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OBSERVATIONS

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Recommendation of Every 40 Minutes Observations

By

Masami MURAKAMI and Yukio MORITA

There exists an unwritten law or rule in the OAA Mars Section that we should make observations of Mars every 40 minutes. Since one of us (MURAKAMI, abbreviated as *Mk*) had confidence in his Mars observations on the occasion of the 1988 great apparition, he, in July 1990, applied for admission to the Mars Section (Director at that time was Masatsugu Minami, abbreviated as *Mn*) when already the law has existed and Secretary Takashi NAKAJIMA (*Nj*) and later *Mn* wrote to *Mk* that the every 40 minutes observations were treated as an important code of the Mars Section. At that time *Mk* was quite puzzled and thought it was an odd time-interval and the rule itself was queer. They (*Nj* and *Mn*) cut short the explanation but at any rate they did not seem to believe in those who could not carry out the every 40 minutes observations. Even the former Director Tsuneo SAHEKI who was well-known as the detailed observations of Mars needed at least one hour to finish his observation, and hence the older members including him could not have understood the new rule.

Why 40 minutes? It is related with the difference of the rotation periods of Mars and the Earth: The former is longer than the later by about 40 minutes. As easily seen, if we observe every 40

minutes several times every day, we obtain the several Martian surfaces which differ by about 10°W and some may have same degrees if we add one more rule or law: That is, to obtain comparable results we are led to need another rule that we should observe at the same times on the following days. If this rule is established we are to gather several images which show the (nearly exactly) same ω (the Longitude of the CM) seen on different days. This is a simple rule but may not be simple to understand: Maybe this is a reason why we were not given the full explanation from mentors at first.

As suggested, the physical implication of this method of observations is to make us to compare the surfaces of same ω of different days: If every night it is fine and if we continue to take images every forty minutes at the same moments on the days, we obtain the fruitful documents to compare. The comparison is a simple and elementary but important technique of any scientific work: They thus implied any single observation may not deserve to be said observational.

Strictly speaking the rotation difference is a bit shorter than 40 minutes, and hence some "deviation" will occur during the course. And so we need some device of the observer's own.

Another reason *Mn* and *Nj* were not so instructive to us might have been because, if this comparison was carried out, any good fruit could not be necessarily borne. So it needs apparently more than usual perseverance.

The following is our confession including our regrets.

Before that, let us introduce another of us (MORITA, abbreviated as *Mo*) who is also a member of the OAA Mars Section since July 1992 taking the images of Mars by the use of a 25 reflector. When *Mo* joined the Section, he did never know the method of the every 40 minutes observations: He just used to take an infallible shot on TP when the seeing improved. Around 1996 he began to use the Mutoh's CCD camera, and from 1999 used ST-5C, and around the time he began to learn the method of the every 40 minutes observations. In reality in February 1993 he shot a dust near Elysium, but regrettably he did not have any idea of comparison (furthermore the fol-

lowing day was cloudy). Around 1996/1997 *Mo* had a hard time because it was a transitional period from TP to CCD, but after that because of the 40 minutes observations a lot of observations were obtained (362 sets in 2001, 306 sets in 2003 etc). But the timing on the following days was not so appropriate.

On the other hand, *Mk* remembers that he chased the activity of the white cloud on Alba at the latter half of January 1995 every 40 minutes. On the occasion Tohru IWASAKI (*Iw*) also similarly chased. See the "comparisons" for example in:

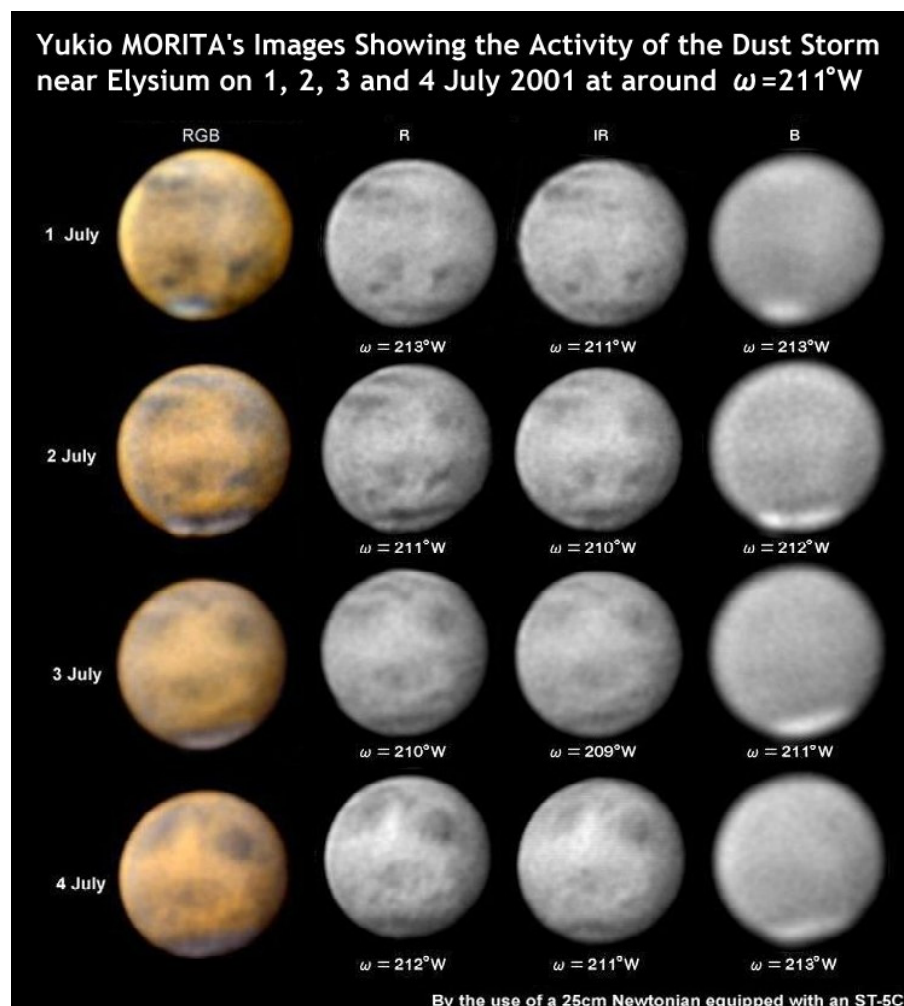
<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/95Note13.htm>
It is apparent *Mk* chased at the same angle every day.

Furthermore at the end of April 1999 *Mk* and *Iw* detected a morning cyclone at Baltia independently from the HST and chased every 40 minutes. Unfortunately on 27 April *Mk* failed to synchronise with data on the preceding day, while *Iw* was successful-

ly trapped the white cloud at the same angle on 26 and 27 April. *Mk* must have confused with the happening of the extraordinary event. However anyway it was impossible to chase the latter (day time) activity of the cloud from Japan, though it was suggested it must have occurred on 26 April. See for example:

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/note/9903/03.html>

The example that *Mo* was most successful thanks to the every 40 minutes observations was the case at the early stage of the 2001 global dust storm: Fortunately it was rather cloudless from 1 July to 4 July 2001 at Hiroshima, and at around $\omega=212^\circ\text{W}$ *Mo* constructed the "comparisons" of the Martian surface where it was evident how the dust expanded at around Elysium. *Mo*'s images are shown here: It is a bit



regrettable to *Mo* because they do not obey exactly 40 minutes intervals and as far as R images are concerned the shot times were as follows:

1 July 2001 13:06GMT
 2 July 2001 13:38GMT
 3 July 2001 14:10GMT
 4 July 2001 14:55GMT

However *Mo* considers that the images well stand the "comparison" method. We (*Mk* and *Mo*) don't here discuss about the contents of the physical and meteorological situation of the surfaces, but it will be apparent that the sets thus constructed are meaningful and important. Another sentence is more needed: Fortunately Tomio AKUTSU (*Ak*) happened to produce images at $\omega=213^\circ\text{W}$ on 30 June at the Wakugawa Observatory in Okinawa, and hence we have 5 successive images at the similar angle, and hence the dust cloud which has arisen from Hesperia on 24 June 2001 was rather completely described at this angle at the rather early stage, and these proved that the dust was intrinsi-

cally global from an early stage. (We know from 1 July at Fukui *Mn* and *Nj* observed every 40 minutes every day also. On 4 July they checked also a large darker spot at M Cimmerium which was CCD taken also by Akinori NISHITA (*Ns*); this is also apparent on *Mo*'s image and will be interesting if compared with the case of E E BARNARD's observations in 1894).

