others in *Icarus* **165** (2003) 34 [this article also gives graphs for Pavonis Mons and Ascraeus Mons as well as for Alba Patera (as cited in CMO #219) and cloud-distribution maps for Valles Marineris]. Here the blue line shows the case during the period from March 1999 to May 2000, and the red line does from June 2000 to July 2001 (unfortunately the blue and red lines are unidentifiable in the

printed version. Please refer to the CMO Web's PDF version). Note that as is known at the end of June 2001 a calm global dust storm was entrained actually at $\lambda=185^\circ\text{Ls}$, and hence forward every evening cloud ceased to be active and totally extinct after that, and so the data after $\lambda=185^\circ\text{Ls}$ depend only on the 1999 activity.

The Nix Olympica activity here is essentially the same as the overview given by SMITH and SMITH, while we should note that the behaviour of the Arsia-Mons evening cloud is quite different than other cases. The most drastic difference is in the behaviour after $\lambda=200^\circ\text{Ls}$: Other Tharsis Montes behave also differently, but rather akin to the Olympus-Mons case, and thus the Arsia-Mons case is very unique. The first big peak from $\lambda=150^\circ\text{Ls}$ to 180°Ls occurs slightly more retarded than the case of Olympus Mons, but we should say they are similarly caused by the gradual advent of the water vapour from the north polar region.

We should however remark that the rise and fall of the cloud on the above graphs are not averaged and so cannot be said well general since it just shows the case in 1999. In particular, how should we say about the gaps during the period $\lambda=227^\circ\text{Ls}\sim 235^\circ\text{Ls}$ and about $\lambda=322^\circ\text{Ls}$ in the Arsia case? BENTON and others seem to consider that the Arsia cloud exists always without respect to the Martian season: They assert that the first extinction gap was due to the dust in 1999 which arose at the west border of M Acidalium to Chryse at $\lambda=221^\circ\text{Ls}\sim 225^\circ\text{Ls}$ based on the analysis by B A CANTOR et al in "*Martian dust storms: 1999 Mars Orbiter Camera observations*", *JGR* **106** (2001) 23653: They regard from the TES images that it reached the Arsia Mons area at



$\lambda=228^\circ\text{Ls}$, and left the place by $\lambda=237^\circ\text{Ls}$. Really TES shows that Arsia Mons is free from dust at $\lambda=200^\circ\text{Ls}\sim 229^\circ\text{Ls}$, while the cloud density rapidly decreases during the period $\lambda=200^\circ\text{Ls}\sim 229^\circ\text{Ls}$, and so this decrease is not because of the dust. It must be so due to the reason that, as is the case for Olympus Mons, the water-vapour supply from the np region rapidly ceased (though slightly retarded). Furthermore TES images also suggest that the dust was there until around 243°Ls .

So it could be safe to assume the following as essential that the water-immigration system completely alternates at this period. It is difficult to pin down the period since the gap at $\lambda=227^\circ\text{Ls}\sim 235^\circ\text{Ls}$ implies just a fortnight in the terrestrial sense. However if we take the alternation into consideration, the period $\lambda=200^\circ\text{Ls}\sim 250^\circ\text{Ls}$ may correspond to the alternation minimum.

In 2001, at $\lambda=230^\circ\text{Ls}$ the Martian surface was already totally yellowish, and no white cloud activity was seen. In 2003, an MGS composite image at $\lambda=230^\circ\text{Ls}$ (made on 28/29 June 2003) was issued (on 7 June 2005) where no more than a little cloud on the Arsia summit is seen. This must be too weak to be checked from the terrestrial bases, while the Arsia cloud shown on the image at $\lambda=288^\circ\text{Ls}$ (28/29 Oct 2003) (published on 4 Oct 2005) is apparently much more intense.

In the case of 2005, some MGS-MOC swaths have been published to a certain extent: It is not easy to find the dense condensate near Arsia Mons on the B image on 16 June 2005 ($\lambda=231^\circ\text{Ls}$) at $\omega=109^\circ\text{W}$ on 17 June at $\omega=122^\circ\text{W}$. However the B swath on 6 July 2005 ($\lambda=244^\circ\text{Ls}$) at $\omega=100^\circ\text{W}$ shows a cloud located at a high altitude space near the following horizon. This was well processed and published as a complete image on 7 Sept 2005. (Note that the camera looks to be made declined to the following side, but that the horizon is not at the morning area but quite near the 2 o'clock line since the camera position is low enough.) The B swath on 25 Sept 2005 ($\lambda=295^\circ\text{Ls}$) well shows the Arsia cloud. Thus the gap must be present if any dust does not exist.

This is not however a place to review MGS's work, and next we turn to the main subject.

Observations of the Arsia Area in 2005

1) When the Arsia cloud began to be observed in 2005?

Only a few observations are there at the period $\lambda=227^\circ\text{Ls}\sim 235^\circ\text{Ls}$: At $\lambda=235^\circ\text{Ls}$ around 22 June, the angular diameter δ was just 8.9", and so if any appropriate angle was chosen, it may be difficult to say something if it be no explicit counterexample (in this case a bright cloud patch at Arsia Mons). On 15 June ($\lambda=231^\circ\text{Ls}$), Christophe PELLIER (*CPI*) obtained a B image at $\omega=130^\circ\text{W}$, and on 18 June ($\lambda=232^\circ\text{Ls}$), David TYLER (*DTy*) an image at $\omega=114^\circ\text{W}$; the latter did not give the B image, but *CPI* obtained a B at $\omega=099^\circ\text{W}$: Every seems to show no explicit cloud over the Arsia area, but we just say they do not provide any counterexample.

The Arsia cloud started to be seen on the B images from around $\lambda=250^\circ\text{Ls}\sim 260^\circ\text{Ls}$ in 2005: First it was shot on 22 July ($\lambda=254^\circ\text{Ls}$, $\delta=10.6''$) by Damian PEACH (*DPc*) at $\omega=118^\circ\text{W}$, second on 29 July ($\lambda=259^\circ\text{Ls}$) by Donald PARKER (*DPk*) at $\omega=138^\circ\text{W}$, third on 2 Aug ($\lambda=261^\circ\text{Ls}$) by Ed GRAFTON (*EGf*) at $\omega=122^\circ\text{W}$ and so on. Especially David MOORE (*DMr*) shot the Arsia-Mons cloud by B quite vividly on 4 Aug ($\lambda=262^\circ\text{Ls}$) at $\omega=127^\circ\text{W}$. We don't necessarily cite subsequent work, but as it moved on to Japan, Kenkichi YUNOKI (*Yn*) showed it on B images on 11 Aug ($\lambda=267^\circ\text{Ls}$) at $\omega=133^\circ\text{W}$, and Isao MIYAZAKI (*My*) on 13 Aug ($\lambda=268^\circ\text{Ls}$) at $\omega=146^\circ\text{W}$.

2) Butterfly-shaped cloud

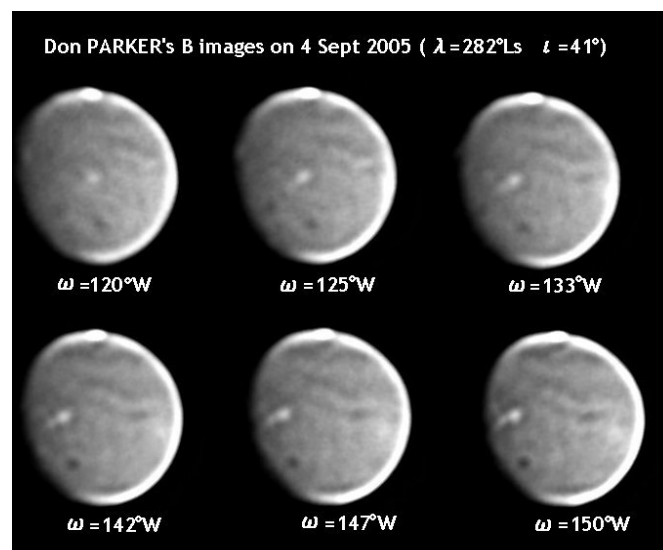
The Arsia cloud seemed to become stronger meanwhile, and on 26 Aug ($\lambda=276^\circ\text{Ls}$) at $\omega=128^\circ\text{W}$, *CPI* first described the Arsia cloud to be of the *butterfly-like shape* with wings extending to the south as well as to the north. *DPc* also showed it explicitly on the images on 28 Aug ($\lambda=277^\circ\text{Ls}$) at $\omega=121^\circ\text{W}$, 130°W , & 136°W : Since he also puts forward



an R image at $\omega=137^\circ\text{W}$, the colour composite image suggests the positions of the wings. *DTy*, not yet so skilled at that initial time, also chased it through B. On 29 Aug ($\lambda=278^\circ\text{Ls}$), *DPc* described it again at $\omega=105^\circ\text{W}$, 121°W , and *CPI* at $\omega=110^\circ\text{W}$, 122°W (the latter by the use of B+SP4 filters; showing further a thin mist patch at

an area preceding Olympus Mons). On the same day, *DTy* (now much skilled) showed it at $\omega=140^\circ\text{W}$ by B, and Emilio HIDALGO (*EHD*) at $\omega=147^\circ\text{W}$. *CPI*'s images on 30 Aug ($\lambda=279^\circ\text{Ls}$, $\iota=43^\circ$) at $\omega=105^\circ\text{W}$ show the northern wing weakly, but the images at $\omega=113^\circ\text{W}$, $\omega=132^\circ\text{W}$ quite explicitly (the $\omega=113^\circ\text{W}$ one by SP-4). On the images by *EHD*, the wings look bar-like at $\omega=124^\circ\text{W}$, 135°W .

Moving to the US, *DPk* on 4 Sept ($\lambda=282^\circ\text{Ls}$, $\iota=41^\circ$) produced a good set of B images at $\omega=120^\circ\text{W}$, 125°W ,



133°W , 136°W , 142°W , 146°W , 147°W , and 150°W (sorry, we missed to review these B images in Report #10 in CMO #309). These show the northern wing becomes stronger after $\omega=125^\circ\text{W}$. At the same time a weak cloud patch at Syria Planum precedes the wings. By that time, every ccd image suggested the presence of the butter-shaped cloud, though we don't necessarily cite every here. *EGf*'s images on 5 Sept ($\lambda=282^\circ\text{Ls}$) at $\omega=143^\circ\text{W}$ show that the southern plume is apparent in R also, and hence it or the western flank must have diffusively reflected back the sunshine.

In Japan the area came into sight around from 12 Sept. Visually the wings were witnessed for example on 15 Sept ($\lambda=289^\circ\text{Ls}$) at $\omega=154^\circ\text{W}$ et al (by *Mn*). By ccd B images, on 18 Sept ($\lambda=291^\circ\text{Ls}$), *Yn* took it at $\omega=130^\circ\text{W}$, 143°W , and Yukio MORITA (*Mo*) at $\omega=120^\circ\text{W}$, 134°W , 143°W , though not yet so clear. On 19 Sept ($\lambda=291^\circ\text{Ls}$, $\iota=36^\circ$), Yasunobu HIGA (*Hg*) at Naha caught it at $\omega=146^\circ\text{W}$. The southern wing was bright on Tomio AKUTSU (*Ak*)'s image on 25 Sept ($\lambda=295^\circ\text{Ls}$) at $\omega=122^\circ\text{W}$: B image lacks, but it is possibly because of

the diffused reflection at the western flank.

3) A cloud patch which precedes the Arsia cloud, and the "W" cloud.

Martin MOBBERLEY (*MMb*) on 3 Oct ($\lambda=299^\circ\text{Ls}$, $\tau=29^\circ$) at $\omega=150^\circ\text{W}$ clearly showed an existence of a cloud patch at Syria Planum preceding the Arsia area cloud. It must make a part of the so-called *W cloud*. On 4 Oct ($\lambda=300^\circ\text{Ls}$, $\tau=28^\circ$), *CPI* showed it quite inside at $\omega=100^\circ\text{W}$ by B (LMT of Syria was just before 2 o'clock PM). On 5 Oct ($\lambda=300^\circ\text{Ls}$), *DPc* also showed it at $\omega=100^\circ\text{W}$ (B). On 7 Oct ($\lambda=302^\circ\text{Ls}$) Jesús SÁNCHEZ (*JSc*) in Spain also showed it at $\omega=136^\circ\text{W}$. In the US, Sean WALKER (*SWk*) took the Arsia cloud on 6 Oct ($\lambda=301^\circ\text{Ls}$) at $\omega=147^\circ\text{W}\sim 157^\circ\text{W}$, Bill FLANAGAN (*WFl*) on 9 Oct ($\lambda=303^\circ\text{Ls}$) at $\omega=153^\circ\text{W}$, *EGf* on the same day at $\omega=162^\circ\text{W}$, but the preceding part was already set down. However on 9 Oct ($\lambda=303^\circ\text{Ls}$, $\tau=25^\circ$), James PHILLIPS (*JPh*) obtained a cloud patch at Noctis Labyrinthus at $\omega=145^\circ\text{W}$. The present writer (*Mn*) staying at Lick observed it on 10 Oct ($\lambda=304^\circ\text{Ls}$) at $\omega=146^\circ\text{W}$, 156°W . On 11 Oct ($\lambda=304^\circ\text{Ls}$, $\tau=23^\circ$), *DPk* showed the Arsia cloud plus the Syria cloud quite inside at $\omega=113^\circ\text{W}$ (The LMT of Syria is just before 3 o'clock PM), and Kent De GROFF (*KGr*) caught them near the terminator at $\omega=152^\circ\text{W}$. On the day *Mn* at Lick chased the area from $\omega=117^\circ\text{W}$ to 130°W , 147°W , and found that at $\omega=156^\circ\text{W}$, 166°W , the Syria cloud was quite thick as well as the butterfly-shaped cloud. On 13 Oct ($\lambda=305^\circ\text{Ls}$), *Mn* also obtained a similar result at $\omega=136^\circ\text{W}$: the seeing was improved and the southwestern flank was bright but not only white but looked ground lit.

Larry OWENS (*LOW*) produced an excellent and interesting images (embossed?) on 14 Oct ($\lambda=306^\circ\text{Ls}$, $\tau=20^\circ$) at $\omega=134^\circ\text{W}$ where nearly whole of the W cloud is visible including the butterfly Arsia and the Syria cloud. Ed LOMELI (*ELm*)'s B image at $\omega=143^\circ\text{W}$ is also excellent. *WFl*'s images on 15 Oct ($\lambda=307^\circ\text{Ls}$) at $\omega=101^\circ\text{W}$ are also interesting: The description of the area of Arsia Mons at $\omega=095^\circ\text{W}$ et al is superb. Eric ROEL (*ERl*)'s image on the same day at $\omega=122^\circ\text{W}$ is also instructive.

