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Some Thoughts around "*Limited only by Diffraction*". Part I

By

Reiichi KONNAÏ

William SHEEHAN wrote a series of stimulating essays in the recent issues of CMO (#405 and #406) entitled "Night Thoughts of a Classical Mars Observer. Part I and Part II", in which he suggested that the visual observation of Mars, making drawings at the eyepiece, is now obsolete, becoming the lost art. Christophe PELLIER was prompt in response; in his LtE in the CMO #406 (page 0430) he says that "'*the scientific obsolescence*' is also true for modern CCD images; it strikes more earth-based observations than a kind of technique itself." In the preceding issues of CMO (#407 and #408), Masatsugu MINAMI wrote consecutive leadoff essays with titles "With a View to the Classical Observations of Mars" and "Being As a Classical Observer of Mars" respectively, to *rebut* arguments raised by SHEEHAN. Via logical considerations, MINAMI seemed to succeed in verifying that the true classical observation system of Mars is still scientifically valid in some aspects. These discussions made me reanalyze and revaluate *who I am as an amateur astronomer*. In 1991, when the period was still in transition from silver salts astrophotography to digital imaging, I wrote an article for the informational magazine of *Kyoei*, a major telescope dealer in Japan, titled *Limited only by Diffraction*, discussing pursuing flawless telescopes. Here I am showing you an abridged translation of the piece, some contents of which may still be interesting to you, and may give some better prospects for the future of our CMO.

- - -

Limited Only by Diffraction

A Bit of Citation

(from some of the pieces and communications which influenced me greatly)

"…However, in detecting delicate markings on Jupiter or Mars, a truly good mirror, with sufficient tube assembly and mounting, exerts its full force by casting a razor-sharp image even at a high magnification. Under good seeing at 150~250× with an excellent 6~8 inch mirror, beyond-descriptive fine details of Jovian belts, or stunning structural beauty of Saturnian rings would be your life-long memory. …"——Baron Senji Shigemaro KIBÉ, *How to Make a Reflecting Telescope* (Seibundo Shinko-sha)

"…If the reader's least acceptable mirrors with their edges full-exposed never fail to show clear intermediate diffraction rings for BOTH *intra- and extra-focal stellar images, he / she should regard himself / herself as an expert. If the reader could control the outer conspicuous diffraction rings for both sides of the stellar focus as well, the author would assure he/she has no teacher on the Earth anymore. …"*——Jiro HOSHINO, *How to Make a Telescope* (Kosei-sha)

"…Yes, there are those who cannot afford to purchase even the least expensive telescope. And yet, the universe has touched them, called them, plucked at their heartstrings, opened a very special door. These people walk the Earth at night, eyes sparkling under clear skies. They observe in the only manner they can—with their naked eyes. And they see more than many who are more fortunate. They OBSERVE. …"——Ken FULTON, *The Light-Hearted Astronomer* (Kalmbach)

"…As for planetary photography, I feel great regret at the present trend that everyone concentrates on aesthetics only, rushes to the major astronomical magazines' -photo contests. Unlike the situation in decades ago when astronomical instruments and emulsions for amateurs were quite limited, now everybody with a good telescope can take planetary photos full with precious scientific information. I really hope that the object itself rather than its photographic appearance would draw more attention of the skillful amateur astronomers who'll break through the astrophoto contests toward scientific excitement of planetary observation. …" ——Isao MIYAZAKI (Ex-Director of the OAA Jupiter and Saturn Section), *Personal Communication.*

Prologue 1

Richard BERRY, the chief editor of Telescope Making Magazine once had classified telescope owners into two major categories: **(1) Telescope maker**, and **(2) Telescope user**.

According to this classification, as far as I know, the best example of the pure telescope maker should be Kuniomi ABÉ who states "My greatest/only concern is just to make telescopes. Every heavenly body is nothing but a material to evaluate the optical performance of the telescopes of my own made." Conversely, my old friend Isao MIYAZAKI, a dyed-in-the-wool visual/photographical planetary observer must be a perfect telescope user who asserts "Any telescope, whosoever made it, would do as long as it casts a planetary image good enough for my observing."

As for myself, I have made dozens of telescopes equipped with optics of my own polishing and figuring (See the set of Figs. 1 below).

Fig. 1a Ichiro TASAKA at his Foucault knife-edge tester

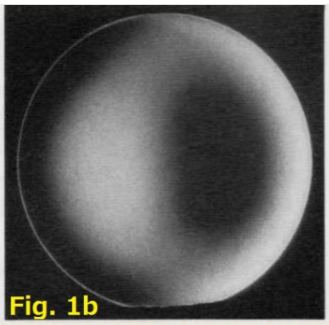


Fig. 1b Focogram of 31cm F/6.5 TASAKA mirror (Pyrex) Silky smooth surface of the high-precision mirror casts a razor-sharp planetary image.