Thus the OAA Mars Section will continue to recommend the observations made every 40 minutes and at the same time recommend to repeat the observations on the following days at the same times. Of course since the rotation angle or period is not rational, each one must adjust the timing in his favourable way. It is rather easy for the CCD observations to make minor adjustments, while in visual observations the adjustments will be more difficult since the difference of 30 minutes and 35 minutes does not usually make any serious difference visually. *Mo* intends so hereafter to keep the same ω rather than the 40 minutes separation. \square

CMO 09/10 Mars Note (15)

Hyperboreus Lacus Observed in 2010 +*Iaxartes*

As the npc becomes smaller, a dark area called Hyperboreus Lacus is seen adjacent to the npc at the angles between 030°W to 090°W . It implies the most northern Lacus.

★First we may say we can detect it on the image of MORITA (*Mo*) taken on

05 Apr ($\lambda=073^\circ\text{Ls}$) at $\omega=354^\circ\text{W}$, $\phi=15^\circ\text{N}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100405/Mo05Apr10.jpg>

★The image by GERSTHEIMER (*RGh*) may also show it:

07 Apr ($\lambda=074^\circ\text{Ls}$) at $\omega=067^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100407/RGh07Apr10.jpg>

★It is quite certain the following PEACH (*DPc*)'s images clearly show it as well as *Iaxartes*:

08 Apr ($\lambda=075^\circ\text{Ls}$) at $\omega=066^\circ\text{W}$, 079°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100408/DPc08Apr10.jpg>

All images which follow look to show Hyperboreus L:

★09 Apr ($\lambda=075^\circ\text{Ls}$) at $\omega=053^\circ\text{W}$

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100409/VAm09Apr10.jpg>

by AMODORI (*VAm*),

★10 Apr ($\lambda=076^\circ\text{Ls}$) at $\omega=032^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100410/RGh10Apr10.jpg>

by *RGh*,

★10 Apr ($\lambda=076^\circ\text{Ls}$) at $\omega=076^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100410/MDc10Apr10.jpg>

by DELCROIX (*MDc*),

★11 Apr ($\lambda=076^\circ\text{Ls}$) at $\omega=032^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100411/RGh11Apr10.jpg>

by *RGh*,

★13 Apr ($\lambda=077^\circ\text{Ls}$) at $\omega=031^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100413/MDc13Apr10.jpg>

by *MDc*,

★14 Apr ($\lambda=078^\circ\text{Ls}$) at $\omega=010^\circ\text{W}$, 015°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100414/DPc14Apr10.jpg>

by *DPc*, where Lacus looks to be covered by a thin complex mist.

★In the *MDc*'s image on

16 Apr ($\lambda=078^\circ\text{Ls}$) at $\omega=018^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100416/MDc16Apr10.jpg>

Lacus looks smaller.

★The following drawing of SMET (*KSm*) may show but weak:

16 Apr ($\lambda=078^\circ\text{Ls}$) at $\omega=030^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100416/KSm16Apr10.jpg>

★ 17 Apr ($\lambda=079^\circ\text{Ls}$) at $\omega=341^\circ\text{W}\sim 351^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100417/DPc17Apr10.jpg>

are the images by *DPc*: Hyperboreus L is not yet seen but we may catch Iaxartes.

★ MORALES (*EMr*)'s image on

19 Apr ($\lambda=079^\circ\text{Ls}$) at $\omega=050^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100419/EMr19Apr10.jpg>

clearly shows, whereas Iaxartes looks cut.

★ PARKER (*DPk*)'s image on

22 Apr ($\lambda=081^\circ\text{Ls}$) at $\omega=045^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100422/DPk22Apr10.jpg>

shows Hyperboreus L dark: the image is unique because there is a dark spot to the north of Mare Acidalium. It contributes to Iaxartes in the G image.



★ AKUTSU (*Ak*)'s following images

1 May ($\lambda=085^\circ\text{Ls}$) at $\omega=083^\circ\text{W}$ and
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100501/Ak01May10.jpg>

3 May ($\lambda=086^\circ\text{Ls}$) at $\omega=061^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100503/Ak03May10.jpg>

the place is not clear though the Lacus exists.

★ *Mo*'s images on

8 May ($\lambda=088^\circ\text{Ls}$) at $\omega=021^\circ\text{W}\sim 024^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100508/Mo08May10.jpg>

show Hyperboreus L though Iaxartes is faint.

★ *Ak*'s one taken on

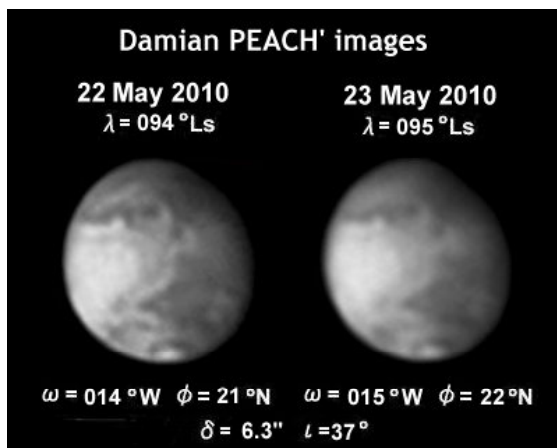
9 May ($\lambda=088^\circ\text{Ls}$) at $\omega=007^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100509/Ak09May10.jpg>

shows it at the morning side.

★ *DPc*'s images on

15 May ($\lambda=091^\circ\text{Ls}$) at $\omega=082^\circ\text{W}\sim 088^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100515/DPc15May10.jpg>

show it in the evening, while others on



18 May ($\lambda=093^\circ\text{Ls}$) at $\omega=059^\circ\text{W}$

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100518/DPc18May10.jpg>

19 May ($\lambda=093^\circ\text{Ls}$) at $\omega=047^\circ\text{W}\sim 054^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100519/DPc19May10.jpg>

20 May ($\lambda=093^\circ\text{Ls}$) at $\omega=027^\circ\text{W}\sim 035^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100520/DPc20May10.jpg>

22 May ($\lambda=094^\circ\text{Ls}$) at $\omega=014^\circ\text{W}\sim 017^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100522/DPc22May10.jpg>

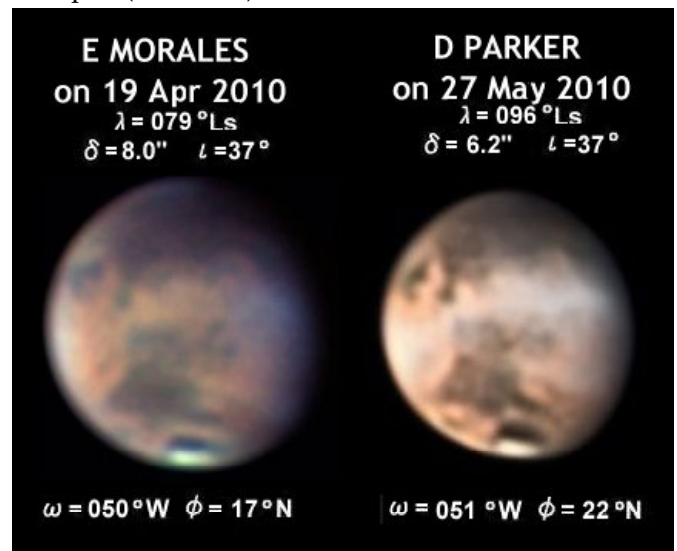
23 May ($\lambda=095^\circ\text{Ls}$) at $\omega=015^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100523/DPc23May10.jpg>

show clearly Hyperboreus L while Iaxartes is rather weak. (See the images at the preceding column.)