4) Arsia clouds after the October dust

To the north of Eos, a significant dust started on 18 Oct

($\lambda=308^\circ\text{Ls}$, $\tau=18^\circ$) (happily chased from the morning to the evening side from Europe to the US) and it disturbed the hemisphere for a while and affected the atmospheric behaviour. However the effect to the Arsia area did not so rapidly appear. From the seasonal point of view, the Arsia cloud should have been at the second peak. On 18 Oct, Teru-aki KUMAMORI (*Km*) took an image at $\omega=179^\circ\text{W}$ where the Arsia cloud was apparent. On 19 Oct ($\lambda=309^\circ\text{Ls}$), *Mo* produced a set of images at $\omega=172^\circ\text{W}$, 182°W , 191°W , Tadashi ASADA (*As*) at $\omega=175^\circ\text{W}$, 185°W , 195°W , Robert HEFFNER (*RHf*) at Nagoya at $\omega=178^\circ\text{W}$, and *Hg* at $\omega=179^\circ\text{W}$, and they all show the presence of the Arsia cloud near the terminator. On 20 Oct ($\lambda=310^\circ\text{Ls}$), *Mo* caught the remaining cloud near the terminator at $\omega=163^\circ\text{W}$, 173°W , 182°W . On 21 Oct ($\lambda=310^\circ\text{Ls}$, $\tau=15^\circ$), Canon LAU (*CLa*) in Hong Kong took nice pictures at $\omega=178^\circ\text{W}$ & 184°W . From 22 Oct onward, the dust core came into sight in Japan, and so every observer just concentrated on the dust core at the Solis L area and took little account of the following areas. Just MORITA (*Mo*) chased up until $\omega=156^\circ\text{W}$ on 23 Oct ($\lambda=311^\circ\text{Ls}$, $\tau=14^\circ$): If we compare it with his preceding image at $\omega=163^\circ\text{W}$ on 20 Oct, we may say that the Arsia cloud seems to begin to subside. On 24 Oct, no observations (perhaps because of the sky condition). On 25 Oct ($\lambda=313^\circ\text{Ls}$) the ccd image last taken by *Mo* was at $\omega=129^\circ\text{W}$. The present writer was on the way from San José to Narita, further to the Komatsu airport, and finally joined NAKAJIMA (*Nj*) who was already at the Fukui Observatory and we observed together the area as follows: at $\omega=152^\circ\text{W}$ (*Nj*), 156°W (*Mn*), 161°W (*Nj*), 166°W (*Mn*, 26:50JST). The Tharsis region appeared rather lighter as it reached the terminator, and we observed that Syria was slightly whitish, but it was difficult to discriminate the condensate from the airborne dust because of the poor seeing condition. On 26 Oct it was cloudy. On 27 Oct ($\lambda=314^\circ\text{Ls}$), a light patch was seen at Syria at $\omega=095^\circ\text{W}$ (*Mn*), but it was quite similar to the bright Claritas and so it must have been ground-lit or a small dust. At the latter sessions, we observed as follows: at $\omega=143^\circ\text{W}$ (*Mn*), 148°W (*Nj*), 153°W (*Mn*), 158°W (*Nj*), 170°W (*Mn*): It was impossible to catch the white cloud activity at the Arsia-Mons area any longer.

Since Sirenum M and others are definitely seen, the dust was not so thick over there.

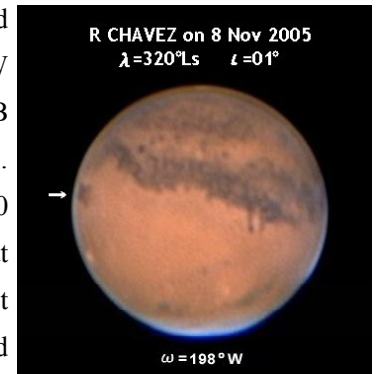
Two days later on 29 Oct ($\lambda=315^\circ\text{Ls}$, $\iota=8^\circ$), *CPI* near Paris secured a B image at $\omega=194^\circ\text{W}$. If we compare it with *As*'s image made on 19 Oct ($\iota=17^\circ$) at $\omega=195^\circ\text{W}$, we are sure the Arsia cloud has been extinct (in the case of *CPI*, Olympus Mons is now bright because the phase angle has much decreased to $\iota=8^\circ$). On 31 Oct ($\lambda=316^\circ\text{Ls}$), *EHD* produced B images at $\omega=191^\circ\text{W}$ & 196°W where the Arsia cloud was unseen. At this angle the opposition-effected Olympus Mons was still unseen in B. On 1 Nov ($\lambda=317^\circ\text{Ls}$), *EHD* took a B at $\omega=177^\circ\text{W}$, but it is not understandable why he did not shoot at $\omega=191^\circ\text{W}$ to compare with his earlier work.

5) Near the opposition time

On every image for example on 4 Nov ($\lambda=318^\circ\text{Ls}\sim 319^\circ\text{Ls}$, $\iota=3^\circ$) of *DTy*'s at $\omega=183^\circ\text{W}$, of *CPI*'s at $\omega=128^\circ\text{W}$ & 155°W , of David *ARDITTI* (*DAd*)'s at $\omega=146^\circ\text{W}$, of *MMb* at $\omega=153^\circ\text{W}$, the west flank side of the Arsia ridge is bright also through B, but this suggests that the brightness is mainly due to the lightening of the slope (opposition effect). This time Olympus Mons was also seen through their B, but this must be due to the fact that the diffused reflection contains the white-light ingredient. In order to get a genuine discrimination of the reflection from the white colour, we should have added some technique of employing polarisation effect (this was also the reason why the older observations were misled to assuming the so-called blue layer). Hence, as far as we cannot reproduce finely a delicate colour/light balance, we should put the review of the slope cloud into *epokhe* (not discuss about the effect of the dust on Arsia area) during the time $\iota<10^\circ$. So we abandon here to use the excellent images in the usual sense made on 4 Nov, 5 Nov and 6 Nov [on 6 Nov ($\lambda=320^\circ\text{Ls}$) at $\omega=136^\circ\text{W}\sim 144^\circ\text{W}$, *DPc* produced a set of detailed images of Tharsis]. After opposition, the area was also fully observed in the US continent: Typical are a series of the work on 12 Nov ($\lambda=323^\circ\text{Ls}$, $\iota=4^\circ$) by *JPh* at $\omega=180^\circ\text{W}$, by *KGr* at $\omega=183^\circ\text{W}$, and on 14 Nov ($\lambda=324^\circ\text{Ls}$, $\iota=6^\circ$) by *WFl* at $\omega=149^\circ\text{W}$, *KGr*'s at $\omega=169^\circ\text{W}$.

There are however interesting examples: on 6 Nov ($\lambda=319^\circ\text{Ls}$, $\iota=1^\circ$), the day before opposition, Sean

WALKER (*SWk*)'s images at $\omega=189^\circ\text{W}$, 205°W show an existence of a darker spot following the Arsia western flank near the terminator. This was more evident and darker on the images on 8 Nov ($\lambda=320^\circ\text{Ls}$) made by *LOW* at $\omega=198^\circ\text{W}$ and Roland CHAVEZ (*RCv*)'s at $\omega=198^\circ\text{W}$, 207°W and 213°W . *DPk*'s images on 9 Nov ($\lambda=321^\circ\text{Ls}$, $\iota=2^\circ$) at $\omega=196^\circ\text{W}$ look to show a tip, just different from *LOW* and *RCv*' cases at $\omega=198^\circ\text{W}$ by 2°W (though *DPk*'s B image was at $\omega=198^\circ\text{W}$). The image by *EGf* on 10 Nov ($\lambda=322^\circ\text{Ls}$, $\iota=3^\circ$) at $\omega=206^\circ\text{W}$ also shows it a bit. ----- We should



remember that already in 1988, a similar dark spot was once evident on a TP2415 image made by MIYAZAKI (*My*) when the following area of the Arsia Mons was near the *morning* terminator on 30 Sept 1988 ($\lambda=282^\circ\text{Ls}$, $\iota=4^\circ$, $\delta=23.5^\circ$) at $\omega=065^\circ\text{W}$, and so this phenomenon might be one of those which happen in the case of opposition, but the present writer saw similar (maybe not identical) dark spot near the evening terminator when the phase angle was still large $\iota=26^\circ$ at Lick on 7 Oct ($\lambda=302^\circ\text{Ls}$, $\iota=26^\circ$) 2005 at $\omega=203^\circ\text{W}$, 212°W (as to which we will discuss on another occasion). In any case, we may safely say that on the days around 6 Nov ~ 8 Nov, the cloud to the west of the Arsia flank was weak or at least it did not so long trail. On 12 Nov ($\lambda=323^\circ\text{Ls}$, $\iota=4^\circ$), *RCv* took at $\omega=183^\circ\text{W}$, but unfortunately he missed the angle $\omega=198^\circ\text{W}$ of 8 Nov to compare. Bill DICKINSON (*WDc*)'s image on 12 Nov at $\omega=211^\circ\text{W}$ does not show the dark spot any longer.

6) Recovery of the Arsia cloud

Maurice VALIMBERTI (*MVT*)'s images at Melbourne on 20 Nov ($\lambda=327^\circ\text{Ls}$, $\iota=12^\circ$) at $\omega=203^\circ\text{W}$ look to show a recovery of the Arsia cloud near the limb in B (and at the same time the opposition effect of Olympus Mons much decreased). On 24 Nov ($\lambda=329^\circ\text{Ls}$), *Km* made a colour image at $\omega=176^\circ\text{W}$, and *Mo* took B images at $\omega=178^\circ\text{W}$, 184°W where the presence of condensate at the limb is evident. The TES images show still a dusty encircling at that time, and Tharsis was not so clear. This

remains also quite the same in December 2005, and so we should take caution when we refer to the TES dust images.

On 6 Dec ($\lambda=336^\circ\text{Ls}$, $\iota=23^\circ$), *DTy* took the Arsia limb cloud at $\omega=184^\circ\text{W}$, 196°W , and *DPc* at $\omega=189^\circ\text{W}$ (B). On 8 Dec ($\lambda=337^\circ\text{Ls}$, $\iota=24^\circ$) *DPc*'s image at $\omega=171^\circ\text{W}$ (B) shows definitely the latter half of the W cloud.

On 11 Dec ($\lambda=339^\circ\text{Ls}$, $\iota=26^\circ$), *CPI* made an important observation; that is, he showed at $\omega=141^\circ\text{W}$, 151°W (B) that the condensate Arsia cloud hangs down to the east-northern direction not in the shape of W but in the shape of the Japanese *katakana* ノ . On 14 Dec ($\lambda=340^\circ\text{Ls}$, $\iota=27^\circ$) in the US, *DPk* showed the limb cloud at $\omega=188^\circ\text{W}$. The season $\lambda=330^\circ\text{Ls}\sim 340^\circ\text{Ls}$ corresponds to the second gap in the 1999 graph of BENTON and others, and so this period is important, but since the phase angle has already grown large we should refrain from further consideration here, no more than just suggesting that the rapid decline and the second gap was not so vivid in 2005. We shall expect to observe more intensively in 2007 the situation around $\lambda=330^\circ\text{Ls}\sim 340^\circ\text{Ls}$ which will visit in mid- October 2007 and last for one month. Furthermore, as far as we saw in the TES images in 2005/2006, the seasons $\lambda=352^\circ\text{Ls}$, 001°Ls , and $030^\circ\text{Ls}\sim$ gave the images of Arsia Mons covered thickly by the dusty cloud, and so we also look forward to the fruitful checks in these seasons in 2007/2008. The northern spring equinox $\lambda=000^\circ\text{Ls}$ visits on 9 Dec, before opposition with $\phi=4^\circ\text{N}$.

Remarks and Outlook

The reason why the summit of Olympus Mons shows a white cotton-ball like cloud (slightly declined to the west) from early summer to the autumnal equinox is known to be because the thawing north polar cap (npc) continues to supply the water vapour to the direction of the equator. This immigration of water vapour gives rise to not only the equatorial-belt mist during the season but also the complex cloud distribution around the Arsia and the Syria area. However after the northern autumnal equinox, the north-polar region begins to take back the

water vapour, so that the evening cloud around Olympus Mons (as well as at Ascræus Mons and Alba Patera) disappears. On the other hand, the south polar cap (spc) begins to thaw, and from the perimeter area it sends out the water vapour which has been trapped long in the dry-iced cap. This also immigrates down to the direction of the equator belt. As is known, there is an asymmetry of the heat absorption from the Sun between the south and the north hemisphere (especially polar regions) due to the orbital eccentricity so that the ingredients contained in the pole caps and even the maximal sizes are different: In fact the total amount of the water vapour at the spc is much less than the case of the opposite side (once it was erroneously said that the spc was totally dry-iced. It is however contradictory to the results obtained from the terrestrial observations: It has long been known that the perimeter begins to sun-glint when the thawing begins, and the southern morning and evening sides become full of the condensate mists). However the amount of the water vapour which immigrates down from the south circumpolar area to the equatorial belt is not enough to provide to the higher mountains on the northern hemisphere, and even the Arsia area also receives less, so that the second peak remains relatively lower. The immigration-switch from north to south so occurs slightly asymmetrically, and the season around $\lambda=200^\circ\text{Ls}$ must provide a critical point.

However on Mars the dust storms often happen spontaneously to entrain, and disturb the activity of the condensates. So it is not easy to overview the true trend of the evening clouds. In the 2005 apparition, the activity at the Arsia area was extinct during the period $\lambda=314^\circ\text{Ls}\sim 325^\circ\text{Ls}$ due to the October dust, and this provided a different aspect from the rise-and-fall aspect obtained by the 1999 MGS-MOC. In the Viking case, it was similarly said to have been somewhat difficult to pin down the regular seasonal behaviour when the amount of the water vapour increases or dries up because of the twice occurrences of dust storms (as to the Viking data of distribution of the seasonal water vapour along the latitudes, see C B FARMER & P E DOMS, *Global Seasonal Variation of Water Vapor on Mars and the Implications for Permafrost*, *JGR* **84** (1979) 1881). So we need to contin-



ue to observe every opportunity.

As examples of the so-called W cloud, Earl C SLIPHER's photographs in 1954 are well known (see p117 and p159 in *The Photographic Story of Mars*, Sky Publishing Corporation, 1962). This case is however different from the 2005 case, and corresponds to the case that occurs in the season when the water ingredients are much abundant. In fact, we can pick out three representatives (all in B) from p117 as follows in order of ω : 26 June ($\lambda=185^\circ\text{Ls}$) at $\omega=147^\circ\text{W}$, 28 June ($\lambda=186^\circ\text{Ls}$) at $\omega=157^\circ\text{W}$, 20 June ($\lambda=182^\circ\text{Ls}$) at $\omega=161^\circ\text{W}$. Since the planet was at opposition on 24 June ($\lambda=184^\circ\text{Ls}$), we see there is few defect of illumination in these cases. It is not easy to see the details, but the one at $\omega=147^\circ\text{W}$ (cited also in p159) looks to show the W shape most fully: The preceding clouds including the one at Syria looks quite thick. Since the area is low, not spotted by any higher Montes, we should take account of other explanation than the simple orographic hypothesis.

The observations in 2005 of the Arsia area and its preceding area were precious since the season was different from the 1954 case. The details obtained are also superior to the preceding ones. The detection of the λ -shaped cloud by *CPI* on 11 Dec ($\lambda=339^\circ\text{Ls}$, $\tau=26^\circ$) was also interesting. The same season will visit in the latter half of October 2007.

