

MARS

No. 389

25 September 2011

OBSERVATIONS

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Nix Olympica Misunderstanding

Cautioned by

Masatsugu MINAMI

A foolish misunderstanding which is strange and surprising long prevails concerning Nix Olympica: For example, at p.68 of *Sky and Telescope*, November 2007 issue, we can find a good example: *When moisture-laden winds blow across the broad, high volcano Olympus Mons, a hood of cloud sometimes forms.* This sentence is OK, but the author's selection of the attached images of Mars is erroneous if the author implies Olympus Mons on the images certainly appears bright because of the abovementioned reason. According to the data of the CMO Mars Gallery in 2005, these are those taken by Martin P MOBBERLEY, and the data say that they were taken on 4 November 2005 ($\lambda=318^\circ\text{Ls}$, $\iota=02^\circ$) at 22:56 GMT (when $\omega=153^\circ\text{W}$, $\phi=15^\circ\text{S}$): Then the implication of the previous sentence is to mean that the whitish brightness of Olympus Mons or its summit is due to the evening orographic cloud. This is however misunderstanding. At that time Olympus Mons was bright from the morning and it is not the particular phenomenon in the evening. On the images of Christophe PELLIER's images on the day or on the following day, Olympus Mons is bright though it is near the noon. Furthermore the image taken by Tom ALDERWEIRELDT on 7 November 2005 ($\lambda=320^\circ\text{Ls}$, $\iota=01^\circ$) at 20:57 GMT (when $\omega=$

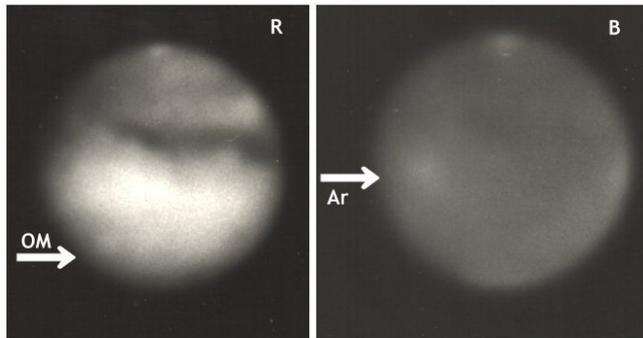
097°W , $\phi=16^\circ\text{S}$) shows the bright Olympus Mons up surely on the morning side. There has been no anecdote that the bright orographic-cloud covered Olympus Mons is visible from the morning, and it must be much difficult to explain the reason. Therefore it is not necessarily right if you give assent to the orography when you see the brightness of Olympus Mons on the evening side.

Anybody should pay attention to the Martian season: At least he should know how the evening cloud of Olympus Mons varies according as the season changes. One should know that at $\lambda=318^\circ\text{Ls}\sim\lambda=320^\circ\text{Ls}$, the orographic cloud over Olympus Mons does not thickly appear. This is however not true for Arsia Mons (or + maybe weakly Pavonis Mons), and this conspicuous difference was grasped by the OAA Mars Section in 1988: So somewhere in the CMO it was written (several times) but it was not regarded seriously in the US.

Therefore we here again cite a set of images (next page) made by Motomaro SHIRAO (Tokyo) on 20 September 1988 exposed on TP2415 (by the use of a 35 cm spec). Data are on the images and at the season $\lambda=275^\circ\text{Ls}$ Olympus Mon (OM) is not covered by the evening cloud. In B, Ar implies Arsia Mons and this is contrarily covered by the evening cloud:

In fact, the orographic cloud is always observed over Arsia Mons a whole Martian year.

Motomaro SHIRAO's TP Images on 20 Sept 1988



$\lambda=275^\circ\text{Ls}$ $\omega=155^\circ\text{W}$ $\phi=21^\circ\text{S}$ $\delta=23.8''$ $\iota=8^\circ$

Furthermore The present writer learned from Reiichi KONNAI recently that Arsia Mons was often associated with the morning clouds (as an example Mars Express VMC discovered a very long tail-like cloud from Ar in the morning at least on 9 October 2008 ($\lambda=139^\circ\text{Ls}$) and on 2 July 2009 ($\lambda=296^\circ\text{Ls}$)). So it is possible for Arsia Mons to be sometimes associated with the white cloud from morning to evening. The reason is not revealed yet but it must be related with the fact that the area of Arsia Mons is more affected by water vapour since it is near the south polar region.

Another important fact which was neglected in the *S&T* article is that in the above case of 2005, the phase angle ι on the day was nearly 01° or 02° so that the planet was near at opposition (on 7 November in the case of 2005). The fact means that the brightness seen on the days are because of one of the "Opposition Effects" and it was caused by the reflection of the sunbeam from the aureole of OM. Therefore it is shown also on B image, because the sunbeam is an integrated light.

However it is not so often to be able to encounter this phenomenon because to see the reflection is not easy. Usually it is no more than possible if the reflection or the presence of Nix Olympica occurs when the phase angle satisfy $\iota \leq$ around 8° . The phase angle is soon augmented within a few days, and hence the opposition effect is not always visible from globally from the whole world. In 2005, it was possible to detect mainly in Europe (see more detail below). In 1988, the planet was at opposition on 28

September 1988 (closest to the Earth on 22 Sept 1988 with $\delta=23.8''$), and the lowest ι was about 3° , and hence the limit value must have been slightly different.

At this place we emphasise Olympus Mons is not always Nix Olympica. Nix Olympica is a superficial phenomenon whereas the cloud over Olympus Mons is a real substance. Everybody knows that Nix Olympica was discovered by SCHIAPARELLI who did not know that it was a higher mountain. But this difference is important: What he detected was Nix Olympica which he did on 10 October 1879 while the planet was at opposition on 12 October 1879, and so what he saw was the opposition effect. Repeatedly speaking, what SCHIAPARELLI saw was neither the relief of Olympus Mons nor the orographic cloud. It was exactly the polarised reflection due to an opposition effect.

We should next stress it is more difficult to see the opposition effect than the orographic clouds.

As the present writer talked on the occasion in the 2009 Paris-Meudon Conference, the year 2005 corresponds to a 126 year recurrence of 1879 when SCHIAPARELLI observed. As to the 126 year recurrence see the article in

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn2/Cahier03.htm>

This recurrence is not so preferable but sufficient to the re-observation of SCHIAPARELLI's Nix Olympica.