★ On the other hand, *DPk*'s one on

27 May ($\lambda=096^\circ\text{Ls}$) at $\omega=051^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100527/DPk27May10.jpg>

exhibits Hyperboreus L quite large and Iaxartes is short in length. This image is excellent for $\delta=6.2''$, which can be compared with the image of *EMr* on 19 April ($\lambda=079^\circ\text{Ls}$) when $\delta=8.0''$



★ MELKA (*JMI*) made the following image on

31 May ($\lambda=098^\circ\text{Ls}$) at $\omega=035^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100531/JMI31May10.jpg>

★ In June, *Mo* produced images on

10 June ($\lambda=103^\circ\text{Ls}$) at $\omega=063^\circ\text{W}\sim 069^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100610/Mo10June10.jpg>

11 June ($\lambda=103^\circ\text{Ls}$) at $\omega=052^\circ\text{W}\sim 059^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100611/Mo11June10.jpg>

and after one month on,

17 July ($\lambda=120^\circ\text{Ls}$, $\delta=4.9''$) at $\omega=063^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100717/Mo17July10.jpg>

but here Hyperboreus L looks connected broadly with M Acidalium. After the period even the npc was rarely shot clearly.

Next season, it is more interesting to observe this area. Some descriptions in CMO #186 (OAA Mars) and CMO #202 (Mars Sketch 4) where 1996/1997 case was treated will be instructive in this point.

(M MINAMI and M MURAKAMI)

Letters to the Editor

●.....*Subject: Proposal of a note for ISMO*
Received: Sun 12 June 2011 23:37:53 JST

Dear Masatsugu, Reiichi and I are currently working on an ISMO note that will deal with the Elysium case we've been talking about. I'm currently reviewing images and it may be interesting...

Best wishes

○.....*Subject: Note on Elysium*
Received: Mon 20 June 2011 02:54:59 JST

Dear Reiichi, Here is a first quick draft of an ISMO note about Elysium. Feel free to comment, add, disagree, in my mind it's truly a working document.

Masatsugu, feel free also.

I think I have found some images where we can see Elysium (as well as Hecatus Tholus) as a relief detail and not only albedo. Shadow effects however are a bit difficult to see; bright reflection near opposition is probably the most conspicuous effect.

Best wishes,

○.....*Subject: Note on Elysium Mons*
Received: Tue 12 July 2011 00:01:32 JST

mars_2007_JLD.jpg, marscompar_DPc_jld.jpg

Dear Reiichi, Masatsugu, I'm sorry I've belayed the work about Elysium a bit - I will work on it on the following days, but it looks more reasonable for me to publish it on the august issue of ISMO. From Wednesday I think, I will be on holidays in my usual summer residence in Morbihan, next to the coast, but we don't have internet other there, however from time to time I go back to my parent's home 25 mn away by car to take some "news of the world"...

By the way Masatsugu requested me to see the PdM's image taken in November 2007 - here it is. It has been made by Jean-Luc Dauvergne (journalist at *Ciel et Espace*) and François Colas. Right now I don't have the exact date. It has been taken in near IR, and I believe it shows Elysium Mons



and Hecatus Tolus as small relief structures... what do you think? I include also a comparison I have made that year with an R image taken by Damian, that we used to discuss on an Astrosurf topic. One could guess the same structures, but the diffraction makes them bigger than reality.

Best wishes,

Christophe PELLIER (Nantes, France)

●.....*Subject: Re: Thank you for Stamps*
Received: Mon 13 June 2011 22:54:35 JST

Dear Masatsugu, You are welcome, I'm sorry it took so long to send you the Schiaparelli post stamps, but finally I made it.



I never had so many telescopes for myself as now, but I have no time to observe. Also seeing is constantly poor here from my country house near Rome, this is why I hope to place a remote controlled telescope in a better place and

hopefully get back to do some planetary imaging.

Hope you are well and please say hello to all the CMO members for me. Best regards,

Giovanni A QUARRA SACCO (Roma, Italia)

●.....*Subject: An informative image*
Received: Tue 14 June 2011 23:52:19 JST

Dear Dr. Minami, Bill, Bill, Christophe, Attached here is a very informative image on 16 June 2010 by ESA Mars Express VMC.

Argyre system and Valles Marineris are explicitly shown on the dawn terminator which may give a hint of the view by Mellish.

Best Wishes,

○.....*Subject: Note on Elysium Mons*
Received: Mon 27 June 2011 23:35:27 JST



Attached: HST 17 May 1997_CM175 ENH.jpg, Profiles of the Volcanoes of Mars.jpg, 2007 PCq's Elysium Images with decreasing longitudes.jpg, ESA ROSETTA OSIRIS 24Feb2007.jpg, G. Fournier's Drawings of Elysium in T.Saheki's Book.jpg

Dear Christophe, Sorry to be late in replying, I spent two days in Tokyo Disneyland with my dental clinic staff, scared by a lot of roller coasters and free fall machines! I have read through your draft on Elysium Mons, as well as Dr. Minami's email to you he had Cced to me.

I agree with your conclusions that (1) the ground-based detection of dark Elysium Mons with our instruments may be possible but extremely challenging, and (2) the detection of the brightness of the volcano near opposition period is much easier which implies the exposure of the bare Elysium Mons.

Last year I made a review of shadowy images of Martian volcanoes taken by HST and the probes; I found on some shots that Elysium Mons was recorded as a snug little dome-like relief image of about 150km across (attached is an example of morning side relief image). Around 150km in diameter is much smaller than the catalogued size of 200~300km, probably because of its conical profile.

For the detection of a dome-like geographic structure's shadowed relief image, the formula to get the minimum telescope aperture required to recognize Kkm across crater which I introduced in my recent LtE may be applicable; same logic though the sunlit and shadowy sides would be opposite.

Then the minimum telescope aperture to discern a 3-D mound image of 150km across on the 20" Martian image would be 52cm ...so it seems no easy even for the skilled ISMO colleague imagers to obtain explicit relief image of the object.

Actually, most of the candidate images show relief-like images of Elysium Mons swollen up to almost 250km across. I myself want to consider that our excellent imagers managed to succeed to get the true shading of the relief of Elysium Mons, though blurred by the optical limitations and the seeing conditions. But they are all questionable as the hourly changes of the dark portion on the images

around each candidate shot are quite uncertain.

As for its summit caldera, it's only 14km across and might have nothing to do with shadowy appearance in any condition.

As to the bright Elysium Mons, it must be by far easier optically, and with the favorable apparent Martian size near opposition, so we can find many many examples in the CMO Mars Galleries.

I agree with Dr. Minami in the point that in the period near opposition any relief topography would be most unlikely to show any shadow with usual meaning, so that the shadow-like parts are due to albedo features. However, I have noticed on some HST images of near opposition that some Tharsis Volcanoes showed very much relief-like images in the extreme vicinity of the limb (not terminator) areas; might have been, I guess, pseudo-relief-like images caused by the greater difference between the sunlit angle for the far side slope of the flank and that of the near side one for each volcano, which might have resulted in a considerable difference in the intensity of antisolar brightening between the flank over the summit and the one on this side. A similar effect may be seen on Elysium Mons when located at the near opposition limb.

Otherwise, I have nothing to request you for now to add, cut, or reconsider the contents of your draft.

Dr. Minami seems to expect us to make the note a little longer with some speculations upon the peculiarity of the volcano itself. But this time I think it's OK as your plot as "A Brief Review of Bare Elysium Mons as Detected by the CMO Colleague Imagers". Bright Elysium varying apparition to apparition, probably influenced by the meteorological/geological conditions, is very interesting, deserves to be discussed in the future leadoff article, or note in CMO/ISMO.

I am also attaching some more images and scanned figures for your reference

* For the profile of the volcanoes of Mars, the vertical scale is exaggerated four times.

