

## MARS

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## OBSERVATIONS

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CMO/ISMO 2013/14 Mars Report #11

## 2013/2014 Mars Observations During the Latter Half of May 2014

♂.....During the second half of May 2014 (from 16 May to 31 May 2014 GMT), the planet Mars first was moving in the retrograde direction in the Vir constellation, but came to the stationary point on 21 May and then it began to move in the prograde sense, and thus the first half of the present planet apparition ended and the shift took place completely to the latter half observation period in the 2014 apparition. The apparent declination moved further southward. The angular diameter of Mars decreased from  $\delta=13.3''$  to  $11.8''$  and the phase angle increased from  $\alpha=27^\circ$  to  $34^\circ$  during the period. The Martian season proceeded from  $\lambda=131^\circ\text{Ls}$  to  $\lambda=139^\circ\text{Ls}$ . The central latitude  $\phi$  was around  $25^\circ\text{N}$  which implied the timing was appropriate for the observation of the deep north area. During the period the arctic polar clouds were really observed in the area of northern Utopia in addition to the area of M Acidalius.

♂.....The number of the observation reports decreased compared with the cases in April: Even then 22 observers sent us a total of 86 observations made during the second half of May 2014: Domestically 7 members made 30 observations, 5 observers in the US reported 15 observations, from Europe 7 observers reported 32 observations, we heard from 2 Australian observers 8 observations, and from Iran one observer sent us one observation. We further received 3 observations made during the past April.

♂.....The following is a list of the observers who contributed this time:

**AKUTSU, Tomio (Ak)** Karasuyama, Tochigi, JAPAN

1 Set of RGB + 1 IR Images (25 May 2014) 32cm Spec with a DMK21AU618AS

**DUPONT, Xavier (XDp)** Saint-Roch, France

12 Sets of RGB Images (16, 17, 24, 31 May 2014) 18cm Spec with an i-NOVA PLA C+

**EDWARDS, Peter (PEd)** Horsham, West Sussex, the UK

1 Colour Image (30 May 2014) 28cm SCT with a DMK21/618

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

1 Colour Image (31 May 2014) 36cm SCT with a DMK21AU04.AS

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

4 Sets of RGB + 4 IR Images (19, 25, 26 May 2014) 36cm SCT with an ASI 120MM

**GRAFTON, Edward A (EGf)** Houston, TX, the USA

2 Colour Images (21, 23 May 2014) 36cm SCT with an ASI 120MM

**ISHIBASHI, Tsutomu (Is)** Sagamihara, Kanagawa, JAPAN

5 Colour Images (23, 30 May 2014) 31cm Spec with a SONY HC9 VideoCam

**JUSTICE, Mark (MJs)** Melbourne, AUSTRALIA

6 Sets of RGB Images (25, 29 May 2014) 30cm Spec with a DMK21AU618

**KARDASIS, Manos (MKd)** Glyfada-Athens, GREECE

2 Sets of RGB + 3 Colour Images (17, 20, 22, 23, 30 May 2014) 28cm SCT with a DMK21AU618

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

1 Colour Drawing (19 May 2014) 30cm SCT, 600×, 500×

**KUMAMORI, Teruaki (Km)** Sakai, Osaka, JAPAN

9 LRGB + 9 B Images (16, ~19, 21, 23, 28, 29, 31 May 2014)

28cm SCT @ f/45 with an ASI 120MC & Basler Ace acA1300-30gm

**LEWIS, Martin (MLw)** St. Albans, Hertfordshire, the UK

4 Colour Images (16, 18, 25, 30 May 2014) 45cm Spec with an ASI 120MC

**MELILLO, Frank J (FMI)** Holtsville, NY, the USA

4 Colour Images (19, 26, 30 May 2014) 25cm SCT with a ToUcam Pro II

**MINAMI, Masatsugu (Mn)** Sakai, Fukui, JAPAN

4 Drawings (18 May 2014) 480×20cm ED refractor\*

Fukui City Observatory\*

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

2 Sets of RGB Images (16, 19 May 2014) 31cm SCT with a Flea 3

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

9 Sets of RGB + 9 LRGB Colour + 9 L Images

(16, 18, 22, 23, 27, 30, 31 May 2014) 36cm SCT with a Flea 3

**NISHITA, Akinori (Ns)** Awara, Fukui, JAPAN

1 Set of RGB + 1 IR Image (31 May 2014) 30cm Spec with a DMK21AU618.AS

**PARKER, Donald C (DPk)** Miami, FL, the USA

3 Sets of RGB Images (22, 26, 29 May 2014) 36cm SCT @f/24 with an ASI 120MM

**SOLDEVILLA, Josep (JSv)** Barcelona, SPAIN

3 Colour Images (21, 23, 25 May 2014) 36cm SCT with a QHY5L-II

**TYLER, David (DTy)** Flackwell Heath, Buckinghamshire, the UK

3 Colour Images (18, 25, 31 May 2014) 36cm SCT with a Flea 3

**VALIMBERTI, Maurice (MVI)** Melbourne, AUSTRALIA

2 Sets of RGB + 2 IR Images (23, 29 May 2014) 36cm SCT @f/24 with an ASI 120MM

**WARELL, Johan (JWr)** Lindby, Skivarp, SWEDEN

4 Sets of RGB Images (20, 26, 29 May 2014) 20cm Spec @f/27 with a DBK21AU618

♂.....We shall next try to review each observation chronologically as before:

**16 May 2014 ( $\lambda=131^\circ\text{Ls} \sim 132^\circ\text{Ls}$ ,  $\delta=13.3'' \sim 13.2''$ )**

**Efrain MORALES (EMr)** produced a set of the R, G, B, RGB Mars images at  $\omega=133^\circ\text{W}$ . The north polar cap (npc) is purely white, while the surface appeared animated with spotted distribution of localised whitish mists over the ground showing a brownish tinge. Olympus Mons is near the CM, though the caldera is not so definite (this is a new aspect) but roughly whitish surrounded by a brownish ring at a distance. On the other hand the preceding Ascræus Mons is inside a brownish terrace, and at the western flank there exists a white rather straight segment which is not necessarily any softy cloud (maybe a more rigid snowflake). Arsia terrace is dark brownish, and free from the white matter. Such a characteristic of

the Ascræus cloud or snow must imply a turn of the season. On the other hand, Alba is whiter than Olympus Mons. The preceding part of the coming Olympia seems to consist of faint snow or ice shards.

**Teruaki KUMAMORI (Km)** puts forward an L-colour image at  $\omega=279^\circ\text{W}$  with an independent B image. The image is neither very excellent nor especially poor, but it may imply the white cloud inside Elysium which is about to go to the rear side must have been weaker. Olympia is also about to sink, while it is more evident on B. It is not so explicit on the L-colour, but B suggests a faint misty-like cloud at the morning side of Utopia.

**Yukio MORITA (Mo)** made as usual a set of R, G, B, L images and the composites RGB and LRGB at  $\omega=304^\circ\text{W}$ . Hellas shows an imposing spectacle of the white cap. M Acidalius is not fully evident, though its north suggests a morning cloud. Elysium is no longer explicit and must have been on the evening limb.

**Xavier DUPONT (XDp)** produced a set of images, rather contrasty, at  $\omega=051^\circ\text{W}$ . At the WN part of M Acidalius, there is not visible any cloud, while there is shown to the south side of Tanais. At the npc, Chasma Boreale is a bit seen. The Oxus dark segment looks to appear. Note the cloud at the southern end.

**Martin LEWIS (MLw)** obtained an excellent colour single image at  $\omega=054^\circ\text{W}$ . Through the 45cm's ability, a lot of details are shown under the condition  $\delta=13.2''$ . The inside of M Acidalius, especially the NW part and Iaxartes give a different impression than the usual: Hyperboreus L is also complex. The details of the southern border of Chryse are also excellent. The Oxus dark segment is definitely evident as if like a bridge. Chasma Boreale is also evident, but no arctic polar cloud is found on the surface.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140516/EMr16May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140516/Km16May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140516/Mo16May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140516/XDp16May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140516/MLw16May14.jpg>

### 17 May 2014 ( $\lambda=132^\circ\text{Ls}$ )

**Km's** images are obtained at  $\omega=263^\circ\text{W}$ . Hellas is weak and the evening Elysium cloud is also weak. However a mist from Elysium seen on B goes up to the direction of Syrtis Mj. On Utopia, a mist like matter is faintly visible at the WN part of Utopia. Syrtis Mj is somewhat bluish because of the presence of a morning mist.

**Manos KARDASIS (MKd)** gives a single colour image at  $\omega=013^\circ\text{W}$ : It looks like as if the morning mist enter the west sides of M Acidalius as well as Tempe, and further into the both sides of Iaxartes. However this activity is not related the arctic polar cloud activity.