As already suggested, it is not easy to encounter the clear opposition effect of Nix Olympica without any cloud-like matter. In 2005, in Europe it began to be visible from the end of October, but in Japan it was utterly unobservable. At the opposition time in 2005, we in Japan were observing the region of S Sabaeus, and within the time when the area of Nix Olympica came into sight, the opposition effect had already ended: When the area came, it was at the end of November in Australia and Japan already with around $\iota=14^\circ$. Just we can report that in Asia and Oceania, it was possible to get sight of the opposition effect of OM in 1988 and 2003. (In the US however on 26 August 2003 Ed GRAFTON pro-

duced a clear bright OM near the morning limb at $\omega=081^\circ\text{W}$.)

Concerning the difficulty of the observation of the opposition effect, we shall note that the Japanese standard Mars book written by Tsuneko SAHEKI: "*Mars and Its observations*" (in Japanese) does not mention much about Nix Olympica. It is just written as one of some Nivis on Mars. Even the orographic aspect of Olympus Mons in some season is not touched. As the present writer suspect, he had neither any chance to see the opposition effect of Olympus Mons nor to check the orographic clouds. He had the book of E M ANTONIADI's book but neglected the history of the discovery of Nix Olympica near opposition. He was known as a keen eye on Mars, but it implies that the keen eye is sometimes different from the eye necessary for the routine observations.

It should be noted that Olympus Mons has a height of 27km (or 25km above the standard level) but as a shield volcano it has a diameter of 550km so that it is flatter than expected. Usually its height is exaggerated, but according to Michael H CARR: *The Volcanoes of Mars*, *Scientific Americans* Jan 1976, its real profile is like



and its shield looks like



If we disregard the cliff surrounding the shield, it is quite flat and we can walk up easily though it's a long way to the Caldera. At the perimeter of the Caldera we may watch remotely the tops of Tharsis Montes by using telescopes or binoculars.

The OM volcano must have been made by the unmovable source (just like an unmovable plate in the plate tectonics theory) with its lava being hard to be hardened easily. The lava must have consisted of different materials from the usual sand lands and planum, and its special materials should be polarised and can send back the sunbeam only to the opposite direction of the incident beams. The "low-looking" shield must be like a gathering of broken pieces of such polarised materials with a directivity

so that the differences of D_E and D_s are cancelled by the presence of ruggedness at the slowly declined surface of the large hill. In other word, we can find a lot of polarised materials whose declination angle is θ where $\theta+(D_E+D_s)/2=+18^\circ$ is satisfied: Here $+18^\circ$ implies the latitude of the centre of OM (namely $\Phi=18^\circ\text{N}$). That is, at every place we have statistically the reflective materials which are facing to the Earth. Of course this is not sufficient, and e.g. on every place there will be similarly broken polarised "mirrors" which are parallel to the surface of the planet: In that case $\theta=0$, and the equation $(D_E+D_s)/2=+18^\circ$ should hold. Unfortunately we did neither have in 2005 the cases which satisfied the condition, nor both in 1988 and 2003 (the lhs of the equation is negative on the occasions the periphelional planet was near the Earth). Other conditions may exist, but we don't discuss them here (Reiichi KONNAI has another story, to be published).

$D_s \sim D_E$ is better realisable when the planet is rather aphelic. However, in that case, Olympus Mons is not so clear but apt to be misty. In 1997, Takashi NAKAJIMA and the present writer tried to measure the CMT of Olympus Mons on the day of opposition by the use of the 20cm OG of the Fukui City Observatory. The ecliptic opposition occurred on 17 Mar 1997 at 8h GMT. However there are few cases the Sun, the Earth and Mars lines up straightforwardly, and hence usually the three bodies make a triangle even if at opposition so that there are an infinite number of the choice of oppositions: From the point of view of the Right Ascension, the opposition occurred on 18 March 1997 at 11h GMT, and so we began to check alternatively from 11:00 GMT ($\omega=127^\circ\text{W}$) and ended at 11:47 GMT and checked 20 times by both alternatively. The result was written in CMO #188 (10 Apr 1997 issue): At that time the season was $\lambda=092^\circ\text{Ls}$, and hence it was already misty near noon so that we were not able to catch the bright Olympus Mons and furthermore the angular diameter δ was 14.2".

However we were able to check the existence of

OM near the noon and finally could determine the moment the object transited the CM: This was thanks to the facts that the npc was bright evident showing the NS line and the $D_E=23^\circ N$ while $D_S=25^\circ N$. These elements worked well though the opposition effect was weak mainly due to the misty Martian atmosphere. The phase angle was around $\iota=2^\circ$. The results are depicted on the case in <http://www.hida.kyoto-u.ac.jp/~cmo/cmomn2/Cahier06.htm>

CMO 09/10 Mars Note (19)

Bright Isolated Elysium Mons in Northern Early Spring

Elysium Mons is also known to be covered by the evening cloud in a season as Olympus Mons, and its seasonal aspect similar to Olympus Mons has been known since S A SMITH & B A SMITH (*Icarus* **16** (1972) 509).

In 2010, For example Don PARKER (*DPk*)'s excellent images on

10 Dec 2009 ($\lambda=022^\circ Ls$) at $\omega=237^\circ W$ $\delta=10.7''$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2009/091210/DPk10Dec09.jpg>

show well the fact of Elysium Mons being covered by the evening cloud and this kind images by other observers are to be also found elsewhere. Note that in the *DPk* case the fact is especially vivid in B images.

However we suspect that even in early spring the evening Elysium Mons (more exactly the summit of Elysium Mons) is sometimes free from the misty matter. For example see an image (↗) by Peter EDWARDS (*PEd*) produced when $\iota=20^\circ$ on

4 January 2010 ($\lambda=033^\circ Ls$) at $\omega=258^\circ W$ with $\delta=13.0''$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2009/100104/PEd04Jan10.jpg>

which suggests that it shows the bright summit of Elysium Mons. It may be slightly misty, but the isolation of the summit is good.

See also Peter GORCZYNSKI (*PGc*)'s image on

14 January 2010 ($\lambda=038^\circ Ls$) at $\omega=258^\circ W$ $\delta=13.7''$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2009/100114/PGc14Jan10.jpg>

which also shows the summit as a spot, and if its misty matter looks to be quite localised.