はじめに

オリュムプス・モンズとの違い：オリュムプス・モンズの山頂に掛かる夕雲の、季節による違いについてはよく知られてるが、アルシア・モンズ山頂の夕雲については、餘り知られていない。両者の振る舞いは、北半球の春分から $\lambda=200^\circ\text{Ls}$ 邊り迄は大まかには違いがないのであるが、その後の様子に就いて1988年の大接近の時、日本からは $\lambda=275^\circ\text{Ls}$ 前後でその差が歴然と出て注目を浴びた(衝は $\lambda=280^\circ\text{Ls}$)。Bではアルシア・モンズ山頂が綿雲に覆われているのに對し、オリュムプス・モンズは認知されなくて、Rではオリュムプス・モンズが衝効果で明るく輝いているというものであった。2005年型の1990年にも日本からは $\lambda=309^\circ\text{Ls}\sim 318^\circ\text{Ls}$ でアルシア夕雲は確認されたし、 $\lambda=333^\circ\text{Ls}\sim 338^\circ\text{Ls}$ の期間でも観測されている(衝は $\lambda=340^\circ\text{Ls}$)。

後者ではオリュムプス・モンズが衝効果を示してRやIntでは明るい(眼視では伊舎堂弘(Id)氏や中島孝(Nj)氏、筆者(Mn)など)。尚、18Oct1990($\lambda=318^\circ\text{Ls}$, $\tau=32^\circ$)には宮崎勲(My)氏が $\omega=108^\circ\text{W}$ で、後で述べるバタフライ型のアルシア夕雲をB光(B390)で撮っている。

問題点：地上からの観測では、相當な年月を掛けなければ、 λ の全期間に亙ってアルシア雲の動きをわれわれの立場で探ることは難しい。オリュムプス・モンズ上の雲の活動は何度も引用するようにSMITH-SMITHによって1972年にローエルなどアメリカの天文臺の舊い記録やムードン天文臺のアーカイヴを辿って出されているが、アルシア・モンズに就いては抜けている。これは長年の記録の集大成であるから、全期間に亙るが、二三年の観測ではこうは行かない。最近はアマチュアの観測點が美大陸だけでなく、亜細亜、欧羅巴に擴がって、幅は擴がって居るが、それでも太平洋上、また印度大陸を挟む地域が空白になっているから、單年度での追求は難しい。更に黄雲の發生が同じ季節でも夕雲の振る舞いを變える。

一方、MGsの観測は(朝方の観測はまるっきり駄目だが)丁度夕方の山岳雲の観測測定には向いている。英文の部に引用した圖はJ BENTON et alの"*The seasonal behavior of water ice clouds in the Tharsis and Valles Marineris regions of Mars: Mars Orbiter Camera observations*", *Icarus* **165** (2003) 34からの引用で、オリュムプス・モンズとアルシア・モンズの夕方雲の活動を讀み取ったものである(他に、アスクラエウス・モンズとパウオニス・モンズ、それに#319引用のアルバ・パテラのグラフ、ワッレス・マリネリス附近の盛衰圖がある)。

藍色の線は1999年三月から2000年五月迄、赤色線は2000年六月から2001年七月迄である(印刷では赤藍の區別は出ない。Web参照)。2001年六月末には $\lambda=185^\circ\text{Ls}$ で大黃雲が出た爲に夕方雲の活動はストップして了ったから、 $\lambda=185^\circ\text{Ls}$ 以降はほぼ1999年の結果による。

オリュムプス・モンズ雲の動向はSMITH-SMITHの調査と本質的に變わらないが、アルシア・モンズ雲の動向は極めてオリュムプス・モンズのそれと違っている。極大時期も違う上、 $\lambda=200^\circ\text{Ls}$ 以降の振る舞いに根本的な違いがある。アスクラ

エウス・モンス、パウオニス・モンスの振る舞いも夫々違うのであるが、どちらかというオリュムプス・モンス型であって、アルシア・モンス雲は独特である。勿論、圖から判るとおり、大きなピークが $\lambda=150^\circ\text{Ls}$ から 180°Ls 頃迄あって、オリュムプス・モンスのピークより遅れるが、これは北から傳わって来る水蒸氣の遅延に依るからで、性格は両者は同じであろう。

では、上の圖に現れた盛衰が一般的かというところ必ずしもそうとは言えない。何故なら1999年だけの例だからである。特に圖に現れる $\lambda=227^\circ\text{Ls}\sim 235^\circ\text{Ls}$ 、及び $\lambda=322^\circ\text{Ls}$ の後のギャップはどうか。BENTON et alはアルシアの雲は常に存在しピーク以外ほぼ同じ程度であると考えているようで、最初のギャップは1999年に観測された黄雲が $\lambda=228^\circ\text{Ls}$ にアルシア・モンスに達し、 $\lambda=237^\circ\text{Ls}$ 迄にこの領域を去ったとTES像から言えるということがあるからの様である。この黄雲は例えば

B A CANTOR et al "Martian dust storms: 1999 Mars Orbiter Camera observations", *JGR* **106** (2001) 23653に記述がある。然し、逆に言うとTES像では $\lambda=200^\circ\text{Ls}\sim 229^\circ\text{Ls}$ 迄はアルシア・モンスは綺麗であるから、グラフの様に急激に白雲が減少する理由は別に存在し、これはオリュムプス・モンスなどと同じく(多少遅延があるが)、北半球からの水蒸氣の供給が衰えるからであろうと思われる。 $\lambda=237^\circ\text{Ls}$ 迄に去ったというけれど、 243°Ls 迄は黄雲の影響がないとは言えない。揚げ句餘程綺麗なときでなければこの邊りはどうとも言えないと思われる。

もう一つこのギャップの可能性としては、もっと本質的で、水蒸氣の移動の質がこの時期に入れ替わるといことが考えられる。尚、 $\lambda=227^\circ\text{Ls}\sim 235^\circ\text{Ls}$ というのは地球日にすると二週間程であるから、観測は難しい対象と言える。然し、水蒸氣の移動の切り替わる時の現象幅としては、 $\lambda=200^\circ\text{Ls}\sim 250^\circ\text{Ls}$ ぐらいは考えられるから、これは十分に確かめられる範囲であろうと思う。

2001年には $\lambda=230^\circ\text{Ls}$ には全く黄雲まみれであったから白雲の活動は見られなかったのは当然である。2003年の場合の $\lambda=230^\circ\text{Ls}$ (28/29June2003)のMGS像としてはCMO#319のSer2-0399に引用した場合に對應する圖、つまりアルシア・モンスの入った圖が07June2005に發表されていて、これにはほんの

少し出ている程度である。多分、これは地上からの観測には掛からない。然し、同じく4Oct2005に發表された2003年の $\lambda=288^\circ\text{Ls}$ (28/29Oct2003)のアルシア雲は甚だ明白である。

2005年の場合は既にMGS-MOCの短冊像が發表されているが、例えば、16June2005($\lambda=231^\circ\text{Ls}$) $\omega=109^\circ\text{W}$ のB像や翌17June $\omega=122^\circ\text{W}$ のB像でアルシア雲を見つけるのは易しくない。しかし、6July2005($\lambda=244^\circ\text{Ls}$)の $\omega=100^\circ\text{W}$ の像では、アルシアが地平から出た後その上に雲が出ているのが寫っている。これは畫像處理されて7Sept2005に發表された。多分カメラを稍傾けて、地平線を入れるようにしたのであろう(カメラの位置が低いから地平は朝ではなく、グッと午後2時の線に近いところまで迫っている)。他方、25Sept2005($\lambda=295^\circ\text{Ls}$)邊りの短冊を見るとアルシア雲は既に明白である。つまり、ギャップは多少の差こそあれ、黄雲がなくても存在する可能性がある。

然し、ここではMGSのアルシア雲を概観する場ではないので、本題に入る。

2005年のアルシア領域の観測

1) いつ頃からアルシア雲は観測され始めたか
残念ながら、上の $\lambda=227^\circ\text{Ls}\sim 235^\circ\text{Ls}$ 時に對應する観測は多くはない。 $\lambda=235^\circ\text{Ls}$ は22June邊りで、 δ は $8.9''$ であるから、適当な角度があっても相當な反例でなければ何も言えないであろう。像としては15June($\lambda=231^\circ\text{Ls}$)のペリエ(CPI)氏の $\omega=130^\circ\text{W}$ のB像、18June($\lambda=232^\circ\text{Ls}$)のタイラー(DTy)氏の $\omega=114^\circ\text{W}$ があるが、雲は出ているようには見えない。後者にはB像がないが、B像では少し早くCPI氏の $\omega=099^\circ\text{W}$ がある。ギャップに對する反例ではないという事は確かである。

アルシア雲がいつ懸かり始めたかどうかは別として、撮像され始めたのは、22July($\lambda=254^\circ\text{Ls}$ 、 $\delta=10.6''$)(ピーチ(DPc)氏； $\omega=118^\circ\text{W}$)、29July($\lambda=259^\circ\text{Ls}$)(パーカー(DPk)氏； $\omega=138^\circ\text{W}$)、2Aug($\lambda=261^\circ\text{Ls}$)(グラフトン(EGf)氏； $\omega=122^\circ\text{W}$)邊りであり、特にムーア(DMr)氏による4Aug($\lambda=262^\circ\text{Ls}$) $\omega=127^\circ\text{W}$ のB像では明白になっている。以下必ずしも全てアルシア雲を顕す観測を擧げるわけではないが、日本へ来て柚木(Yn)氏の11Aug($\lambda=267^\circ\text{Ls}$) $\omega=133^\circ\text{W}$ のB等に出ているし、宮崎(My)氏の13Aug($\lambda=268^\circ\text{Ls}$) $\omega=146^\circ\text{W}$ にも窺える。

2) バタフライ型の夕雲

歐羅巴までの時間が勿體ないが、アルシア雲は次第に強くなっていたようで、26Aug($\lambda=276^\circ\text{Ls}$) $\omega=128^\circ\text{W}$ でCPI氏がアルシア雲が南と北に蝶の翅のように割れたような形で撮った(英文の部)。DPc氏の28Aug($\lambda=277^\circ\text{Ls}$) $\omega=121^\circ\text{W}$ 、 130°W 、 136°W のB像でも明白である。 $\omega=137^\circ\text{W}$ にR像があるので、カラー像で見ると雲の配置がほぼ分かる。DTy氏は未だ習熟していない段階で、像は不明確だが、Bで追っている。29Aug($\lambda=278^\circ\text{Ls}$)にはDPc氏が $\omega=105^\circ\text{W}$ 、 121°W で。CPI氏が $\omega=110^\circ\text{W}$ 、 122°W (後者はB+SP4使用、オリュムプス・モンスの前方にも薄い雲の擴がり)で描き出した。同日ではDTy氏の $\omega=140^\circ\text{W}$ のB、ヒダルゴ(EHd)氏の $\omega=147^\circ\text{W}$ にも明白である。CPI氏の30Aug($\lambda=279^\circ\text{Ls}$ 、 $i=43^\circ$)では $\omega=105^\circ\text{W}$ では未だ北の翅は弱い、 $\omega=113^\circ\text{W}$ 、 $\omega=132^\circ\text{W}$ では明白である(前者はSP-4使用)。EHd氏の $\omega=124^\circ\text{W}$ 、 135°W には棒状に見える。

美國に移って4Sept($\lambda=282^\circ\text{Ls}$ 、 $i=41^\circ$)にはDPk氏のB像が $\omega=120^\circ\text{W}$ 、 125°W 、 133°W 、 136°W 、 142°W 、 146°W 、 147°W 、 150°W と揃っている(CMO#309のReport#10では迂闊にもB像をチェックしなかった:引用圖参照)。これを見ると $\omega=125^\circ\text{W}$ 以後、北の枝が強くなってくる。同時にシュリア邊りに弱い雲塊が先行している。この頃になると角度さえ好ければどの像にでも出ているが、EGf氏の5Sept($\lambda=282^\circ\text{Ls}$) $\omega=143^\circ\text{W}$ では南側のプリュームはRでも出ているので、光の亂反射があるかも知れない。

日本では12Septぐらいから範囲に入った。バタフライ型は眼視では筆者(Mn)など15Sept($\lambda=289^\circ\text{Ls}$) $\omega=154^\circ\text{W}$ 等で見ている。ccdでは18Sept($\lambda=291^\circ\text{Ls}$)にYn氏が $\omega=130^\circ\text{W}$ 、 143°W などで、Mo氏が $\omega=120^\circ\text{W}$ 、 134°W 、 143°W のB像で撮ったが稍キレが悪い。19Sept($\lambda=291^\circ\text{Ls}$ 、 $i=36^\circ$)には比嘉(Hg)氏が $\omega=146^\circ\text{W}$ で縁近くで捉えている。南側のウィングは阿久津(Ak)氏の25Sept($\lambda=295^\circ\text{Ls}$ 、 $\omega=122^\circ\text{W}$)で相当明るい。B像がないのが残念だが、亂反射と濃い雲の可能性はある。

3) アルシア・モンスに先行する雲とW型雲

十月に入って英國のモッバーリィ(MMb)氏が3Oct($\lambda=299^\circ\text{Ls}$ 、 $i=29^\circ$) $\omega=150^\circ\text{W}$ において蝶型アルシア雲に先行するシュリア・プラヌムの夕雲を明白にしている。W型の一部である。これは

4Oct($\lambda=300^\circ\text{Ls}$ 、 $i=28^\circ$)のCPI氏の $\omega=100^\circ\text{W}$ のBに依ると可成り内部で既に出ている(シュリアのLMTはほぼ午後2時前)。5Oct($\lambda=300^\circ\text{Ls}$)のDPc氏の $\omega=100^\circ\text{W}$ のBにも出ている。7Oct($\lambda=302^\circ\text{Ls}$)にはまだ西班牙のヘスス・サンチェス(JSc)氏が $\omega=136^\circ\text{W}$ でアルシアに先行する雲を撮っている。美國に移って、ウォーカー(SWk)氏の6Oct($\lambda=301^\circ\text{Ls}$) $\omega=147^\circ\text{W}\sim 157^\circ\text{W}$ 、9Oct($\lambda=303^\circ\text{Ls}$)のフラナガン(EFl)氏の $\omega=153^\circ\text{W}$ 、EGf氏の $\omega=162^\circ\text{W}$ ではアルシア雲を撮しているものの、先行する部分は没している。9Oct($\lambda=303^\circ\text{Ls}$ 、 $i=25^\circ$)になってフィッリップス(JPh)氏の $\omega=145^\circ\text{W}$ が早く、ノクティス・ラビュリントゥス邊りの雲を残している。筆者(Mn)も10Oct($\lambda=304^\circ\text{Ls}$)にリックで $\omega=146^\circ\text{W}$ 、 156°W で観測している。11Oct($\lambda=304^\circ\text{Ls}$ 、 $i=23^\circ$)にはDPk氏が $\omega=113^\circ\text{W}$ で可成り内部のアルシア雲とシュリアの雲を撮り(シュリアのLMTは午後3時一寸前)、デグロフ(KGr)氏が $\omega=152^\circ\text{W}$ で、もっと欠け際寄りに明確に描寫している。この日は筆者(Mn)は $\omega=117^\circ\text{W}$ から 130°W 、 147°W と追ったが、 $\omega=156^\circ\text{W}$ 、 166°W では蝶型その他シュリア雲も濃くなって見える。13Oct($\lambda=305^\circ\text{Ls}$)にも同様の観測で $\omega=136^\circ\text{W}$ では、シーイングが好く、アルシア・モンスの南西壁は特に強く明るい。白色ではなく地肌の明るさが混じっていると考えられた(シーハン氏のスケッチの後 $\omega=153^\circ\text{W}$ 、シーハン氏は時間の掛けすぎで、あれではアルシア周邊が變化してしまう)。11OctのKGr氏にはB像がないが、これもアルシア・モンス南の明るい雲は地面(坂)の亂反射も含めているかも知れない。