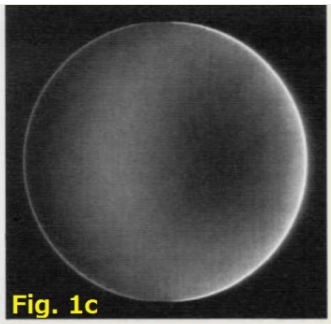


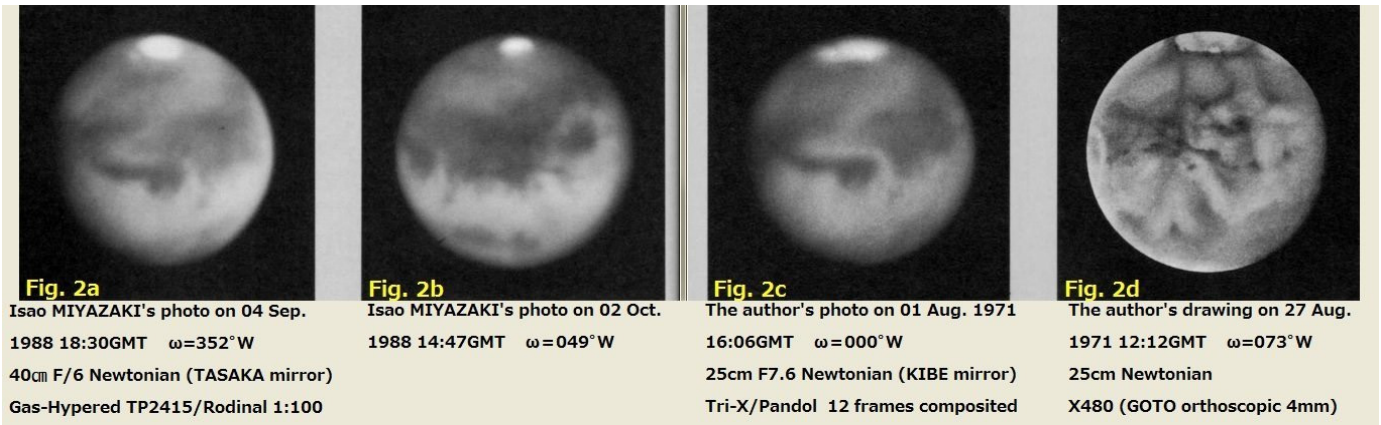
Fig. 1c Focogram of the author's 20th own made mirror 15cm F/9 (Pyrex) Though leaving subtle steps and irregularities, intra- and extra-focal stellar images are almost identical.

And as well as making and looking at the telescopes, I love to see almost any object looking through a telescope; terrestrial landscapes, our own Moon, planets, remote satellites, stars, clusters, nebulae, galaxies, gravitationally lensed distorted quasars,……. I could have spent overnight watching the intra- and extra-focal stellar images as they varied according to the changing temperature. So, you might say, I should be classified as a "half (telescope) maker / half user".

Prologue 2

On a fine April day in 1988 when the closest approach of Mars was scheduled in the fall, I called at Ichiro TASAKA's optical shop in Shingu City in Wakayama Prefecture. (TASAKA is one of the Master Mirror Makers in our country, the Japanese counterpart to George CALVER or Jean TEXEREAU, as well as an experienced visual Mars observer.) A 40 cm, *F*/6, 1/10 thick Pyrex mirror happened to be on a Foucault test stand for a final check. The knife-edge-tested surface was smooth as a clear skin of an alabaster goddess, no detectable irregularities, steps, rings at any R(=r). Especially at the most critical outermost zone, where even the "Master Mirror Makers" often leave stepwise (though managed to be vague) defects, this mirror showed an ideal surface curve started quite abruptly (without turned-up or -down edge) from the extreme edge—caused me an illusory feeling as if I was Foucault-testing an excellent 60 cm *F*/4 primary stopped down to 40 cm *F*/6. And the zonal-test readings were ultimately close to the calculation. "This mirror is great, …would cast superb planetary images! …", I unconsciously phewed and whispered to myself. Catching my words TASAKA replied calmly "Oh, really? Yeah, figuring of this mirror went quite carefreely and uneventfully, took minimum period of time. When I tentatively tried with a full-size lap to wipe off subtle defects, it was just finished, reached the goal as you see." Maybe like that even for an expert when a best mirror is completed.