Bill FLANAGAN (*WFl*)'s images made on

The 2012 Mars will be at opposition ecliptically on 3 March 2012 at 20:04 GMT, when $D_E=22^\circ N$ and $D_S=25^\circ N$, quite similarly, but the season is $\lambda=078^\circ Ls$ and $\delta=13.9''$ and hence it will be also hard to see the transit because of the misty circumstance and the small diameter. To catch $\omega=134^\circ W$ we must watch from around 15:30 GMT. Maybe it will be possible from Japan, but impossible from Europe. □



18 January 2010 ($\lambda=039^\circ Ls$) at $\omega=254^\circ W$ (257°) $\delta=13.9''$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2009/100118/WFl18Jan10.jpg>

imply a slightly larger summit cloud, but even then we think we can pin down the location of the summit.

So we may explicitly suggest, in addition to the cases of the opposition noon time suggested by Ch PELLIER in the preceding issue, at least in the case of Elysium Mon, even in the season of the orographic cloud it seems to happen the cases where its summit sometimes to be only weakly covered (or maybe in a case free from the misty matter in the evening to become the "Bright Elysium" as differently stated by Ch PELLIER).

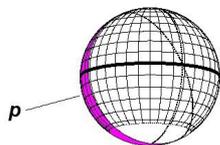
(Masatsugu MINAMI)

2011/2012 Mars

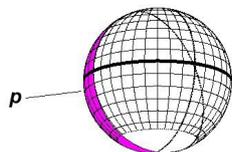
Discs with Grids. I

Akinori NISHITA

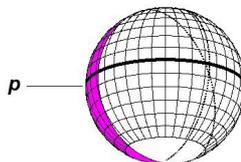
These images are the Martian discs with the grids and the phases (at 00:00 GMT) from 4 Sept 2011 to 2 Mar 2012, just near at opposition. The noon line (N-line) is shown as a dotted line: The intersection with the other line (M-line) is the sub-Solar point.



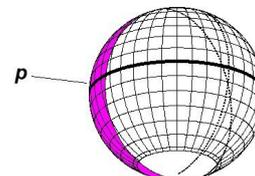
04 Sept 2011
 $\lambda=355^\circ\text{Ls}$ $\phi=11.5^\circ\text{N}$
 $\delta=4.7''$ $\iota=30.3^\circ$



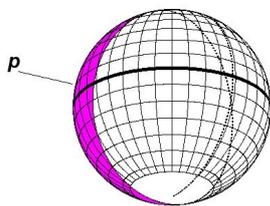
24 Sept 2011
 $\lambda=005^\circ\text{Ls}$ $\phi=16.0^\circ\text{N}$
 $\delta=5.0''$ $\iota=32.7^\circ$



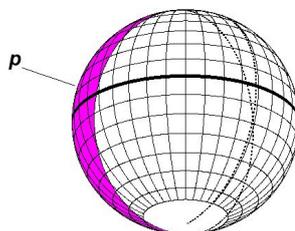
14 Oct 2011
 $\lambda=015^\circ\text{Ls}$ $\phi=19.6^\circ\text{N}$
 $\delta=5.4''$ $\iota=34.8^\circ$



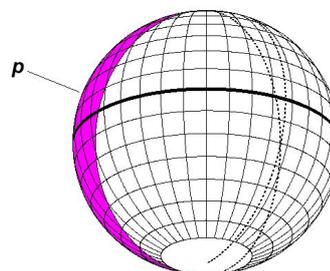
03 Nov 2011
 $\lambda=024^\circ\text{Ls}$ $\phi=22.2^\circ\text{N}$
 $\delta=6.0''$ $\iota=36.3^\circ$



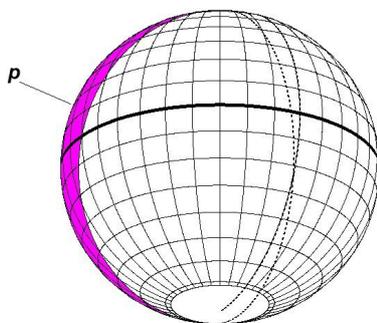
23 Nov 2011
 $\lambda=033^\circ\text{Ls}$ $\phi=23.7^\circ\text{N}$
 $\delta=6.7''$ $\iota=37.1^\circ$



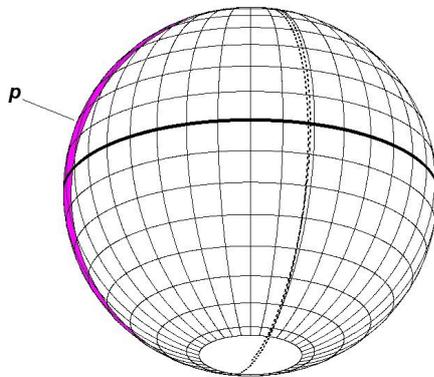
13 Dec 2011
 $\lambda=042^\circ\text{Ls}$ $\phi=24.2^\circ\text{N}$
 $\delta=7.7''$ $\iota=36.5^\circ$



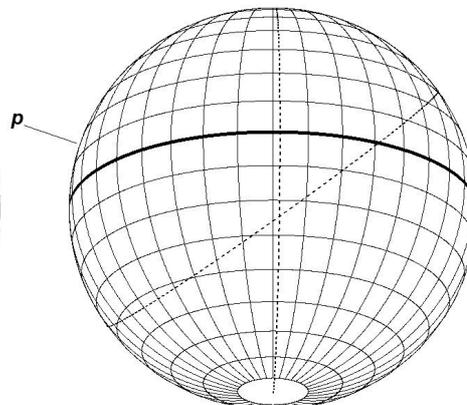
02 Jan 2012
 $\lambda=051^\circ\text{Ls}$ $\phi=24.0^\circ\text{N}$
 $\delta=9.1''$ $\iota=33.8^\circ$



22 Jan 2012
 $\lambda=060^\circ\text{Ls}$ $\phi=23.4^\circ\text{N}$
 $\delta=10.9''$ $\iota=27.7^\circ$



11 Feb 2012
 $\lambda=069^\circ\text{Ls}$ $\phi=22.9^\circ\text{N}$
 $\delta=12.7''$ $\iota=17.0^\circ$



02 Mar 2012
 $\lambda=078^\circ\text{Ls}$ $\phi=22.4^\circ\text{N}$
 $\delta=13.9''$ $\iota=2.9^\circ$



Letters to the Editor

●.....Subject: Mo11Aug_11
 Received: Sun 14 Aug 2011 01:57 JST

Finished the images on 11 Aug. To compare I put

the images both at $\omega=318^\circ\text{W}$ and 320°W .