14Oct($\lambda=306^\circ\text{Ls}$ 、 $i=21^\circ$)にはオーエンス(LOW)氏の $\omega=134^\circ\text{W}$ は秀逸な像(エンボスト?)で、アルシアの蝶型、シュリアの雲も含めてほぼW型雲が見えている。ロメリ(ELm)氏の $\omega=143^\circ\text{W}$ のB像も優れている。15Oct($\lambda=307^\circ\text{Ls}$) $\omega=101^\circ\text{W}$ のWF1氏のB像も興味深い。カラー像の $\omega=095^\circ\text{W}$ の像も含めてアルシア・モンス領域の描寫は抜群である。同日のロエル(ERL)氏の $\omega=122^\circ\text{W}$ も参考になる。

4) 十月黄雲後のアルシア雲

18Oct($\lambda=308^\circ\text{Ls}$ 、 $i=18^\circ$)にエオス北に黄雲が出現し、以後可成りに互って、この領域に氣象的變動を齎すわけであるが、アルシアへの影響は相当遅れるようである。時期的にはアルシア雲の第二ピ

一クに近い筈であるが、必ずしも上手く追跡されていない。18Octには熊森(Km)氏の $\omega=179^\circ\text{W}$ でアルシア雲の残滓は健在である。19Oct($\lambda=309^\circ\text{Ls}$)にはMo氏の $\omega=172^\circ\text{W}$ 、 182°W 、 191°W 、浅田(As)氏の $\omega=175^\circ\text{W}$ 、 185°W 、 195°W 、ヘフナー(RHf)氏が $\omega=178^\circ\text{W}$ 、Hg氏が $\omega=179^\circ\text{W}$ でチェックしている。20Oct($\lambda=310^\circ\text{Ls}$)にはMo氏が $\omega=163^\circ\text{W}$ 、 173°W 、 182°W の何れでもアルシア雲を欠け際で捉えている。21Oct($\lambda=310^\circ\text{Ls}$ 、 $\tau=15^\circ$)には香港の劉佳能(CLa)氏が $\omega=178^\circ\text{W}$ 、 184°W で撮した。22Oct以降は日本からも黄雲のコアが見え始めた爲に、黄雲の後行部の撮影を怠って、エアポケットに入ってしまう(この後方の追跡に就いてはリックから呼び掛けていたのであるが、残念である)。僅か、Mo氏が23Oct($\lambda=311^\circ\text{Ls}$ 、 $\tau=13^\circ$)で $\omega=156^\circ\text{W}$ まで追跡し、20OctのMo氏の $\omega=163^\circ\text{W}$ と比較すると 10°W の違いがあるがアルシア雲が殆ど消えていると考えて好いと思う。24Octには観測が無く、25Oct($\lambda=313^\circ\text{Ls}$)にはccdではMo氏の $\omega=129^\circ\text{W}$ が最終になっている。同日小松空港を降りた筆者(Mn)は中島(Nj)氏と足羽山で当該部分を $\omega=152^\circ\text{W}$ (Nj)、 156°W (Mn)、 161°W (Nj)、 166°W (Mn、26:50JST)と観測した。タルシス地方は夕端では明るくなり、シュリアには白雲があるかも知れないという状態だが、シーイングが優れない。26Octは曇、27Oct($\lambda=314^\circ\text{Ls}$)には $\omega=095^\circ\text{W}$ (Mn)でシュリアに明点が見え、クラリタス型の明るさと似ているので、地表か黄雲系であったかも知れない。後半は $\omega=143^\circ\text{W}$ (Mn)、 148°W (Nj)、 153°W (Mn)、 158°W (Nj)、 170°W (Mn)と観測したが、アルシア・モンスの夕端での白雲活動は見られなくなっていた。マレ・シレヌム等は見えているから黄雲の餘波が強いわけではない。

二日後29Oct($\lambda=315^\circ\text{Ls}$ 、 $\tau=8^\circ$)にはCPI氏が $\omega=195^\circ\text{W}$ でB像を得ている。19Oct($\tau=17^\circ$)のAs氏の $\omega=195^\circ\text{W}$ と比較するとアルシア雲が殆ど消滅していると言える(衝効果のオリュムプス・モンスが夕端で見えている)。31Oct($\lambda=316^\circ\text{Ls}$)には $\omega=191^\circ\text{W}$ 、 196°W でEHd氏がB像を撮った。これにもアルシア雲は殆ど見えない。衝効果のオリュムプス・モンスがBでは顕れ難いという例にもなっている。1Nov($\lambda=317^\circ\text{Ls}$)にはEHd氏が $\omega=177^\circ\text{W}$ でBを撮る機会があったにも拘わらず、 $\omega=191^\circ\text{W}$ 迄撮らないのは解せない。尤も、オリュムプス・モンス狙いか、こ

の大事なときにR像しか撮らないアホもいるが。

5) 衝前後

例えば、4Nov($\lambda=318^\circ\text{Ls}\sim 319^\circ\text{Ls}$ 、 $\tau=3^\circ$)にはDTy氏の $\omega=183^\circ\text{W}$ でも、CPI氏の $\omega=128^\circ\text{W}$ 、 155°W 、アルディッティ(DAd)氏の $\omega=146^\circ\text{W}$ でも、MMb氏の $\omega=153^\circ\text{W}$ でもアルシアの西側はBでも明るいのであるが、これは衝効果であろうと思われる(オリュムプス・モンスもBで出ているが、これも白色光はBを透すからである。然し、太陽光の地肌による反射と雲による反射を區別できなければFilterの意味がない。この点TPとB390の組み合わせは優れていたと思う)。従って、餘程の色再現が出来ない限り $\tau=10^\circ$ ぐらい迄は、エポケーとしなければならない。4Nov~6Novにも同じ様な結果が得られているが、仕様が異なる[6Nov($\lambda=320^\circ\text{Ls}$) $\omega=136^\circ\text{W}\sim 144^\circ\text{W}$ のDPc氏の像はタルシスの詳細を好く示す]。衝後は美國大陸で同じ様に観測されている。12Nov($\lambda=323^\circ\text{Ls}$ 、 $\tau=4^\circ$)のJPh氏の $\omega=180^\circ\text{W}$ 、KGr氏の $\omega=183^\circ\text{W}$ 、14Nov($\lambda=324^\circ\text{Ls}$ 、 $\tau=6^\circ$)のWF1氏の $\omega=149^\circ\text{W}$ 、KGr氏の $\omega=169^\circ\text{W}$ などが典型である。

ここで、然しながら、興味ある例があって、衝日の前日6Nov($\lambda=319^\circ\text{Ls}$ 、 $\tau=1^\circ$)のウォーカー(SWk)氏の $\omega=205^\circ\text{W}$ にはアルシア・モンスが縁に消えるその後方に暗点が出ていること。これは衝日の翌日8Nov($\lambda=320^\circ\text{Ls}$)のLOW氏の $\omega=198^\circ\text{W}$ の像、チャベス(RCv)氏の $\omega=198^\circ\text{W}$ 、 207°W 、 213°W にも濃く出ている。然し、9Nov($\lambda=321^\circ\text{Ls}$ 、 $\tau=2^\circ$)のDPk氏の $\omega=196^\circ\text{W}$ には前日のLOW氏やRCv氏の $\omega=198^\circ\text{W}$ とは 2°W の違いがあるが、それ以上の違いがある(DPk氏のB像は $\omega=198^\circ\text{W}$)。10Nov($\lambda=322^\circ\text{Ls}$ 、 $\tau=3^\circ$)のEGf氏の $\omega=206^\circ\text{W}$ にも稍淡いが確認出来る。[似たような不可解な暗斑が1988年の衝時、宮崎(My)氏がこれは朝方の縁にTP2415で撮った。30Sept 1988($\lambda=282^\circ\text{Ls}$ 、 $\tau=4^\circ$) $\omega=065^\circ\text{W}$ 。 δ は $23.5''$ であった。]

これは衝時に起こる現象かも知れないが[実際には夕方の似たような縁の暗斑はリックに於いて筆者は7Oct($\lambda=302^\circ\text{Ls}$ 、 $\tau=26^\circ$)に $\omega=203^\circ\text{W}$ 、 212°W で観測しているので、必ずしも衝現象ではないかも知れないが、議論は改めて行う]、兎に角、6Nov~8Novの時点ではアルシア・モンス西方の雲が弱いか、棚引いてはいないことは確かである。12Nov($\lambda=323^\circ\text{Ls}$ 、 $\tau=4^\circ$)にはRCv氏が $\omega=183^\circ\text{W}$ で撮っているが、角度を8Novの角度に揃えられな

ったものか。12Novのディッキンソン(WDc)氏の $\omega=211^\circ\text{W}$ にはこの暗斑はもう見られない。

6) アルシア雲の回復

オーストラリアのヴァリムベルティ(MVI)氏の20Nov($\lambda=327^\circ\text{Ls}$, $\iota=12^\circ$) $\omega=203^\circ\text{W}$ ではオリュムプス・モンスの亂反射の輝きが失せて、Bではアルシア後方の雲が回復して来ている様である。24Nov($\lambda=329^\circ\text{Ls}$)にはKm氏の $\omega=176^\circ\text{W}$ の像、Mo氏が $\omega=178^\circ\text{W}$ 、 184°W で撮ったBに明白である。いつからこの傾向が出たか、暗斑を基準にして衝後とする考え方もあるが、TESではまだまだ全體がdustyぽいし、タルシスにも相当懸かっている。ただ、強いていえばDecに入ってもタルシスは被っているので、TESの見方は注意が必要である。

6Dec($\lambda=336^\circ\text{Ls}$, $\iota=23^\circ$)にはDTy氏が $\omega=184^\circ\text{W}$ 、 196°W で、DPc氏が $\omega=189^\circ\text{W(B)}$ でリム縁のアルシア雲を撮している。8Dec($\lambda=337^\circ\text{Ls}$, $\iota=24^\circ$) $\omega=171^\circ\text{W(B)}$ ではW雲の半分が残っている。

11Dec($\lambda=339^\circ\text{Ls}$, $\iota=26^\circ$)にはCPI氏が $\omega=141^\circ\text{W}$ 、 151°W(B) で重要な観測をしている。アルシアから東北方への雲はW型ではなく、ノの字型になっている(英文の部)。14Dec($\lambda=340^\circ\text{Ls}$, $\iota=27^\circ$)には美國でDPk氏が $\omega=188^\circ\text{W}$ でリム雲を捉えている。 $\lambda=340^\circ\text{Ls}$ ではBENTON他圖の第二ピークの終わり、第二のギャップが出る所に当たる。従って、數量的にも理論的にも重要な場面であるが、1999年のような極端な減少はないのではないかと考えられる。然し、位相角も大きくなって来ているので、レビューはここまでとし、後は來期の観測を待つことにしよう。特に $\lambda=330^\circ\text{Ls}\sim 340^\circ\text{Ls}$ (2007年十月中旬から一ヶ月)の期間は集中されたい。なお、2005/2006年のTESを見ている限り、 $\lambda=352^\circ\text{Ls}$ 、 001°Ls 、或いは 030°Ls 以降にもアルシア・モンスだけが黄雲を被っている姿が出ているので、2007年には注意されたい。北半球の春分 $\lambda=000^\circ\text{Ls}$ は衝前9Decに来る。 $\phi=4^\circ\text{N}$ 。

しめくくり

北半球に位置するオリュムプス・モンスなどが北半球の夏を越えて秋分まで夕方気温が冷えてくると山頂附近が雲に覆われるのは北極冠が夏の間縮小しながら送って来る水蒸氣に據ることはよく知られている。この渡りをする水蒸氣は赤道帯に霧雲を作るのみならず、南半球に入ってアルシ

ア・モンスの頂上附近にもロール雲を齎す。然し、北半球の秋分を過ぎて北の方で水蒸氣の回収が始まるとオリュムプス・モンスなどでは夕雲が見られなくなる。一方、南極冠は南半球の春分を過ぎると同じように南から降りてくる水蒸氣が赤道方向に溜まるようになる筈である。一時、南極冠と北極冠には非對稱があることから、極端に北半球には水があるが、南極冠はドライアイスだということが唱えられたが、そういうことはあるまい。ドライアイスに閉じ込められた水の放出が特に南極冠周縁部で盛んに起こり、水蒸氣の北下は朝霧や黄雲発生への水蒸氣の寄與からも明らかであって、ただ量は北極冠からのものに比べて遙かに少ないであろうと言えるだけである。少ないが、アルシア・モンスの後半の(オリュムプス・モンスに夕雲が見えないときの)雲の活動はこれに依ると考えて好い。ピークも低い。切り替わりは、矢張り對稱ではなく $\lambda=200^\circ\text{Ls}$ 邊りで起こるのである。従って、こうした切り替わりの時機の観測は重要になる。

しかし、火星には突發的に黄雲が起こる爲にスムーズな観測は毎年観測してもままならない。今回も $\lambda=314^\circ\text{Ls}\sim 325^\circ\text{Ls}$ では十月黄雲の影響でアルシア雲は衰退したと思われるが、これは1999年のMGSの観測とは違う例になっている。ヴァイキング探査の時も黄雲が起こった爲に南半球で水蒸氣が豊富になる時季の特定は豫想以上に困難であった様である(水蒸氣の分布については C B FARMER & P E DOMS, *Global Seasonal Variation of Water Vapour on Mars and the Implications for Permafrost*, JGR 84 (1979) 1881参照)。従って、これは繰り返し観測を續行しなければならない。

W雲については、E C SLIPHERの1954年の例がよく知られているが(*The Photographic Story of Mars*, 1962, p117とp159、佐伯恆夫著『火星とその観測』増補改訂版p59)、これは北極冠の豊富な水蒸氣の影響下の最後にある時のものである。實際、ここに挙げられているもののB光写真の代表を ω に従って列挙すると、26June($\lambda=185^\circ\text{Ls}$) $\omega=147^\circ\text{W}$ 、28June($\lambda=186^\circ\text{Ls}$) $\omega=157^\circ\text{W}$ 、20June($\lambda=182^\circ\text{Ls}$) $\omega=161^\circ\text{W}$ 等である。24June($\lambda=184^\circ\text{Ls}$)が衝であったから、殆ど東西方向には欠けはない。詳細はよく分からないが、 $\omega=147^\circ\text{W}$ がよくW型を顕わして(これはp159に

も再録)、シュリア雲や更に先行する雲塊が濃く
 写っている。シュリアも含めてアルシア以外は寧ろ
 低地であるから、夕雲の成り立ちについては山
 岳雲とは違った考察が必要である。

今回の観測は、時季が1954年とは違っていると

いう意味に於いて貴重であった。而もW雲に對應
 するものの詳細も得られているなど、収穫も多い。

11Dec($\lambda=339^\circ\text{Ls}$, $i=26^\circ$)のCPI氏のノの字雲も新
 しいかと思う。2007年の場合十月下旬に相當する
 からその前後の観測など期待される。 □

CMO 2005 Mars Report #22

OAA Mars Section

This is the final up-to-date report in 2005/2006 actually reviewing the preceding-month observations. At Fukui we were troubled much with the sky conditions, and so we ended at the end of June, while MORITA (*Mo*) had a chance to shoot on 13 July, and hence we here treat the period from

16 June 2006 ($\lambda=067^\circ\text{Ls}$) to 13 July 2006 ($\lambda=079^\circ\text{Ls}$)

On 16 June ($\lambda=067^\circ\text{Ls}$), the angular diameter, the central latitude, and the phase angle read respectively $\delta=4.1''$, $\varphi=17^\circ\text{N}$, $i=25^\circ$, while on 13 July ($\lambda=079^\circ\text{Ls}$) they did respectively $\delta=3.9''$, $\varphi=22^\circ\text{N}$, $i=20^\circ$. Even on 16 June, it was not easy to catch the planet before the sunset, and when we caught it, it was much declined to the west. On 16 June, the planet Saturn was near Mars, and so we recognized the season of Saturn also came to an end. On the day Mars was at the edge of M44 (*Præsepe* in Cnc) and so located near $+20^\circ$ (apparent declination).