The 40 cm, *F*/6 Tasaka mirror, along with the appurtenant 85 mm minor-axis secondary, was mounted as a Newtonian with a sturdy German equatorial mounting by Nagata Optical Instruments, installed on the rooftop of Isao MIYAZAKI's house in Okinawa in the midsummer of the year. Mars was getting larger and larger day by day, and the far-beyond-our-expectations quality of the photos and the video images sent to us by MIYAZAKI week after week gave a huge and unprecedented impact on the planetary observers in Japan proper—what is called "Okinawa Shock" (or "Miyazaki Shock"). His Martian photos with gas-hypered TP2415 / Rodinal 1:100 (Chick and Don's "Golden Combi"!) were of undoubtedly best ever qualities in this country, resolved the details as small as 0.4~0.5 arcseconds, compared favorably with "the best ground-based silver salt Martian photographs" taken by Jean DRAGESCO in 1986 with Pic du Midi 106 cm Cassegrain (compare with the set of Figs. 2).



MIYAZAKI's planetary video taken by means of Canon Ci-20R (IR monochromatic) was so stimulating for the first time viewers (that somebody exclaimed "R-rated!", they say!); various portions of Martian albedo markings were resolved into countless tiny patches, many craters could have been identified checking against the Voyager images. And recorded on the same tape was Jupiter, unfittably large in the TV screen, Ganymede happened to be in transit across the GRS on the Jovian CM; surprisingly definite surface details were visible on the disk of the Solar System's largest moon.

(***To be concluded*** in the next issue, where appears the latter half of my 1991 essay in which an optical simulation of observing Mars with a flawless telescope under perfect seeing had been presented, incidentally suggesting the Earth-based detectability of Martian craters. And I proceed with my self-analysis to find my nature as an amateur astronomer, with considering the meaning of putting oneself with one's unchangeable nature in the true classical observation system of the CMO as well.)

ISMO 11/12 Mars Note (11)

White Cloud Escaping from Hellas at Winter Solstice

Christophe PELLIER

BEFORE we get to talk about the winter stage of the Hellas basin (in a coming note), a precursory note is needed about a small cloud observed just next to the basin, around the winter solstice. At this period from late March/early April, an elongated faint white cloud has been spotted west of Hellas; it has been observed in preceding apparitions of the planet and must have a seasonal importance.

I - The "escaping cloud" observed by the HST during aphelical apparitions of the 90's

During the last opposition cycle (1993-2005), the Hubble telescope imaged the cloud in 1997 and 1999; at this time, amateur images do not look to show it (certainly because of the lower quality of our images by then). It appears on one of the 10th March images of 1997 (λ=089°Ls, late southern fall) and on the series taken on 3rd March, 1999, at early southern winter (λ=105°Ls). The first figure shows a comparison of the two images:

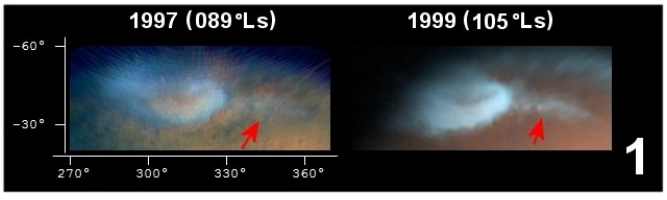
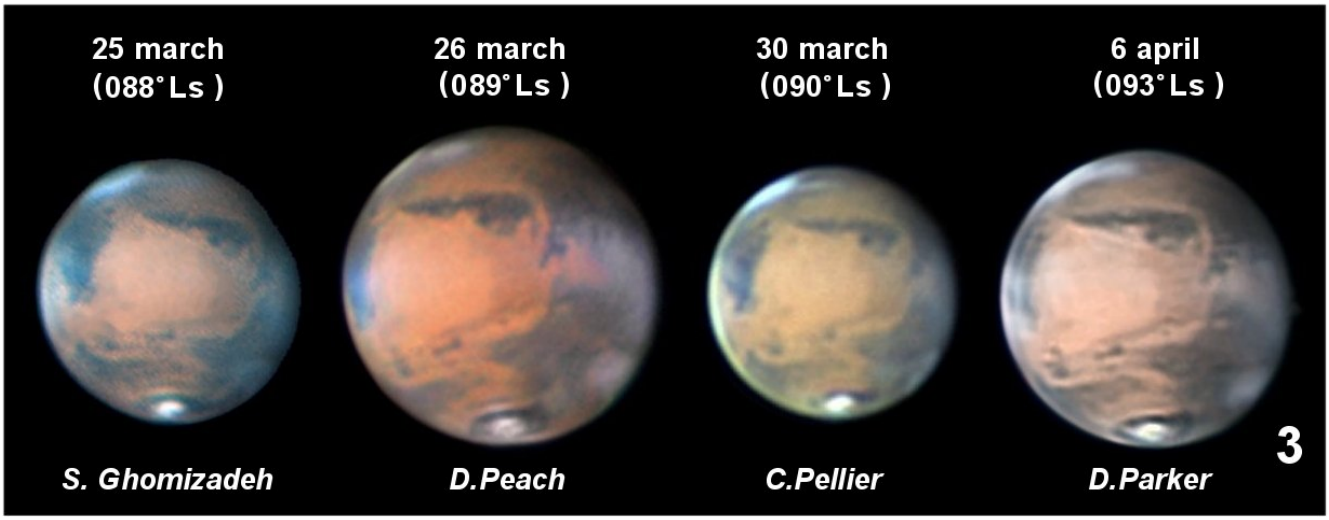