**XDp** obtained a set of images at  $\omega=044^\circ\text{W}$ . As is evident in B, a morning thick cloud is seen to the NW side of M Acidalius.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140517/Km17May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140517/MKd17May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140517/XDp17May14.jpg>

### 18 May 2014 ( $\lambda=132^\circ\text{Ls}\sim\lambda=133^\circ\text{Ls}$ )

**Mo** produced a set of images at  $\omega=244^\circ\text{W}$  which proved tasteful: The atmospheric and ground colours

of the RGB are well balanced. Inside the afternoon Elysium, the pinkish part and the whitish cloudy part are well discriminated and the peculiar behaviour of the white mist around there is well described. The R image also provides interesting features. The Korolev crater is about to be checked if *Mo* has been a bit more endowed with such a seeing as captured by *WFI* around M Cimmerium in the preceding issue. The B image here shows well the dull cloud patch at the morning WN part of Utopia. This is a seasonal phenomenon which we have expected.

***Km*** gives an L-colour image at  $\omega=252^\circ\text{W}$  as well as the B image at  $\omega=250^\circ\text{W}$ . One may say the details here somehow exceed the preceding description by *Mo*. However the opalescent misty coverings at the southern part of Elysium and the morning side of Utopia look here more modest. The images here however may imply that the tail of Olympia is connected with the morning cloud at Utopia.

**David TYLER (*DTy*)** puts two colour images side by side at  $\omega=027^\circ\text{W}$  and at  $\omega=037^\circ\text{W}$ . Both images show that the morning mist deeply covers the western hemisphere which looks particular. The Nilokeras nipper is still beneath the morning mist. Interesting is a scene of a clot of blood like part which is visible to the southern side of Hyperboreus L, while the npc looks stable. It will be instructive to investigate whether these have been related with the arctic polar activity, including the activity of mist at Iaxartes. We should note even now the arctic cloud-like matters are adrift at the NW part of M Acidalium and to the west of Iaxartes. Both images well show the Oxus dark segment to be dully blurred.

***MLw*** gives a single colour image at  $\omega=033^\circ\text{W}$ . This image is above average in details: It really shows the Oxus dark segment, and shows some misty concentration to the NW of M Acidalium, while the npc looks inferior to the one on *DTy*'s images. The misty concentration to the NW of M Acidalium may be a germ of the arctic cloud, but no other images are associated.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140518/Mo18May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140518/Km18May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140518/DTy18May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140518/MLw18May14.jpg>

### 19 May 2014 ( $\lambda=133^\circ\text{Ls}$ )

**Frank MELILLO (*FMI*)** puts forward a single image at  $\omega=081^\circ\text{W}$ , where M Acidalium is dark, and to the south, Thitonius L and Ophir-Candor are visible. The npc is really compact and white, while it is difficult to point out the arctic cloud.

**Peter GORCZYNSKI (*PGc*)** made two sets of images at  $\omega=090^\circ\text{W}$  and at  $\omega=102^\circ\text{W}$ . Both look hold some clouds to the north of Tempe along M Acidalium, but these may not be the arctic polar clouds. Olympia is rising to the west of the npc, and several active snow-flakes are precedent to Olympia. The image at  $\omega=090^\circ\text{W}$  shows largely the distribution of the mist, among which the Arsia terrace is conspicuous in a dark brownish colour. The image at  $\omega=102^\circ\text{W}$  looks duller, while the Arsia terrace is still dark. Both images show Chasma Boreale clearly.

***EMr*** gave a set of images at  $\omega=101^\circ\text{W}$ . The configuration of hues looks more lucid than the RGB image of *PGc*: The disposition of the white mist is clear with a background brownish ground. The Just outside of the NW part of Acidalium shows a faint cloud (maybe spiralled?) which looks to be related with the preceding ice shards (*pl*) of Olympia. These are visible adjacent to Rima Borealis, and it is suggested that at the area the arctic clouds might be raised when the area welcomes the dawn. *EMr*'s RGB image largely the dark brownish colour of the Arsia Terrace which exceeds the area of the summit of

Olympus Mons. The remnant of the so-named Ascræus cloud is still visible.

**Reiichi KONNAI (Kn)** obtained a colour drawing at  $\omega=250^\circ\text{W}$ , where Syrtis Mj is still near the morning terminator and shown up in a bluish tint. M Thyrrenum is brownish. The evening M Cimmerium is dark bluish and shows some details. Hellas may be near the morning terminator, but the boundary is not clear. Elysium is on the evening side, and shows the standing white cloud inside. Utopia is most interesting: the top tip of Utopia is apparent and the NW part of Utopia seems to contain a mist covering. N Alcyonius shows a grass green tint. Olympia is very evident to the east of the npc.

**Km** shot at  $\omega=257^\circ\text{W}$ : Hellas has come smoothly inside the disk. Syrtis Mj is a bit dark bluish. M Tyrrehenum shows certainly a brownish colour. Utopia looks fainter, and a mist is visible at its northern part. There is a possibility that an exchange of water vapour may occur between Utopia mist and Olympia. The cloud inside Elysium is weak. Even in B (at  $\omega=257^\circ\text{W}$ ), it is dull.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140519/FM19May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140519/PGc19May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140519/EMr19May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140519/Kn19May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140519/Km19May14.jpg>

#### 20 May 2014 ( $\lambda=133^\circ\text{Ls}$ ~ $\lambda=134^\circ\text{Ls}$ )

**MKd** gave a single colour image at  $\omega=337^\circ\text{W}$ . Hellas and Syrtis Mj already near the evening limb. M Acidalium is slightly visible near the morning terminator, while the relation with cloud matters is unknown. The npc looks just roundish.

**Johan WARELL (JWr)** gives two sets of images at  $\omega=023^\circ\text{W}$  and at  $\omega=031^\circ\text{W}$ . Both are interesting because they show a white morning cloud which follows M Acidalium. However on B, M Acidalium has a high contrast compared with the ground: It may imply the B image admits some IR light. If not, the area of M Acidalium is very free from any mist.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140520/MKd20May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140520/JWr20May14.jpg>

#### 21 May 2014 ( $\lambda=134^\circ\text{Ls}$ )

**Ed GRAFTON (EGf)** put forward a detailed single colour image at  $\omega=094^\circ\text{W}$ . The evening M Acidalium looks to be covered by a thin mist, but because of the lack of the B image we cannot say any more. At the NE part (quite near the evening limb) of M Acidalium as well as at the NW part there are checked cloud patches, but because of the lack of the preceding images we cannot judge whether they are related with any arctic cloud or not. The cloud at the NW part may be related with the preceding part of Ierne, so that this image may give a nice hint to an expected investigation of the arctic polar clouds. The structure of the npc is also interesting. Apart from these, the image could be taken focusing on the description of the areas of Tharsis and Olympus Montes. Really this may show the final status of the Ascræus cloud.

**Km** obtained an L-colour image at  $\omega=241^\circ\text{W}$  which looks above average. Apparently at the NW part of Utopia, there is seen a vivid morning arctic mist (though less whitish than Olympia), which is also very clearly shown on the associated B image. Otherwise, the straight white cloud over Elysium Mons and the pinkish segment preceding the Ætheria dark patch are clearly shown. Phlegra is however fainter. Note



also Rima Borealis is the darkest among the markings on the disk. Syrtis Mj has just come out, but the blue tint is not so clear. M Cimmerium shows the legs but not the eye. A white mist is checked at the southern limb.

**Josep SOLDEVILLA (JSv)** gives a single colour image at  $\omega=011^\circ\text{W}$ . S Meridiani is well described as well as Brangæna, and at the evening limb Syrtis Mj is caught in a slim style, but the relation of the latter with the evening white mist is unclear. On the morning side a vast morning mist to the W of M Acidalium is shot, but the colour is dull in general. The npc is also not at all tense and looks dull. On the other hand the light band along Oxus looks better.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140521/EGf21May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140521/Km21May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140521/JSv21May14.jpg>

## 22 May 2014 ( $\lambda=134^\circ\text{Ls}$ ~ $\lambda=135^\circ\text{Ls}$ )

**Don PARKER (DPk)** gives a set of images at  $\omega=071^\circ\text{W}$ . This set looks to have been normally processed and looks reliable. There is no thick cloud patch at the NE part of M Acidalium, and yet the cloud-like matter at the NW part does not necessarily suggest any strong relation with the ice shards or gas at around Ierne. The morning mist is thick and Arsia Mons and Olympus Mons are not yet explicit. At around Ophir, there are seen minor details. A white mist is visible at the southern limb. The area around M Erythræum is haunted by a thin mist.

**Mo** obtained nicely two sets of reasonable images at  $\omega=229^\circ\text{W}$  and at  $\omega=234^\circ\text{W}$ . Both show the morning polar mist at the western part of Utopia which are quite thick and the whiteness is not inferior to the whiteness of the more compact Olympia. The LRGB image at  $\omega=234^\circ\text{W}$  is well balanced and excellent as an image. The cloud or mist inside Elysium is dull. The southern limb shows a light covering.

**MKd** issued a single colour image at  $\omega=335^\circ\text{W}$ . Syrtis Mj is at the evening side with a bit bluish tint. Hellas is said still white. M Acidalium is associated with a morning mist at the NW part of M Acidalium though not so clear.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140522/DPk22May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140522/Mo22May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140522/MKd22May14.jpg>

## 23 May 2014 ( $\lambda=135^\circ\text{Ls}$ )

**EGf** gives a colour single image at  $\omega=085^\circ\text{W}$ . This angle is intermediate between **EGf**'s image on 21 May and **DPk**'s one on 22 May. M Acidalium looks fainter while there are darker area at the northern part including Iaxartes and the following canal. The ice shards at Ierne are well decomposed, and it is possible for them to be connected with the faint cloud at the NW of M Acidalium, but no explicit arctic cloud.