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110811/Mo11Aug11.jpg>

At present (14 Aug) a thin cloud appeared: If possible I will take, even an L image alone. Best wishes

○.....Subject: Mo13Aug_11
 Received: Mon 15 Aug 2011 11:49 JST

These are the images taken on 13 Aug. Best wishes

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110813/Mo13Aug11.jpg>

○.....*Subject: Mo13Aug_11*

Received: Tue 23 Aug 2011 23:55 JST

Today I received the printed version of CMO/ISMO # 388. Thank you very much.

Recently the weather has been poor; and so I re-processed some images from 13 Aug: I think the revised ones look better. How do you think? Best wishes

○.....*Subject: Mo24Aug_11*

Received: Sun 28 Aug 2011 00:54 JST

Here the images on 24 Aug. We had a spell of cloudless sky, though the seeing was poor (about 4/10): On 26 Aug I also took but the seeing was much poorer.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110824/Mo24Aug11.jpg>

A bit enhanced, to a preferable limit. The markings were unseen visually. Best wishes

○.....*Subject: Mo06Sept_11*

Received: Sun 11 Sept 2011 21:58 JST

These are from 6 Sept. Recently I have been busy and the sky has not been clear. Best wishes

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110906/Mo06Sept11.jpg>

Yukio MORITA (Hiroshima, JAPAN)

●.....*Subject: Mars Ak11Aug11*

Received: Sun 14 Aug 2011 23:00 JST

Here the image of Mars. It was dancing at the low sky. Best

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110811/Ak11Aug11.jpg>

○.....*Subject: Mars Ak15 Aug 11*

Received: Wed 17 Aug 2011 16:05 JST

Here are the Mars images on 15 Aug. After the observation of Jupiter; how little the image of Mars! Best

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110815/Ak15Aug11.jpg>

○.....*Subject: Mars Ak16Aug11*

Received: Fri 19 Aug 2011 20:57 JST

Mars images from 16 Aug. A composite colour from RGB (a bit enhanced) and a single colour by DFK21AU04: The single colour one is easier, because it's less restricted by time, Best

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110816/Ak16Aug11.jpg>

○.....*Subject: Mars Ak22Aug11*

Received: Fri 26 Aug 2011 12:25 JST

Mars on 22 Aug. The seeing was dismal, and I made down the FL. Best

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110822/Ak22Aug11.jpg>

○.....*Subject: Mars Ak29Aug11*

Received: Tue 30 Aug 2011 21:24 JST

Mars from this morning. The seeing was good, and well visible even though it was very small.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110829/Ak29Aug11.jpg>

○.....*Subject: Mars Ak09Sept11*

Received: Sun 11 Sept 2011 22:28 JST

Here the images from 9 September. The altitude of Mars is now higher and we can take better images.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110909/Ak09Sept11.jpg>

○.....*Subject: Mars Ak11Sept11*

Received: Tue 13 Sept 2011 09:31 JST

Good morning. This is sent from my office because of a trouble of my PC.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110911/Ak11Sept11.jpg>

Tomio AKUTSU (Cebu, the PHILIPPINES)

●.....*Subject: Re: Tanabata*

Received: Fri 19 Aug 0:27JST

Dear Masatsugu,

Just to let you know, my mom passed away on Tuesday at 2:15 a.m., so things have become perplexing here for a few days. I will not have a chance now to write the essay on Hearn for next month as I'd hoped to do. Best,

○.....*Subject: FW: Sad news*

Received: Mon 22 Aug 2011 01:40 JST

Dear Masatsugu,

I appreciated your kind message.

Well, we had the funeral on Friday; only immediate family-my brother Bernie and his family, and Debb and my two sons (Ben, my dad, was too frail to travel from Willmar where he's in the nursing home to attend, but he did manage to visit Joyce in the hospital and say his good-bye. It was all very touching; like something out of Shakespeare). Mom now rests next to her brother and not far from her parents at Sunset cemetery on St. Anthony Blvd. Dad will be following soon I'm sure.

At the end of the service, which was lightly Catholic (there was a priest to say a few prayers-

Joyce would have liked that-but no Mass).

I read, or tried to read, a few lines from W. H. Auden which summed up some of my feelings on the occasion.

*"A cloudless night like this
Can set the spirit soaring:
After a tiring day
The clockwork spectacle is
Impressive in a slightly boring
Eighteenth-century way.*

*"It soothed adolescence a lot
To meet so shameless a stare;
The things I did could not
Be so shocking as they said
If that would still be there
After the shocked were dead.*

*"Now, unready to die
But already at the stage
When one starts to resent the young,
I am glad those points in the sky
May also be counted among
The creatures of middle -age.*

*"It's cosier thinking of night
As more an Old People's Home
Than a shed for a faultless machine,
That the red pre-Cambrian light
Is gone like Imperial Rome
Or myself at seventeen.*

*"Yet however much we may like
The stoic manner in which
The classical authors wrote,
Only the young and the rich
Have the nerve or the figure to strike
The lacrimae rerum note.*

****"Looking up at the stars, I know quite well
That, for all they care, I can go to hell,
But on earth indifference is the least
We have to dread from man or beast.*

*"How should we like it were stars to burn
With a passion for us we could not return.
If equal affection cannot be,
Let the more loving one be me."*

Bill SHEEHAN (Willmar, MN)

●.....**Subject: Mars 15 Aug 2011 at 0350**
Received: Tue 23 Aug 2011 03:37 JST

Dear Masatsugu,

I sent this a couple of days back but it seems there

was a problem - so please excuse if you've already got it! I delayed as I had hoped for another this a.m. but seeing had become quite awful by the time Mars was available.

I hope the format is suitable for your site as, to my shame, I have not submitted anything to you via e-mail previously but hope to rectify that in the coming months.