Fig.1: The cloud escaping from Hellas by the HST during the last opposition cycle. It has a clear elongated west/east shape (reaching around 1500 km in 1999). Some white spots are seen, best in 1999. © STScL

The comparison reveals a few facts. First, the elongated shape of the cloud tells that it must be trailed by winds (no cloud is observed east of Hellas). Second, it is brighter and thicker when the Hellas basin is itself brighter. Third, it's obviously connected to the basin. Fourth, as seen on MGS images, the white spots prove to be frost filling craters on the ground; they are best seen as well when the cloud is brighter. Figure 2 is processed from MGS/MSSS gallery from strips taken on 2nd October 2004, at λ=095°Ls.

Fig. 2: high-res image processed from MGS gallery. Taken on 2nd October 2004, at early southern winter (λ =095° Ls). North is up (S Sabaeus is well defined on the upper part). The whitish Hellas basin is at bottom right. The cirrus clouds coming from it at the western side are visible as well as the frosty craters beneath the clouds. Note that the craters located further south, though closer to the growing south polar cap, are not frosted. © Malin Space Science System. Colour processing by the author.

Fig 3: Amateur images showing the cloud around winter solstice, march/april 2012.



II - The cloud observed in 2012

In 2012, the cloud is also observed at a similar season. The first confirmed images are found in the CMO Gallery from 25/26 March (images by Sadegh Ghomizadeh at λ=088°Ls), and more clearly seen the 28th, 29th, 30th March and 1st, 2nd April from Europe (Sharp, Peach, Pellier, Lewis, Delcroix, see Fig 3). The season of beginning in 2012 is therefore precisely the southern winter solstice (λ= 088°Ls~092°Ls).

Amateur images do not show the frosty craters. In the following weeks, the cloud is observed on several occasions until 6th May (λ=107°Ls - by *DPc*). Conditions after that day may not have been good enough for the observers to see it again. It none the less shows some variations from day to day (it is not as equally visible). Unfortunately, due to the southerly position, it is not possible to try to detect a possibly hourly evolution just like we did for the orographic clouds. On high-res MGS images, the cloud looks to be formed by several streaks probably of the cirrus kind; so an evolution must exist but may not present any repeated pattern regarding the Martian sol.

Conclusion: a climatic milestone

The importance of the detection of the "Hellas escaping cloud" lies in the fact it looks highly dependent from the stage of the Hellas winter state. It looks to be a kind of extension of the bright white clouds that form inside the basin at the same season, which must be themselves a precursory stage of the final frosted state (we will develop on a coming ISMO Note). Frost develops inside craters that lie beneath the cloud, and not around it, so it is also a manifestation of cooler temperatures brought westward from the basin by local or dominant winds. □

ISMO 11/12 Mars Note (12)

Thawing Aspect of the 2011/2012 North Polar Cap

Masatsugu MINAMI & Akinori NISHITA

AS to the case in the preceding 2009/2010 apparition, we treated as usual the north polar cap (npc) recession aspect by the same members at Fukui (M MINAMI (*Mn*) and A NISHITA (*Ns*)) and we published the result in CMO #381 (25 Feb 2011): http://www.hida.kyoto-u.ac.jp/~cmo/cmomn4/CMO381.pdf

The present article is a sequel to the above treatment, and we here deal with the thawing rate of the npc in the 2011/2012 apparition.

This time *Mn* started his routine observations on 10 September 2011 (λ=359°Ls), and picked out the

observations of the npc from 24 September 2011 (λ=006°Ls) just after the Martian spring equinox. The apparition was quite aphelical and, at that time the disk diameter was no larger than δ =5.1″. The temperature inside the dome was about 15°C, but gradually winter was drawing near, and the bad weather began to prevail. The observations thereof became unsmooth, and we could not expect to be able to obtain a full data. As anticipated, at around λ=040°Ls, there was no chance to catch the planet for example during a half-month period from 14 December 2011 to 31 December 2011, and hence there was a lack of data from λ=043°Ls to λ=050°Ls. At the final stage, unfortunately one of us (*Mn*) fell ill so that we missed the final data. Scarcely we picked out the data at around λ=100°Ls, while it is apparent the data at the latter part are not enough.

Since we observed every forty minutes when it was constantly fine, we could have similarly constructed a bird-eye view of the circular npc if we could obtain the data ranging for several ω surrounding the perimeter of the npc for a certain value of Ls, but unfortunately we have not encountered such a fine series of the observations due to the dismal weather conditions, so that it was rare to obtain a suitable chance to construct the bird-eye views.