The weather conditions here in July proved very miserable: the stationary rainy front brought a series of downpours as well as the landslides and washouts in the rear side of the main island; later in the Kyushu district the floods were devastating. Also a bad news in Nagano was that heavy rainfall caused a big disastrous debris flow from the Shiwojiri Toge down to Okaya and also some parts of river banks of the Tenriugawa turned to break down. On the other hand, it was reported that in some parts of Europe and the US they suffered from the hottest days.

♂.....今回は2005年接近の月例月並報告としては最後になる。福井では天候も優れないこともあって六月末が最終となった。然し、森田(Mo)氏は随分と機会を待って居たようで、13Julyが最後のようであるから、今回は**16 June ($\lambda=067^\circ\text{Ls}$) から13 July 2006 ($\lambda=079^\circ\text{Ls}$)迄の報告となる。**

16Juneには $\delta=4.1''$ 、 $\varphi=17^\circ\text{N}$ 、 $i=25^\circ$ であったが、13Julyには夫々 $\delta=3.9''$ 、 $\varphi=22^\circ\text{N}$ 、 $i=20^\circ$ となった。16Juneでも日没時に導入するのがやっとなで、望遠鏡は可成り西に傾く。足羽山では目盛環使用の火星導入は最低倍率で行うから、16Juneには傍に土星の居る事が分かった。土星もシーズンが終わったということである。この日はMk氏から教示を受けていたので、観測終了時火星がプレセペの端にいることも確認した(導入時には空が明るくてプレセペは見えない)。

♂.....The following are the observers who contributed on this final occasion: 最終の今回は次の通りである。

KUMAMORI, Teruaki 熊森 照明 (Km) 堺 Sakai, Osaka, Japan

1 Colour CCD Image (21 June 2006) $f/50 \times 60\text{cm}$ Cass* with an ATK-2C

*ソフィア堺天文臺 Sakai City Observatory

MINAMI, Masatsugu 南 政次 (Mn) 福井 Fukui, Fukui, Japan

9 Drawings (16, 18, 19, 29 June 2006) 400, 600 \times 20cm Goto ED refractor*

*Fukui City Observatory 福井市自然史博物館天文臺

MORITA, Yukio 森田 行雄 (Mo) 廿日市 Hatsuka-ichi, Hiroshima, Japan

2 Sets of RGB (+IR) Images (16 June; 13 July 2006) $f/50 \times 25\text{cm}$ spec with Lu075M

NAKAJIMA, Takashi 中島 孝 (Nj) 福井 Fukui, Fukui, Japan

7 Drawings (18, 19, 29 June 2006) 400, 600 \times 20cm Goto ED refractor*

* Fukui City Observatory 福井市自然史博物館屋上天文臺

♂.....On 16 June ($\lambda=067^\circ\text{Ls}$), the present writer (*Mn*), and on 18 June ($\lambda=068^\circ\text{Ls}$), NAKAJIMA(*Nj*) and *Mn* at Fukui started from after 19 hrs JST (10h GMT): The npc was clearly seen, and M Acidalium was on the morning

side. At Chryse and the following Tempe there was seen a thin morning mist. On 16 June, MORITA (*Mo*) took a set of images after 20 hrs JST at $\omega=022^\circ\text{W}$: The colour of the desert is beautiful, the darker area on the SH is vaguely seen, and the npc is suggested. However it must have been hard to produce a good B image, and the morning mist looks obscure. On 19 June ($\lambda=068^\circ\text{Ls}$), we started at Fukui from 19 hrs JST: Syrtis Mj was visible near the afternoon limb (at $\omega=337^\circ\text{W}$). Thymiamata was morning misty. At $\omega=346^\circ\text{W}$ S Sabæus was on the upper side, and the npc looked compact surrounded by a dark band ($\phi=18^\circ\text{N}$). At 20:30JST the planet went quite low, but even then the npc was clear. On 21 June ($\lambda=069^\circ\text{Ls}$), KUMAMORI (*Km*) took a twilight picture at 10:18 GMT: The LCM was $\omega=319^\circ\text{W}$, and Syrtis Mj was very dark, and as well Utopia was also evident on the afternoon side in contrast with the npc. Our observations on 29 June ($\lambda=073^\circ\text{Ls}$) were the last at Fukui: Even in the twilight (supposed the altitude is higher) the surface was not too clear to detect even Syrtis Mj on the morning side. On 13 July ($\lambda=079^\circ\text{Ls}$) *Mo* ventured to figure out a set of images at $\omega=119^\circ\text{W}$: the area of Solis L was dark near the limb, but if compared with his one-round earlier image on 6 June ($\lambda=063^\circ\text{Ls}$, $\delta=4.3''$) at $\omega=112^\circ\text{W}\sim 117^\circ\text{W}$ (not yet reported here), the density of the Solis L is different and in the latter the npc was very clear and some details were shown on the NH. On 13 July the Hiroshima district was covered by a high pressure air, and so this difference must have been mainly caused by the difference of the altitude as well as of the angular diameter (though different just by $0.4''$).

♂..... Thus the 2005 apparition ended. This apparition was particularly severe to us in the latter sessions: In winter the sky conditions were terribly dismal especially in December last. More recently, the rainy season has been extraordinary. Generally speaking we should say the observations from the main island must have not been and will not be appropriate both in winter and in the rainy season though the situation is slightly different from year to year.

♂..... 福井での16June($\lambda=067^\circ\text{Ls}$)(Mn)と18June($\lambda=068^\circ\text{Ls}$)(中島(Nj)&Mn)の観測は19時JST過ぎからの開始で、マレ・アキダリウムが朝方に見えるという光景であったが、北極冠が好く見え、クリュセからテンペに白い朝霧が出ていた。16Juneの森田(Mo)氏の像は20時過ぎで、 $\omega=022^\circ\text{W}$ 、砂漠の合成色は綺麗である。南半球の暗部と北極冠が対照するが、Bは矢張り難しいようで、少し朝方が明るいかという程度。19June($\lambda=068^\circ\text{Ls}$)は福井(Nj&Mn)では10:10GMTから、シーイング稍向上してシュルティス・マイヨルが午後に見える($\omega=337^\circ\text{W}$)。テュミアマタには白霧。 $\omega=346^\circ\text{W}$ ではシヌス・サバエウスが上部に、北極冠は暗帯に取り巻かれてコンパクトに見える($\phi=18^\circ\text{N}$)。20:30JSTになると火星は相当低くなる。それでも北極冠が好く見えるので、位置づけは易しい。21June($\lambda=069^\circ\text{Ls}$)には久々の熊森(Km)氏の画像がある。10:18GMTで未だ薄明中と思われる。 $\omega=319^\circ\text{W}$ で、シュルティス・マイヨルが黒々と出ている。ウトピアが夕方に濃く、北極冠も好く捉えられている。福井の29June($\lambda=073^\circ\text{Ls}$)は、薄明中の未だ高い火星だったが、シュルティス・マイヨルが朝方にある筈であるものの、定かに捉えるのも難しい。その後、福井では何度か待機したが、機会がなく、これが最後となった。13July($\lambda=079^\circ\text{Ls}$)のMo氏の像は $\omega=119^\circ\text{W}$ 、夕方のソリス・ラクスの邊りが暗くなっているが、北極冠の描寫も足りない。一週り前のMo氏の6June($\lambda=063^\circ\text{Ls}$, $\delta=4.3''$) $\omega=112^\circ\text{W}\sim 117^\circ\text{W}$ (本誌では未報告)に比較すると、こちらはソリス・ラクスの邊りの濃度も違い、北極冠も明確、内部北半球にも詳細があり、雲泥の差となっている。13Julyは熊本で 36.4°C 、翌日に濱松で 38.2°C を記録していたから、広島も太平洋高気圧の配下にあっただと思うが、矢張り視直径と高度の差の所為であろう。

♂..... こうして、接近は終わったが、今接近では冬季と梅雨期は観測が困難であった。特に冬季、十二月には福井では全滅で、以後も冴えない。この爲に、筆者(Mn)の場合を例に挙げても観測数は例年になく少なく700に達していない。最終的にはショボイ観測を省いた上で、改めて報告するが、観測数の問題というよりも、連続観測が出来ていないという実感がある。今度の梅雨期にも降参した。今年は土砂降りの梅雨で、七月の梅雨明け時になっても、島根、兵庫や京都の北部、福井、長野と前線上で土砂崩れや土石流が起こって、更に南下して九州南部では大洪水のようである。同じ頃、欧羅巴や北美で酷暑が伝えられていた。沖縄は例年の如く六月20日に梅雨明けしたが、七月に入って颱風

が三度も接近しているから、2003年のような晴天続きではなかった様であるが、本土に比べれば遙かにマンである。冬季と梅雨期は矢張り本土での充実した観測は難しいというのを改めて実感した。

♂……WE FURTHER RECEIVED: Some images by MORITA (*Mo*) that were sent to us recently are not yet treated here (those on 30 May, 2, 6, 13 June), and furthermore we should review some additional images kindly sent from FLANAGAN (*WFl*), OWENS (*LOw*) and WARELL (*JWr*) which have all been already posted as a set of Newly Added work on the CMO-Gallery. Here we however report David GRAHAM (*DGh*)'s work in 2005 which we received recently:

GRAHAM, David L デイヴィド・グレアム (*DGh*) 北約克夏 North Yorkshire, UK

16 Drawings (6, 13, 15, 17, 18*, 21[#], 29[#] November; 8, 12, 16*, 24 December 2005)

150,200,240×15cm Maksutov-Cass, 200×23cm Mak-Cass* and 180,210×10cm refr[#]

DGh is a well-known visual observer (Director of the BAA Saturn Section), and his observing station is at Ripon or Brompton-on-Swale, Richmond both being located between 54°N and 55°N in N Yorkshire. In 2005 the planet Mars shined there higher than in any other recent years. Three kinds of telescopes are used with a set of 10 mm, 7.5 mm and 6.3 mm Plössl oculars. Filters are recorded *Wr*#8 (yellow), *Wr*#21 (orange) and Baader's "Fringe Killer Filter." He seems to prefer rather lower magnifications. The drawings here reported are Xerox copied, but we can suppose the originals are all fine and beautiful.

The observation period (as far as we are reported) ranges from 6 Nov ($\lambda=320^\circ\text{Ls}$) to 24 Dec ($\lambda=346^\circ\text{Ls}$). On 17 Nov ($\lambda=326^\circ\text{Ls}$) and 18 Nov, the seeing conditions looked rather stable: He produced nice drawings on 17 Nov at $\omega=003^\circ\text{W}$, 025°W (at Ripon), and on the following day at $\omega=330^\circ\text{W}$, 350°W , 006°W (at Richmond). Every drawing on the days shows that the northern neighbour adjacent to S Sabæus (including Edom) is quite bright (since perhaps because he used lower magnifications), and it is the same on 21 Nov ($\lambda=328^\circ\text{Ls}$) at $\omega=332^\circ\text{W}$, 344°W (he called the bright chain "a string of pearls") and furthermore he explicitly drew Deucalionis R to be darker whose characteristics was an important trend of the area in 2005. Just among these observations, he noticed the bright white morning cloud near and over M Acidalium on 17 Nov at $\omega=025^\circ\text{W}$, and on 18 Nov at $\omega=350^\circ\text{W}$, 006°W . However he did not chase it further to check the *Dawes slit* which was predicted to occur during the period $\lambda=310^\circ\text{Ls}\sim 350^\circ\text{Ls}$ in

http://homepage2.nifty.com/~cmomn2/2005Coming_9.htm

The chance visited again in the latter half of December while he just observed at $\omega=014^\circ\text{W}$ on 24 Dec ($\lambda=346^\circ\text{Ls}$). Similarly it is to be regretted that he missed to check Olympus Mons which must have been bright because of the opposition effect on 6 Nov ($\lambda=320^\circ\text{Ls}$, $i=01^\circ$) though he watched for one hour and a half around $\omega=125^\circ\text{W}$. If this was the first observation during the season, we should say he should have started a bit earlier to get accustomed. In 2007, the planet Mars will shine also higher in N Yorkshire, and we pray to God to make the Saturn season come to an end much earlier than the Mars season in 2007 for the sake of David.