Best wishes you and all,

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110815/DGr15Aug11.jpg>

David GRAY (Durham, the UK)

●.....**Subject: Mars -20th August 2011 at 09:26ut**
Received: Tue 23 Aug 2011 11:45 JST

Hi Mr. Minami and Mr. Murakami, My latest session from august 20th, Clear Skies.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110820/EMr20Aug11.jpg>

○.....**Subject: Mars - August 31st, 09:46ut**
Received: Fri 2 Sept 2011 13:08 JST

Hi Mr. Minami and Mr. Murakami, My latest session of Mars from August 31st, Clear Skies.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110831/EMr31Aug11.jpg>

○.....**Subject: Mars -20th August 2011 at 09:26ut**
Received: Tue 23 Aug 2011 11:45 JST

Hi Mr. Minami and Mr. Murakami, My latest session from august 20th, Clear Skies.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110820/EMr20Aug11.jpg>

Efrain MORALES (Aguadilla, PUERTO RICO)

●.....**Subject: Mars observations from SMk last 20th**
Received: Tuesday, 23 Aug 2011 7:07 PM

Dear Masami san, Here attached the observations for Uranus and Mars the 20th Aug.

Mars: Happy to collect the Sinus Meridiani in spite of the tiny disk. Chryse-Xanthe appears clear. Tempe area also with the yellow filter. The Hellas area also with the yellow filter. North pole area whitish. Difficult to say more with the present conditions.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110820/SMk20Aug11.jpg>

For your perusal. Faithfully

Stanislas MAKSYMOWICZ

(Ecquevilley, FRANCE).

●.....*Subject: More current BAA Mars reports online*

Received: Sun 28 Aug 2011 00:20 JST

Dear Observer, For those contributors who are not (yet?) members of the British Astronomical Association I am writing to let you know that our BAA Mars reports for 2005 (in 2 parts) were recently published (in the June and August BAA Journals) and may now be downloaded as pdf files from our Section website at

<http://www.britastro.org/mars>

There will soon be an article added to the site about observing the current 2011-12 apparition; that article will appear in the October BAA Journal.

Another two Section reports for 2007-08 will be published early next year, and the writing of those for 2009-10 are nearly finished, so that we have very nearly caught up with the arrears in publication.

As ever I shall be glad to have any feedback about our reports.? With sincere regards,

Richard McKIM (Director, BAA Mars Section)

●.....*Subject: Mars 2/09/11*

Received: Fri 2 Sept 2011 19:36 JST

Dear All, A bit of an experiment this morning.....Mars was rather low in the murk at dawn, but relatively bright in the scope. A full colour run was looking unrealistic (the blue channel was a meaningless blob) so just used the IR filter and got the electronic crayons out to give it a hint of colour.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/110902/SKd02Sept11.jpg>

Regards

Simon KIDD (Welwyn, Herts, the UK)

●.....*Subject: Mike MALASKA's paper*

Received: Fri 2 Sept 2011 23:20 JST

Dear Dr. Minami, As I wrote in the LtE in Japanese last month, Mike MALASKA's paper on the extremely long Arsia Mons cloud near the dawn terminator observed on 2 July 2009 by the Mars Express/VMC is very interesting, the discussion is most impressive. The article appeared on 31 July 2009 in the ESA/MEX/VMC blog:

<http://webservices.esa.int/blog/post/6/785>

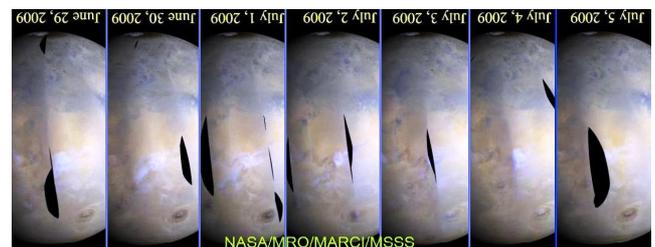
PDF version of this report is also downloadable:

http://webservices.esa.int/blog/gallery/6/mike_malaska_mars_cloud_analysis.pdf

The ESA/MEX/VMC blogger as well as the scientists at ESOC and ESTEC gave words of high praise for MALASKA's work. I'm afraid however,

that something's wrong in the author's estimation of the cloud's length as 142km. The distance between the central calderas of Arsia Mons and Pavonis Mons measures almost just 800km. So that the cloud's E-W length should have been well over 1000km (see the image attached). The author used an Martian coordinate grid overlaid on the image and somehow calculated the cloud's 15° longitudinal span as 142km. Mars has approximately half the radius of Earth, so that its equatorial circumference is twenty thousand km or so. Thus 15° longitude near the Martian equator covers 20000km/24...over 800km distance.

Anyway, I think, provided the cloud's dimensions are corrected, MALASKA's discussions are still valid almost in every respect. It's really worth reading.



I am also attaching a montage of the MARCI images of the week; noon cloud activities can be seen over Pavonis Mons area as well as Arsia Mons.

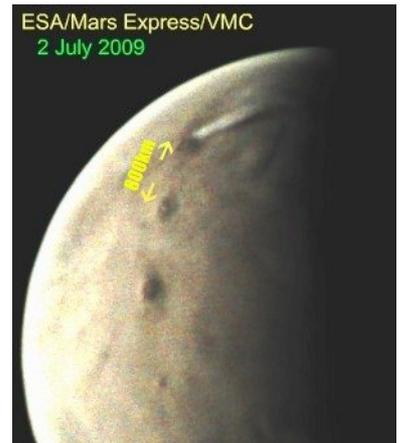
Good Seeing with Excellent Scopes !