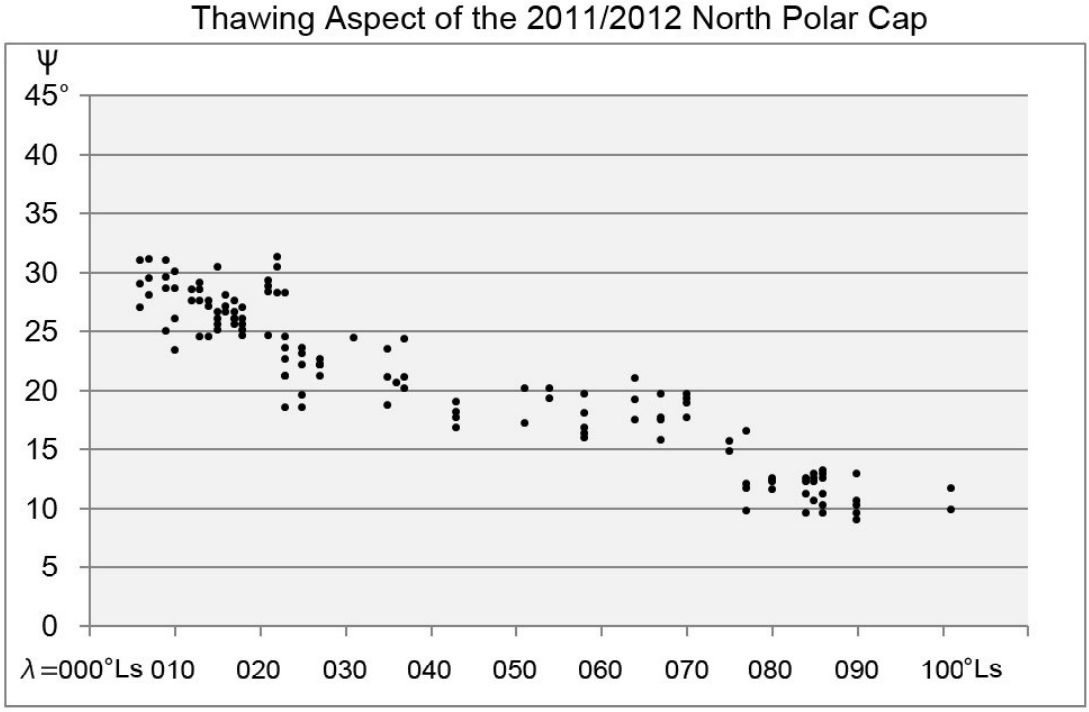
When we met with a fine night, we however gathered the data every forty minutes and hence we necessarily had a lot of data for a certain Ls, while to make the diagram such like the following figure with the abscissa gauged with Ls, we were forced to abandon some duplicated data or employ beforehand the statistically averaged value from the full raw data.

Now, as the method to evaluate the size of the npc, we have always employed the one issued by Audouin DOLLFUS in *Icarus* **18** (1973) 142, as to which we introduced early in CMO #003 (25 February 1986).

Let ψ and ϕ be the half-angle of the npc and the central latitude of Mars seen from the Earth respectively. Then ψ is given by

$$\psi = -|\phi| + \arccos[1 - (d/r)] \qquad (*)$$

where r is the radius of the Mars image, and d is the NS depth of the npc. In this method we do not take account of the value of the EW width of the npc, since it will be subject to a further possible error when the phase angle is large.



The so-called snow-line denoted by Θ, if necessary, is given by

$$\Theta = (\pi/2) - \psi.$$

In the practical measuring of *r* and *d*, *Mn* was in charge, and then *Ns* paraphrased the above formulae and mapped the results as shown here on the preceding diagram. Here the ordinate is for ψ, and the abscissa is for Ls showing the procession of the season.

It should be noted that the formula (*) holds when $\psi \geqq \phi$, while for $\psi \leqq \phi$, we must seek the value of ψ, instead of (*), by means of

$$2\sin\phi \cdot \sin\psi = d/r \qquad (**)$$

When $\psi = \phi$, though the appearance of (**) looks to quite differ from (*), we can easily see that (**) is identical with (*).

It was *visually* recognised that the npc began to be seen inside the disk around from λ=067°Ls this time, and it was definite from around λ=085°Ls, and in practice from around λ=043°Ls, $\psi \leqq \phi$ looked to hold, and so from around λ=045°Ls we took account of the formula of (**) to plot the data.

We don't think that the above diagram is final, but may be further checked by the use of other observations.

Here we would like to add some associated points. The trend of the sets of the thawing dots must be heavily dependent on the local elements of the observations. That is, the view near at the area of M Acidalium tends to give larger values of the dots, since cap's perimeter aspect seen from the specific angle looked smoothly bulged. We met the case at around λ=067°Ls and so on. Furthermore, the npc this occasion at around λ=075°Ls showed us a concaved aspect of the boundary because of the inlet made by a *dust*. So the results were dependent on how we chose the outer-figures of the cap.