**Maurice VALIMBERTI (MVI)** brought about one set of images (+IR) at  $\omega=189^\circ\text{W}$ . The preceding Ierne looks to have composed of at least two shards and Olympia follows in a good shape. However no arctic cloud is visible. The evening Olympus Mons is bounded by a white streak at the western flank, but not so conspicuous. It is separated from the Tharsis evening clouds by a brownish gap. The white Alba is small but sharp. The inside of the morning Elysium is covered by a mist through which we can get a glimpse of the pinkish streak (see also R). The area between M Sirenum and M Cimmerium is near the CM.

**Tsutomu ISHIBASHI (Is)** puts side by side two images at  $\omega=217^\circ\text{W}$  and at  $\omega=227^\circ\text{W}$ . Both catch the white cloud at the NW part of Utopia. The former image suggests a bit a detail inside Elysium.

**Km** obtained an L-colour image at  $\omega=226^\circ\text{W}$  and a blue image at  $\omega=227^\circ\text{W}$ . The colour image is a good one, and shows the Utopia morning mist or cloud in a bluish white tint. The mist is not so strong and the ground is obvious beneath the mist. Elysium near the CM shows the pinkish streak and the cloud one but they are no longer so strong. M Cimmerium appears so and so. The cloud at the southern limb is realistic. On B, the Utopia cloud makes itself very definite.

**Mo** gives a set of images at  $\omega=229^\circ\text{W}$ . On RGB, The Utopia morning mist or cloud is rather strong in a bluish tint. Olympia is near the CM, but weaker than the white npc and looks misty with a bluish tint. The classical Elysium is obvious because of a shadowy presence of Phlegra. The description of M Cimmerium is not quite satisfactory.

**MKd** obtained a set of images at  $\omega=328^\circ\text{W}$ . Syrtis Mj is near the evening limb and S Meridiani is completely on this side. Half of M Acidalium is on the morning side, and in addition to a thick cloud streak near Oxus, some arctic cloud streak is shot over M Acidalium: It is cut into two pieces by the northernmost dark line of M Acidalium. This is clearly seen on G. The B image also tells us the morning cloud distribution.

**JSv** gave a single colour image at  $\omega=001^\circ\text{W}$ . This image is shown quite detailed, but because of the lack of colour spectrum, the distribution of the clouds is obscure. The B and G images are needed. Notable is the dark element on the northern part of M Acidalium. Compare this with XDP's images on the following day.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140523/EGf23May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140523/MVl23May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140523/Is23May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140523/Km23May14.jpg>

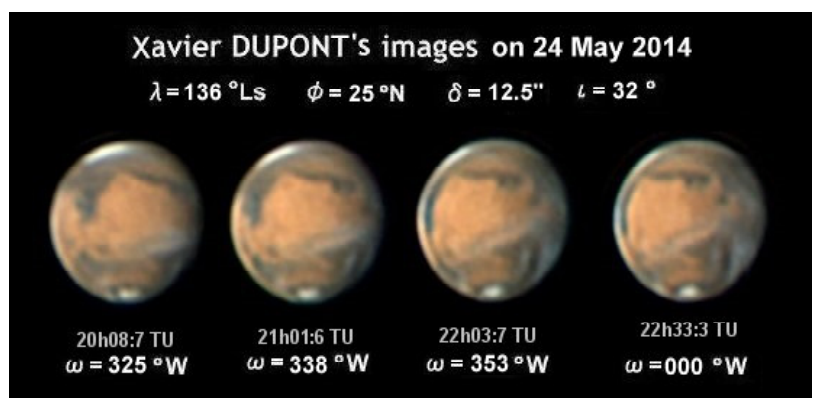
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140523/Mo23May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140523/MKd23May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140523/JSv23May14.jpg>

#### 24 May 2014 ( $\lambda=135^\circ\text{Ls}$ ~ $\lambda=136^\circ\text{Ls}$ )

**XDp** made a good job by giving a series of images at  $\omega=325^\circ\text{W}$ ,  $338^\circ\text{W}$ ,  $353^\circ\text{W}$ ,  $000^\circ\text{W}$  which are all made of R, V, B images. Look at the morning area of M Acidalium. At  $\omega=325^\circ\text{W}$ , quite the same angle as **MKd** gave on the day before, no explicit appearance of M Acidalium is given yet, but about 40 minutes later at  $\omega=338^\circ\text{W}$ , there is seen a



conspicuously dark streak which are pinched by two cloud belts on M Acidalium. This dark part is the one suggested by **JSv**'s image on the preceding day: We may just say that it is as if the insufficiency of **JSv**'s 36cm SCT is covered by **XDp**'s 18cm Speculum. At  $\omega=353^\circ\text{W}$ , the following cloud streak has quite a wider width. At  $\omega=000^\circ\text{W}$ , this cloud proves to continue further upto the morning side. The clouds

which have a gap inside should be said a kind of the arctic cloud. On B, the cloud at Oxus is also nicely shown. Thus XDp's work on the day shows a highly admirable excellence.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140524/XDp24May14.jpg>

### 25 May 2014 ( $\lambda=136^\circ\text{Ls}$ )

**PGc** obtained a set of images at  $\omega=075^\circ\text{W}$  (plus an IR image at  $\omega=073^\circ\text{W}$ ) where M Acidalium is at the deep afternoon region, but no explicit sign is given of the arctic cloud, though there is seen just a thin cloud at the southern area. The dark area of the NW part of M Acidalium is as usual.

**Mark JUSTICE (MJs)** obtained a set of images at  $\omega=179^\circ\text{W}$ . The white part of Olympus Mons has become smaller. Olympia is clearly seen, while the preceding part (very faint) does not suggest any presence of the remnant of arctic cloud. The morning Elysium shows a vast spread of the morning mist.

**Tomio AKUTSU (Ak)**'s final response by a set of images at  $\omega=195^\circ\text{W}$  ( $\delta=12.4''$ ). Olympia is separated but with difficulty. The morning mist at Utopia is visible.

**DTy** gives a colour single image at  $\omega=319^\circ\text{W}$ . The surface looks to be covered by a vast misty matter. M Acidalium is present partly near the morning terminator. Around Oxus, there is seen a cloud band.

**MLw** gives a colour single image at  $\omega=325^\circ\text{W}$ . The image does hardly show the details, while it is governed by a subdued colour. For example Syrtis Mj is shown up in a good figure. Hellas is purely white. Following the broad cloud band along Oxus, M Acidalium comes more inside, and suggests a terminator cloud on M Acidalium. The sinking Olympia is more distinct than the case of preceding DTy's.

**JSv**'s image is made at  $\omega=335^\circ\text{W}$ . Aimed at the details by the use of R-colour, the image has lost the description of the delicate fainter white mist or cloud. For example the cloud along Oxus looks something different. However the light streak on M Acidalium suggests that a darker streak is following similar to the one observed on 24 May (maybe the dark streak must be pinched by two cloud streaks). So we should say further pursuits are necessary in these cases together by the use of the B ingredient.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140525/PGc25May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140525/MJs25May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140525/Ak25May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140525/DTy25May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140525/MLw25May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140525/JSv25May14.jpg>

### 26 May 2014 ( $\lambda=136^\circ\text{Ls}$ ~ $\lambda=137^\circ\text{Ls}$ )

**PGc** obtained a set of images at  $\omega=032^\circ\text{W}$  (as well as an IR image at  $\omega=034^\circ\text{W}$ ). S Meridiani is detailed (especially in R), while M Acidalium is dull near the CM even in R. However the morning mist following M Acidalium looks strong. The cloud along Oxus is evident, but no thick arctic cloud is found.

**FMI** put forward two images at  $\omega=033^\circ\text{W}$ ,  $055^\circ\text{W}$ , but they look like monochromatic.

**DPk** produced a set of images at  $\omega=036^\circ\text{W}$ . The structures of Brangæna and Oxia P are exquisitely described in R. However the surface looks generally misty, especially on the western hemisphere: M Acidalium is normal but not detailed. The morning area from Tempe to the morning terminator got thickly whitish misty. The evening area facing to the EN part of M Acidalium shows a white cloud patch. The npc is rough without an expected detail. It is hard to pin down any arctic polar cloud at the polar area. A white mist is visible at the southern limb. In B, M Acidalium is comparably dark so that no more than a few mist must be over M Acidalium. In R, Oxus dark segment is felt.