Reiichi KONNAI (Fukushima, JAPAN)

●.....*Subject: Mars 10 Sept*

Received: Sat 10 Sept 2011 23:27 JST

Hi, Very bad seeing & 25 degrees above; PLS see you it. B.W



<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2011/110910/SGh10Sept11.jpg>

Sadegh GHOMIZADEH (Tehran, IRAN)

●.....*Subject: Mars images 20110906*

Received: Mon 12 Sept 2011 10:44 JST

Please see attachment. Thanks.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2011/110906/JMI06Sept11.jpg>

Jim MELKA (Chesterfield, MO)

●.....*Subject: Mars 9/13*

Received: Wed 14 Sept 2011 1:15 JST

First image of the apparition for me, and conditions were quite good. Nothing particularly out of the ordinary on this hemisphere.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2011/110913/SWk13Sept11.jpg>

Sean WALKER (Manchester, NH)

☆☆☆

CMO/ISMO 2011/12 Mars Report #01

2011/2012 Mars Observations up until 31 August 2011

♂.....The first observation of this apparition was made by AKUTSU (*Ak*) on 12 May at $\lambda=291^\circ\text{Ls}$, and hence the season we treat this time is from $\lambda=291^\circ\text{Ls}$ to $\lambda=354^\circ\text{Ls}$ at the end of August 2011. The apparent diameter δ went up from 4.1" to 4.7". The central latitude ϕ was quite moved and went down from 20°S to 11°N so that the npr became observable. The phase angle ι augmented from 15° to 30° . The apparent declination D was from around 11°N in May (at Ari) near to 23°N (Gem) at the end of August.

♂.....The observers and observations we received this period are as follows:

AKUTSU, Tomio (*Ak*) Cebu, the Philippines

4 Sets of *RGB +3B +7IR + 5 Colour* Images (12, 16 May; 11, 26 June; 11, 15, 16, 22, 29 August 2011)
36cm SCT @f/11-24, 55 with a DMK21AU04, DFK21AU04

GHOMIZADEH, Sadegh (*SGh*) Tehran, Iran

3 *Colour* Images (28 July; 12, 13 August 2011) 28cm SCT @f/37 with a DMK21AU04.AS

GRAY, David (*DGr*) Durham, the UK

2 Drawings (15 August 2011) 365x, 535x42cm Dall-Kirkham

MAKSYMOWICZ, Stanislas (*SMk*) Ecquevilly, France

5 Sets of Drawings (2[#], 30 July; 2, 10, 20 August 2011) 360, 300x20cm RC, 313x15cm Refractor[#]

MELKA, James T (*JMI*) Chesterfield, MO, the USA

2 *Colour* + 1 *R* Images (4, 12 August 2011) 45cm speculum with a DBK21AU04.AS

MORALES RIVERA, Efrain (*EMr*) Aguadilla, Puerto Rico

5 Sets of *LRGB* Images (30 July; 7, 10, 20, 31 August 2011) 31cm SCT with a Flea3

MORITA, Yukio (*Mo*) Hatsuka-ichi, Hiroshima, Japan

10 Sets of *RGB + 10 LRGB Colour + 11 L* Images (29 July; 3, 4, 10, 11, 13, 24 August 2011)
25cm speculum @f/80 with a Flea3

♂.....*Ak* started on 12 May ($\lambda=291^\circ\text{Ls}$) at $\omega=141^\circ\text{W}$ and also observed on 16 May ($\lambda=294^\circ\text{Ls}$) at $\omega=103^\circ\text{W}$: The images were only by IR but the dark markings on the SH faced to us and proved that no encirculating dust existed though the season was around the time of the great dust storm. *Ak* also took images on 11 June ($\lambda=309^\circ\text{Ls}$) at $\omega=209^\circ\text{W}$, and first used B. The time was at around 21h GMT. On 26 June ($\lambda=318^\circ\text{Ls}$) at $\omega=062^\circ\text{W}$ *Ak* described well the area of Aurorae S looking normal. *Ak* however issued no result of Mars in July. In August on 15 Aug ($\lambda=345^\circ\text{Ls}$) at $\omega=289^\circ\text{W}$ and on 16 Aug ($\lambda=346^\circ\text{Ls}$) at $\omega=283^\circ\text{W}$ he made a set of good images. MAKSYMOWICZ (*SMk*) began to visually observe on 2 July ($\lambda=321^\circ\text{Ls}$) and continually observed as listed in the above. They were made at around 3:30 GMT. GRAY (*DGr*) also produced interesting set of sketches on 15 Aug ($\lambda=345^\circ\text{Ls}$) at $\omega=045^\circ\text{W}$. GHOMIZADEH (*SGh*) first observed on 28 July ($\lambda=335^\circ\text{Ls}$) at $\omega=195^\circ\text{W}$ at around 2h GMT. On 12 Aug ($\lambda=343^\circ\text{Ls}$) at $\omega=036^\circ\text{W}$,

SGh caught the region of M Acidalium and Aurorae S.

On 29 July ($\lambda=336^\circ\text{Ls}$) at $\omega=084^\circ\text{W}$ MORITA (*Mo*) made his first observation: The area from Aurorae S to Solis L is darkish. $\phi=2^\circ\text{N}$, so that the NH came to the season. On 3 Aug ($\lambda=339^\circ\text{Ls}$) at $\omega=037^\circ\text{W}$, the area of M Acidalium and Aurorae S were apparent, and the north polar hood (nph) is evident. *Mo* tried a succession of observations on 11 Aug ($\lambda=343^\circ\text{Ls}$) and shot at $\omega=318^\circ\text{W}(320^\circ\text{W})$ and 323°W where Syrtis Mj and S Sabaeus were visible. On 13 Aug ($\lambda=344^\circ\text{Ls}$) he also took at $\omega=(297^\circ\text{W})299^\circ\text{W}$; the latter being better. On 24 Aug ($\lambda=350^\circ\text{Ls}$) he produced two sets of images at $\omega=183^\circ\text{W}$ and $\omega=189^\circ\text{W}$. MORALES (*EMr*) started on 30 July ($\lambda=337^\circ\text{Ls}$) at $\omega=284^\circ\text{W}$ where Syrtis Mj was evident. Observation time was around 9:30 GMT. In August, he obtained a good set of images on 31 Aug ($\lambda=353^\circ\text{Ls}$) at $\omega=336^\circ\text{W}$. The nph is largely white: Since it is bright in R, it may contain a core of the polar cap. Hellas looks whitish in LRGB, but it seems to come from L and R rather than from B. MELKA (*JMI*) took an image on 4 Aug ($\lambda=339^\circ\text{Ls}$) at $\omega=257^\circ\text{W}$ where the morning Syrtis Mj was evident.

