

## MARS

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## OBSERVATIONS

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## Some Ruminations on Observing Mars

By

Donald C. PARKER

I must confess that I was not looking forward to observing Mars this year. Besides being old, fat and arthritic, I figured that the many spacecraft at the Red Planet would have solved most of that body's mysteries. (Of course I am also extremely lazy.) Since this is my 60<sup>th</sup> year of Mars observing, I felt that I had "seen it all." But then I received a request from Dr. Richard Schmude for images to help with his polar cap and cloud studies, so one morning I broke out my telescope to obtain some useful images for his work. After a few seconds at the eyepiece my Martian Disillusionment was cured! I was seeing an old friend and, yes, another world. While my efforts are now consumed by imaging and (yuk!) image processing, I still spend much time at the eyepiece just enjoying the view. Of all the planets, Mars gives the best impression that we are peering at

another world. When I show Mars to laypeople during favorable oppositions, this is the comment that I most often hear: "Wow! That looks just like a little world!"

In truth I have never felt that earth-based Mars observations are without value, even in the age of Martian orbiters and rovers. Masatsugu Minami's essay in CMO #366 nicely sums up our situation: without ground-based images, interpretation of the close-up Mars orbiter data becomes difficult if not impossible. For example, the seasonal and diurnal behavior of dust storms and discrete clouds remains largely obscure. These problems can be adequately addressed by careful terrestrial observations that remain within the amateur's purview and provide a planet-wide perspective that is often lacking with spacecraft data.

For thorough coverage of Martian

phenomena, observations of each Martian longitude should be made on a daily basis during an apparition. Since Mars and the Earth have roughly the same rotation periods, this means that observers stationed at many terrestrial longitudes can provide daily coverage of the entire planet. This was the dream of our mentor, the late Charles F. "Chick" Capen. He was dedicated establishing a worldwide network of amateur Mars observers, the goal being 24-hour coverage of the planet. He avidly corresponded with overseas amateurs, exchanging ideas and observations. Early on, a number of Japanese observers such as the artistic and technical geniuses Toshihiko Osawa and Hideaki Saito shared their observations with A.L.P.O. and provided much-needed data on what was happening on the "other side" of the planet. By 1973 such luminaries as Great Britain's Alan Heath and France's Jean Dragesco joined forces and formed the core of Capen's International Mars Patrol (IMP). Today this has grown to dozens of observers in over 20 countries and, thanks to electronic imaging and the Internet, nearly instantaneous communication has become routine.

Masatsugu Minami's essay in CMO/ ISMO #417 elegantly demonstrates the value of such longitudinal coverage when the early development and spread of a dust storm. An e-mail alert from Silvia Kowollik in Germany permitted observers from central Europe to western United States to garner nearly re-

al-time coverage of some 70 degrees of Martian longitude, providing valuable data on the early phases of a dust event. It should be noted that Kowollik produced fine images with a mere 6-inch (15.2cm) reflector, proving that one does not need elaborate instrumentation to turn out good science.

Organizations like ISMO, ALPO and the BAA have amassed tens of thousands of amateur Mars observations spanning many decades. These are most valuable in that they provide an historical thread that imparts perspective on Martian phenomena. Current earth-based Mars observations are necessary to put past work into context. The majority of these observations are drawings, since that was the best method available before 1990. (For the patient observer it still has great value!) The historical importance of drawings was brought home to me back in 1992, when Lowell Observatory's Dr. Leonard Martin used his private grant money to spend a week with us in south Florida. Leonard, a great friend of amateurs who became our mentor after Chick Capen died, spent the week analyzing the 20,000 ALPO Mars Section observations that were kept at Jeff Beish's house. Jeff and I couldn't believe that this distinguished professional was actually studying amateur drawings - drawings! Leonard chastised us, stating that these contained irreplaceable data and, by comparing simultaneous observations between observers, one could gather virtually quantitative

data. He also introduced us to the method of “personal equations” that permits data from a single observer to be quantified. Dr. Martin made use of these observations for his paper of Martian dust storm development and frequency. On a lighter side, Leonard, an avid outdoorsman, spent much of his time sailing and eating Florida’s great seafood. In retrospect I wonder if Leonard would have visited if we hadn’t had a sailboat, stone crabs, and yellowtail snapper! When we parted, Leonard gave me advice; “Do more sailing and stop smoking.” Alas, I have ignored this counsel.

During each apparition I am amazed at the quality of amateur images and drawings. This year excellent images were submitted to the CMO/ISMO when Mars had an apparent diameter of only 4 arc-seconds! Such imaging would have been unheard of only a decade ago. The quality of planetary cameras improves each year while the price of these instruments has actually decreased. This may be getting out of hand, however. I had just learned to use my new camera when Christopher Go told me that there was an even better one coming on the market soon! At my age new learning curves are viewed with a mix of anticipation and terror. The availability of powerful freeware like RegiStax and Autostakkert has made image processing far less tedious and more accurate. However, these advances must carry a caveat: It has

become easier to introduce artifacts into the images, especially when overprocessed by the excited novice. For this reason I recommend that one spends some time visually inspecting Mars before imaging. This will familiarize him with the planet’s appearance, especially if rough sketches are made from color filter observations.