At least from the above thawing diagram, it looks that the npc recessed normally after the spring equinox until around λ=030°Ls, and then its thawing rate might have been much decreased until around λ=070°Ls. This may recall to us the Baum Plateau. Just after the spring equinox, the high pressure atmosphere over the north polar region (npr) governed to expel the hood from the polar region and urged to make the recession of the npc quite explicit causing a grand circulation. However when the circulation stagnates as the summer approaches, the thawing of the npc comes to a standstill (this will be repeated again in what as follows). This may generate the Baum plateau, while the real case by W BAUM *et al* is concerned with the period between λ=010°Ls and λ=060°Ls (earlier however it was said the period lay between λ= 010°Ls and λ= 040°Ls), so we should say there is a deviation from the present result. As to the Baum thawing curve and the plateau, refer especially to Fig. 3 in

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn2/2007Coming_14.htm

Before closing, we would like to pick out again the above-mentioned mechanism more concretely and interpret something about the aspect of the relation of the atmosphere near the npr and the npc itself after the spring equinox time.

From the beginning of September 2011, the Sun started to warm up the npr. At the end of the year (note on 31 December, the Martian season was λ=051°Ls) the sub-solar point was augmented to *Ds*=21°N, that is, the polar area to the north of 70°N could be warmed since the Sun does not set there, and hence the npr becomes warmer than the equatorial zone. Thus the npc considerably thawed away as is shown in the above graph. The warmed-up air with water-vapour ascends and moves southward to the direction of the equatorial zone (formally it is possible for it either to move upward or creep on the ground, depending on the case it will meet with a high-pressure air-mass or not on the way). However, as the season of the northern summer approaches, the southerly air-mass turns to flow much slower and the air around the area of the npc stagnates. As said, this could cause a standstill of the thawing rate of the npc between spring and summer as shown in the later part of the graph. □

Letters to the Editor

●·····***Subject: from Efrain Morales / Facebook***
Received; 5 March 2013 at 10:58 JST

Thank you very much Masatsugu M! For the very informative report and your most welcome my friend!

Efrain MORALES (Puerto Rico)

●·····***Subject: pickering***
Received; 6 March 2013 at 06:19 JST

Dear Masatsugu,

I can't say when I can get to it, but I would like to write something on W. H. PICKERING for the CMO/ISMO—perhaps you would agree to write a bit about PICKERING's influence on Japanese Mars observers. Best

○····***Subject: RE: pickering***
Received; 7 March 2013 at 04:50 JST

Dear Masatsugu,

Thank you for the kind words. We have traveled many miles together since we first started to correspond in June 2001, and I have learned a great deal from you. I am always very thankful for your friendship, and hope the nausea and vomiting have now resolved. Were they due to some medication, or perhaps from overtiring yourself? In any case, I hope you are feeling well again.

I shall never forget the romance of our travels to the Japanese Alps and to Noto together, and only regret my attempt to reciprocate your kindness was compromised by the intrusiveness of a difficult person. I also wish we had had more time together in Paris and Meudon. I was able to visit (with Francis OGER) the Juvisy Observatory again last year, and though the chateau of the great FLAMMARION remains in a reprehensible state of disrepair, it is at least good to see that FLAMMARION's refractor is restored to working order and I was pleased that we were able to obtain some impressions of Mars with it on a very bitterly cold night.

Meanwhile, I hope never to be found guilty of the *floccinaucinihilipilification* of the classical Mars. (I just learned this word, which is said to be the second longest word in English; it basically means to discount, to undervalue, to be dismissive of something. I couldn't resist using it here.)

In about a month, I will travel to Rochester, Minnesota (home of the Mayo Clinic) to give a talk for the Astronomical League on perceptual issues in astronomy, and on the way plan to visit Carleton College (where Popular Astronomy was published) to look up W. H. PICKERING's articles on Mars from 1913 on, and also to pay my respects to the homestead nearby (at Nerstrand) where Thorstein VEBLEN (1857-1929) ("Theory of the Leisure Class" 1899) lived for a number of years. After this I hope to write up a little piece on W. H. PICKERING for you.

As you know, PICKERING and LOWELL were great chums early on. However, they both very strongly individualistic and shared an interest in similar problems; this made them potential rivals. After LOWELL perceived that Harvard College Observatory was trying to take over the "Lowell expedition," he was unable to trust that William would remain loyal to him and not to his brother. But there was also the fact that LOWELL was a follower of Herbert SPENCER's doctrines about evolution, and believed that it was inevitable for planets to evolve from young globes (like Uranus and Neptune) to middle-aged globes like the Earth to finally dead corpses of worlds like the Moon. William at the same time was making observations of changes in lunar albedo features (e.g., the "Gardens of Eratosthenes") that led him to think that the Moon was both geologically and biologically active, and this did not fit the Spencerian scheme at all. Both of these men followed their later careers in parallel, with hardly any reference to one another's work.