The nph is shown on *Ak*'s image on 22 Aug ($\lambda=349^\circ\text{Ls}$, $\phi=08^\circ\text{N}$). *Mo*'s set of images on 24 Aug ($\lambda=350^\circ\text{Ls}$) also shows the nph, but no core in particular. *Ak*'s nph on 29 Aug ($\lambda=353^\circ\text{Ls}$) at $\omega=152^\circ\text{W}$ is interesting because it apparently covers a dark area. (M MINAMI and M MURAKAMI)

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

October 2011

Masami MURAKAMI

AS a sequel to the preceding list of the Ephemeris for the physical observations of Mars, we here list up the necessary elements of the Ephemeris for period from 25 September 2011 to 3 November 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 when we try to determine the north pole direction from the $p \leftarrow \rightarrow f$. 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 September 2011 | 311.22°W | 16.2°N | 005.64°Ls | 5.06" | 32.8° | -7.2° | +20°21' |
| 26 September 2011 | 301.53°W | 16.4°N | 006.13°Ls | 5.08" | 32.9° | -6.9° | +20°13' |
| 27 September 2011 | 291.85°W | 16.6°N | 006.62°Ls | 5.09" | 33.0° | -6.5° | +20°06' |
| 28 September 2011 | 282.16°W | 16.8°N | 007.11°Ls | 5.11" | 33.1° | -6.1° | +19°58' |
| 29 September 2011 | 272.47°W | 17.0°N | 007.60°Ls | 5.13" | 33.2° | -5.7° | +19°50' |
| 30 September 2011 | 262.79°W | 17.2°N | 008.09°Ls | 5.15" | 33.3° | -5.3° | +19°41' |
| 01 October 2011 | 253.10°W | 17.4°N | 008.57°Ls | 5.16" | 33.4° | -5.0° | +19°33' |
| 02 October 2011 | 243.42°W | 17.6°N | 009.06°Ls | 5.18" | 33.5° | -4.6° | +19°25' |
| 03 October 2011 | 233.74°W | 17.8°N | 009.54°Ls | 5.20" | 33.6° | -4.2° | +19°17' |
| 04 October 2011 | 224.04°W | 17.9°N | 010.03°Ls | 5.22" | 33.8° | -3.8° | +19°08' |

| Date (00:00GMT) | ω | ϕ | λ | δ | ι | Π | D |
|------------------|----------|--------|-----------|----------|---------|-------|---------|
| 05 October 2011 | 214.37°W | 18.1°N | 010.51°Ls | 5.24" | 33.9° | -3.4° | +19°00' |
| 06 October 2011 | 204.69°W | 18.3°N | 010.99°Ls | 5.26" | 34.0° | -3.1° | +18°51' |
| 07 October 2011 | 195.01°W | 18.5°N | 011.47°Ls | 5.28" | 34.1° | -2.7° | +18°42' |
| 08 October 2011 | 185.32°W | 18.6°N | 011.96°Ls | 5.31" | 34.2° | -2.3° | +18°34' |
| 09 October 2011 | 175.64°W | 18.8°N | 012.44°Ls | 5.33" | 34.3° | -1.9° | +18°25' |
| 10 October 2011 | 165.96°W | 19.0°N | 012.92°Ls | 5.35" | 34.4° | -1.6° | +18°16' |
| 11 October 2011 | 156.29°W | 19.1°N | 013.40°Ls | 5.37" | 34.5° | -1.2° | +18°07' |
| 12 October 2011 | 146.60°W | 19.3°N | 013.88°Ls | 5.40" | 34.6° | -0.8° | +17°58' |
| 13 October 2011 | 136.93°W | 19.5°N | 014.35°Ls | 5.42" | 34.7° | -0.4° | +17°49' |
| 14 October 2011 | 127.25°W | 19.6°N | 014.83°Ls | 5.44" | 34.8° | -0.1° | +17°40' |
| 15 October 2011 | 117.57°W | 19.8°N | 015.31°Ls | 5.46" | 34.9° | 0.3° | +17°30' |
| 16 October 2011 | 107.90°W | 19.9°N | 015.79°Ls | 5.49" | 35.0° | 0.7° | +17°21' |
| 17 October 2011 | 098.22°W | 20.1°N | 016.26°Ls | 5.51" | 35.0° | 1.0° | +17°12' |
| 18 October 2011 | 088.55°W | 20.2°N | 016.74°Ls | 5.53" | 35.1° | 1.4° | +17°02' |
| 19 October 2011 | 078.88°W | 20.4°N | 017.21°Ls | 5.56" | 35.2° | 1.8° | +16°53' |
| 20 October 2011 | 069.21°W | 20.5°N | 017.69°Ls | 5.59" | 35.3° | 2.1° | +16°44' |
| 21 October 2011 | 059.54°W | 20.6°N | 018.16°Ls | 5.61" | 35.4° | 2.5° | +16°34' |
| 22 October 2011 | 049.87°W | 20.8°N | 018.63°Ls | 5.64" | 35.5° | 2.8° | +16°25' |
| 23 October 2011 | 040.19°W | 20.9°N | 019.10°Ls | 5.67" | 35.6° | 3.2° | +16°15' |
| 24 October 2011 | 030.54°W | 21.0°N | 019.57°Ls | 5.69" | 35.7° | 3.5° | +16°05' |
| 25 October 2011 | 020.86°W | 21.2°N | 020.04°Ls | 5.72" | 35.7° | 3.9° | +15°56' |
| 26 October 2011 | 011.21°W | 21.3°N | 020.51°Ls | 5.74" | 35.8° | 4.3° | +15°46' |
| 27 October 2011 | 001.54°W | 21.4°N | 020.98°Ls | 5.77" | 35.9° | 4.6° | +15°37' |
| 28 October 2011 | 351.88°W | 21.5°N | 021.45°Ls | 5.80" | 36.0° | 5.0° | +15°27' |
| 29 October 2011 | 342.22°W | 21.6°N | 021.92°Ls | 5.83" | 36.0° | 5.3° | +15°17' |
| 30 October 2011 | 332.57°W | 21.8°N | 022.39°Ls | 5.86" | 36.1° | 5.7° | +15°07' |
| 31 October 2011 | 322.91°W | 21.9°N | 022.86°Ls | 5.89" | 36.2° | 6.0° | +14°58' |
| 01 November 2011 | 313.25°W | 22.0°N | 023.32°Ls | 5.92" | 36.2° | 6.3° | +14°48' |
| 02 November 2011 | 303.61°W | 22.1°N | 023.79°Ls | 5.95" | 36.3° | 6.7° | +14°38' |
| 03 November 2011 | 293.96°W | 22.2°N | 024.25°Ls | 5.98" | 36.3° | 7.0° | +14°28' |

TEN YEARS AGO (197)

-----CMO #251 (25 September 2001) pp3123~3142 -----

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn2/cmo251/index.htm>

This report (#15 in 2001) dealt with one month period from the latter half of August to the first half of September 2001. The planet was going away and the dust cloud was being settled, and furthermore the position was descending from Oph to Sgr. The season λ was from 215°Ls to 234°Ls. The angular diameter δ went down from 15.1" to 12.0". The phase angle ι augmented from 40° to 45°. The central latitude ϕ moved from 5°N to 2°S.