Comparing past Mars drawings with modern electronic images has been especially helpful in putting certain Martian phenomena into historical perspective. An example is the various aspects of the polar caps, especially the North Cap. Recent amateur and spacecraft images have shown that some of the rifts previously observed are most likely due to seasonal polar dust events. During the last apparition many amateurs obtained beautiful images of these arctic storms. According to data gleaned from Mars landers and orbiters, it appears that Mars experiences hundreds of dust storms per year. Obviously most of these are small localized events and are far beyond the reach of ground-based observers. However, with amateur technology improving at a dramatic rate, more and more of these smaller dust clouds will be detected. With the global perspective afforded by ground-based observers, these findings will advance our studies of the Red Planet.

Another area in which electronic imaging excels is the study of Martian atmospheric phenomena, especially the localized

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water-ice crystal clouds. These are best detected in blue or even ultraviolet light. Since most films were quite insensitive to these wavelengths, producing quantitative images of these clouds was a major headache. To produce blue-light images I had to copy a Fujichrome Mars image onto Technical Pan film through a dark Wratten-47 filter. The film was then developed and printed to produce a black-and-white image showing Martian clouds. While this technique worked well, it was expensive and extremely time-consuming. Today most of our electronic cameras are fairly sensitive to a wide range of wavelengths, from ultraviolet into infrared as far as one micron. This has permitted amateurs to produce meaningful quantitative images that are of value to professional as-

tronomers. It is gratifying but not surprising that many professional planetary astronomers regularly visit the ISMO, ALPO and BAA web sites.

During the aphelic Mars apparition of 2012, amateurs produced amazing images of a planet whose apparent diameter reached only 13.9 arc-seconds. The current apparition will be an improvement: 15.2" at closest approach on 14 April. (The bad news is that U.S. citizens have to pay their income taxes on the following day.) Judging from the quality of the images on this year's CMO/ISMO site, the 2014 apparition should produce exciting data. At the rate that amateur Mars astronomy is progressing one can only imagine what the perihelic apparition of 2018 will bring! □

CMO/ISMO 2013/14 Mars Report #04

## 2013/2014 Mars Observations in December 2013

♂..... The following is a report of the Mars observations in December 2013 made by the members of the CMO/ISMO. Since the weather condition in winter is not preferable in general, the observation rate of the tiny Mars remains low. Otherwise the usual planetary observers tend to concentrate on the Jupiter.

The planet Mars was moving inside the Vir constellation in this period, and it rose after midnight and was seen near the Meridian at the sunrise time. However the apparent declination became under  $02^{\circ}30'S$  at the end of December, and hence the altitude showed an incline of 50 degrees from the horizontal. The Martian season  $\lambda$  preceded from  $057^{\circ}Ls$  to  $070^{\circ}Ls$ , and so the season came where some influence was seen of the water vapour from the north polar cap (npc) on the higher lands and at the equatorial region where white mist was to be observed. Furthermore some rifts as well as some separated islands around the npc may possibly be detected in a coming season. At present, however, the angular diameter  $\delta$  is not enough large to chase such phenomena. The angular diameter  $\delta$  just went up from 5.6" to 6.9" in December. The phase angle  $\iota$  was  $35^{\circ}$  to  $36^{\circ}$ , and the tilt  $\phi$  was around  $25^{\circ}N$  to  $23^{\circ}N$ .

♂..... The observers and the observations in December were recorded as follows:

**BUDA, Stefan (SBd)** Melbourne, AUSTRALIA

1 Colour Image (24 December 2013) 40cm Dall-Kirkham with a DMK21AU04

**GHOMIZADEH, Sadegh (SGh)** Roudehen, IRAN

1 Colour Image (22 December 2013) (28cm SCT with a DMK21AU04.AS)

**GORCZYNSKI, Peter (PGc)** Oxford, CT, the USA

4 Sets of RGB + 4 IR Images (3, 4, 8, 27 December 2013) 36cm SCT with an ASI 120MM

**HÖGBERG, Martin (MHg)** Örebro, SWEDEN

1 Set of RGB Images (30 December 2013) 25cm speculum, with a DMK21AU618.AS

**KONNAĪ, Reiichi (Kn)** Ishikawa, Fukushima, JAPAN

3 Drawings (31 December 2013) 30cm SCT, 500×

**MORALES RIVERA, Efrain (EMr)** Aguadilla, PUERTO RICO

1 Set of LRGB Images (12 December 2013) 31cm SCT with a Flea3

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

4 Sets of RGB + 4 LRGB Colour + 4 L Images (2, 4, 8, 31 December 2013) 36cm SCT with a Flea3

**POUPEAU, Jean-Jacques (Jpp)** Essonne, FRANCE

1 Set of RGB + 1 IR Images (13 December 2013) 35cm Cass @f/23 with a Baster acA640-100gm

♂.....From this month, Jean-Jacques POUPEAU (*Jpp*), Martin HÖGBERG (*MHg*) and Stefan BUDA (*SBd*) newly joined from FRANCE, SWEDEN and AUSTRALIA respectively. All are well known to us because of their earlier work. The angular diameter in December 2013 was near  $\delta=6''$ , while the seeing condition must have been dismal in general. Don PARKER (*DPk*) took a rest this month.