**JWr** gives a set of images at  $\omega=327^\circ\text{W}$ : Syrtis Mj and S Sabæus are nicely evident, while M Acidalium is almost at the rear side, and the morning mist is quite weak yet.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140526/PGc26May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140526/FMl26May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140526/DPk26May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140526/JWr26May14.jpg>

### 27 May 2014 ( $\lambda=137^\circ\text{Ls}$ )

**Mo** obtained two sets of images at  $\omega=189^\circ\text{W}$  and at  $\omega=194^\circ\text{W}$ . Olympia is seen in R but very faint. On the second image set, the classical Elysium can be checked. The area around Olympus Mons is not well decomposed. The morning mist at Utopia is not clear even in B.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140527/Mo27May14.jpg>

### 28 May 2014 ( $\lambda=137^\circ\text{Ls}\sim\lambda=138^\circ\text{Ls}$ )

**Km** obtained an L-colour image at  $\omega=157^\circ\text{W}$  and as well a B image at  $\omega=159^\circ\text{W}$ . Olympus Mons is visible on the afternoon side in a shape of ring. Olympia is also seen to the morning side of the npc. Ierne is also visible, but it is not easy to check the arctic cloud.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140528/Km28May14.jpg>

### 29 May 2014 ( $\lambda=138^\circ\text{Ls}$ )

**DPk** produced a set of images at  $\omega=002^\circ\text{W}$ . The surface is generally misty, while S Sabæus and S Meridiani show up with quite a detailed configuration. In contrast to them, M Acidalium looks duller. The morning mist is conspicuous to the west of Tempe, and also invades to the southern part of M Acidalium. The so-called Oxus dark segment is apparent. Notice also about a clear white cloud patch to the NW direction of the northern end of Syrtis Mj. On the contrary, along the northern perimeter of M Acidalium there may be no cloud patch. The npc is bright in G and B, but dull in R.

**MVI** got a set of nice images at  $\omega=131^\circ\text{W}$ , where M Acidalium is along the evening limb and is going to the rear side. Near the npc, there are seen some ice shards of Ierne and possibly the ice shards send some faint water vapour to the southwards (more explicit in G and B). However every possible rudiment is weak. On the southern hemisphere, Tithonius L and so on are visible. Solis L is about to hide into the rear sphere.

**MJs** obtained several sets of R, G, B images at  $\omega=139^\circ\text{W}$ ,  $147^\circ\text{W}$ ,  $152^\circ\text{W}$ ,  $162^\circ\text{W}$ ,  $178^\circ\text{W}$ . Olympus Mons first appears as a large ring with a shadowy dot at the centre, and finally the western flank becomes whiter. After  $\omega=147^\circ\text{W}$ , Olympia and the preceding ice shards are well and minutely described, and there are seen some mist-like clouds standing from shards. These suggest there has been an arctic cloud in the morning. The images at  $\omega=152^\circ\text{W}$  look best. If there has been an arctic cloud, it is now no more than a remnant. After  $\omega=162^\circ\text{W}$ , the morning mist inside Elysium well shows up especially in B. The area around Ascræus Mons looks interesting, and expected to make further research.

**Km** obtained an L-colour image at  $\omega=163^\circ\text{W}$ , which may be included in the category of the preceding MJs's observations and gives a supplement.

**JWr** obtained a set of images at  $\omega=300^\circ\text{W}$ . Syrtis Mj is near the CM with a tint of grass green. Utopia looks misty a bit but no further details.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140529/DPk29May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140529/MVl29May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140529/MJs29May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140529/Km29May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140529/JWr29May14.jpg>

### 30 May 2014 ( $\lambda=138^\circ\text{Ls}$ ~ $\lambda=139^\circ\text{Ls}$ )

**FMI** gives a colour single image at  $\omega=343^\circ\text{W}$ . S Sabæus is near the CM following the evening Syrtis Mj. M Acidalium begins to come, and the existence of the northern clouds is obvious, but the distribution is indistinct.

**Mo** gave a nicer set of images at  $\omega=154^\circ\text{W}$ . Olympia is on the morning side, and the preceding shards (Ierne) are visible with some southward blowoff with mist, but no explicit remnant of the arctic cloud is seen. There is also a blowoff from the npc to Ierne across Rima Borealis. Otherwise M Sirenum is obvious on the southern hemisphere, and a remnant of Tithonius L still remains. Olympus Mons with a ring and the central dot is obvious in LRGB. Propontis I is dark on the morning side. Utopia's morning mist does not reach yet.

**Is** puts three colour images made at  $\omega=156^\circ\text{W}$ ,  $160^\circ\text{W}$ ,  $165^\circ\text{W}$ . It is however rather difficult to separate Olympia from the npc. At the final angle, the morning mist of Elysium may be checked.

**MKd** gives a set of images at  $\omega=254^\circ\text{W}$ . It is good and reasonable for the early morning Syrtis Mj to be invisible on the B image. On the RGB, Syrtis Mj is naturally bluish, surrounded by the morning mist. The western side of Utopia is governed by a strong (and slightly bluish) morning mist, as is also evident on G an B. Since the angular diameter  $\delta$  is now under  $12''$ , it is harder to figure out the npc, but Rima Borealis is still well visible. Elysium looks misty light in the afternoon.

**MLw's** work makes a single colour image at  $\omega=282^\circ\text{W}$ . Syrtis Mj is located more inside, and Olympia is at the evening side. The northern part of Utopia is beneath a vast faint mist, which follows Olympia. Elysium is near the evening limb, and shows a detail of white streak and pinkish streak. Hellas's boundary is very blurred. Syrtis Mj and M Tyrrhenum are definite.

**Peter EDWARDS (PEd)** puts forward a single colour image at  $\omega=289^\circ\text{W}$ . This is a pretty image showing a complex white misty distribution inside the northern Utopia. Olympia is still evident, and an inlet at the perimeter of the npc is visible. At the southern limb, Hellas is white with a blurred boundary. Elysium is quite near the evening limb, but the Ætheria dark patch is sharply seen as a linear marking.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140530/FMI30May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140530/Mo30May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140530/Is30May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140530/MKd30May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140530/MLw30May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140530/PEd30May14.jpg>

### 31 May 2014 ( $\lambda=139^\circ\text{Ls}$ , $\delta=11.9''$ ~ $11.8''$ )

**Mo** gives a set of images at  $\omega=134^\circ\text{W}$ . Every image looks quite detailed for this period. The perimeter of the npc is not so distinct, while the coming Olympia and the preceding Ierne shards are well caught. There must be a misty complex to the south of the polar area, but no remnant of the arctic cloud is check-

ed. M Acidalium is now obscure because it is just on the evening limb, but the western boundary must be concealed by the evening cloud. The Alba cloud is small. Olympus Mons is near the CM, and apparent because of the light ring and the central caldera dot. On RGB, a remnant of the preceding Ascræus cloud is a bit seen, and we can trace the Tharsis ridges from Ascræus Mons to Arsia Mons. Further at the preceding site, Tithonius L is recognisable. Phœnicis L is also definite. Some of the remnants of Solis L are also seen near the evening limb. The southern limb is whitish.

**Km's** L-colour image with B image were taken at  $\omega=137^\circ\text{W}$ . The images are good and look milder than those of the preceding *Mo's*. The npc looks more natural, and the Ierne shards are visible together with the rising Olympia. Olympus Mons is also visible near the CM. Tithonius L and Phœnicis L are checked.

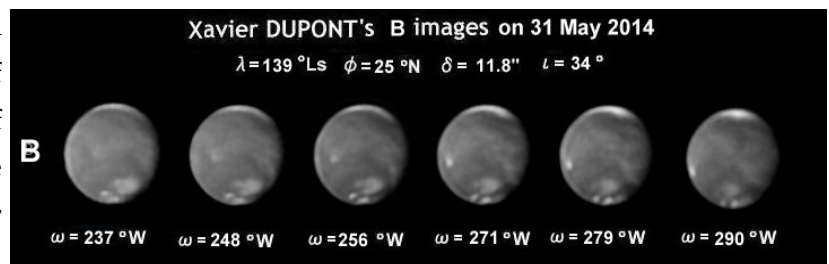
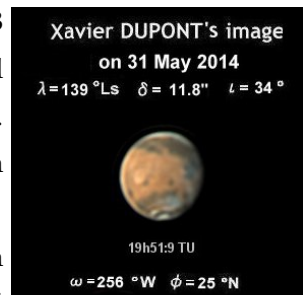
**Akinori NISHITA (Ns)** observed at home and obtained a set of images at  $\omega=161^\circ\text{W}$ . On R, Olympia is separated from the npc, and the G image shows a distribution of the cloud patches. It is however not easy to decipher the complex structure at the area of Olympus Mons. Propontis I looks dark at the morning side on IR image.

**Sadeh GHOMIZADEH (SGh)** shows a colour image at  $\omega=218^\circ\text{W}$ . This proves a strong existence of the morning cloud at the northern part of Utopia, while it is regrettable since some details are lacking. Any artificial limb line is not recommended.