A total number of observations were decreasing: 163 from domestic 10 observers and 43 from the 8 abroad observers.

The area of Solis L and S Aurorae was still governed by two bright streaks but it was impossible to identify the dark markings. At the region of S Sabaeus, Noachis is shadowy and D Hellesponticae is blurred. The western part of S Sabaeus was not recovered: The darkest part was around M Serpentis. Around the area of Syrtis Mj, M Tyrrhenum was recovering similarly to M Serpentis. M Cimberium was also recovering, but the eastern part of M Sirenum was not yet. The Aetheria dark patch was not seen; just Propontis I being dimly formed. Tharsis 4 Montes were visible as dark spots, and more evident on the afternoon side. The northern end of Claritas Fossae and a dark spot of Tithonius L which were clearly trapped in IR by Don PARKER (DPk) on 6 Sept 2001 were considered due to the augmentation of the phase angle and the settlement of the dust.

The area of the spc was described in detail. The morning mist/frost at the spr was evident up until the end of August.

As a column, Director's Reports #08 and #09 were cited:

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

LtE was received from DPk (FL), Ed GRAFTON (TX), D MOORE (AZ), N BIVER (the Netherlands), B COLVILLE (Canada), D TROIANI (IL), F MELILLO (NY), R SCHMUDE (GA), S WHITBY (VA), T DOBBINS (OH), M GASKELL (NE): Domestically LtE came from KUMAMORI, ISHADOH, HIKI, AKUTSU, MORITA, ISHIBASHI. Mk's email was also cited.

The 10th Essay by TSUNEMACHI treated W HERSHEL's observation of Uranus and Mars on 13 March 1781. This article was newly remade in CMO/ISMO #377/#03 recently and readable in the followig PDF:

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn4/CMO377.pdf>

20 years ago the planet Mars was going, down to the conjunction in November 1991: TYA (73) in CMO#109 (25 September 1991) shows some contents: The main was the regression curve of the npc in the 1960's given by T SAHEKI which was compared with CAPEN's and the previous work of DOLLFUS. CMO #109 also shows the new telescopes of AKUTSU and ISHADOH used in 1990/1991.

(Mk & Mn)

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COMMUNICATIONS IN 東亞天文學 『火星通信』 since 1986

MARS

No **251**
25 September 2001

OBSERVATIONS Published by the OAA Mars Section

CMO 2001 Mars Report #15 OAA Mars Section

WHILE the dust-laden atmosphere is still persistent in covering the whole surface of the planet, the activity of the yellow cloud has become mild, and the apparent diameter has been decreasing, and henceforth we publish the CMO once a month as scheduled though we have published fortnightly since #243 (10 May issue). This time we review the observations made during the period from 16 August (215°Ls) 2001 to 15 September (234°Ls) 2001

The day 16 August corresponded to Day 54 ever since the onset of the major dust disturbance. The angular diameter δ went down from 15.1" to 12.0" during the period. The central latitude ϕ gradually moved from 5°N to the opposite hemisphere and read 2°S on 15 September. The season is drawing at hand for the centre of the thawing south polar cap to deviate from the pole (see #240 p2025).

The meridional altitude of Mars was lowest from the Northern Hemisphere around 25~26 August; the apparent declination pointing to -27°02'. On 15 September, it recovered to -26°41'.

ϕ#243(10May)以降、六月の最終近点を含めて、月二回に分けて編集・発行を続けて来たが、前巻の活動も落ち着き、視直徑も減少したので、今回から一ヶ月毎のレギュラーに戻す。今回は 16 August (215°Ls) から 15 September (234°Ls) までを取り上げる。この間に視直徑は15.1"から12.0"に落ちた。中央緯度は5°Nから、九月上旬には南北半球同等に見え、以後は南半球へ移り、15Septには2°Sまで行った。このあと南半球が好く見えるようになり、#249p2028(英文はp2025)で載れたように南極冠の變化の観測の季節になる。

尚、火星の水平高度は25~26Augで最低となり、視赤緯は-27°02'を指した。これでも1986年よりマシであった。15Septには-26°41'まで回復した(と言えるかどうか)。南中高度は福井では27°、那覇ではほぼ37°であったが、2001年には福井は今年の那覇並になる。

WE are thankful to the following observers who contributed to the CMO this time:

ϕ今回の観測報告者と観測日、観測数は次のようである。

BARNETT, John H ジョン・バーネット (JBn) 維吉ニア Richmond, VA, USA
1 Drawing (26 August 2001) 360x18cm refractor,

BIVER, Nicolas ニコラ・ビヴェール (NBv) Noordwijk, Nederland 69 Versailles, France
4 Colour Drawings (16, 24, 25 August; 1 September 2001)
300x20cm speculum/330x26cm speculum

HIKI, Toshiaki 日越 敏明 (Hk) 長野・箕輪 Minowa, Nagano, Japan
8 Drawings (16, 17, 18, 24, 25 August; 1 September 2001) 430, 400x22cm speculum

3 1 2 3

International Society of the Mars Observers (ISMO)

Advisory Board: Donald PARKER, Christophe PELLIER, William SHEEHAN, and Tadashi ASADA, Masatsugu MINAMI

Bulletin: Kasei-Tsushin CMO (<http://www.mars.dti.ne.jp/~cmo/ISMO.html>)

CMO #385/ ISMO #15 (25 September 2011)

Editorial Board: Tadashi ASADA, Masatsugu MINAMI, Masami MURAKAMI, Takashi NAKAJIMA and Akinori NISHITA



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