* PCq's 29&30 Dec 2007 images may show some changes for different positions of bright Elysium

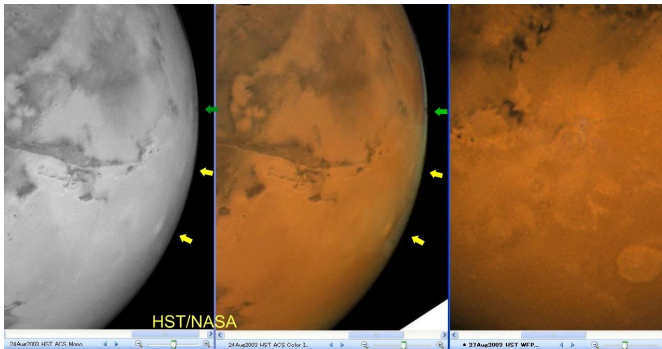
Mons on Martian disks but can be questionable.

* ESA Rosetta Osiris 24 Feb 2007 passing by image is fantastic! It's a missing link between HST images and the probe images which gives us an idea as to how the craters near the Martian terminator look like with a powerful telescope. Interesting albedo features around Elysium Mons are notable.

* G. Fournier's drawings in Tsuneo Saheki's "*Mars and Its Observation*", p.242 may show dark Elysium Mons with its true size... Do you know other examples of "Pre-PdM detection of Elysium Mons by visual observers or by Martian photographers? Best Wishes,

○.....**Subject:***Pseudo-relief-like images of Tharsis Montes*
Received: Sun 3 July 2011 16:08:42 JST

Dear Dr. Minami, Christophe, Attached here are some HST images taken during near-opposition period in the 2003 apparition to show some examples of pseudo-relief-like images of Martian volcanoes in the extreme vicinity of limb areas which I have mentioned in my latest email.



On the left side is the "Hubble's Sharpest View of Mars" monochromatic image (R? Orange? Green?, I don't know...) taken by HST ACS on 24 Aug, four days before the opposition. The color image in the middle was taken simultaneously.

On each 24 Aug image three Tharsis Montes can clearly be seen along the western limb in very much shadowed-relief-like appearances (arrows). As they were taken a few days before the opposition, the dawn terminator was just over the western limb; so that in the area near the morning limb, any shadow effect could have most hardly been expected. Possible causes of the 3-D appearances might be as follows:

(1) Difference between the sun's lighting angle with the far side slope of the flank and that with the near side one for each volcano, which might have resulted in a considerable difference in the intensity of sunlight reflection between off the flank over the summit and off the one on this side.

(2) Albedo features around each volcano area which might have caused a mimetic relief looks in the limb area.

(3) Influence of the mist along the morning limb.

(4) Embossment-like pseudo-pseudo-relief-like image caused by excessive image processing.

For the HST images (4) is unlikely because of their high qualities compared with each volcano's image size, while it seems it should be kept in mind in inspecting ground-based Martian images.

As for (2), you can check on the 27 Aug image (the right side one taken on just one day before the opposition) the albedo features around the Tharsis Montes area. I feel the features could have hardly contributed toward making the relief-like images of the volcanoes in the dawn limb areas.

Then for (3), on the color HST image in the center, faint mists or clouds seemed to affect the appearance of the volcanoes, whereas on the monochromatic image with the least influence of mists, shadowed relief-like appearances are still conspicuous. So that the effect of the morning mists or clouds seems to be unlikely also.

Thus my conclusion would be (1) above mentioned is most likely.

Besides indicating Arsia Mons, the green arrows are intended to point the delicate notches on the limbs just over the volcano. In the 2003 CMO Mars Gallery, on some images taken in the period around the opposition day, extremely conspicuous dark spots are recorded on the morning limbs just over Arsia Mons; some examples are on the images of:
Don PARKER: 25 Aug 2003 04:17 GMT $\omega=058^\circ\text{W}$
George HALL: 29 Aug 06:30 GMT $\omega=056^\circ\text{W}$
Ed GRAFTON: 29 Aug 06:47 GMT $\omega=059^\circ\text{W}$
 ...Were the dark spots other Föhn Phenomena!? ...
 Were the notches on the dawn limbs on the 24

Aug HST images related to the dark spots captured on the CMO colleagues' images? Best Wishes

○ *Subject: Only wines for Neptune!?*
Received: Tue 12 July 2011 00:12:06 JST

Hi, all areoalcoholics,
 My wife Reiko who is an incurable vinoholic recommends me 2007 Opus One in her wine refrigerator for the special memorial day. Unfortunately, I don't have a taste for wines. I will raise a glass of Minowa-Mon (箕輪門), my favorite saké...classified as rice wine?



Anyway, Happy Birthday, Neptune !

○ *Subject: Pic du Midi's image*
Received: Tue 12 July 2011 23:11:52 JST

Dear Christophe, Thank you for your prompt reply. PdM's Nov 2007 image is great! I hurried myself into reviewing 2007's pre-opposition HST images and the probe images with similar lighting conditions, as well as ESA ROSETTA OSIRIS image on 24 Feb 2007 (attached the other day) for checking confusing albedo features around the Elysium volcanoes. ...And now, I also believe the renowned 1-meter Cassegrain's image easily (of course with the imagers' good skills) shows the real relief natures of Elysium Mons and Hecates Tholus with their true sizes.

The comparison with Damian PEACH's image is very interesting and informative; it may give us a hint as to how an excellent imager's near-the-limit works can show on/below-the-limit Martian features.

Have a good vacation! Expecting your next draft,
Reiichi KONNAI (Ishikawa, Fukushima, Japan)

● *Subject: FW: From bill sheehan*
Received: Thu 18 June 2011 06:30:04 JST

----- Forwarded Message

From: Antoinette Beiser

Date: Wed, 15 June 2011 13:46:23 -0700

To: Bill Sheehan

Subject: RE: From bill sheehan

Bill, Thanks again for your wonderful talk. It was a huge hit with everyone. How would you feel

about allowing us to post it on You Tube for the benefit of our Friends. It's entirely up to you. We don't have the bandwidth to post in from our website however an alternative would also be to mail out DVDs to interested people. We have one request already. Tell me which you'd prefer.

We REALLY enjoyed having you as our speaker!
 Best,

Antoinette BEISER

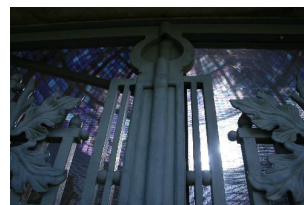
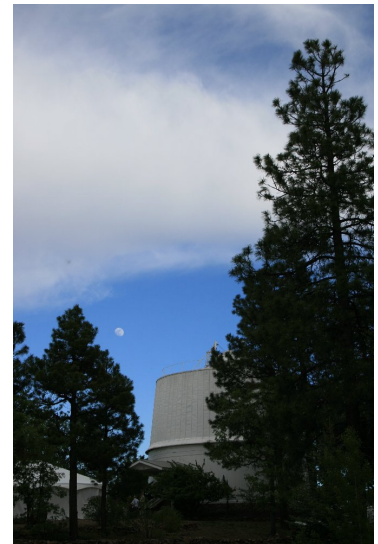
(Development Officer, Lowell Observatory)

○ *Subject: Lowell observatory and the Moon*
Received: Sat 18 June 2011 11:16:17 JST

Dear Masatsugu,
 The scene on the night I gave the talk in the Rotunda.

More anon,

○ *Subject: Photos from Lowell Observatory*
Received: Sat 18 June 2011 11:12:25 JST



○ *Subject: Pluto telescope →*
Received: Sat 18 June 2011 11:13:38 JST

○ *Subject: Re: YouTubes*
Received: Mon 27 June 2011 00:24:49 JST



Dear Masatsugu, The talk that I gave--and you have seen only the first half--was mainly to inform the audience that Percival Lowell had an adventurous career before he decided to devote himself full-time to astronomy. Surprisingly, few of the audience knew of his career as an expander of Western Consciousness about what was then regarded as



the Inscrutable East. I shall send the references to the rest in due course. The talk was very well received by the audience. I was told to make it "friendly" and to aim at a very popular level, as none

of these individuals could be assumed to be familiar with much of the material. There were some astronomers there however who told me they enjoyed it -- including Otto Franz and Wes Lockwood. It seems to have successfully completed its assigned task.