**XDp** nicely worked for three hours and half on the same night, and obtained a total of six sets of consecutive images at  $\omega=237^\circ\text{W}$ ,  $248^\circ\text{W}$ ,  $256^\circ\text{W}$ ,  $271^\circ\text{W}$ ,  $279^\circ\text{W}$ ,  $290^\circ\text{W}$ . These series disclose the movement of the morning cloud at Utopia and as well the appearance of Hellas. This is a great achievement made by XDp next to his brilliant work on 24 May when XDp chased the cloud matter on M Acidalium. The morning cloud at Utopia on 31 May was conspicuous as shown by XDp's images on V and B images at  $\omega=237^\circ\text{W}$  and at  $\omega=248^\circ\text{W}$ . This cloud remained to be conservative concerning its form until  $\omega=290^\circ\text{W}$ . The V and B images suggest that this cloud was a kind of the arctic cloud. Since it was chased until it was fully inside of the disk, these images provide the position of the cloud. At  $\omega=256^\circ\text{W}$ , it was shown that the cloud extended across over the line of Casius. We tentatively note that his B images are excellent: As is seen from the fact that Syrtis Mj remained unseen during the morning, the B filter XDp uses surely cuts off the IR light. Syrtis Mj showed so a bluish tint until the last. This effect also influenced the delicate colour nuance of other markings. It is also interesting to see how the intensity of Hellas varies: Hellas is whitish enough near the CM.

**DTy** obtained a single colour image at  $\omega=264^\circ\text{W}$ . This angle overlaps with those of XDp's, and hence the present image supplements the contents revealed

by XDp's 18cm speculum. As easily seen from the detail appearing at the area of M Cimberium as well as at the area of Olympia, DTy's image is well above average. It is however not sure whether the image of the misty cloud in Utopia on DTy's image suggests or not the two-fold cloud in the shape of  $\supset$  which is rather apparent on XDp's images.



<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140531/Mo31May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140531/Km31May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140531/Ns31May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140531/SGh31May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140531/XDp31May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140531/DTy31May14.jpg>

♂..... We Further Received from

**PEACH, Damian A (DPc)** Barbados Island (←Selsey, West Sussex, the UK)

3 Colour Images (28 April 2014)

**Masatsugu MINAMI & Masami MURAKAMI**

Forthcoming 13/14 Mars (11)

## *Ephemeris for the Observations of the 2013/14 Mars. VII* *September & October 2014*

**Akinori NISHITA**

**A**s a sequel to the Ephemeris for the physical observations of Mars in CMO/ISMO #423, we here list up the necessary elements of the Ephemeris for period from 1 September 2014 till 31 October 2014: The data are listed for every day at 00:00 GMT (not TDT). The symbols  $\omega$  and  $\phi$  denote the longitude and latitude of the sub-Earth point respectively. The symbols  $\lambda$ ,  $\delta$  and  $\iota$  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  $\Pi$  of the axis rotation, measured eastwards from the north point: This is useful to determine the north pole direction from the  $p \leftarrow$ . The apparent declination of the planet is also given at the final column (denoted  $D$ ).

The data here are basically based on *The Astronomical Almanac for the Year 2014*.

Date (00:00GMT)	$\omega$	$\phi$	$\lambda$	$\delta$	$\iota$	$\Pi$	$D$
01 September 2014	154.32°W	14.99°N	188.17°Ls	6.82"	41.8°	38.6°	-19°27'
02 September 2014	144.59°W	14.74°N	188.75°Ls	6.80"	41.8°	38.5°	-19°38'
03 September 2014	134.86°W	14.49°N	189.33°Ls	6.77"	41.7°	38.4°	-19°48'
04 September 2014	125.13°W	14.24°N	189.91°Ls	6.74"	41.6°	38.4°	-19°58'
05 September 2014	115.40°W	13.98°N	190.49°Ls	6.71"	41.5°	38.3°	-20°08'
06 September 2014	105.67°W	13.72°N	191.07°Ls	6.69"	41.5°	38.2°	-20°18'
07 September 2014	095.94°W	13.46°N	191.65°Ls	6.66"	41.4°	38.1°	-20°28'
08 September 2014	086.21°W	13.20°N	192.23°Ls	6.63"	41.3°	38.0°	-20°38'
09 September 2014	076.47°W	12.93°N	192.82°Ls	6.61"	41.2°	37.9°	-20°47'
10 September 2014	066.74°W	12.66°N	193.40°Ls	6.58"	41.2°	37.8°	-20°57'
11 September 2014	057.00°W	12.38°N	193.99°Ls	6.56"	41.1°	37.7°	-21°06'
12 September 2014	047.27°W	12.11°N	194.57°Ls	6.53"	41.0°	37.6°	-21°16'
13 September 2014	037.53°W	11.83°N	195.16°Ls	6.51"	40.9°	37.4°	-21°25'
14 September 2014	027.79°W	11.56°N	195.75°Ls	6.48"	40.9°	37.3°	-21°34'
15 September 2014	018.05°W	11.28°N	196.34°Ls	6.46"	40.8°	37.2°	-21°42'
16 September 2014	008.32°W	11.00°N	196.93°Ls	6.43"	40.7°	37.0°	-21°51'
17 September 2014	358.58°W	10.71°N	197.52°Ls	6.41"	40.6°	36.9°	-21°59'
18 September 2014	348.84°W	10.42°N	198.12°Ls	6.39"	40.6°	36.7°	-22°08'
19 September 2014	339.10°W	10.13°N	198.71°Ls	6.36"	40.5°	36.5°	-22°16'
20 September 2014	329.35°W	9.84°N	199.30°Ls	6.34"	40.4°	36.4°	-22°24'

Date (00:00GMT)			$\omega$	$\phi$	$\lambda$	$\delta$	$\iota$	$\Pi$	$D$	
21	September	2014	319.61°W	9.55°N	199.90°Ls	6.32"	40.3°	36.2°	-22°32'	
22	September	2014	309.87°W	9.25°N	200.49°Ls	6.30"	40.3°	36.0°	-22°39'	
23	September	2014	300.12°W	8.96°N	201.09°Ls	6.27"	40.2°	35.8°	-22°47'	
24	September	2014	290.38°W	8.66°N	201.68°Ls	6.25"	40.1°	35.7°	-22°54'	
25	September	2014	280.63°W	8.36°N	202.28°Ls	6.23"	40.0°	35.5°	-23°01'	
26	September	2014	270.89°W	8.06°N	202.88°Ls	6.21"	39.9°	35.3°	-23°08'	
27	September	2014	261.14°W	7.75°N	203.48°Ls	6.18"	39.8°	35.1°	-23°15'	
28	September	2014	251.39°W	7.45°N	204.08°Ls	6.16"	39.7°	34.9°	-23°22'	
29	September	2014	241.64°W	7.14°N	204.68°Ls	6.14"	39.6°	34.6°	-23°28'	
30	September	2014	231.89°W	6.83°N	205.29°Ls	6.12"	39.5°	34.4°	-23°34'	
01	October	2014	222.14°W	6.52°N	205.89°Ls	6.10"	39.4°	34.2°	-23°40'	
02	October	2014	212.39°W	6.21°N	206.49°Ls	6.08"	39.3°	33.9°	-23°46'	
03	October	2014	202.64°W	5.89°N	207.10°Ls	6.06"	39.2°	33.7°	-23°51'	
04	October	2014	192.89°W	5.58°N	207.70°Ls	6.04"	39.1°	33.4°	-23°57'	
05	October	2014	183.14°W	5.26°N	208.31°Ls	6.02"	39.0°	33.2°	-24°02'	
06	October	2014	173.38°W	4.94°N	208.91°Ls	6.00"	38.9°	32.9°	-24°07'	
07	October	2014	163.63°W	4.62°N	209.52°Ls	5.98"	38.8°	32.7°	-24°12'	
08	October	2014	153.87°W	4.30°N	210.13°Ls	5.97"	38.7°	32.4°	-24°16'	
09	October	2014	144.11°W	3.98°N	210.74°Ls	5.95"	38.6°	32.1°	-24°20'	
10	October	2014	134.36°W	3.66°N	211.35°Ls	5.93"	38.5°	31.9°	-24°25'	
11	October	2014	124.60°W	3.34°N	211.96°Ls	5.91"	38.4°	31.6°	-24°28'	
12	October	2014	114.84°W	3.01°N	212.57°Ls	5.89"	38.3°	31.3°	-24°32'	
13	October	2014	105.08°W	2.69°N	213.18°Ls	5.87"	38.2°	31.0°	-24°35'	
14	October	2014	095.32°W	2.36°N	213.79°Ls	5.85"	38.1°	30.7°	-24°38'	
15	October	2014	085.55°W	2.03°N	214.41°Ls	5.83"	38.0°	30.4°	-24°41'	
16	October	2014	075.79°W	1.70°N	215.02°Ls	5.82"	37.9°	30.1°	-24°44'	
17	October	2014	066.02°W	1.37°N	215.64°Ls	5.80"	37.7°	29.7°	-24°46'	
18	October	2014	056.26°W	1.04°N	216.25°Ls	5.78"	37.6°	29.4°	-24°49'	
19	October	2014	046.49°W	0.71°N	216.87°Ls	5.76"	37.5°	29.1°	-24°51'	
20	October	2014	036.72°W	0.38°N	217.49°Ls	5.75"	37.4°	28.8°	-24°52'	
21	October	2014	026.95°W	0.05°N	218.10°Ls	5.73"	37.3°	28.4°	-24°54'	
22	October	2014	017.18°W	0.28°S	218.72°Ls	5.71"	37.2°	28.1°	-24°55'	
23	October	2014	007.41°W	0.62°S	219.34°Ls	5.70"	37.1°	27.7°	-24°56'	
24	October	2014	357.58°W	0.95°S	219.96°Ls	5.68"	37.0°	27.4°	-24°56'	
25	October	2014	347.86°W	1.29°S	220.58°Ls	5.67"	36.8°	27.0°	-24°57'	
26	October	2014	338.08°W	1.62°S	221.20°Ls	5.65"	36.7°	26.7°	-24°57'	
27	October	2014	328.31°W	1.96°S	221.82°Ls	5.63"	36.6°	26.3°	-24°57'	
28	October	2014	318.53°W	2.29°S	222.44°Ls	5.62"	36.5°	25.9°	-24°57'	
29	October	2014	308.75°W	2.63°S	223.06°Ls	5.60"	36.4°	25.6°	-24°56'	
30	October	2014	298.96°W	2.96°S	223.68°Ls	5.58"	36.3°	25.2°	-24°55'	
31	October	2014	289.18°W	3.30°S	224.31°Ls	5.57"	36.2°	24.8°	-24°54'	
01	November	2014	279.39°W	3.63°S	224.93°Ls	5.55"	36.1°	24.4°	-24°53'	---