On 2 Dec ( $\lambda=057^\circ\text{Ls}$ ) at  $\omega=105^\circ\text{W}$ , Yukio MORITA (*Mo*) made a set of six images (*LRGB*, *RGB*, *R*, *G*, *B*, and *L*). Alba looks to be nearly evident in all colours. Some minor dark markings are seen following the area of Solis L which is near the evening terminator. It seems to show a white mist at the evening Chryse. The defect of illumination is large ( $\tau=35^\circ$ ). It is expected *Mo* will show more details in the next rotation chance.

On 3 Dec ( $\lambda=058^\circ\text{Ls}$ ), Peter GORCZYNSKI (*PGc*) obtained a nicer set of images at  $\omega=323^\circ\text{W}$ : S Meridiani is pretty described and Syrtis Mj looks dark near the evening terminator. The npc appears to show a broad pillar of mist at its centre: There looks to exist a roundish rift along the boundary of the pillar. The npc also suggests a mist projection towards the SW direction. M Acidalium is certainly dark, but there seems to be associated with an artificial ghost, while Oxus is better described. The description of Oxia P to the direction of Margaritifer S is good. *PGc* also obtained another set on the following 4 Dec ( $\lambda=058^\circ\text{Ls}$ ) at  $\omega=309^\circ\text{W}$ , where Syrtis Mj is largely shown, as well as a bit of Hellas which is not whitish, but of sandy colour. The description of S Sabæus to S Meridiani is nicer. M Acidalium may be real in IR. The double structure of the npc is still visible. The mist from the npc looks to stream up southward. On 4 Dec, *Mo* obtained a good set of images at  $\omega=084^\circ\text{W}$ : Solis L is evident near the terminator, and Tithonius L and Phœnicis L are spotted (due to the success of the *L* image) In *LRGB*, the area around the light Alba is depicted in a complex aspect.

On 8 Dec ( $\lambda=060^\circ\text{Ls}$ ), *PGc* produced the images at  $\omega=276^\circ\text{W}$ , where Syrtis Mj occupied the centre. Utopia looks complicated, but the resolution power lacks. N Alcyonius and another dot following Utopia are clearly shot. On the same 8 Dec, *Mo* took images about 9 hrs after from *PGc* at  $\omega=043^\circ\text{W}$ : M Acidalium is large and dark near the centre, but not so detailed. Alba may be coming. The npc is not so definite.

On 12 Dec ( $\lambda=062^\circ\text{Ls}$ ), Efrain MORALES (*EMr*) took images at  $\omega=203^\circ\text{W}$ . Apparently there is a mist

stream from the npc toward the SW direction. Elysium is a bit light. In R, Cerberus and the Ætheria dark patch are described as minor markings.  $\delta=6''$  was reached.

On 13 Dec ( $\lambda=062^\circ\text{Ls}$ ), J-J POUPEAU (*JPp*) obtained a set at  $\omega=164^\circ\text{W}$ : The orographic cloud at Olympus Mons looks visible in the evening corner (in G and B), and Elysium is a bit seen in R and IR.

On 22 Dec ( $\lambda=066^\circ\text{Ls}$ ), S GHOMIZADEH (*SGh*) took a single image at  $\omega=347^\circ\text{W}$ : The image is too heavily processed and so looks dirty, while the area around Oxia P and the area pinched by Oxus and M Acidalium are well shown. However it is difficult to say something about the npc and its neighbourhood.

On 24 Dec ( $\lambda=067^\circ\text{Ls}$ ), S BUDA (*SBd*) produced a single image at  $\omega=234^\circ\text{W}$ : Syrtis Mj shows its dignified form with a dark bluish tinge near the morning limb and Hesperia is clearly cut associated by a bit of M Cimberium. Elysium is roundish light near the terminator with the Ætheria dark patch. Utopia may suggest some disturbances near the npc. The npc also suggests a light and shade inside. Images of colour ingredients should be accompanied.

On 27 Dec ( $\lambda=068^\circ\text{Ls}$ ), PGc produced a set of six images at  $\omega=099^\circ\text{W}$ . The area of the light Alba is complicated. The area around Phœnicis L is well described including outgoing Solis L. The npc looks a bit shrunk: Its border is still blurred.

On 30 Dec ( $\lambda=069^\circ\text{Ls}$ ) at  $\omega=315^\circ\text{W}$ , Martin HÖGBERG (*MHg*) issued 4 images (RGB, R, G and B): Syrtis Mj must be near the evening terminator. The boundary of the npc looks blurred because of a mist distribution. The dark marking on the northern hemisphere has a tint of warm colour. The area of Syrtis Mj looks dark greenish. S Sabæus is not well depicted.