It looks as if I will return to Flagstaff in the autumn to do work in the archives--there is a great deal of interesting material about Lowell that has hardly been scratched; including his copy of Newton's *Principia* (a nineteenth century version) and his love letters to Miss Struthers, who refused his proposal of marriage because he was not religious and she did not want to hurt her parents who were.

Lowell continued to describe her as his "mundane Venus" in correspondence with her even after his marriage to the rebarbative Constance--I have seen letters to her written as late as 1915. (I am sure he did not show them to his wife.) Jean Cavé, whom you met in Paris and who has now finished his novel on Percival, was especially taken with these letters, as you may imagine!

I read just this morning your essay on Mellish in the latest CMO. You masterfully demonstrate how little many of those who argue for the "flat Mars" know of the mathematics that predicts shadow lengths near the terminator. Jeff Beish's analysis is shown to be superficial and deceptive (as you say, he uses a flat map to show Mars is flat! One could do the same with the Earth). I am glad I sent the Mellish article to you as it has obviously pleased so many of our fellow "aeroholics" as Reiichi Konnai so justly describes us.

I have quite a large number of projects pressuring me now but hope to turn out something soon on Lafcadio Hearn's experiences in New Orleans; that cosmopolitan and very colorful place served as something of his apprenticeship for Japan, just as Lowell's time in Japan (especially *Noto*) served as his apprenticeship for Mars. Best wishes,

○.....*Subject: FW: From bill sheehan*

Received: Tue 28 June 2011 07:53:58 JST

Dear Masatsugu, Here are the last two parts of the talk so you can see how it went forward to the conclusion. Best,

----- *Forwarded Message*

From: Jonathan Wilkendorf

Date: Mon, 27 June 2011 12:16:45 -0700

To: Bill Sheehan and Antoinette Beiser

Subject: Re: From bill sheehan

All four parts of the video are now uploaded. Sorry that the audio is only on one channel. I haven't found stereo solution yet. Thanks,

<http://www.youtube.com/watch?v=z1247XeuAJ0>

<http://www.youtube.com/watch?v=F3TIj1oaK-w>

<http://www.youtube.com/watch?v=vMUfo3VJHz8>

<http://www.youtube.com/watch?v=Cilz-LLPsJA>

Jonathan WILKENDORF (Lowell Observatory)

----- *Original Message Follows* -----

From: Bill SHEEHAN

To: Jonathan Wilkendorf, Antoinette Beiser

Subject: From bill sheehan

Date: Tue, 14 June 2011 18:19:50 -0500

> Dear Jonathan,

> I enjoyed participating in the Friends of Lowell annual

> event, and hope my talk met your needs. Let me know when

> it is on the web, as there are some individuals who would

> probably find it of interest.

> Best wishes, **BILL SHEEHAN**

----- *End of Forwarded Message*

○.....*Subject: Happy Birthday, Neptune!!*

Received: Mon 11 July 2011 04:20:08 JST

Hi, all, Pop a bottle of good French wine (or German) tomorrow—I will—as Neptune returns to the heliocentric longitude of its discovery. Neptune—hip, hip, hooray. Happy Birthday, Nep!

○.....*Subject: Re: Only wines for Neptune!?*

Received: Tue 07 12 July 2011 21:25:31 JST

Hi, Reiichi and Masatsugu, What a picturesque bottle of saké—it reminds me of the time I first tasted it in Nagasaki.

Here at the Sheehans, we settled for brownies—with blueberries added for Neptune's sake (color)—each with a single lit candle to celebrate Neptune's turning One. How vast the Solar System is that Neptune has now completed only one circuit since its discovery 165 years ago. Best,

Bill SHEEHAN (Willmar, MN)

●.....*Subject: Transit of Venus Project newsletter #1*

Received: Sun 19 June 2011 01:09:15 JST

Dear colleagues, It has been two weeks since the Transit of Venus Project's website:

<http://www.transitofvenus.nl>

was launched, and even in this short period of time it has been much improved. The transit calculator is now online, allowing you to compute the contact times for any given location on earth. Also, Rob van Gent agreed to host his extensive transit of Venus bibliography on our website. There's still a lot of work to do before all of his bibliographic entries are transferred (the Bibliothèque nationale de France decided to change their permalinks on the Gallica website), so please return in the next couple of weeks to see for new additions. Together with the list of locations of historical observations, the project's website now forms the most comprehensive resource for anyone interested in the history of the transit of Venus. In the section "Getting involved" you'll find the activities currently adopted by the Transit of Venus Project. More will follow, but for now I would like to introduce to you the three activities already open for all to participate:

Experimental archaeology

What did astronomers in the past actually see? What did the black drop look like through an

eighteenth century eyepiece, and could the aureole effect have been observed at all, as is often claimed? By observing the 2012 transit of Venus with antique telescopes, this project hopes to find an answer to these questions. Contact: Randall Rosenfeld (r.rosenfeld@transitofvenus.nl)

Mark that site!

Many of the locations where astronomers observed the transit of Venus in the past go unnoticed today. Still, these places tell exciting stories. This project's objective is to relocate, inventory, restore and eventually mark significant sites of past transit expeditions. Contact: Steven van Roode

(s.vanroode@transitofvenus.nl)

Measure the Sun's distance

This experiment - proposed originally by Edmond Halley, forming the driving force behind the historical expeditions and re-enacted on a large scale in 2004 - will be repeated again in 2012. This time, however, we will make use of modern technology, much of which wasn't even available to us in 2004. Measuring of the contact times and submitting your data will be facilitated by an easy to use (and free) phone app. Contact: Steven van Roode

(s.vanroode@transitofvenus.nl)

Finally, I would like to draw your attention to our fund-raising campaign. We need funds to start developing the phone app for you. See

<http://www.transitofvenus.org/education/video-new-media/217-phone-app> for more details of the phone app. Please support the Transit of Venus Project by donating \$50, \$100 or more! You can use the donate button on our home page to contribute your gift. Donations are made to Astronomers Without Borders and may be tax deductible. Just think of how wonderful it would be if you could find and send your contact times with a free phone app on June 5 or 6 next year, without the need to leave the eyepiece. And hundreds of thousands of others will benefit from your donation too!

In the mean time, if you haven't done it already, please consider joining our group on Facebook:

http://www.facebook.com/home.php?sk=group_108400462513165

Sincerely,

Steven VAN ROODE

(on behalf of the Transit of Venus Project)

●.....*Subject: Re: Your postal address*
Received: Tue 21 June 2011 22:24:50 JST

Dear Masatsugu, We do have a new address. I read and enjoy the CMO, and I would appreciate it if you could continue to send it. Please forgive me for not notifying you sooner.

I will mention briefly, since I type slowly now with my left hand, that I think it unfortunate that Jeff Beish was called an idiot in CMO #385. Whatever else he is, Beish is no idiot. He is -or perhaps now was- a friend of the CMO and of ALPO. There are not so many of us planet observers that we need to pick fights. Instead, we need to help and encourage one another. I would humbly suggest that an apology from the LtE writer would be appropriate. My "gut feeling" is that an apology might sooth some hurt feelings that could otherwise cause even more problems later. I have not communicated recently, in the last few years, with Jeff, so this is my suggestion, not his. Years ago Jeff came across as sometimes abrasive but approachable and good hearted. Bill Sheehan is certainly a big enough man and author to survive admitting one mistake. I like Sheehan's books very much.

Three collections of my poems are now available at www.amazon.com.

Samuel R WHITBY (Prince George, VA)

●.....*Subject: Thank you from Ukraine!*
Received: Wed 6 July 2011 23:48:26 JST

Dear Dr. Minami, Thank you very much for the received "*Communications in Mars Observations* No. 386".

I really want to be in the mailing list of Mars info because my first dissertation was devoted to disk-integrated and disk-resolved photometry of Mars in great opposition of 1971 and also in 1973 and 1975. I was lucky to observe Mars during three global dust storms on it. The obtained results were published that time only in Russian and they are not

known to planetary community. But in October of 2010 I participated in the conference "Schiaparelli and his legacy" in Milano and Torino and reported those results which are published now:

Lupishko D., Kaydash V., Shkuratov Yu. "Global dust storms and highly polarizing clouds on Mars", *Memorie della Societa Astronomica Italiana*, 2011. V. 82, No. 2, p. 341-347.