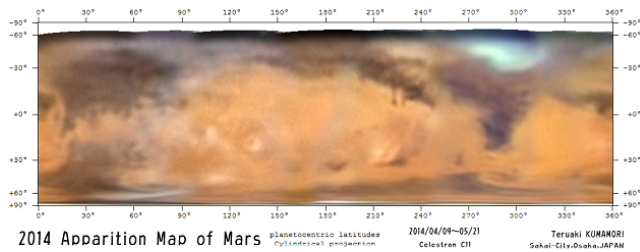
## Letters to the Editor

●...Subject: Mars 2014 Map-Kumamori  
Received: 1 July 2014 at 18:31 JST

Masatsugu MINAMI-sama. Let me show you a Mars Map I have made from the images I took this season. Since the qualities of the images are not stable nor uniform, it was difficult to choose no more than the appropriate images, but I think I was



able to collect a complete set. Best wishes.



○...*Subject: Mars 2014/07/01-Kumamori*  
*Received: 2 July 2014 at 20:17 JST*

Masatsugu MINAMI-sama. The planet Mars went down to the SW lower sky so that it became difficult to observe it from our verandah. After a while, a fine sky visited, but I should say the details are far away. With best wishes.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140701/Km01July14.jpg>

○...*Subject: Mars 2014/07/15-Kumamori*  
*Received: 17 July 2014 at 07:18 JST*

Masatsugu MINAMI-sama. Since the time came of the rainy season, it was rare to meet with any fine sky. This was taken when a lull came. I hope the rainy season will soon finish. At the same time Mars became lower and lower in the sky, and it's harder to introduce the planet into the finder from the verandah. However I think I have still guts to chase a little further. Best wishes.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140715/Km15July14.jpg>

○...*Subject: Mars 2014/07/25-Kumamori*  
*Received: 26 July 2014 at 06:55 JST*

Masatsugu MINAMI-sama. It seems the rainy season at last ended. However it is difficult to introduce the planet which is now lower in the SW sky. Especially it occurs often to miss the opportunity to make the blue images. If the sky is rather stable, the warm air emitted from the air conditioner is obstacle. This is just so and so due to the image processing. Best wishes.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140725/Km25July14.jpg>

**Teruaki KUMAMORI** (Sakai, Osaka, JAPAN)

●...*Subject: Mars 2014/07/02*  
*Received: 3 July 2014 at 14:05 JST*

Hi, Here is a new set of Mars images...

Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140702/XDp02July14.jpg>

○...*Subject: Mars 2014/07/04*  
*Received: 5 July 2014 at 15:42 JST*

Hi, Here is a new set of Mars images...

Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140704/XDp04July14.jpg>

○...*Subject: Mars 2014/07/16*  
*Received: 18 July 2014 at 13:43 JST*

Hi, Here is a new set of Mars images...

Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140716/XDp16July14.jpg>

Newton 180 F7, Powermate ×5, ADC I-Nova PLAC+  
**Xavier DUPONT** (Saint Roch, FRANCE)

●...*Subject: Mars: July 1st, 2014*  
*Received: 4 July 2014 at 11:38 JST*

Hi - I have attached my latest image of Mars July 1, 2014 at 0:50 UT to be posted. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140701/FM101July14.jpg>

○...*Subject: Mars: July 7th, 2014*  
*Received: 10 July 2014 at 13:26 JST*

Hi - I have attached my latest image of Mars July 7th, 2014 to be posted. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140707/FM107July14.jpg>

○...*Subject: Mars: July 12, 2014 UT*  
*Received: 13 July 2014 at 12:04 JST*

Hi - I have attached my latest image of Mars July 12, 2014 at 0:37 UT to be posted. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140712/FM112July14.jpg>

○...*Subject: Mars: July 18, 2014*  
*Received: 21 July 2014 at 09:56 JST*

Hi - I have attached my latest image of Mars July 18, 2014 to be posted. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140718/FM118July14.jpg>

○...*Subject: Mars: July 22, 2014*  
*Received: 24 July 2014 at 11:33 JST*

Hi - I have attached my latest image of Mars July 22, 2014 to be posted. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140722/FM122July14.jpg>

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

●...*Subject: Mars 29 June*  
*Received: 4 July 2014 at 13:16 JST*

Hi All, I have attached RGB Mars images from 29 June. Bright clouds are seen over Chryse and Solis Planitia with Ascraeus and Pavonis Montes visible

through the clouds. The NPC appears split. Best,  
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140629/DPk29June14.jpg>

○...**Subject: Mars 4 July**

**Received: 7 July 2014 at 06:08 JST**

Hi All, I have attached RGB Mars images from 4 July. There are bright clouds over Argyre and Eden-Arabia. Clouds also appear over Aram and Tempe. Hazes over are seen over Erythraeum-Chryse. There is 2+ violet clearing, especially on the north. Best,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140704/DPk04July14.jpg>

○...**Subject: Mars 12 July**

**Received: 13 July 2014 at 02:54 JST**

Hi All, I have attached RGB Mars images from 12 July. The seeing was very good despite gusty winds and fast cumulus clouds. There was a very bright cloud over Hellas. Noachis is cloudy with hazes across Iapygia-Crocea. There were hazes in the north polar region. Moderate (2+) violet clearing. Best,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140712/DPk12July14.jpg>

**Don PARKER** (Coral Gables, FL)

●...**Subject: Mars Image 2014/06/02**

**Received: 4 July 2014 at 21:03 JST**

Dear Masatsugu and Masami, I send you one image. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140602/CTr02June14.jpg>

**Charles TRIANA Ortiz** (Bogota, COLOMBIA)

AstroExplor Observatory  
 astromail@astroexplor.org  
[www.astroexplor.org](http://www.astroexplor.org)

●...**Subject: Mars - June 28th, July 1st**

**Received: 5 July 2014 at 06:53 JST**

Hi Mr.Minami and All !, Here are my latest sessions from june 28th, july 1st under below average conditions due to constant saharra dust aerosols in the region.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140701/EMr01July14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140628/EMr28June14.jpg>

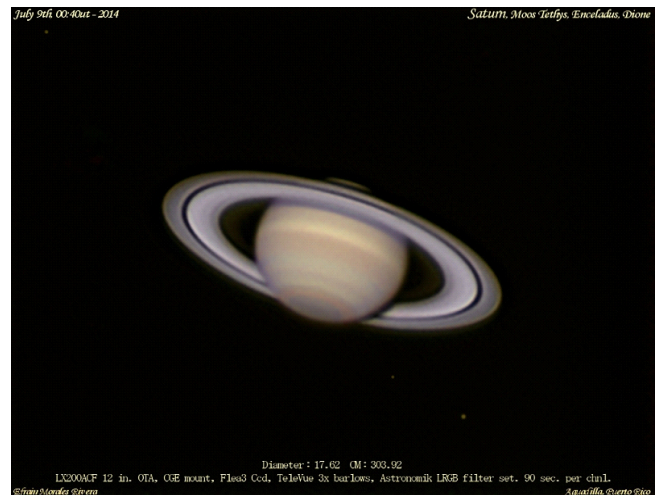
○...**Subject: Mars - Images**

**Received: 12 July 2014 at 03:20 JST**

Hi Mr. Minami!, I hope all is well. Here I submit my latest session from july 9th and a lost recovered session from may 6th also my latest Saturn session.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140709/EMr09July14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140506/EMr06May14.jpg>



○...**Subject: Mars - July 13th**

**Received: 17 July 2014 at 11:34 JST**

Hi Mr. Minami!, Here is my latest session from july 13th,00:05ut.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140713/EMr13July14.jpg>

○...**Subject: Mars - Images**

**Received: 26 July 2014 at 00:52 JST**

Hi Mr. Minami, Here are my latest session of mars from july 22nd, 24th of july.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140722/EMr22July14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140724/EMr24July14.jpg>

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

●...**Subject: Mars 3rd July 2014**

**Received: 7 July 2014 at 08:06 JST**

Hi, Possibly my last Mars of this apparition at only 14 digs alt., low in the southwest. Some detail visible with my 222mm dobsonian. Cheers,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140703/MLw03July14.jpg>

Also seen here;

[http://www.skyinspector.co.uk/USERIMAGES/Mars\\_2014-07-03\\_22-04UT\\_MLewis.jpg](http://www.skyinspector.co.uk/USERIMAGES/Mars_2014-07-03_22-04UT_MLewis.jpg)

**Martin LEWIS** (St. Albans, the UK)

See more at [www.skyinspector.co.uk](http://www.skyinspector.co.uk)

●...**Subject: RE: Mars observations Apr 17th and May 1st**

**Received: 7 July 2014 at 09:17 JST**

Dear Mr. Minami, I hope you are doing well. Please find attached an observation of Mars from the 7th June, taken with my TOA-130NS refractor. The seeing was very bad, and only large scale features are visible. Even so, I thought it would be useful to you so I have sent it in.