Warm regards,

Bill SHEEHAN (Willmar, MN)

●·····***Subject: Re: Words missing in CMO 407***
Received; 9 March 2013 at 06:31 JST

Dear Masatsugu,

I will be able to write a note for CMO 409 (but so with a deadline around 15/20 april). It will be about the "escaping cloud" from the Hellas basin as seen in march/april.

This will be a small introduction about the whitening of Hellas (the two being linked, as far as I can see now) that would be described in a following note (for 410 for example).

Then I would have one or two last notes to write (for the 2012 apparition, maybe I have some other special ideas):

1) Something about the frostening of Argyre, but I'm not sure so far to be able to conclude this one, maybe images are not resolved enough, I will see

2) A note about the white patch observed at the end of may north of Arcadia, because it may be a first sign of "polar cyclone" activity.

Best wishes,

Christophe PELLIER (Nantes, FRANCE)

●·····*Subject: EPSC 2013 - AM1 session: Amateur contribution to the advancement of planetary science*
Received; 30 March 2013 at 06:32 JST

Dears,

The **European Planetary Science Congress** (EPSC) will be held from **September 8th to 13th this year in London**, UK.

In particular, we would like to draw your attention to the AM1 session dedicated to "**Amateur contribution to the advancement of planetary science**", in the program group "Amateur Astronomy."

For more information please visit:

http://meetingorganizer.copernicus.org/EPSC2013/sessionprogramme/AM

We would like to invite you to actively participate to this session by contributing a paper and/or meeting and exchanging views and ideas with other amateur and professional astronomers studying the **solar system and exoplanets**.

If you are interested in making an oral or poster contribution, please fill in the abstract submission form that you will find at the web page above (**abstract deadline: May 6, 2013**).

Also, please feel free to circulate this message to all those who might be interested in the event.

Sincerely,

Marc DELCROIX (Tournefeuille, FRANCE)

☆ ☆ ☆

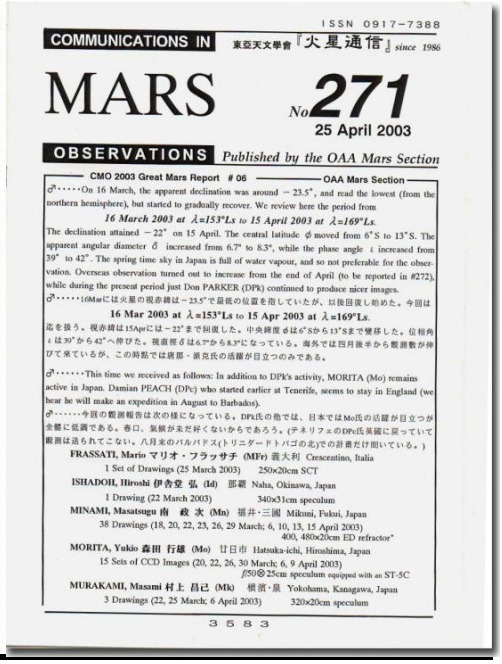
TEN YEARS AGO (216)

---- *CMO #271 (25 April 2003)* pp3583~3598 ----

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn3/cmo271/index.htm

The 6th observational report treated the one-month period from 16 March to 15 April 2003. During the period the season proceeded from λ=153°Ls to λ=169°Ls, and the apparent diameter went up from δ=6.7" to 8.3". The tilt moved from φ=6°S to 13°S and the phase angle was from ι=39° to ι=42°, the defect of the illumination being quite augmented. It is noted that the apparent declination was around -23.5° on 16 March: It read the lowest seen from the Northern Hemisphere.

Five observers joined domestically (H ISHADOH, M MINAMI, Y MORITA, M MURAKAMI, and T NAKAJIMA) and we heard from two observers from Europe (Mario FRASSATI and Christophe PELLIER), one (Don PARKER)