<http://sait.oat.ts.astro.it/MSAIt820211/PDF/2011MmSAI..82..341L.pdf>

Thanks again. With best wishes,

Dmitriy LUPISHKO

(Institute of Astronomy of Kharkiv National Uni., Ukraine)

●.....*Subject: Re: Happy Birthday, Neptune!!*
Received: Mon 11 July 2011 05:04:08 JST

Hi! On the 12th that is, at around 10pm ! Cheers

○.....*Subject: Happy Anniversary Neptune!*
Received: Wed 13 July 2011 06:32:09 JST

Hello! Today, July 12 2011, around 10pm Greenwich Mean Time (pretty much now) planet Neptune has completed one orbit around the Sun (so 360° in terms of heliocentric longitude) since it was visually discovered in the night of September 23 / 24 1846 in Berlin by Johann Galle and Heinrich d'Arrest, confirming the calculations by Urbain Joseph Le Verrier and later also those by John Adams. Neptune is now almost on the same spot as it was when first seen back in 1846.

At the Roseland Observatory in Cornwall, Brian Sheen organized a small event this night, celebrating the completion of this first orbit.

As far as I am concerned, ever since I started making film (2005), I have been wanting to make a film, in fact a fiction and a documentary film, about the incredible story that led up to the visual discovery and the events that followed it. I have set several steps along that way, together with a few other people.

This spring I decided to start filming for the documentary, all still quite preliminary and without support from any TV or production company.

A number of people have helped me and I thank them very much.

At the moment, the project is standing more or

less still, due to the lack of financial support, but I do intend to continue and perhaps this short extract will help, who knows.

Here is a first tiny bit of the English part of the story edited together, just to give you a feel. It is nothing finished and some of the editing is a bit on the experimental side. But perhaps there are a few things in there you didn't know yet :

Take a look on my Planetary Science Channel on VIMEO, where you can find this film, which I called 'Searching for Neptune' :

<http://www.vimeo.com/channels/planetaryscience>

I am looking forward to making the full version of the documentary and the fiction film as well. . . .

Happy Anniversary Neptune! Best wishes to all

Maarten ROOS

(Filmmaker, Editor & Planetary Scientist)

● *Subject: RE: Happy Birthday, Neptune!!*

Received: Mon 11 July 2011 06:00:56 JST

Wait...you don't suggest a good British wine? Happy Birthday, Neptune.

○ *Subject: RE: Happy Birthday, Neptune!!*

Received: Mon 11 July 2011 22:25:52 JST

A nice English stout will also work. Got my "VOYAGER NEPTUNE" shirt ready.

C. Renee JAMES

(Physics Department, Sam Houston State University)

● *Subject: RE: Happy Birthday, Neptune!!*

Received: Mon 11 July 2011 06:27:07 JST

I will raise a glass too, but as there aren't any good British wines it will have to be for me a nice vintage Madeira wine.

Richard McKIM (BAA, the UK)

● *Subject: Re: Happy Birthday, Neptune!!*

Received: Mon 11 July 2011 21:18:36 JST

Gentlefolk, Celebrations indeed - we in a small way will be doing so at the Observatory with a gathering, talk and a bun or two. I will be showing off the latest harvest of Adams effects and info. Including a clip from Maarten's video.shot earlier this year.

Incidentally there are good English wines to be had, we are even beating the French these days.

Off to the Shetlands to look at Stone Circles up there.

Brian SHEEN (Roseland Observatory, the UK)

☆☆☆

Ephemeris for the Observations of the 2011/12 Mars. I

August 2011

Masami MURAKAMI

WE now start describing the Ephemeris for the physical observations of Mars: We first list up the necessary elements of the Ephemeris for period from 25 July 2011 to 4 September 2011: The data are listed for every day at 00:00 GMT (not TDT). The symbols ω and ϕ denote the longitude and latitude of the sub-Earth point respectively. The symbols λ , δ and ι stand for the areocentric longitude of the

Sun, the apparent diameter and the phase angle respectively. We also add the column of the Position Angle Π of the axis rotation, measured eastwards from the north point: This is useful to determine the north pole direction from the $p \leftarrow$. The apparent declination of the planet is also given at the final column (denoted D). The data here are basically based on *The Astronomical Almanac for the Year 2011*.

Date (00:00GMT)	ω	ϕ	λ	δ	ι	Π	D
25 July 2011	192.44°W	0.1°N	333.64°Ls	4.35"	24.9°	-29.5°	+23°29'
26 July 2011	182.74°W	0.4°N	334.18°Ls	4.35"	25.0°	-29.2°	+23°32'
27 July 2011	173.02°W	0.7°N	334.72°Ls	4.36"	25.1°	-28.9°	+23°34'

Date (00:00GMT)			ω	φ	λ	δ	ι	Π	D
28	July	2011	163.30°W	1.0°N	335.27°Ls	4.37"	25.3°	-28.6°	+23°36'
29	July	2011	153.60°W	1.3°N	335.81°Ls	4.37"	25.4°	-28.2°	+23°39'
30	July	2011	143.89°W	1.6°N	336.35°Ls	4.38"	25.5°	-27.9°	+23°40'
31	July	2011	134.18°W	1.9°N	336.89°Ls	4.39"	25.7°	-27.6°	+23°42'
01	August	2011	124.46°W	2.2°N	337.42°Ls	4.40"	25.8°	-27.3°	+23°43'
02	August	2011	114.76°W	2.5°N	337.96°Ls	4.40"	26.0°	-27.0°	+23°44'
03	August	2011	105.06°W	2.8°N	338.49°Ls	4.41"	26.1°	-26.7°	+23°45'
04	August	2011	095.34°W	3.0°N	339.03°Ls	4.41"	26.2°	-26.3°	+23°46'
05	August	2011	085.64°W	3.3°N	339.56°Ls	4.42"	26.4°	-26.0°	+23°47'
06	August	2011	075.93°W	3.6°N	340.10°Ls	4.42"	26.5°	-25.7°	+23°47'
07	August	2011	066.24°W	3.9°N	340.63°Ls	4.42"	26.6°	-25.4°	+23°47'
08	August	2011	056.53°W	4.2°N	341.16°Ls	4.44"	26.7°	-25.0°	+23°47'
09	August	2011	046.82°W	4.5°N	341.69°Ls	4.45"	26.9°	-24.7°	+23°47'
10	August	2011	037.13°W	4.8°N	342.22°Ls	4.47"	27.0°	-24.3°	+23°46'
11	August	2011	027.43°W	5.1°N	342.75°Ls	4.48"	27.1°	-24.0°	+23°46'
12	August	2011	017.73°W	5.3°N	343.28°Ls	4.49"	27.3°	-23.7°	+23°45'
13	August	2011	008.03°W	5.6°N	343.80°Ls	4.50"	27.4°	-23.3°	+23°44'
14	August	2011	358.33°W	5.9°N	344.33°Ls	4.51"	27.6°	-23.0°	+23°43'
15	August	2011	348.63°W	6.2°N	344.85°Ls	4.52"	27.7°	-22.6°	+23°41'
16	August	2011	338.93°W	6.5°N	345.37°Ls	4.53"	27.8°	-22.2°	+23°40'
17	August	2011	329.23°W	6.7°N	345.90°Ls	4.54"	28.0°	-21.9°	+23°38'
18	August	2011	319.53°W	7.0°N	346.42°Ls	4.55"	28.1°	-21.5°	+23°36'
19	August	2011	309.83°W	7.3°N	346.94°Ls	4.56"	28.2°	-21.2°	+23°34'
20	August	2011	300.13°W	7.6°N	347.46°Ls	4.57"	28.3°	-20.8°	+23°31'
21	August	2011	290.44°W	7.8°N	347.98°Ls	4.58"	28.5°	-20.5°	+23°29'
22	August	2011	280.73°W	8.1°N	348.50°Ls	4.59"	28.6°	-20.1°	+23°26'
23	August	2011	271.05°W	8.4°N	349.02°Ls	4.60"	28.7°	-19.7°	+23°23'
24	August	2011	261.34°W	8.6°N	349.54°Ls	4.61"	28.8°	-19.4°	+23°20'
25	August	2011	251.66°W	8.9°N	350.05°Ls	4.62"	29.0°	-19.0°	+23°17'
26	August	2011	241.95°W	9.2°N	350.57°Ls	4.63"	29.1°	-18.6°	+23°13'
27	August	2011	232.27°W	9.4°N	351.08°Ls	4.64"	29.2°	-18.3°	+23°10'
28	August	2011	222.56°W	9.7°N	351.59°Ls	4.65"	29.3°	-17.9°	+23°06'
29	August	2011	212.88°W	9.9°N	352.11°Ls	4.67"	29.5°	-17.5°	+23°02'
30	August	2011	203.17°W	10.2°N	352.62°Ls	4.68"	29.6°	-17.1°	+22°58'
31	August	2011	193.49°W	10.5°N	353.13°Ls	4.69"	29.7°	-16.8°	+22°54'