♂……追加報告： まだ、Mo氏の30May、2、6、13Juneの追加報告は本誌で未報告であるし、その他、フラナガン(WFl)氏、オーエンス(LOw)氏、ヴァレレル(JWr)氏の追加報告などが残っているのであるが、これは後日とし(WebのNewlyAddedに掲載中)、ここではグレアム(DGh)氏の報告を採り上げる：筆者(Mn)は2001年にBAAの編集部に腹立てて以来、JBAAは読んでいないのだが、DGh氏は未だBAA土星課の課長さんだと思う。ヒース(AHt)さんの後任で、この交替については過去のCMOに出ているし、DGh氏のLtEは屢々登場する。もとBrompton-on-Swale, Richmondにお住まいであったが、アドレスはRiponに移り、最近またRichmondのある村に戻ったようである。今回の観測は両方が混じる。両者の距離は福井・三國間より遠いと思う。高校地図には出ていないが、ヨークより少し北、54°Nと55°Nの間にある。使用望遠鏡は三種、アイピースは10mm、7.5mm、6.3mmのPlösslなど、フィルターはW8(黄色)やW21(橙色)、それにBaaderの"Fringe Killer Filter"等使用している。倍率は低めである。

報告を受けた観測は衝時6Nov($\lambda=320^\circ\text{Ls}$)から24Dec($\lambda=346^\circ\text{Ls}$)迄である。17Nov($\lambda=326^\circ\text{Ls}$)、18Novはシ

ーイングが安定したようで、17Novには $\omega=003^\circ\text{W}$ 、 025°W (Ripon)、翌日は $\omega=330^\circ\text{W}$ 、 350°W 、 006°W (Richmond)と観測している。倍率が低い所爲か、シヌス・サバエウスの北側は数珠のように聯なって明るく見えるようである。21Nov($\lambda=328^\circ\text{Ls}$) $\omega=332^\circ\text{W}$ 、 344°W でも同様だが(pearlsと呼んでいる)、デウカリオニス・レギオが暗くなっている様子も活寫している。ただ、17Novの $\omega=025^\circ\text{W}$ 、18Novの $\omega=350^\circ\text{W}$ 、 006°W などでは朝方のマレ・アキダリウムに附随して濃い白雲が出て来ていることに注意しながら、その後の動きを見極めて居らず、折角のドーズ現象を見逃したのは残念である。多分、 $\lambda=310^\circ\text{Ls}\sim 350^\circ\text{Ls}$ のマレ・アキダリウム周邊を注意しろと警告した次のサイトなど読んでいなかったのだろうと思う。

http://homepage2.nifty.com/~cmomn2/2005Coming_9.htm

24Dec($\lambda=346^\circ\text{Ls}$)もその機會であったが、 $\omega=014^\circ\text{W}$ のみであった。他にも6Nov($\lambda=320^\circ\text{Ls}$ 、 $\iota=01^\circ$)には $\omega=125^\circ\text{W}$ で観測したにも拘わらず、衝効果で輝くオリュムプス・モンズが出て居らず、絶好の機會を逃がしたのは、もしこれが最初の観測であるなら、土星に忙しく下積みがなかったからだと思われる。

♂.....We shall further continue this column in the coming issues to review some other observations in 2005/2006 which were missed to report hitherto.

南 政 次 M MINAMI

便 り

Letters to the Editor

●.....Date: Sun, 25 June 2006 01:26:11 +0100
Subject: Jupiter June 24

Images taken tonight in IR, not very good seeing, suggest white spots Y and Z may have merged, or be very close to it. Unfortunately, I did not take any images in blue, which has tended to show them more separate recently.

○.....Date: Fri, 14 July 2006 16:22:09 +0100
Subject: Jupiter July 13

These images represent a session starting in full daylight, with the sun above the horizon, so colour balance cannot be expected to be perfect, with all the scattered blue light. However, the greens seem to have come out surprisingly sharp - so that there was no advantage using a R luminance. Also a surprisingly good late IR was captured an hour after all the others at 19 deg. alt. Just shows, you can never tell for certain when the best conditions will come.

I liked Martin Lewis's quip about spotty junior.

○.....Date: Sat, 15 July 2006 16:32:55 +0100
Subject: Jupiter July 14

Very good results for the altitude last night, in my opinion, despite windy conditions, though some of the images suffer from "ringing", which seems to be a phenomenon of certain types of seeing.

I think it will even be possible to get useful images of Jupiter from southern England during the 2007 apparition, with culmination at 18 deg., particularly with the narrowband IR filters.

○.....Date: Sat, 22 July 2006 01:17:39 +0100
Subject: Jupiter July 15 (RGB)

The second installment of images from an evening of particularly good seeing. A pity the GRS is only just coming on at the end, but we see a pronounced dark border or plume between the GRS and BA, which did

not exist on the 13th, as well as the dark material ahead of BA, which we have observed for some time, and a reddish area between those two dark areas, BA having now overtaken GRS.

I have several more evenings of images taken since then, but will not be able to process them for a while as I am going to France for a week. I did buy a C8 telescope specifically to take to France with the idea of getting Jupiter at a slightly higher altitude, but when I put it together with the mount I realised it was far too heavy to take. I told that to the man I bought it off, and his response was, "Yes, I bought it to take it to France, then I realised it was too heavy and didn't take it - a pity because we had really clear skies." I wonder how often this happens.

David ARDITTI (デヴィッド・アーデイチ Edgware ME 英)
<http://www.davidarditti.co.uk/observatory.html>

●.....Date: Sun, 25 June 2006 21:43:42 +0100
Subject: Jupiter 24th June UK

Hi Guys, Here's a couple of Jupiter images from last evening. Seeing was variable fair to poor, but useable. C14 f27 Lumenera 075 17fps Filters Astronomik IR 742 +Trutek G &B type 2.

Nice to meet some of you yesterday at the Cambridge BAA meeting. Best wishes

○.....Date: Sat, 1 July 2006 14:18:44 +0100
Subject: Venus 1-7-06

Hi Guys, Nice clear morning apart from a sky full of vapour trails. Why everyone has to fly over me I don't know. The images were all taken through this stuff, which spread out to virtually cover the whole sky, it did not worry the IR at all.

The C9,25 was outside the dome so was not looking out through hot shutters. UV images taken from within in the dome with the C14 was very poor, but the Sun was a little higher when I tried. IR (748) was fine. UV was the Baader Venus Filter. Best wishes

Ser2-0432

○.....Date: Sat, 15 July 2006 11:03:32 +0100
Subject: Jupiter 13th July UK

Hi Guys, This is Jup from the 13th. The conditions and timings were kind this time, allowing a reasonable image of the the current close approach of the GRS and BA (Graham and Barry). Best wishes

○.....Date: Sun, 16 July 2006 22:21:35 +0100
Subject: Jupiter ir 15 July UK

Hi Guys, Last evening was excellent seeing for 23 deg. altitude. IR worked encouragingly well. The colours seem typical of ir g b, further exacerbated by the sun only just setting as the images were taken. GRS is just seen coming onto the disc. Best wishes

○.....Date: Wed, 19 July 2006 22:52:07 +0100
Subject: Jupiter 18th July

Hi Guys, We had some fair seeing yesterday, during our current heatwave. I clocked 97.2 F in my open dome today, with a nice breeze blowing through it.

London had the same which was the hottest July day since 1911. I wonder what they blamed it on in those days? Anyway here is a trio of ir images of Jupiter. Best wishes

Dave TYLER (デヴィッド・タイラー Bkh UK 英)
<http://www.david-tyler.com/>

●.....Date: Sun, 25 June 2006 23:29:31 +0900
Subject: Mo24May 29May_06

長い間報告できませんでしたが、五月のものが残っていましたので処理してお送りします。このほかにも沢山残っていますが少しづつお送りしたいと思います。

追伸：新聞切り抜きは6月6日だったか？『中国新聞』の夕刊に載った佐藤健 (Takeshi-Ken SATO)さんの記事です。

○.....Date: Wed, 5 July 2006 23:36:30 +0900
Subject: Re: FW:Novus Pons

メール有難うございます。シーゲルさんのお話は嬉しい限りです。また、何かの役に立てばと思います。

今度は間違いなく30Mayをお送りします。最近

は木星を撮っていますが、火星は早く沈んでなかなか大変です。また、会務があるときに限って天候が良く、いまだに撮れていませんが、まだ狙っています。

○.....Date: Mon, 17 July 2006 22:09:10 +0900
Subject: Mo02,06June_06

梅雨がまだ続いています、福井は水害などありませんか？

ほんの少し時間が取れましたので、02、06Juneをお送りします。02Juneは透明度が悪くBを撮ったのですが処理できず、残念です。あと、13、16Juneと13Julyを撮っています。

○.....Date: Wed, 19 July 2006 23:15:31 +0900
Subject: Re: RE:Mo02,06June_06

村上さん、数値有難うございます。早速、これを使って画像を仕上げました。

まだ梅雨は明けませんが、梅雨明けと同時に撮ってみようかと思っています。が...これが最後かも知れませんね。

○.....Date: Sun, 23 July 2006 21:19:32 +0900
Subject: Mo13,16June_06

13,16日Juneが処理できましたので、お送りします。今年は梅雨が長いですね、早く晴れ間が欲しいものです。問題はB光で、光量が少ないことをなんとかしないとイケないと思っています。

木星はまだ (B光は) いいのですが...



森田 行雄 (Yukio MORITA 廿日市 Hiroshima)
http://homepage2.nifty.com/~cmons/2005/index_Mo.html

●.....Date: Mon, 26 June 2006 22:35:58 +0900
Subject: MARS 320原稿の件

CMO320号PDF版を前もってご送付頂き、有難う御座いました。小生の拙い文章が見事に整理、編集されており、流石にと驚きおり、感謝の言

葉もない次第です。英文も見事なものと思じます。ただ一点気になったのはOAA遊星面課は1933年設立で、初代課長は山本先生でした(木辺さんが幹事)。1944年には遊星面課長は伊達、火星班長は伊達、木星班長は佐伯、水金班長は木辺の各氏となっています(天界旧号より)。1934年から1943年の間はいま一つはつきりしません。以上ご参考迄、まずは取り急ぎ御礼申し上げます。

○.....Date: **Mon, 3 July 2006 21:34:48 +0900**
Subject: 『火星通信』No320の件

『火星通信』320号、有難う御座いました。立派な仕上がりで本当に驚いております。クロネコ便は3日の午後到着、中島孝様から頂きました三部は3日午前中に到着しました。ご配慮有りがたく存じている次第です。まずは取り急ぎ御礼かたがたご連絡申し上げます。草々

松本 達二郎 (Tatsujiro MATSUMOTO 尼崎 Hyogo)

●.....Date: **Tue, 27 June 2006 10:13:37 -0400**
Subject: **RE: From CMO/OAA**

Dear Masatsugu, Yes, you have my permission to add a link to my website, and to download any image you wish to use on your website or in your reports. Thanks for the interest! Dark skies,

Larry OWENS (ラリー・オーエンス Alpharetta GA 美)

http://www.atlantaastronomy.org/CEWMA/larry_owens_images.html

●.....Date: **Tue, 27 June 2006 16:57:48 -0400**
Subject: **RE: From Masatsugu Minami**

Dear Masatsugu, Thank you for your message. It is good to read of your gradual recovery.

I have been putting off surgery for various reasons, not least of which is that I just plain dread it. Eventually I will probably have surgery in spite of my fear of it. It is good to read that your wife has had a good experience with the procedure. In the meantime I hope to obtain a webcam and laptop to use for imaging the planets.

A few days ago I mistakenly sent you a photograph of an arch in memory of Confederate dead in the siege of Petersburg. Sorry to bother you with that. Evidently I clicked on your address when clicking on Maxwell Cumbia's. I have been adding photographs to a family history, and some of our ancestors are probably buried in a mass grave beyond the arch.

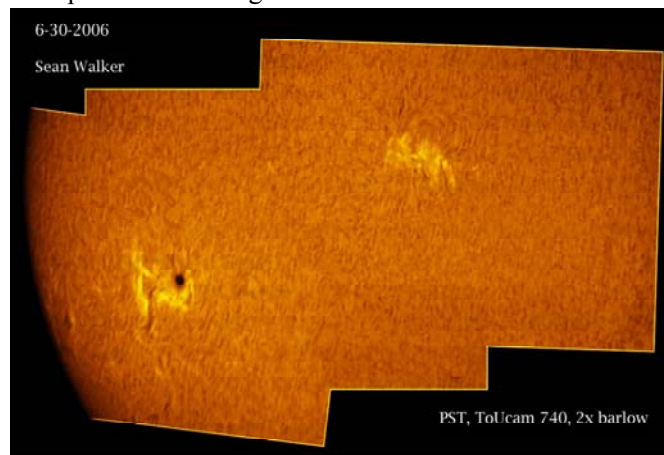
We are having bad weather today, and there are tornado warnings for areas north of Richmond. So far, Hopewell is not in the path of a tornado. We here such things often, but one cannot help being a little bit nervous, longing for friendly weather. The weatherman, as I write, is talking about a possible tropical storm that seems to be developing over North Carolina. Uta just wondered aloud if the weatherman gets paid by the word, for he seems reluctant to be stop warning us. If the mother of all tornadoes comes by, I will try to photograph it for you,

before we go for shelter. Best wishes,

Sam WHITBY (サム・ホイットビー Hopewell VA 美)

●.....Date: **Fri, 30 June 2006 14:38:34 -0400**
Subject: **Sol, 6-30-2006**

The Sun has reawakened after a week or two of inactivity. Each image was captured today at lunch with a Coronado PST a ToUCam pro 740, and a 2x barlow, then processed in RegiStax 3.



Sean WALKER (ショーン・ウォーカー S&T 美)

●.....Date: **Fri, 30 June 2006 22:04:24 +0200**
Subject: **Jupiter on 27th June 2006**

Hi all

<http://www.astrosurf.org/pellier/J060627a-CPE>

<http://www.astrosurf.org/pellier/J060627b-CPE>

Some images have been taken during bright twilight to catch the NTrZ spots of interest. Sorry about the dust bunnies (indicated) I have not been able to flat-correct them :-/) There is a little possibility that the two first IR images still show the WSY completely at the s.p. side of the big WSZ, but this is too close to the limit of resolution to be certain. However, in B and G, only the WSZ is evident. Best wishes

○.....Date: **Sat, 01 July 2006 20:08:13 +0200**
Subject: **Jupiter 28th June**

Hi all, seeing fairly good but transparency was a problem.

<http://www.astrosurf.org/pellier/J060628-CPE>

○.....Date: **Sun, 02 July 2006 09:24:53 +0200**
Subject: **Jupiter 29th June 2006**

Good seeing on the 29th :

<http://www.astrosurf.org/pellier/J060629-CPE>

The WSY looks still visible on these images, on the s.f. side of WSZ. Note that the WSZ is quite fainter than before encounter... Apart of this, interesting "column" in the EZs, dark in every color and especially in blue light.

○.....Date: **Mon, 03 July 2006 19:57:42 +0200**
Subject: **Jupiter 30th June 2006**

Hi all, some images of the 30th -

<http://www.astrosurf.org/pellier/J060630-CPE>

○.....Date: **Tue, 04 July 2006 20:42:29 +0200**
Subject: **Jupiter on July 1st**

Hi all, some very good seeing during the first hours of the evening - it has been worth sacrificing France-Brasil !!

[http://www.astrosurf.org/pellier/J060701a-CPE\(RGB\)](http://www.astrosurf.org/pellier/J060701a-CPE(RGB))
[http://www.astrosurf.org/pellier/J060701b-CPE\(R, IR, B, UV\)](http://www.astrosurf.org/pellier/J060701b-CPE(R, IR, B, UV))

The passage of BA south of the GRS looks to be late from the predicted date of July 4th, so the oval must have again slowed during its approach. I believe that the dark patch preceding it is created by the "bottleneck" that exists now in the STB between BA and the GRS. Is that right? It was present also during the 2004 July encounter, but not in 2002. I now realize that the dark "column" in EZs must be again the south equatorial disturbance. If so

it's quite a change from the last apparitions; now it looks to carry a kind of brown altitude haze that looks dark in blue light but even more in UV. R and IR light reveal a dark veil on the p. side, and a small bright area immediately on the f. side.