ISSN 0917-7388
COMMUNICATIONS IN 東亞天文學會『火星通信』since 1986
MARS No.271
25 April 2003
OBSERVATIONS Published by the OAA Mars Section
CMO 2003 Great Mars Report # 06 — OAA Mars Section
♂·····On 16 March, the apparent declination was around −23.5°, and read the lowest (from the northern hemisphere), but started to gradually recover. We review here the period from
16 March 2003 at λ=153°Ls to 15 April 2003 at λ=169°Ls.
The declination attained −22° on 15 April. The central latitude φ moved from 6°S to 13°S. The apparent angular diameter δ increased from 6.7" to 8.3", while the phase angle ι increased from 39° to 42°. The spring time sky in Japan is full of water vapour, and so not preferable for the observation. Overseas observation turned out to increase from the end of April (to be reported in #272), while during the present period just Don PARKER (DPk) continued to produce nicer images.
♂·····16Maには火星の視赤緯は−23.5°で最低の位置を指していたが、以後回復し始めた。今回は
16 Mar 2003 at λ=153°Ls to 15 Apr 2003 at λ=169°Ls.
花を扱う。視赤緯は15Apには−22°まで回復した。中央経度φは6°Sから13°Sまで變移した。位相角ιは39°から42°へ伸びた。視直径δは6.7"から8.3"になっている。海外では四月後半から観測數が伸びて來ているが、この時點では唐部・康克氏の活躍が目立つのみである。
♂·····This time we received as follows: In addition to DPk's activity, MORITA (Mo) remains active in Japan. Damian PEACH (DPc) who started earlier at Tenerife, seems to stay in England (we hear he will make an expedition in August to Barbados).
♂·····今回の觀測報告は次の様になっている。DPk氏の他では、日本ではMo氏の活躍が目立つが全體に低調である。春口、氣候が未だ好くないからであろう。(テネリフェのDPc氏英國に戻っていて觀測は送られてこない。八月末のバルバドス(トリニダードトバゴの北)での計畫だけ囘いている。)
FRASSATI, Mario マリオ・フラッサチ (MFr) 義大利 Crescentino, Italia
1 Set of Drawings (25 March 2003) 250×20cm SCT
ISHADOH, Hiroshi 伊舍堂 弘 (Id) 那覇 Naha, Okinawa, Japan
1 Drawing (22 March 2003) 340×31cm speculum
MINAMI, Masatsugu 南 政次 (Mn) 福井・三國 Mikuni, Fukui, Japan
38 Drawings (18, 20, 22, 23, 26, 29 March; 6, 10, 13, 15 April 2003) 400, 480×20cm ED refractor
MORITA, Yukio 森田 行雄 (Mo) 甘日市 Hatsuka-ichi, Hiroshima, Japan
15 Sets of CCD Images (20, 22, 26, 30 March; 6, 9 April 2003) f/50@25cm speculum equipped with an ST-5C
MURAKAMI, Masami 村上 昌己 (Mk) 横濱・泉 Yokohama, Kanagawa, Japan
3 Drawings (22, 25 March; 6 April 2003) 320×20cm speculum
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from the US, and one (Maurice VALIMBERTI) from Oceania. Don PARKER contributed 12 sets of ccd images, and Y MORITA 15 sets of ccd. M MINAMI obtained 38 Drawings. This was the first time Ch PELLIER contributed to us by the use of an 18cm speculum.
http://www.hida.kyoto-u.ac.jp/~cmo/cmomn3/271OAA/index.htm

2001 Mars CMO Note (#18) was about "Airborne Dust on 4 July 2001":
http://www.hida.kyoto-u.ac.jp/~cmo/cmomn3/271Note18.htm

"Great 2003 Mars Coming (11)" was written by Akinori NISHITA about "When the Apparent Diameter Exceeds 25 Seconds of Arc":
http://www.hida.kyoto-u.ac.jp/~cmo/cmomn3/271Coming11.htm

Domestically came the LtEs from Kunihiko OKANO (Tokyo), Yaichi MAKINO (Toyama), Toshiaki HIKI (Nagano), Yukio MORITA (Hiroshima), Miyuki UMEDA (Fukui City Museum of Natural History), Tohru IWASAKI (KitaKyushu), Hiroshi ISHADOH (Okinawa), Naoya MATSUMOTO (Nagasaki), Isao MIYAZAKI (Okinawa), Kanehiro OSA (Ishikawa), and Jun-ichi WATANABE (NAO).

From abroad, we heard from Bill SHEEHAN (MN, the USA), Don PARKER (FL, the USA), Kaili LIU (Taiwan), Christophe PELLIER (France), Frank MELILLO (NY, the USA), Damian PEACH (the UK), Tim PARKER (NASA), Dave MOORE (AZ, the USA).

TYA #092 was written by T HIKI about CMO #132 (25 April 1993) which was published just twenty years ago. At that time, Mars' apparent diameter was 9" down to 7" with the seasons from λ=053°Ls to λ=066°Ls. Domestically six persons including HIKI were observing. Cebrenia was belt-likely bright. Hellas was bright near the evening limb.

In #132, a history of the Fukui City Observatory was touched. Its first page shows a distant view of the Museum on a hill and Dome on the rooftop. It was established in 1952 with a 15cm refractor as a monument of the restoration of the ruined Fukui City which had suffered from the indiscriminate bombing in 1945 and from the M7.1 earthquake in 1948. *M MURAKAMI (Mk) and M MINAMI (Mn)*

International Society of the Mars Observers (ISMO)

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

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

CMO #409/ ISMO #35 (25 April 2013)

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

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