Date (00:00GMT)	ω	φ	λ	δ	ι	Π	D
01 September 2011	183.80°W	10.7°N	353.64°Ls	4.70"	29.9°	-16.4°	+22°49'
02 September 2011	174.09°W	11.0°N	354.15°Ls	4.72"	30.0°	-16.0°	+22°45'
03 September 2011	164.41°W	11.2°N	354.66°Ls	4.73"	30.2°	-15.6°	+22°40'
04 September 2011	154.72°W	11.5°N	355.17°Ls	4.74"	30.3°	-15.3°	+22°35' - - -

TEN YEARS AGO (193)

-----CMO #247 (10 July 2001) pp3043~3066 -----

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/247/cmo247.html>

Above all, the main event was the occurrence of the strange dust disturbance observed at Hesperia on 24 June. This issue treaded the period at the latter half of June, and on 21 June the planet was closest to the Earth with the maximal diameter $\delta=20.7''$. It was good for the observation of the dust but unfortunately it was amidst the rainy season in Japan. However the emails were active towards the world (domestically phones).

The season was from $\lambda=179^\circ\text{Ls}$ to $\lambda=187^\circ\text{Ls}$: the dust occurred at $\lambda=184^\circ\text{Ls}$, unprecedented season. The D was $-26^\circ51'$ at the end of June. The φ was 4°N to 6°N . Maximum ι was $\iota=15^\circ$. Domestically 14 members were active producing 240 observations, while from abroad we obtained 54 observations from 15 observers. On 16 July several observations were made and TUNEMACHI (*Ts*) observed at Fukui. On 20 June, Ed GRAFTON (*EGf*) caught clearly the end of Hesperia. On 21 June the rainy season ended at Okinawa. The dust which occurred at Hesperia detected by MINAMI (*Mn*) on 24 June, was also checked by KUMAMORI (*Km*), HIGA (*Hg*) and ISHADOH (*Id*): It was described with the newly resonant dust near Syrtis Mj; these were traced until the end of June from Japan. Somewhat more in detail: to catch again the dust on 24 June, *Mn* stayed and waited inside or near the dome on 25

June, but it remained totally cloudy. Images on the day by DeGROFF (*KGr*) were brought by Don PARKER (*DPk*). On 26 June, the dust became more apparent: VALIMBERTI (*MVl*) and MORITA (*Mo*)'s ccd images, and *Id* and *Mk*'s drawings were successful, and *Km* and ISHIBASHI (*Is*) took videos. *Mo* got 9 sets of RGB images. On 27 June the dust became more clearly seen. On the night *Mn* at Kyoto talked with *Id* on phone: *Mn* was confident that it could become larger. *Mn* three-emailed to the members. Cf DR:#01,#02,#03 below. To *DPk*, *Mn* sent images of *Km* and *Mo*: *DPk*'s reply is in

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn1/DPk246_249.htm

On the day *Km* made some still images from the Video by a 60cm Cass, *Ak* also took nice images by 32cm (+Teleris 2). *Hg*, *Mo*, and *Is* took the images and *Id* and *Mk* visually observed.

The bright new core preceding Syrtis Mj on 28 June was readily phoned from *Hg* (DR:#04), and TAN (*WTn*) in Singapore took it near the CM. *Ak*'s images show that this was seen from 7:30 MLT (the core must have been made at dawn). Otherwise *Is* took video and *Mk* visually observed. Abroad, *KGr* was active and CIDADÃO (*ACd*)'s image showed that a faint dust cloud covered the rear side.

On 29 July, the dust looked ascended to higher altitude, a new core appeared at M Cimmerium, and Libya's bright one diffused. At the time the southern hemisphere looked free from cores. On the day *Ak*, *Hg* took images, and HIKI (*Hk*) and *Id* drew. *KGr* also observed. On 30 June, the dark markings much changed. Especially *Ak* took a set of good image by 40cm Wakugawa (*Wk*) spec in Okinawa. *Id* and *Hg* also observed. From abroad we had images from *KGr* and *DPk*. *DPk*'s image shows no core yet. See DR

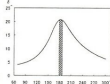
ISSN 0917-7388
COMMUNICATIONS IN 東亜天文学会『火星通信』since 1986

MARS
No. 247
10 July 2001

OBSERVATIONS Published by the OAA Mars Section
CMO 2001 Mars Report # 11 OAA Mars Section

2001年六月後半(16 June~30 June)の火星面観測
CMO Mars Observations in the Second Half of June 2001
from 16 June 2001 (179° Ls) to 30 June 2001 (187° Ls)
南 次 Masatsugu MINAMI

THE planet Mars was closest to the Earth during this period on 21 June (182° Ls). The angular diameter was 20.7" on 16 June (179° Ls), while it remained maximal at 20.8 arcsecs for about one week, and went down to 20.6" on 30 June (187° Ls). The phase angle ϵ again increased to 15° at the end of June. The altitude of the planet was quite low seen from the Japanese mainland: The apparent declination was $-26^\circ51'$ on 30 June. Furthermore we were suffering from the rainy days, while the Okinawa district became free from the rainy season just on 21 June, and the CMO members in Okinawa enjoyed the clear skies to chase the dust cloud event that started fortunately from 24 June.



WE acknowledge receipt of the observations this period as follows:

AKUTSU, Tomio 阿久津 富夫 (Ak) 橋本 Toshigaki 沖崎 隆夫 (Hb) 南次 Masatsugu MINAMI
16 Sets of CCD Images (16, 27, 28, 29, 30 June 2001)
40cm spec with a Nikon COOLPIX 990, f/700 32cm spec equipped with a Teleris 2
ASADA, Tadashi 浅田 正 (As) 宇佐 祐司 (Us) Munakata, Fukuoka, Japan
1 Set of CCD Images (16 June 2001) 30cm speculum equipped with a Lynx PC
BARNETT, John H. ジョン・バーネット (JBn) 維吉尼亞 VA, USA
2 Drawings (27, 29 June 2001) 210, 270, 360x18cm refractor,
BATES, Donald R. ドナルド・ベーツ (DBn) 克羅斯 馬克 Lock/Houston, TX, USA
2 Colour Images (22, 29 June 2001) f/120 25cm speculum, Elite Chrome 200

3043

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/ds2001/ds/d_repo.html

This dust occurred early in the spring at $\lambda=184^\circ\text{Ls}$ so that the easterlies must have been weak: Anyway the reports from Europe were not enough.

LtE were received a lot in correspondence to the dust alerts: GRAFTON (TX), DOBBINS (OH), *DPk* (FL), BATES, (TX), FALSARELLA (Brasil), MELILLO (NY), GASKELL (NE), McKIM (UK), HERNANDEZ (FL), TROIANI (IL), JOYCE (IL), KLASSEN (NJ), TAN (Singapore), WHITBY (VA), SCHULZ (Austria), Tim PARKER (NASA), PEACH (UK), OGER (France), Terry Z MARTIN (NASA), *MVl* (Australia), SHEEHAN (MN), *ACd* (Portugal): Domestically we received from *Mo, Id, Km, Ak, Is, ASADA (As), Hg, Wk, Hk.*

KLASSEN's *The International Marswatch Electronic Newsletter* includes "Dust storm alert message" where DR #01、#02、#03 were cited.