○.....Date: Thu, 06 July 2006 00:08:50 +0200
From: Christophe Pellier To: jhr11@cam.ac.uk
Subject: Re: Jupiter on July 1st

Hi John, thanks for your elements - I wasn't thinking that this dark patch could be something else than the disturbance... it's even more curious - for me. I think I

TEN YEARS AGO (131)

---CMO #177 (25 July 1996) pp1871-1886---

今号は始めに1994/1995MarsNote(12)「1995年四月のハッブル望遠鏡による北極冠(082°Ls)」"On the North Polar Cap by the HST on 8 Apr 1995 at 082°Ls"が採り上げられている。画像送受信テストの後に Jim BELL氏から送られてきた1995年の北極冠の画像(表紙↓に掲載、 $\omega=282^\circ W$ の方向から撮られている)と1970年代にマリナー9号とパイキングが捉えた同じ様な季節の北極冠の画像を比較している。HSTの画像に合わせたグリッド図に1970年代の画像をマッピングして、HSTの画像と比較する試みである。火星の此の画像の季節は北半球の夏至前で、北極冠は融解が進み、リマ・ボレアリスやカスマ・ボレアレなどの亀裂が入っている。作図して比較した結果はHSTの画像の解像度は悪いもののほぼ同様で、廿年前と変わっていないとしている。なお、1980年代にアメリカで喧伝された北極冠の亀裂リマ・テニウスの事にも触れて、此の画像を見ても、どこにも見あたらないではないかという結論である。(Cover→HST image at 082°Ls in 1995.)

OAA Mars Section は1994/95接近の最終回となった。今期の報告の総括と国内外の報告数の多かった観測者がリストアップされている。

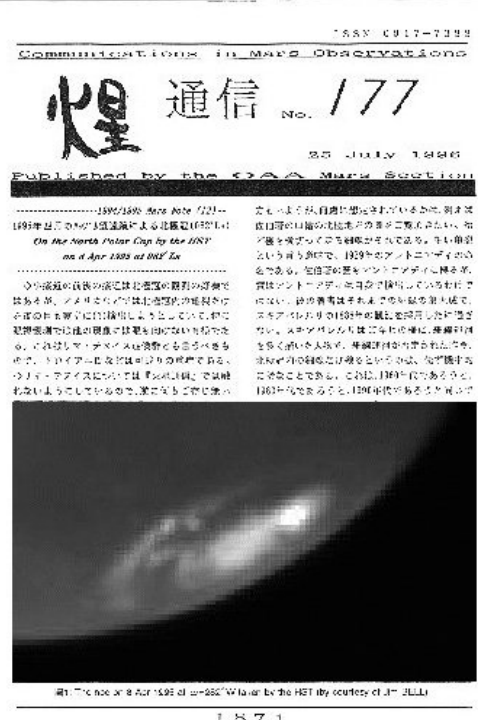
LtEは、比嘉保信氏、森田行雄氏、木村精二氏、岩崎徹氏よりのものが見られる。国外からはCarlos HERNANDEZ (USA)、Jim BELL(USA)、Daniel TROIANI(USA)、Paolo TANGA(Italy) Mike MATTEI(USA)、Peter WLASUK(USA)、Giovanni QUARRA SACCO(Italy)の各氏からの来信が紹介されている。メールアドレスの交換もあって電子メール時代の始まりであった。

Jim BELL氏からのメールにはHSTの1996-1997の火星撮影スケジュールがあり、この号で紹介されている。また、別ページに「藤沢便り」として村上からの通信がLtEと別にまとめられている。

筆者(Mk)による記事として、CMO-CLICKSが始まった。インターネット火星情報の紹介のページである。また、八月の天象とTen Years Ago (7)も掲載されている。

TYA(7)はCMO#012(10 July 1986), 廿年前のCMO#013(25 July 1986)の二号分の紹介である。この期間に1986年接近の最接近(16July)をおかえていた。季節は200°Lsほどで、南極冠の縮小の進み始める時期であった。日本では梅雨時、観測報告数は少なかったが、南氏は臺北に滞在中で観測に励まれていた。台風の影響があり欠測になった日もあったとのことである。

裏表紙の「シー・エム・オー・フクイ」には中島孝氏による厳しい会計現況の報告と、さらなるカンパのお願いが掲載された。他にはCMO#125(p1131)から#176(p1870)までの正誤表がある。 村上昌己 (Mk)



must have missed Hans-Joerg's prediction....

Best wishes

John Rogers a écrit :

●.....Date: Wed, 5 July 2006 12:28:06 +0100

Subject: RE: Jupiter on july 1st

Hi Christophe,

>>The passage of BA south of the GRS looks to be late from the predicted date of july 4th, so the oval must have again slowed during its approach.

Hans-Joerg's prediction was for mid-July, so it is on track. (July 4 was the prediction of the NASA publicity office. At least they managed to launch their Shuttle on that auspicious date!)

>>I believe that the dark patch preceding it is created by the "bottleneck" that exists now in the STB between BA and the GRS. Is that right? It was present also during the 2004 july encounter, but not in 2002.

Yes: the squeezing of the currents here causes instability in the cloud cover. Apparently the clouds have all disappeared leaving a remarkably dark bluish patch (like a NEBs projection, as someone commented).

>>I now realize that the dark "column" in EZs must be again the south equatorial disturbance. If so it's quite a change from the last apparitions; now it looks to carry a kind of brown altitude haze....

Actually the SED is at L1 ~ 30, increasing at ~20 deg/mth, so this is a different feature though it looks similar. Attached is a set of recent images showing the SED. (Did I also send you the set showing it passing the GRS on June 2?) Best regards,

John ROGERS

○.....Date: Mon, 24 July 2006 17:10:54 +0200
Subject: Hollidays Jupiter (11 and 12 july)

Dear all, here are some first results of some Jupiter images I took during my hollidays in western France (I won one degree in latitude...!). Weather was superb, and the sky conditions nice most of the time (great to see the Milky Way again, and even during twilight...)

<http://www.astrosurf.org/pellier/J060711-CPE>

<http://www.astrosurf.org/pellier/J060712-CPE>

No sign of WSY is detected on july 11th, as seen in other's images. Did the spots merged or did Y disappeared? Best wishes,

○.....Date: Mon, 24 July 2006 19:25:49 +0200
Subject: Jupiter, july 13 and 14

Next sets of images.

<http://www.astrosurf.org/pellier/J060713-CPE>

<http://www.astrosurf.org/pellier/J060714-CPE>

(very poor seeing; CCD used in 2x2 binning)

BA and the GRS look aligned on the 13th, but I didn't measure the exact longitudes to be sure. Best wishes

Christophe PELLIER (クルストフ・ペリエ *nr* Paris 法)

●.....Date: Sat, 1 July 2006 12:02:50 EDT
Subject: Re: Venus 2006/6/18

Hello Richard and other Venus observers:

We are starting to get more Venus images as the phase increases. I am hoping there will be enough material for mapping and for remeasuring the UV rotation period. BAA data from 2004 give 3.998 days (synodic) for the UV markings and 4.99 days for some bright features in the 1-micron IR images.

The purpose of this mail is to ask if all imagers can post their images on the ESA Venus Express website; obviously I will be very pleased to have them too for the BAA. I understand that not all images exchanged so far have been posted. I have agreed to collate the images sent to me for the BAA Mercury & Venus Section, and in mid-July (upon return from holidays) will be preparing some 4-day rotation comparisons of the work

submitted so far.

With best wishes to all the imagers!

Richard McKIM (理查・麥肯 BAA 英)

●.....Date: Mon, 3 July 2006 11:46:23 +0900
Subject: CMO到着

お世話になっております。『火星通信』No.320昨夕5時頃郵便受けを見た時にはありませんでしたが、今朝5時頃見たら来ていました。有難うございました。

広島大学宇宙科学センタ-附属「東広島天文台」の開所式が5月26日にありました。国立天文台三鷹にあった「赤外シミュレータ」(口径1.5m)を拡大が貰い受け、突発現象に対応するため、高速回転できるよう改造してあります。また、観望会も行えるよう、ナスミス焦点の一つには眼視用装置(双眼)をつけることができます。場所は新幹線東広島駅から車で約10分の山頂(海拔500m強)です。広島大学長は南さんもお存知の牟田泰三さん、宇宙科学センター(Hiroshima Astrophysical Science Center)長は大杉節(たかし)教授です。

郵便で東広島天文台のパンフレットをお送りします。

高温多湿の候、何卒お大事に!

○.....Date: Mon, 3 July 2006 16:58:34 +0900
Subject: Re: RE:CMO到着

新聞の記事について:「私の木星観測は、気象衛星で地球を外から見て地球の気象観測をしているのと同じで、木星を外から見て木星の気象観測をしている」というような話をしましたら、記者が「気象観測というからには、気温、気圧も測っているにちがいない」と早とちりしたようです。他にも不適切な表現がありますが...

佐藤 健 (Takeshi SATO 廿日市 Hiroshima)

●.....Date: Mon, 3 July 2006 15:05:03 +0900
Subject: Jupiter 01 July 2006

こんにちは、七月1日の木星画像です。セブ島では台風三号の影響でパツとしない天気が続いていましたが、1日の夜はChris宅で見えました。RS後方のSEBZの連鎖は白雲はまだ繋がっています。

○.....Date: Fri, 21 July 2006 09:57:05 +0900
Subject: おはようございます。阿久津です。

おはようございます。日本には19日の夜、戻っています。日本は雨が多く、多分福井もでも雨が降っていると思います。折角、日本へ戻ってもこの天気では星も見えず、残念です。しかしながら、涼しいのは頭がスッキリして、良い

ですね。26日の水曜日にはセブへ行きます。今回は一週間の短い滞在です。帰国するたびに日本の自然の美しさを強く感じるようになって来ました。セブでは八月～十月ぐらいが雨季の季節に入り、曇りの天気ばかりが続きます。雨はそんなに降りません。天文活動がセブでは思うようになりませんが、仕事の合間には思っています。

阿久津 富夫

(Tomio AKUTSU)

セブ The Philippines)

(註)AKUTSU enjoys his stay at Tochigi from 19 July, but he'll soon fly back to Cebu on 26 July. *Photos: AKUTSU on the leftmost. Jupiter by Ch GO. (Ed)*

●.....Date: Tue, 04 July 2006 15:42:25 +0200 Subject: Novus Pons

Dear Masatsugu, Just a short note to tell you - somewhat belatedly, but never mind - that I completely agree with your statement in CMO no. 319 that Yukio Morita's image of Mars on May 5 looks incredibly similar to what I saw back in 1993, where the so-called 'Novus Pons' kept popping up now and then across Mare Acidalium. Morita's image reminds me more strongly of it than Heffner's from the same day, but that is probably just because of the different angle. I often saw M. Acidalium face-on, so to speak, and Morita's image shows just that. It was a really nice feeling to see this phenomenon caught on a CCD image. Up till now I had always suspected that the whole thing could have been due, at least in part, to my being a not very experienced observer back then, since extremely few people reported it at the time. Now I feel much better about myself :-)

I also have to include a WOW! after having looked at Larry Owens' image of October 14 on the CMO website, where Olympus Mons and the three Tharsis volcanoes stand out in 3-D because you can actually see their shadows. That's incredible. I haven't seen that before in any image.

I do hope you feel better now than you did in March, as it's not cold any more. Right now, it's very pleasant here in 'nearly Arctic' Denmark, with temperatures in the high twenties (Celsius), said to be rising to 30 degrees



the day after tomorrow.

Lots of good wishes,

Elisabeth SIEGEL (エリサベト・シーゲル Malling 丹麥)

●.....Date: Tue 04 July 2006 17:20:21 GMT Subject: Re: From Masatsugu CMO

Dear Masatsugu, Thank you for your mail and for letting me know of the inconsistent CM. You are correct, it should be 23 degrees on January 27, 2004.

I would be very grateful if you would send me paper versions of the CMO at my current address, thank you so much: I plan to send you all my Mars observations for 2005-2006 soon as a zip file.

Best regards,

○.....Date: Wed 05 July 2006 03:52:07 GMT Subject: Mars images from 2005-2006

Sending my webcam images of Mars acquired from Uppsala during the past season (attached zip file with JPEGs). The images are not particularly good but may be of some use. Most dates the 36 cm OG from 1892 has been used, an achromat with substantial chromatic aberration and therefore does not produce very sharp images, unfortunately. Best regards,

Johan WARELL (ヨハン・ウァレツェル Uppsala 瑞典)

●.....Date: Tue, 4 July 2006 19:24:13 +0100 Subject: Jupiter Imaging trip to Florida

Hi all, Some of you know I have just recently returned from a trip to image Jupiter from St Augustine in Florida. I decided to combine a few days holiday with some imaging as the altitude of Jupiter is so low from the UK. St Augustine is approx 29 degrees N. To this end, I took my C-11 with me and used a wonderful Astro-Physics AP1200 mount from Jim Phillips in Charleston, South Carolina which saved me from transporting my mount as well as the OTA.

However, I only managed to image during the first 2 nights out of 6, due to the increasing interference from thunderstorms in the area during the evening, but the experience was still a greatly enjoyable one. I didn't really get into the swing of things, as the first night was exhausting after having just arrived at the site after an all-day drive from Charleston to St Augustine. In fact, I am amazed to have obtained much at all considering I was situated on the hot tarmac of the Holiday Inn tarmac - fending off the friendly, inquisitive locals as well!

Anyway, here are some links to the best images I obtained from those two evenings (21/22 and 22/23 June). I used the C-11 at about F/25 with a Toucam and an ATIK-1HS with Astronomik RGB filters.

With regard to processing, I have spent many hours trying to squeeze detail out of my AVIs, but have settled on a softer, more natural look to the images as I have been taught to do by Dave Tyler and Damian Peach. All other attempts have just looked over-processed and over-sharpened.

Finally, thanks to Jim for bailing out of a spot of bother with the South Carolina Police Force, and for being such a generous host.

ATIK Images:

http://www.astro-sharp.com/images/florida2006/Jup_2006.06.23_03.20_RGBL_Cols_txt.jpg

Toucam images and Animation:

http://www.astro-sharp.com/images/florida2006/Jup_2006.06.23_Toucam_all_850.jpg

http://www.astro-sharp.com/images/florida2006/Jup_2006.06.22_anim_15ms.gif

Me in the Holiday Inn car park:

http://www.astro-sharp.com/images/florida2006/Jup_Hollnn2.jpg

Best Regards

Ian SHARP (イアン・シャープ[°] nr Selsey 英)
<http://www.astro-sharp.com>

●.....*Date: Fri, 7 July 2006 07:58:25 +0900*
Subject: RE:CMO#320 発送

『火星通信』ありがとうございます。4日(火) 昼ごろ到着しました。松本達二郎さんの記事を興味深く拝見させていただきました。

熊森 照明 (Teruaki KUMAMORI 堺 Osaka)

●.....*Date: Sun, 9 July 2006 11:47:14 EDT*
Subject: Preliminary Observation: Venus July 9th, 2006

Dear all - Those of who image Venus in UV light today July 9th is going to get a real treat! Venus displays two dark bands across the disk! The southern part is much darker which surrounded by a bright south polar region.