The weather has been terrible since, I have had

very little chance to observe Mars for a month now.  
The image shows the Acidalium side of Mars with extensive cloud over Mare Erythraeum and Tithonius. There is a bright patch on the southern limb which may be Argyre. Thank you,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140607/DWd07June14.jpg>

**David WELDRAKE** (NSW, AUSTRALIA)

●.....*Subject: Mo30June01July\_14*  
*Received: 8 July 2014 at 01:39 JST*

Masatsugu MINAMI-sama. Here are the images from 30 June to 1 July. The seeing condition was fairly well on both occasions but it was rather cloudy. I tried to process again the previous images on 3 May, but they tuned out to be so poor that I gave up.

At present, Typhoon 8 looks to come up aiming directly at Hiroshima, and I am uneasy because I remember a former accident when our Dome was blown away by a big Typhoon. I pray nothing serious will happen. Best regards.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140630/Mo30June14.jpg>  
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140701/Mo01July14.jpg>

○.....*Subject: Mo26July\_14*  
*Received: 30 July 2014 at 02:13 JST*

Masatsugu MINAMI-sama. I worked on 11 July to 21, 23, 26, 27, and 28 July, but I am sorry I could not find time to process them and send out. Since the sky on 26 July was favourable, I wish to send the images on 26 July first. Kind regards.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140726/Mo26July14.jpg>

**Yukio MORITA** (Hiroshima, JAPAN)

●.....*Subject: Re: Mars 4 July*  
*Received: 8 July 2014 at 03:49 JST*

Don, Thank you for your excellent image of Mars. It is apparent that there exists a significant amount of dust over the Martian atmosphere. This is especially notable in the red image! We will have to monitor the planet to see how long the dust persists. I look forward to your future images. Regards,

**Carlos HERNANDEZ** (Miami, FL)

●.....*Subject: mars.29.june*  
*Received: 8 July 2014 at 12:53 JST*

Hi All, Bad location, bad seeing, bad condition, I took one image from my liebling planet mars.

Best Regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140629/SGh29June14.jpg>

○.....*Subject: mars in the distant*  
*Received: 18 July 2014 at 08:37 JST*

Hi All, Very poor seeing & very distant I took one image from Mars. Best Regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140714/SGh14July14.jpg>

**Sadeh GHOMIZADEH** (Roudehen, IRAN)

●.....*Subject: Mars 2014/06/06*  
*Received: 10 July 2014 at 00:10 JST*

Hello, An observation of Planet Mars under very poor conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140606/MKd06June14.jpg>

○.....*Subject: Mars 2014/06/07*  
*Received: 10 July 2014 at 18:54 JST*

Hello, an observation of Planet Mars under poor to average conditions. The image of Mars looks somehow blurry.

NPC very small and Lemuria remnts is still there. Clouds around nix Olympica and some thin in Arcadia. Thin clouds also south of Cerbenia and Utopia. A massive cloud south of Eunostos. South polar hood.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140607/MKd07June14.jpg>

**Manos KARDASIS** (Glyfada-Athens, GREECE)

●.....*Subject: Mars June 10, 2014*  
*Received: 10 July 2014 at 14:19 JST*

Dear all, Here's a Mars image from June 10 which will likely be the last for this apparition.

I need to acquire a dispersion corrector to be more successful in imaging at low altitudes in the coming years. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140610/JWr10June14.jpg>

**Johan WARELL** (Skurup, SWEDEN)

●.....*Subject: Mars image - July 1*  
*Received: 12 July 2014 at 23:57 JST*

Gentlemen, Attached is a set of images from July 1 captured in good seeing. Regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140701/PGc01July14.jpg>

**Peter GORCZYNSKI** (Oxford, CT)



## ●.....Subject: Mars image

Received: 14 July 2014 at 02:10 JST

Mid-point of image capture at: 2014 June 08 @ 0133.9 UT. Regards,

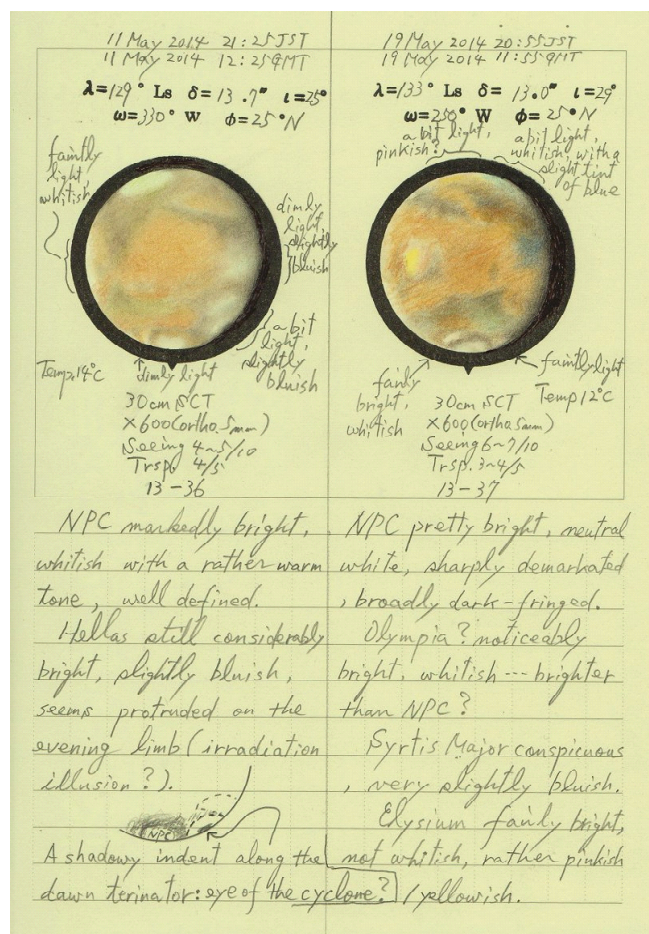
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140608/JBd08June14.jpg>

**John BOUDREAU** (Saugus, MA)

## ●.....Subject: Drawings Of Mars

Received: 19 July 2014 at 01:53 JST

Dear Dr. Minami, I am attaching here my piled-up color drawings of Mars, most sorry to be late in



submitting my observations.

Our new clinic/house/my observatory will be completed in a couple of weeks, and I hope I'll be able to get back to observation to follow Mars waygoing in this coming August.

Clear Skies with Excellent Seeing!

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140506/Kn06May14.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140511/Kn11May14.jpg>

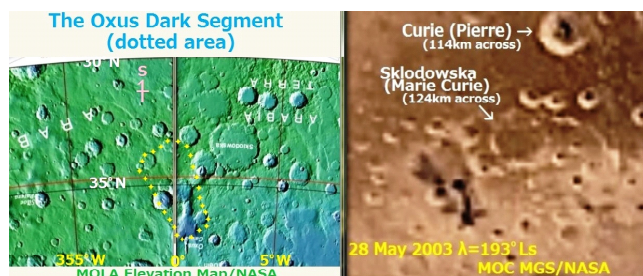
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140519/Kn19May14.jpg>

## ○.....Subject: Optotypes on Mars

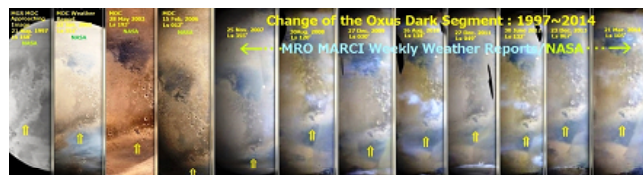
Received: 26 July 2014 at 18:48 JST

Dear Dr. Minami, all, Please find attached a montage showing the location of the "ODS" or the

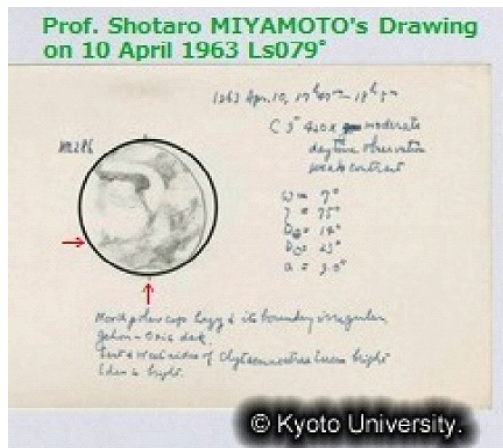
"Oxus Dark Segment". This oval capsule-like short rod-shaped dark portion is about 120X250km in size, with its long axis running roughly from NNW to SSE. The center of this elongated shadowy patch lies at  $000^\circ$  W  $36^\circ$  N, about 200km to the ENE of the crater Sklodowska (Marie Curie, 124km across).