Ts's 6th Essay is concerned with the logic of drawings: Her start in Astronomy was from the observation of the Sun Spots, but she gradually tended to be interested in the drawings of the forms of the spots rather than the calculations of the relative numbers. Recently drawing is regarded as rather meaningless but she believes in the effect of drawings which synthesises the fields: The drawings are different from person to person, but an effective compilation of drawings becomes much meaningful. (Mk & Mr)

TEN YEARS AGO (194)

-----CMO #248 (25 July 2001) pp3067~3090 -----

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/248/cmo248.html>

At the top page it was reported that the 9th Meeting of the CMO Mars Observers was successfully held from 20 to 22 July, thanks to the help of ISHADOH (*Id*), HIGA (*Hg*) and WAKUGAWA (*Wk*) at Naha, Okinawa. Other participants were HIKI (*Hk*), MORITA (*Mo*), NISHITA (*Ns*), TSUNEMACHI (*Ts*) and MINAMI (*Mn*) and MURAKAMI (*Mk*). The planet Mars shined higher and brighter than the mainland, and we were very satisfied. On the evening of 22 June, MIYAZAKI (*My*), who had been away to a remote island, joined. The following Sites show some account and images of the Meeting:

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn4/CMOMeet.htm#CMO_Meeting_2001_Naha
http://www.hida.kyoto-u.ac.jp/~cmo/cmohk/ws/09/ws9_photo.html

The 12th Mars report dealt with the period from $\lambda=188^\circ\text{Ls}$ to $\lambda=196^\circ\text{Ls}$ (at the first half of July). The meteorology of Mars was changing because of the yellow cloud which was intrinsically global. δ was $19.2''$ at the end of the period, and ϕ was 6.1°N to 7.3°N : Phase angle ι increased from 15° to 26° . Observers were domestically 15 with 292 observations and from abroad we had 15 observers and 96 observations.

Development of the yellow cloud was summarised almost every day: On 1 July, sky was fine also at the mainland as well as in Okinawa, and a lot of observations were produced. This day the upper yellow cloud already covered the northern hemisphere and it well suggested the cloud was essentially global. TAN (WTn)'s images taken more westward from Japan suggested the following markings were also covered by the cloud (except for the tip of Syrtis Mj, but this is also invaded by the cloud to S Sabaeus). This day DR#06 was issued.

On 2 July, at Fukui, NAKAJIMA (Nj) and Mn watched the clear beautiful yellowish ball and concluded the dust must cover globally if weak on the rear side. Near Elysium there were several dust cores. DR#07 was issued. On 3 July the area of Phaethontis was active (maybe from the morning), and the bright belt trespassed M Cimmerium. On 4 July there must have been a new core oc-

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第9回 CMO 惑星観測学会懇話会 in 沖縄 無事開催終了 (七月二十日～二十二日)
The 9th CMO Meeting of the Planetary Observers was successfully held in Okinawa from 20 July to 22 July under the fine Okinawa skies and with a lot of current topics.

先年開催でござった後とは、沖縄で、CMO Okinawa の特に学会委員 弘志、比嘉 富信氏、浦辺 尊敏氏の会談でその第九回の懇話会を無事持つことが出来、有難うございました。この度の幹事にもお蔭り上です。七月二十日は好いお天気、で、観望堂後のランディングは快晴だったので幹事の方、今宵は NaK (木星) が見え、HgK、VtK が見え、空澄みの良時の好いスラスト空で、22日は、HgK、MnK など又見出し会談も持てました。午後に IMa (火星) と MkK 氏が無事お見え、プラカで観望堂へ来て頂きながら観望ができました。夜は、

On 20 July at 22°N by a 35cm SCT (Na's image)

たれ、夜々 観望堂前の風景(平コラダ)のMkK氏へ帰り、「夏の夜は」

観かれま
した。幸
いよく晴
れ、風景
手はまだ

天の川に見えるころです。CMO へ続の皆さんが、WkK の 40cm の地、35cm SCT や 25cm SCT などを用意され、4cm を探しての観望でした。40cm は 4mm の倍速 x 600 でした。沖縄の天の川等には赤土星は一向に無き。沖縄は赤土星 10 月 1 日までは観望可能でしたが、ローザ・シモンでは観望が不可能でした。

Chez Mr WAKUGAWA and a 40cm Newtonian

21日はお昼前から 40cm の SCT を拝し、星文士の会へ参りました。野へ登望して海へ向るの奇麗な光景です。お昼より夕の見える海岸前で静まりました。3時からは星文士の 2 時、1d の観望で石塚公幹氏で懇話会を持ち、主に常葉 E dom の観望で静まりました。夕方から IdK (31cm SCT) と WkK 氏に分かれ、観望を続け、終了後 IdK の屋上でコンパが持たれました。赤星はなおお蔭りなし、また石塚公幹氏の宮崎朝(My)氏に会えたことも有りでした。22日は昼で観望し、AZ22 で沖縄そばを食べたり、国際通りなどの市街へ買い物に出かけた団体もあり、気晴らしでした。誠に楽しい三日間でした。裏ではお蔭りの皆様と参加の皆様にお蔭を申しました。お蔭れでした。今回の父星は公が不都合に差支えられましたが、沖縄の地での 2003 年の火星と木星を観せ、御期待が高まります。(MnShiho)

3 6 7

curred and VALIMBERTI (*MVI*) and others spotted a bright core at Daedalia, as well as some resonances near Solis L. Unfortunately there was no observation at the earlier region. On this day a dark area was observed inside M Cimmerium. *Mo* successively took the images at around the same ω from 1 to 4 July it was shown on a page (10 years later this issue also sites a similar series). DR#08 was issued. On 5 July it was cloudy whole of Japan, while GRAFTON (*EGf*) took a bright cores near Solis L. PARKER (*DPk*) took its east and caught the variation of Aurorae S. On 6 July the dusts near Solis L largely changed from the morning: Two bright streaks were observed from Thaumasia to Aurorae S and at the westside of Solis L. From Japan *Id* observed Olympus Mons to be dark poking out of the lower dust and proved that the climate already changed. *Hg* also took Video. On 7 July *DPk* took the eastern belt was slightly broader. MOORE (*DMr*) shot the two streaks near the CM (similar to the case in 1973). On 8 July *DPk* visually observed the dust streaks, one was extended to M Acidalium. ASADA (*As*) shot Paethontis brighter. On the day *Mn* fled and moved to Naha, Okinawa where he observed every night until mid-August.

On the days 9~15 July, it was reported from the US the disappearance of S Meridiani. Thus the surfaces suffered from a constant stream of the dust storms. On 10 July *Ak* took the dark spot of Olympus Mons at the evening side. At the end of the period the area of Solis L was faintly visible. On 10 July DR#09, and on 12 July DR#10 were issued. In this period the observations in Australia was connected with the US and also with Singapore. Unfortunately few report from Europe. DRs are seen from

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/ds2001/ds/d_repo.html

Steps of the yellow dust storm were summarised: Different from the cases in the mid summer, this cloud was not affected from easterlies and the airborne dust (originally from Hesperia) created much bright resonant dust cores in a successive way. It was stated that the optical depth was shallow. However it was useless to enhance by the longer wave lengths, and so the development should be observed by colour. It turned out to be correct that the dust was intrinsically global already on 1 July.

LtE was received from *DPk*, HEATH, *EGf*, *WTn*, SCHULZ (Austria), WHITBY, GASKELL, DOBBINS, SHEEHAN, MELILLO, FALSARELLA, BATES, BARNETT, *DMr*, BIVER, TATUM, *MVI*, SCHMUDE: Domestically from *Km*, *Ak*, *Hk*, *Mo*, *Wk*, *Id* we received emails.

Ts's Essay is concerned with her pleasant stay at Naha in the later half of July.

TYA#071 treated CMO#107 (25July1991): 20 years ago the season of Mars was ended, and in the evening sky Mercury, Venus, Mars and Jupiter were visible. (*Mk& Mn*)

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