The images will follow soon... More later...

○.....*Date: Sun, 9 July 2006 14:33:43 EDT*
Subject: Venus in UV light: July 9th, 2006

Dear all - As I stated earlier about Venus' two dark bands, here are the images at below. Hopefully, some of you imaged Venus today too. This is perhaps the darkest features I have seen this apparition.

The bright southern cusp of Venus reminds me of Mars' SPC when it is futher away from opposition. I wonder if the Venus Express mission have any data on this.

Frank J MELILLO (フランク・メリッロ NY 美)

●.....*Date: Mon, 10 July 2006 20:09:20 +0200*
Subject: Re: Jupiter July 01 and 08

Dear all, Getting all those images of Jupiter by e-mail, here is my small contribution to the observation of the giant planet...: drawings made with the 40.7-cm newtonian last two saturday evenings under not so bad seeing conditions. Clear (and steady!) skies,

Nicolas BIVER (ニコラ・ビヴァール Versailles 法)

●.....*From David GRAHAM dated 11 July 2006*

Dear Masatsugu, Many thanks for sending CMO No. 319 and the package of previous CMO's that preceded it. They are always a pleasure to read, in no small part as it is not just "astronomical news" that is imparted from them.

In response, I enclose copies of my Mars observations for the apparition of 2005-06, and apologise for their poor quality of reproduction in advance! They cover the period 2005 November 6 to December 24, from sites in

Ripon and Richmond, North Yorkshire. Unfortunately the regions of Mars displaying dust activity were never presented in my direction, though I did reckon that certain features appeared "hazy" at times.

This month marks three decades of amateur astronomy on my part and I hope you will permit me a little reflection! I purchased my first telescope, a second-hand refractor of aperture 76mm, in July 1976, at the age of 16. With it, I saw for the first time the cratered surface of the Moon, the phases of Mercury and Venus, dusky markings on Mars, the silvery disk and dancing moons of Jupiter, and the rings of Saturn, which made a big impression on me. All of this in the year that the Viking spacecraft landed on Mars! Since then, I have owned or had access to instrument of lager aperture, but have never lost my passion for visual observation. I am very impressed by the electronic images which arrive in my computer mailbox nearly each day, but have no personal desire to venture down that road. To me, the thrill of the starry sky arrives via the eye-end of a telescope! I suppose I've been lucky in that my artistic skills are reasonably good, and with the generous assistance of astronomer-artist and historian, Richard Baum, I have been able to develop them, I also hold no illusions about the scientific value of the observations I make; I observe mainly for personal interest and pleasure, and if the observations I do are of some use to others, then I am happy to make them available!

One of the greatest pleasures I've had over the last thirty years, is the contact with fellow enthusiasts overseas. Amateur astronomy is a great way of breaking down barriers and sweeping away borders, all the more so in the age of the internet. So, the OAA quite rightly celebrates the twentieth anniversary of the CMO, may I send my very best wishes to you, youe colleagues, and all who contribute to the CMO! I am sure that the next twenty years will be every bit as exciting as the last!

Yours sincerely,

○.....*Date: Sat, 22 July 2006 21:58:51 +0100*
Subject: Re: Thanks (Masatsugu M/CMO/OAA)

Dear Matsatsugu, Many thanks indeed for your welcome response!

You are quite correct - I did have the opportunity to use the great 36 inch refractor of the Lick Observatory in the summer of 1995, to observe Jupiter, Saturn, Uranus and Neptune. It was made possible by the kind invitation of Bill Sheehan, and will be an experience I shall treasure to my dying day. Since then I have married and started a family, so I'm afraid I don't have the opportunity to travel abroad like I once could!

Alan Heath doesn't to my knowledge own a computer, let along send or receive e-mails, but next time I'm in touch with him, I shall certainly convey your kind regards. Alan was an inspiration to me, when I was 'learning my trade' as a visual observer in the early 1980's.

Having very recently moved house, I've yet to establish

any telescopes at our new address. I've decided it best to carry out a number of jobs to keep my wife and children happy, prior to embarking upon dad's 'wish-list'!

All the very best,

David GRAHAM (デヴィッド・グレアム N Yorkshire 英)

●.....Date: Thu, 13 July 2006 16:37:32 +0100
Subject: Re: Venus 12th July from UK

Nice work on Venus, Dave (TYLER).

Certainly worth pursuing further Cytherean CCD imagery.



I attach a comparison between my own visual observation of Venus, made yesterday with a 127mm MCT, with your CCD image of yesterday. I'm glad to see a good degree of congruence between them, in spite of the fact that seeing was not very good at my site. Some shading was vaguely visible on the Venusian disk, despite the imperfect seeing conditions, notably a dusky swathe running from the mid-northern point of the terminator, delineating a brighter area of the planet's northern region. Another vague, though detached patch was visible in the mid-southern half of Venus' disk.

Incidentally, I sent my observational drawing to Richard McKim less than an hour after I sketched it yesterday -- so I wasn't 'copying', in case you're wondering whether I'm cheating! Best wishes,

Peter GREGO (ピーター・グレッゴ Birmingham 英)

<http://www.lunarobservers.com/>

●.....Date: Fri, 14 July 2006 13:47:07 +0200
Subject: Jupiter from 13.7.06

after solving some problems with my mount during the last week, I could take this picture with my b/w Videocamera from Jupiter, showing GRF and WOS-BA last night. best wishes

Silvia KOWOLLIK (シルビア・コワオリク Ludwigsburg 德)

●.....Date: Sat, 22 July 2006 09:02:34 +0900
Subject: Re: お礼

.....例年になくひどい雨でしたが、何事もありませんでした。電車も遅れることはあっても運休にはなりません。 (ただ昨日、熊本は豪雨だったようです。) 前期試験(8月1日から7日)を控えており、撮像できないのは残念ですが、や

れやれといった気持ちもあります。

福井はいかがですか？土砂崩れのあったところはどのあたりでしょうか？

金沢は中嶋秀夫氏の家(犀川の河口近くの普正寺)が危なかったようですが、無事でした(金沢星の会のメーリングリストで知りました)。

秋の気象学会が名古屋であり、惑星大気のセッションが開かれるようです。興味はおありですか？(中島健介さんが世話役です。)

ご連絡まで。

淺田 正 (Tadashi ASADA 宗像 Fukuoka)

●.....Date: Sun, 23 July 2006 15:39:10 -0400
Subject: moon

Dear Masatsugu, Many thanks for sending me the CMOs! I hope you are well.

I have not been able to do much observing here since most nights are cloudy and hazy. I did have one morning last week to image the moon. Seeing was good and should be even better in August and September. Both images were made with the 25.4cm f/12 refl., 2x barlow, no filter, ToUcam Pro, Registax 3, Photoshop Elements and Panorama Maker.

I am trying to arrange procurement of a tracking platform for my friend's 50 cm f/5 refl. in Pietown NM. They have a fine optical scope and one of the darkest locations in the US. I observed the Temple crash with success there. Hope some fine images can be made when tracking is available. Sincerely,



Randy TATUM (ランディ・テータム Richmond VA 美)

●.....Date: Mon, 24 July 2006 10:40:04 +0100
Subject: Lunar phases and a thin crescent..

Hi All, Since the middle of July I have found myself trying to capture more and more waning Moon phases from the last quarter Moon on the 17th. I've done this before (actually a much longer sequence which can be seen at <http://www.digitalsky.org.uk/moonview5.html>). I do have a capture for the 18th but seeing was poor and the result rather messes up the sequence - I might have another go at it later. Anyway here's the full sequence capture up to a very difficult thin crescent on the 23rd July which was hampered with criss-crossing clouds.

http://www.digitalsky.org.uk/2006/lunarphases_july_2006-fullsize.jpg

All of the mosaics in this sequence were captured in full daylight except the thin crescent of the 23rd. The Sun was just below the horizon during this capture. The capture sequence of the 19th was particularly pleasing as the Moon was close to the meridian and the seeing was very good.

Now, I thought the 23rd would be the end of the story, however...

This morning (24th) I got up early and took a look into the north-east. I was somewhat surprised to see lots of clouds around. I decided to hang on and keep an eye on what was happening. I knew the Moon was in there somewhere but I couldn't see any stars to find my way around. I saw Venus and decided to set up my telescope in my front garden, just in case. At 04h00m UT I was tired and on the verge of giving up. I still couldn't see stars but could see things around me in the garden very clearly as the dawn was advancing fast. Suddenly,

between two thick cloud banks, I picked up a thin white line in my binoculars and sprang into action...

A few tense moments when I had to move the telescope to avoid a lamp post and a few snips at a straggly bush in the front garden (which now has a rectangular section taken out of it and I have been requested to finish the job properly!) and I had the incredibly faint crescent in my finder. Moments later, there it was on my computer screen - a sight as beautiful as any I've ever seen in the sky. Small distant birds were flying across the giant crescent - an awesome sight. Here's the end result...

http://www.digitalsky.org.uk/2006/2006-07-24_04-13-14_flat.jpg

Best regards,

Pete LAWRENCE (ピート・ローレンス Selsey 英)

<http://www.digitalsky.org.uk>

☆☆☆

『火星通信』廿周年記念

CMO 20th ANNIVERSARY

廿年如一 目 (一)

南 政 次

★『火星通信』を發刊したのは1986年の一月で、私は二月末には火星觀測の爲に臺北に赴いた。臺北でのことは『火星通信』に何度か書いており、幾つかはWebに再現したので、好く記憶しているつもりであったが、實は1987年に『天界』にも何度かに分けて臺北天文臺滞在記を書いたことはすっかり忘れていた。最近偶然見つけて一部を読み返し、何と既に記憶に朧なことがこんなに仰山あったかと仰天した。勿論、すべて再び記憶として蘇って來ているが、別にイヤな事でもない事でも反復しないと忘れるということであろう。★という風に考えて、いま以て記憶に蘇らないこともある。いつ頃『火星通信』の發行を立案したか、足羽山の博物館の屋上の南側の端で、中島孝氏と相談したことは情景と共に覚えているが、いつのことであったか、一方、臺灣行きは蔡章獻さんとの交渉や渡航手続きなど手順良く進めて居た筈で、これは書類を辿れば分かるだろうが(蔡章獻さんへの紹介状は佐伯恆夫課長にお願いした。臺灣なんて、あんたマラリアか Dengue 熱に罹るでえと言われたけれど)、いま以て思い出せないのは、臺灣へ行ってしまって、發行をどう續ける心算であったか、ということである。結局、最初の一、二號を福井で出したキリで、二月25日附の大きな封書で福岡の淺田正氏に雛形その他を送りつけ、

私は臺北に發ってしまったのであるから、甚だ無責任な話である。淺田氏は以後月二回、ほぼ一年間お獨りで紙面を作り、印刷し、發送された譯で、『火星通信』の今日があるのは淺田氏の御陰、第一の恩人である。あの一年がなければCMOはとくに泡と消えていたであろうと思う。當時淺田氏も未だ獨身で、若かったこともあるが、發行の苦勞は私はいまになれば骨身にしみて知っているから、經緯すら思い出せないのは不甲斐ないし、申し譯ないことだと思う。★然し、當時の事で鮮明に覚えていることも幾つかある。一つは、これは發刊の意義とも關係するから、敢えて書くが、ある筋から何故英語を使うのかという不快感が出されたことである。逆に佐藤健さんは逸早く英語が附加されていることに賛意を示されたが、そうでない向きもあったのである。こういう形式が不可解な年代もあろうことは理解するが、そうではなくて、日本人は日本語で済ませという如きナショナルスティックな考えや英語をひけらかししか見做さない阿呆もいたのである(CMOのマークのMは南のMだ、という阿呆も同罪)。★序でに關係するから敢えて書くが、『火星通信』はもともとアンダーグラウンド(underground movement ぐらいの意味)と創刊號に書いた様に、それまでの『天界』の月例報告の様な體裁では駄目だというのが常々の中島氏と私の考えであったのである。木星なら二日もあれば全面を把握することは可能だろうが、それと同じ様な觀測報告で宜しいのか、

北極冠は何處から見ても同じやないか、というような考えで宜しいのか、というようなことは昔からの足羽山での話題で、これはどうにかしなければならぬ、ということがあったのである。火星は四十日ほど経ないと同じ場面を観測出来ないという事実を知りながら、その無視の影響を知らんぷりするというのは、これは日本だけでなく英國でも美國でも同じ事であった。彼らはInternationalという言葉が好きだけれど、それぞれの帝國主義の差配であった譯である。英語は國際的だから言葉では飾ることが出来るけれども、内容が非常に拙い、そんなことは明々白々なのに本人達は氣付きもしないという有様であったし、あるのである。日本は美しい立派な言葉を保ちながら、理解されないから學際的な觀點からも帝國主義にはなり得ないが、井戸蛙の様相である、といったところであったか。今でも、火星課はOAAの火星課なのだからという様な小言を聞くが、國內報告者の二倍もの数の非會員海外報告者が月並報告に並んで違和感を感じない程にご理解が頂けるかどうか。

★この廿年の間に、情況が様々に變化した。HSTやMGSの畫像が見られるようになったし、Internetが普及してCMO-Webでさえ十年が経過した。畫像のやりとりは速くなり、ほぼ『火星通信』が最初に意圖した方向で情報が集まっているし、発信している。然し、それでも充分ではないという

のが實情である。質の問題はいつもあることで、方法論が把握されないまま、入れ替わり立ち替わり観測者が出て消えてゆくのはどうしようもないことだが、最も大きな問題は、太平洋という大きなギャップと、中國から以西、多分中東までのギャップは埋まりそうにないことである。これはCMOを英語で書こうが書くまいが、依然、關係無く嚴然として存在しているからには、この事は新人の發掘などよりも何らかの意味で心すべき事であろう。『火星通信』をもう少し續けるとすれば、方法論も含めてこの點の強調かと思っている。★HSTやMGSが動いたからには、もう火星観測には意味がない、という話が1990年頃から出ていたのも笑止であったが、これも月並月例報告と同じ基盤に居ればのことであろうと思う。表面詳細に拘泥した初期ならいざ知らず、こういう初歩的な思い込みには付き合っても居られまい。★ただ、1986年といえ、二月に打ち上げられたミールは既に(2001年三月に)消滅したし、チェルノブイリの事故(これは南港の中央研究院から圓山天文臺へ送って貰う途中にカーラジオで耳にしたのが初め)の杜撰な石棺はいま危機的状況らしい(勿論被曝被害も依然)。國鐵分割時代の政治家も今や弱々しくなって見える。廿年といえ、確かに一寸した年月で、我が身も細かな記憶と共に崩壊しようなのであるが。 ---

シー・エム・オー・フクイ

中島 孝 Nj

★前号報告以降、長谷川 久也様(380)、松本 直弥様(381)からカンパを頂きました。
有難うございました。不一。

☆ Kaset-Tsushin CMO (Home Page: http://www.mars.dti.ne.jp/~cmo/oa_mars.html)

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