On 31 Dec ( $\lambda=070^\circ\text{Ls}$ ), Mo shot at  $\omega=188^\circ\text{W}$ . The npc, Elysium and others are all dull. (NB: Mo's images may be compared with Sean WALKER (*SWk*)'s in 2012 on 6 Feb ( $\lambda=067^\circ\text{Ls}$ ) at  $\omega=190^\circ\text{W}$  which will provide a hint of the positions of Elysium and others.) On the same day, Rei-ichi KON-NAI issued three drawings at  $\omega=190^\circ\text{W}$ ,  $199^\circ\text{W}$  and  $209^\circ\text{W}$ . The whitish bright npc is apparently described, while no other conspicuous markings are there at the Martian district. However his skill in depicting the faint nuances of the Martian surface is outstanding.

**Masatsugu MINAMI & Masami MURAKAMI**

## *Letters to the Editor*

●.....*Subject: Mars: November 30, 2013*  
*Received: 1 December 2013 at 16:09 JST*

Hi, I am sending you my first image of Mars this season November 30, 2013 at 11:37 UT to be posted.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131130/FM130Nov13.jpg>

Thanks,

**Frank J MELILLO** (Holtsvill, NY)

●.....*Subject: Mars image Ak30Nov13*  
*Received: 1 December 2013 at 19:54 JST*

How about the weather in Japan? Maybe quite cold. Here I send the Martian images from this

morning. Still vibrating, but a bit improved due to the processing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131130/Ak30Nov13.jpg>

**Tomio AKUTSU** (Cebu, the PHILIPPINES)

●.....*Subject: Mars image - November 30, 2013*  
*Received: 2 December 2013 at 07:10 JST*

Gentlemen, Attached is a set of Mars images from the morning of November 30, 2013. It was cold ( $-11^\circ\text{C}$ ) and calm, with good transparency. Seeing was a little above average. Regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131130/PGc30Nov13.jpg>

○.....*Subject: Mars image - December 3, 2013*  
*Received: 4 December 2013 at 12:31 JST*

Gentlemen, Here is a set of Mars images from December 3 captured under a very steady sky.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131203/PGc03Dec13.jpg>

Regards,

○……Subject: Mars image - December 4, 2013  
Received: 5 December 2013 at 13:08 JST

Gentlemen, Seeing was only average. Transparency was poor with the images captured through thin clouds. Regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131204/PGc04Dec13.jpg>

○……Subject: Mars image - December 8, 2013  
Received: 9 December 2013 at 10:15 JST

Gentlemen, Seeing was on the poor side this morning. The soft detail in the R image is testimony to that. Regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131208/PGc08Dec13.jpg>

○……Subject: Mars image - December 27, 2013  
Received: 29 December 2013 at 11:24 JST

Gentlemen, Attached is a set of images captured in less than average seeing. Regards

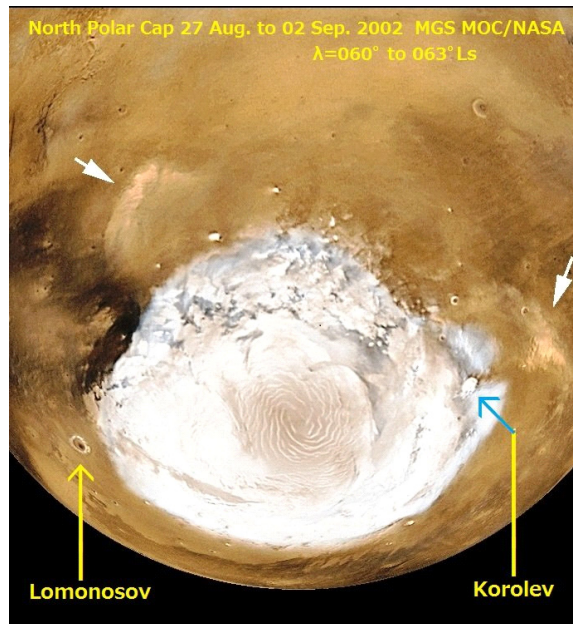
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131227/PGc27Dec13.jpg>

**Peter GORCZYNSKI** (CT, the USA)

● …… On 10 December 2013 at 21:13 JST, we received an interesting email from Rei-ichi KONNAĪ, which was however written in Japanese to *Mn*, and hence we shall here summarise some contents of his email: He first notes about a possible Cyber Attack cautioned a few days before by *Mn*, and he reports about an attacked example experienced by his colleague (dentist). He so intends to tune up his backup system. He next informs us that he is already on standby to observe the planet Mars, whereas the weather has been quite dismal. He says the snowy season has been around the corner (at Fukushima).

He next states that since the Martian season now passed  $\lambda=060^\circ\text{Ls}$ , he expects that the D-ring due to the degeneration of the npc must be checked, and he shows us an MGS-MOC image taken in 2002 here in which a rapid thawing of a half of the npc is apparent (due to the seasonal rises of polar dusts) at the part following Lomonosov upto the part preceding Korolev. Within the coming two weeks, the same season will arrive as checked

by Efrain MORALES (*EMr*) on 11 February 2012 ( $\lambda=069^\circ\text{Ls}$ ) at ( $\omega=173^\circ\text{W}$ ,  $\phi=23^\circ\text{N}$ ) where a conspicuous dust disturbance was shot inside the npc. KONNAĪ wonders whether the ISMO imagers try to unearth the case this apparition.