Also attached here is a montage consists of the images taken by the MGS MOC/NASA (including the probe's approaching image) and the MRO MARCI/NASA to show the varying aspects of the object from 1997 to 2014. The ODS, with its surroundings, seems to have undergone considerable changes in this some twenty years ; During the late 90s to the early 2000s the dark rod had been half-embedded in the wide reddish dark diagonal band at the north - west boundary of the Arabia plateau (broadened Oxus?). Then the lighter zone just south-east off Mare Acidaliu (into which the northern half of the ODS had been protruding in the previous years) began widening which has been going on up to this day. Now in 2014 the ODS stands in the midst of the broad lighter zone east off Mare Acidaliu, surrounded by a roundish whiter area.



It is suggested that this elongated dark patch had been there from the distant past ; Please find also attached here a possible candidate visually recorded by Professor Shotaro MIYAMOTO of Kyoto University in 1963 by the use of the famous 45cm Zeiss refractor at the Kwasan Observatory. Maybe we are witnessing a part of drastic secular changes of the



Martian albedo markings.

It is also interesting that we can check the quality of an image of Mars by this albedo feature. The ODS is considerably small, merely a  $0.26 \times 0.55''$  size dark patch on an Martian disk of  $15''$  apparent diameter, around the classical optical resolution limits of the sizes of our telescopes, so that it can serve us as an indicator of the performances of our imaging/processing systems. In these appartions of Mars, many CMO observers have succeeded in recording

the ODS as a tiny round dark dot. The round image shape of the actually elongated feature tells, I think, the margin of the present-day planetary imaging/processing technology. If an image of the ODS blurred and swelled up with the unfavorable seeing condition to fill almost the width of the surrounding broad lighter zone, then it would look like a "bridge" crossing over the whiter zone.

On the other hand, it would be a bit challenging even for experienced planetary imagers to show its true nature, an elongated outline. Martin LEWIS's superb plain color image on 16 May 2014 with his 445mm Dobsonian seems to be successful in depicting this elongation of the ODS!(also attached here.)

We can find many other "optotypes" elsewhere on Mars, some are easy nowadays (Huygens Crater, etc.), some are still challenging (elongation of the Oxus Dark Segment, or 80km across Korolev Crater; Richard BOSMAN's images on 03 May 2014 clearly

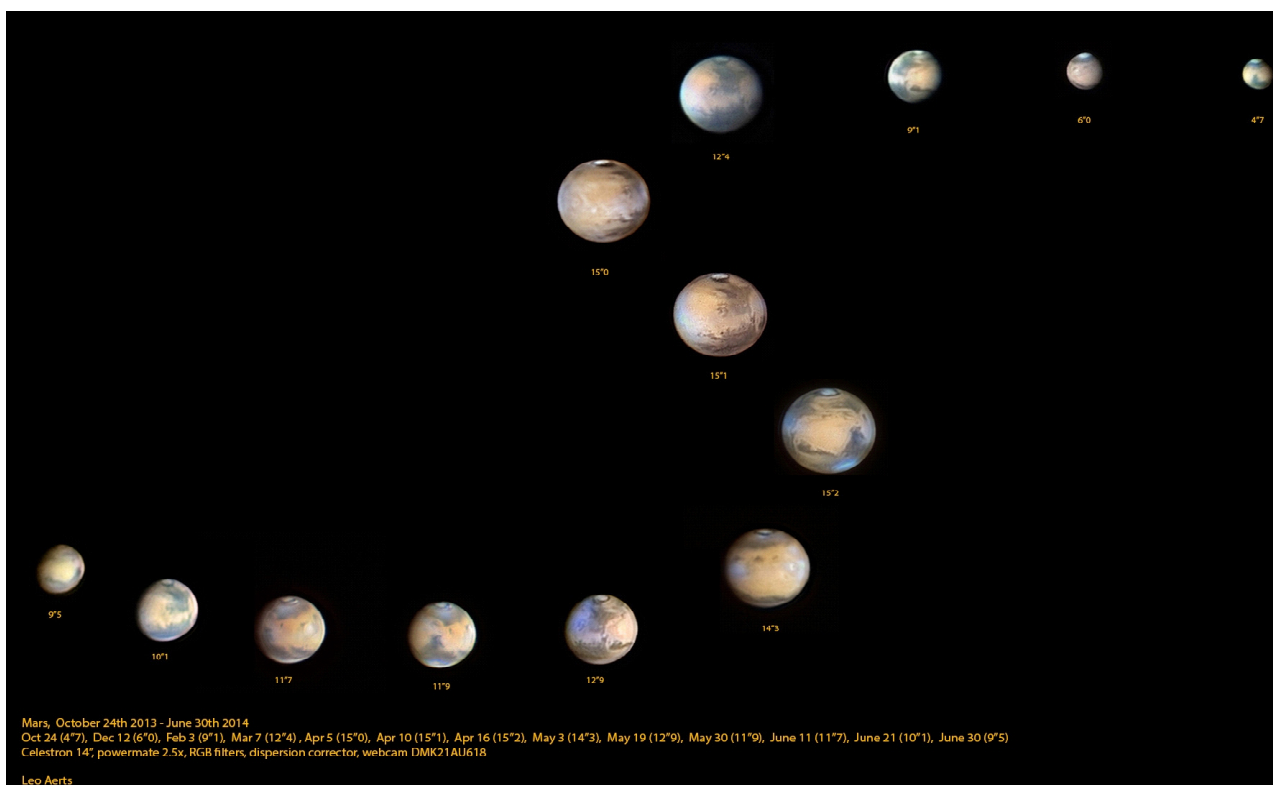
(→ *Next page*)

●.....*Subject: Mars 2013/2014*  
*Received: 21 July 2014 at 02:35 JST*

Dear All, Please find herewith a kaleidoscopic

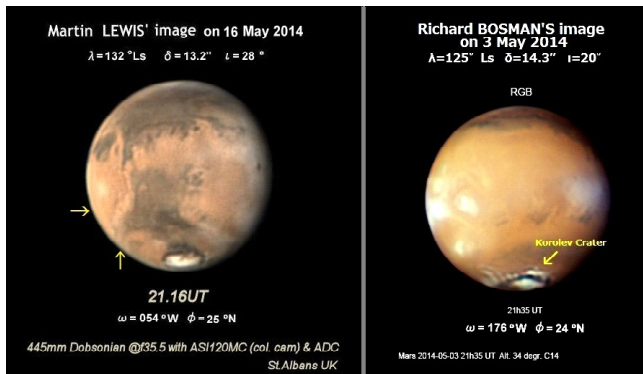
view of Mars during the past 8 months, brought together in one image. Best regards

**Leo AERTS** (BELGIUM)





↓ show this water ice-filled crater as an Airy disk-like tiny round bright spot....attached here also), and some wait for future chance of being re-



solved (pitch-black "Landolt C" in Gale Crater where our Curiosity rover is exploring, and the fine spiral structure of the residual Polar Caps, etc.).

Clear Skies with Excellent Seeing!,

**Reiichi KONNAI** (Fukushima, JAPAN)

●.....Subject: FW: JBAA paper on the Ashen Light  
Received: 25 July 2014 at 05:34 JST

Dear Masatsugu, The attached may possibly be of interest.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/JBAA%20124-4%20Sheehan.pdf>

I was in Flagstaff last weekend, and we acquired a property in a wooded area called Kachina Village, about 10 minutes' drive from town (on the Oak Creek canyon side, i.e., approaching Flag from the south). There are lots of trees so not the best for

observing I'm afraid.

Our son Ryan will be attending school in Flag and so will use the place for now, but Debb, my wife, and I plan to retire there in a few years.

Hope all is well with you. Warm regards,

**Bill SHEEHAN** (Willmar, MN)

●.....Subject: Mars images  
Received: 27 July 2014 at 18:24 JST

MINAMI-sensei. On 25 July, the sky was so fine, after a while, that I set out to take pictures of Mars. The seeing was good, and I could see a stable Mars image visually. Unfortunately, the camera I was using was suddenly broken, and so I was forced to use another camera. Since the ccd chips are the same, the resulted images are none the better. Best wishes

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140725/Ns25July14.jpg>

○.....Subject: Mars images  
Received: 31 July 2014 at 18:45 JST

MINAMI-sensei. Please find attached the Mars images taken on 29 July. Visually it was possible no more than to check Syrtis Major, while the images proved unexpectedly a bit favourable. Best wishes.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140729/Ns29July14.jpg>

**Akinori NISHITA** (Awara, Fukui, JAPAN)

★ ★ ★

## International Society of the Mars Observers (ISMO)

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**CMO #425/ ISMO #51 (25 August 2014)**

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