He also attached another image at the same season from VMC/ESA. According to him, this is an image taken from the orbit on the way from the eastern end of Olympia through the Milankovic crater upto Olympus Mons along the line  $\Omega=140^\circ\text{W}$ ,



and he claims that the degeneration around the D-ring is seen. See also

[http://www.flickr.com/photos/esa\\_marswebcam/sets/72157632239047738/](http://www.flickr.com/photos/esa_marswebcam/sets/72157632239047738/)

KONNAĪ also picked out the problem of the Alba clouds as taken up by Ch PELLIER in CMO #399, 2011/12 CMO/ISMO Note (01). KONNAĪ expects anyone to check the *second* peak of Alba in May 2014. KONNAĪ also considers the case of the

the south polar cap in a similar context at around  $\lambda=260^\circ\text{Ls}$ . But here we ask permission to skip here.

(Mn)

○.....PSbis:

Received: 10 December 2013 at 22:47 JST



.....Here is shown a set of images of the npc composed by KONNAÏ. One is from MGS/NASA in 2002 and the other is from VMC/ESA in 2010, both being at the same season. Two are separated by 4 Martian years, but KONNAÏ considers that there is no explicit difference in the timing of thawing (see arrows on both images to be compared). (Mn)

**Rei-ichi KONNAÏ** (Fukushima, JAPAN)

●.....Subject: Mars 2013/12/13

Received:13 December 2013 at 17:51 JST

Hello, Here is Mars on 2013/12/13.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131213/JPp13Dec13.jpg>

The seeing and the transparency were average.

T = -2.5°C. Regards

**Jean-Jacques POUPEAU** (Essonne, FRANCE)

●.....Subject: Mars - December 12th

Received:13 December 2013 at 17:51 JST

Hi, Mr. Minami, Here is my latest session from 12th of December under average conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131212/EMr12Dec13.jpg>

**Efrain MORALES** (Aguadilla, PUERTO RICO)

●.....Subject: mars.22 dec

Received: 23 December 2013 at 11:44 JST

Hi all, Merry Christmas & Happy new year again, condition was poor I took in -7 degrees weather this image. Best Wishes

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131222/SGh22Dec13.jpg>

**Sadegh GHOMIZADEH** (Roudehen, IRAN)

●.....Subject: Joyeux Noël !!!

Received: 24 December 2013 at 03:36 JST

Meilleurs vœux pour un Noël plein de joies et une nouvelle année remplie de bonheur.



**Gérard TEICHERT** (Hattstatt, France)

●.....Subject: Mars 21,22 November: 8 December 2013  
Received: 25 December 2013 at 02:13 JST

My personal computer has not worked a while, though it just recovered. Some belated images of Mars here. With best wishes for 2014.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131121/Mo21Nov13.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131122/Mo22Nov13.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131208/Mo08Dec13.jpg>

**Yukio MORITA**

(Hatsuka-ichi, Hiroshima, JAPAN)

●.....Subject: Mars on 24th of Dec 2013

Received:26 December 2013 at 16:06 JST

Hi everyone, Please find attached my first Mars image for the apparition. The seeing was rather poor. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/131224/SBd24Dec13.jpg>

**Stefan BUDA** (Melbourne, AUSTRALIA)

☆☆☆

☆.....Donald has sent you an ecard from American Greetings.com on 1 Jan 2014 at 05:25 JST

Dear Masatsugu,

I hope that you have a fine birthday and a happy 2014. It is an honor knowing you and working with you on our favorite planet all these years!

Best regards,

**Don PARKER**

☆.....Subject: Drawings of Mars

Received: 2 January 2014 at 02:13 JST

Dear Dr. Minami, all,

A happy new year and a fruitful Martian season!



I am attaching here my very first drawings of the red planet for this apparition. Seeing has been atrocious through the last months, unaided eye Mars was twinkling crazily. And finally at an early hour on this cold New Year's Day (still New Year's Eve by GMT) Mars ceased to twinkle to be one of the naked-eye planets; and I could have visually recognized NPC and some dark markings with my 30cm SCT at last!

Best Regards,

**Reiichi KONNAI**

☆.....**Facebook:** *Christophe Pellier wrote on your Timeline on 3 January at 19:53*

Dear Masatsugu, I'm late as usual but I wish you a Happy Birthday. Happy 2014 Mars as well!

**Christophe PELLIER**

☆.....**Facebook:** *Sam Whitby wrote on your Timeline on 3 January at 12:17*

Happy Birthday!

☆....**Subject:** *think spring*  
**Received:** 23 January 2014 at 20:18 JST

*It is almost February, and snow  
Clouds cover the 3rd quarter moon.  
Our housecat seeks attention.  
I must feed her soon.*

*This is Virginia. Any day now  
A warmer sun will rise,  
And speedwells and henbit  
Will comfort our eyes.*

*And it will seem like we can know  
The cold has gone away,*

*And tiny flowers have come  
To finally stay.*

**Sam WHITBY**

☆.....**Facebook:** *Sean Walker posted on your Timeline on 3 Jan 2014 at 05:11*

"Congratulations on the completion of another lap around Sol!"

**Sean WALKER**

☆....**Subject:** *Re: How did you spend the New Year Holidays!*  
**Received:** 11 Jan 2014 at 04:48 JST

Dear Masatsugu, Yes, we have had some very severe weather -- the "polar vortex" phenomenon is responsible, due to drunken wobbling of the Jet Stream. At the same time Alaska and such are warmer than we are.

No observing, for sure; but otherwise I am staying very busy with my family, clinical work, two dogs, and pulling together several projects (Galaxies, Celestial Shadows, and a translation of Flammarion's *La Planète Mars*; all to be published by Springer). I feel much better since being corrected for atrial fib last year!!

I could write up something on the centennial of the iconic image of Percival Lowell looking through ("observing Venus by daylight) with the 24-inch Clark which was taken by Philip Fox on Oct. 17, 1914, if that would be of interest.

Best wishes (and good Mars observations) for the New Year,

**Bill SHEEHAN**

## TEN YEARS AGO (225)

----- **CMO #286 (10 January 2004),**  
**CMO#287 (25 January 2004)**

---<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn2/cmo286/index.htm>

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn3/cmo287/index.htm>

**T**his time we pick out the web versions of CMO #286 (10 January 2004) and CMO #287 (25 January 2004). There have been no printed versions, and hence we hope you will click down the Web versions above sited on this occasion.

In CMO #286, described were "2003 Great Mars CMO Report (21)" and LtE. Report (21) dealt with the observations made during the period from 16 December ( $\lambda=317^\circ\text{Ls}$ ) until 31 December ( $\lambda=326^\circ\text{Ls}$ ). In this period the planet was located inside the evening Psc constellation, and was approaching the eastern quadrature (which occurred on 28 December). The angular diameter  $\delta$  was decreasing from 9.6" to 8.5", and the phase angle  $\iota$  was above  $42^\circ$ . The tilt  $\varphi$  was pointing about  $26^\circ\text{S}$ ; so that the southern hemi-

sphere was widely facing toward us. As reported before, on 12 December ( $\lambda=314^\circ\text{Ls}$ ) a significant dust disturbance was entrained so that the rate of the observations a bit increased. A total of 27 observers joined with 179 observations. Domestically 8 observers were active with 105 observations, though the weather was dismal at Fukui, but Teruaki KUMAMORI (*Km*) at Osaka was quite active. From abroad, 8 observers sent us 38 observations, half of which were obtained by Don PARKER (*DPk*). In Europe 8 observers produced 23 observations, and at Asia Oceania 3 observers obtained 13 observations.

The Report described the aspects of the dust status day by day. Its central part was caught in the US. In Japan we watched no more than the western end at around Dia. On 16 Dec, as the Report says *DPk* observed “*an abrupt large development at the east side to Noachis*”. Our opinion was that “*Usually at night the stratosphere goes down to the ground so near that the convection does not occur, and so the early stage of dust does not easily move, but if the condition of catastrophe remains to be latent, the dust disturbance revives next morning and gradually the lifted dust should obey the deflecting force. The aspect of dust distribution on 16 Dec taken by DPk suggests a good deal of residual dusts at night. We thus consider the condition of dust disturbance was propagated to the east, and at first it caused a dust disturbance at the western corner of Deucalionis Regio (the preferable place which is known as one causing dust disturbance since 1956). Then as the planet rotated, several dusts successively occurred in a series at Noachis. As the TES dust image on 16 Dec shows, the disturbance cores occurred discretely at the west of Argyre and Dia. These two however might have been the residuals of the cores of the day before*”. One round after (17 hours after the observations of *DPk*), interestingly “*PELLIER (CPI) caught a new rise of the dust at the east end of Deucalionis R at Martian dawn at  $\omega=284^\circ\text{W}$ ,  $289^\circ\text{W}$ , ( $300^\circ\text{W}$ ),  $302^\circ\text{W}$ . This case of PELLIER was instructive, namely we should be well attentive on the following days not because to catch the aftermath motion of the preceding dust but because further new dusts follow caused by the latent energy. In the present case no apparent change has occurred at the Hellas region, “but was shown there a water condensate preceding the rise of dust”*. On 17 Dec, the American observations were few at the relevant angles. On 18 Dec *DPk* checked visually (twice at  $\omega=353^\circ\text{W}$  and  $\omega=016^\circ\text{W}$ ) a dust covering at Noachis-Argyre and observed that S Meridiani was not recognised because of the covering by the dust. Ed GRAFTON (*EGf*)’s images at  $\omega=004^\circ\text{W}$  showed us a vast aspect of the dust at the east end of Deucalionis R, and a bright core was visible southwards along Yaonis Fr but not invaded Hellas. The image was suggestive how S Meridiani looked deformed because of the dust. Next the planet went to Oceania, and Erwin R van der VELDEN (*EVI*)† showed at  $\omega=132^\circ\text{W}$  that the west end of the dust had reached the south of M Sirenum. In Europe, a southern core of the bright belt was recognised along Yaonis Fr.

On 20 Dec ( $\lambda=319^\circ\text{Ls}$ ), *EGf* imaged a core of dust at the east end of Deucalionis R somewhat differently from the aspect of the preceding days, and at Noachis the south-

ern part was further disturbed. It was first observed on 21 Dec that a dust was raised at the NW part of Hellas by *EGf* at  $\omega=334^\circ\text{W}$  and by *DPk* at  $\omega=337^\circ\text{W}$ . The western side was observed by Asian-Oceanian observers but looked less deformed. The report on 22 Dec ( $\lambda=319^\circ\text{Ls}$ ) described *“TES’s 2 o’clock image shows that the disturbance inside Hellas diminished and the southward vector at Noachis has sent the dust to the south circumpolar region. And thus the settling down of the Dec 2003 dust event is suggested. WARELL (JWr)’s images at  $\omega=347^\circ\text{W}$ ,  $012^\circ\text{W}$  show the dust from Noachis to its south (images are however too small and too declined). The west end of the dusty area was checked by *EVlf* at  $\omega=092^\circ\text{W}$ , and by MIYAZAKI (My) at  $\omega=118^\circ\text{W}$ ,  $140^\circ\text{W}$ . Visually *Mk* observed at  $\omega=081^\circ\text{W}$ ,  $090^\circ\text{W}$ , and  $100^\circ\text{W}$ . The boundary of the dust was clearer than the day before.”* On 23 Dec ( $\lambda=321^\circ\text{Ls}$ ), a temporal disturbance was seen inside Hellas as well as a small dust in Chryse as checked by KUMAMORI (*Km*) and others in Asia-Oceania. Such markings as S Meridiani and M Serpentis thus recovered. On 28 Dec, TES did not show any further disturbance. On 31 Dec airborne dusts were still visible, but *“As far as we judge from the TES images, strong dust disturbances have dissipated.”*

*“Remarks”* then follows to analyse the encountered dust phenomenon from the point of view of the movement of the air mass as follows: *“the season around  $\lambda=320^\circ\text{Ls}$  is ambivalent, while the present case of the motion vector of the airborne dust suggests that the pattern of the air mass motion was akin to the autumnal case. In fact this case the westerlies worked on the SH and at the final stage the dust went to the south circumpolar region. Note however the westerlies work on the vector of the air mass from morning to evening, and at night the convection does not work since the stratosphere goes down to near the ground. When the air mass has latent inertia to raise a catastrophe as the convection begins to work on the succeeding day, another catastrophe will be renewed, and will also make another series of resonance. So if we have a series of cores of dust we should first treat the leftmost core as an advanced original and followers are newer. Any disturbance core does not move so rapidly, but renews next day and sometimes disappears or makes a quantum jump at another place. If the dust is an autumnal type, the air mass tends to be cooled, and so it may not develop globally.*

Finally, as an impressive image, picked out PEACH (*DPc*)’s image on 18 Dec ( $\lambda=318^\circ\text{Ls}$ ) at  $\omega=239^\circ\text{W}\sim 263^\circ\text{W}$  where the spc was clearly defined whereas  $\delta$  was 9.4”.

The LtE corner collected the emails received during the period of 25 Dec 2003 to 9 January 2004 including the New Year salutations: Abroad we received from Ant3nio CIDAD3O (Portugal), Ed GRAFTON (TX, the USA), David GRAY (the UK), Canon LAU (劉佳能, Hong Kong), Paolo LAZARROTTI (Italy), Richard McKIM (the UK), Eric NG (吳偉堅, Hon Kong), Andr3 NIKOLAI (Germany), Don PARKER (FL, the USA), Damian PEACH (the UK), Christophe PELLIER (France), Gianni QUARRA SACCO (Italy), Bill SHEEHAN (MN, the USA), Clay SHERROD (AR, the USA), Elisabeth SIEGEL (Denmark), Maurice VALIMBERTI (Australia), John WARELL (LPL, AZ, the USA), Sam WHITBY (VA, the USA).

Domestically, from T AKUTSU, T IWASAKI, T KUMAMORI, I MIYAZAKI, Y MORITA, K OKANO, and T WAKUGAWA.

**N**ext, in CMO #287, "2003 Great Mars CMO Report (22)" was presented as well as LtE and Ten Years Ago (101). The 22<sup>nd</sup> Report treated the observations made during the period from 1 January until 15 January. This period the planet Mars stayed at the Psc Constellation, and the apparent declination moved northward. The eastern quadrature was at the end of the last year. The Martian season proceeded from  $\lambda=326^\circ\text{Ls}$  to  $334^\circ\text{Ls}$ . The tilt  $\varphi$  was  $26^\circ\text{S}$  to  $25^\circ\text{S}$ . However it was not easy to check the residual spc: The angular diameter  $\delta$  went down from 8.4" to 7.6". The phase angle  $\iota$  was  $42^\circ$  to  $41^\circ$ .

The observation rate further decreased: a total of 12 members sent 115 observations. From domestically 7 members sent 96 observations. From the US we received from 4 observers with 14 observations among which Don PARKER (DPk) obtained 9 observations. From Europe, PEACH sent us three observations. From Oceania, E van der VELDEN† sent us two observations.

In the context of the Report there issued seven subtitles: 1) Influence of the December 2003 Dust, 2) Trinacria, 3) Elysium, 4) Olympus Mons: 5) The NPH: 6) SPC: 7) White Mist at Tharsis?

In 1), A general history given of an entraining of Chryse Dust on 12 Dec ( $\lambda=315^\circ\text{Ls}$ ), and several bright cores were seen on the eastern part. The peak of the dust was around the days on 18 Dec ( $\lambda=318^\circ\text{Ls}$ ), and around on 24 Dec ( $\lambda=321^\circ\text{Ls}$ ) the disturbance of the storm diminished, while the thin airborne dust at the upper sky was not weak even at the end of the year. In January the dust activity area was witnessed from Japan: Hellas seemed to contain more dust inside, and the northern part looked lighter. The dark markings also show an effect of dust covering, and several variations at S Meridiani, M Serpentis, M Cimmerium and so on were observed. In 2), Trinacria was picked out. "*The fading of Trinacria (Northern Ausonia) was a characteristic which differed from the 1988 aspect.*" In 3) Elysium was light on the images on 10 Jan ( $\lambda=331^\circ\text{Ls}$ ) of MELILLO (FMI) and WARELL (JWr). 4) Olympus Mons: "*DPk's R images on 4 Jan ( $\lambda=328^\circ\text{Ls}$ ,  $\varphi=25^\circ\text{S}$ ) at  $\omega=182^\circ\text{W}$  show the summit of Olympus Mons as a shadowy spot with its flank being lighter.*" 5) The NPH: KUMAMORI's on 6 Jan looks to show the nph though the tilt is quite declined to the south. DPk's images on 13/14 & 15/16 Jan reveals an inner structure of the nph. 6) The SPC: because the SH faced much towards us so that the residual spc must have been visible, while it was hard to detect. Just visually it was seen sometimes at ( $\lambda=329^\circ\text{Ls}\sim 330^\circ\text{Ls}$ ). 7) White Mist at Tharsis? : "*DPk's B images on 13/14 Jan ( $\lambda=333^\circ\text{Ls}$ ) at  $\omega=093^\circ\text{W}$ ,  $109^\circ\text{W}$  look to show an existence of a white mist at Tharsis near the CM.*" It was pointed out that "The occurrence of the condensate mist must be related with the dissipation of airborne dust".

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn3/287OAA/index.htm>

LtE arrived from GRAFTON, Wu-Yang LAI (賴 武揚, TAIWAN), Frank MELILLO (NY,

the USA), PARKER, Damian PEACH (the UK), PELLIER, Joel WARREN (TX, the USA) plus domestically from T AKUTSU, T ASADA, A HIRAOKA (Lowell Society), T IWASAKI, T KUMAMORI, N MATSUMOTO, T MATSUMOTO, Y MORITA, T SAKASHITA (Lowell Sc), T SATO (History Section, the OAA), and Y YABU (OAA Secretary). Some Japanese were concerned with the Lowell Conference at Anamidzu and the OAA annual convention at Nagasaki to be held in coming April and May.

TYA (101) treated CMO #141 (25 January 1994) by *Mn*, partly in English. Twenty years ago, Y MORITA received a kind letter from A DOLLFUS “*informing that “the whitening of the area of Elysium and North was also observed at Meudon.” The photo detailed was the one taken on 8 Dec 1992 ( $\lambda=008^\circ\text{Ls}$ ) at  $\omega=216^\circ\text{W}$  by DOLLFUS himself by the use of the 100cm T at Meudon.”* Also here was reproduced the recession map (made by A NISHITA) of the npc in 1992/93 from the BAA data which were provided by R McKIM, Director of the BAA Mars Section. It is also incidentally stated that T KUMAMORI (*Km*) was 44 years old in 1994.

Another essay was given in CMO #141 by MINAMI concerning a Japanese famous poet called M, but his is exactly Tatsuji MIYOSHI (1900~1964) who lived and composed poems in Mikuni during the period 1944~1949.

The English part in TYA 101 also writes something about MURASAKI-shikibu who is famous as the author of “*The Tale of GENJI.*” This was picked out because Lady MURASAKI once stayed in 996 AD at Takefu, Fukui, where Elisabeth SIEGEL (*ESg*) visited with her family in 1993. We did not know whether Elisabeth was interested in Lady MURASAKI, but Elisabeth is known as a woman writer of several drama scenarios. Furthermore, in 1994, the City of Kyoto, where MINAMI (*Mn*) was long involved (lived, educated and worked) for 45 years from 1957 to 2002, celebrated the 1200th Anniversary of the establishment of the Heian-Kyo (built in 794 AD).

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn3/287TYA101.htm>

*Masami MURAKAMI (Mk) and Masatsugu MINAMI (Mn)*

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**CMO #418/ ISMO #44** (25 January 2014)

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