

MARS

No. 455

25 October 2016

OBSERVATIONS

No.81

Published by the International Society of the Mars Observers

CMO/ISMO 2016 Mars Report #15

2016 CMO/ISMO Mars Observations Made During the One-Month Period in September 2016 ($\lambda=214^\circ\text{Ls}-\lambda=233^\circ\text{Ls}$ 2016)

♂.....The present report is the 15th of the 2016 CMO/ISMO Mars Observation Report and deals with the observations made during the one month period in September 2016. The opposition occurred in 2016 on 22 May and hence the planet is now quite receding from the Earth. Celestially the planet Mars continued the retrograde motion which started from the Scorpion constellation, passing the southern part of the Ophiuchus constellation and entered into the Sagittarius constellation. The apparent declination D went down to the southern bottom at $25^\circ54.6'S$ on 24 September 2016. Henceforward it is rising gradually. The apparent diameter decreased from $\delta=10.5''$ to $\delta=8.8''$ during the period. The central latitude (tilt) moved from $\phi=07^\circ\text{N}$ to $\phi=02^\circ\text{S}$. The south polar cap (spc) is thus facing towards us, but the recession of the spc is progressing and hence the gala stage of the spc looks very slow. The Martian season proceeded from $\lambda=214^\circ\text{Ls}$ to $\lambda=233^\circ\text{Ls}$ during the period. The occurrence of the dust disturbances has been expected. The phase angle ι was 46° and the defect of illumination at the morning side was deep. In mid-September, $\iota=46.1^\circ$ was thus maximal.

♂.....In Japan, the dismal weather trend in August continued also in September, and we suffered from the cloudy skies affected also by some Typhoons and the autumn rainy front: Hence the clear sky seldom visited so that the submissions of observations quite reduced. Otherwise, to our regret, we don't recently come in contact with information from some veteran observers in "winter" Australia.

At the beginning of September, some dust disturbances were caught from the side of the US while it cannot be said that the appropriate series of observations were made.



So we refer here to the images of the MRO-MARCI Weather Report concerning the dust activity. The aspect of the activity is roughly as follows: On the morning of 2 September, a small



dust disturbance occurred at the north of the northern wall of the Hellas basin, and at the same time a water vapour condensate distribution at the southern part of Syrtis Mj was witnessed. On 3 September (at midnight in GMT) it is seen another dust disturbance at the middle part of



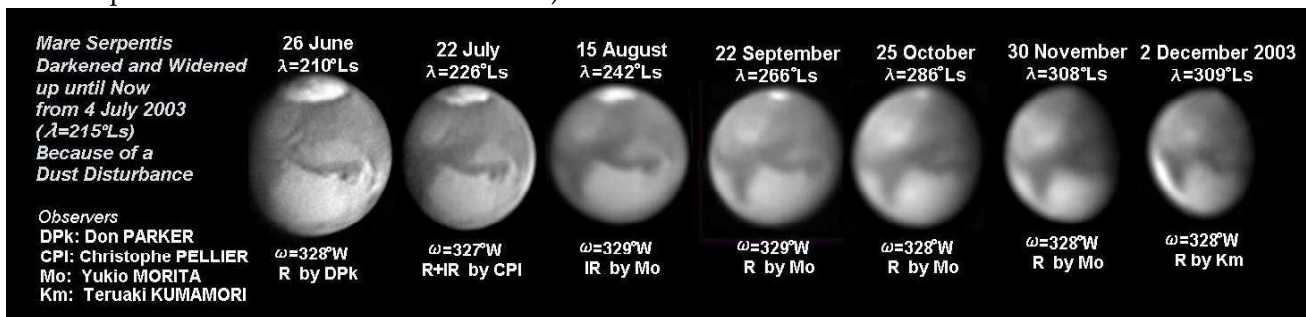
Deucalionis Regio, and at the same time at around Mare Serpentis there is visible a sand storm independent of Hellas. On 4 September, a considerable dust disturbance is visible at the eastern end of Pandora Fr and its northern tail expands northwards crossing S Sabæus. Furthermore it is followed by a resonance small dust disturbance which is at around $\Omega=350^\circ\text{W}$.



On 5 September, there arose a splendid long belt of dust disturbance to the south of S Meridiani/the Schiaparelli crater (about along the line of $\Omega=350^\circ\text{W}$).

The preceding dust looks to have been milder (maybe somewhat brought at the higher level) and partly associated with water-vapour condensate. On 6 September, the SN belt of the dust disturbances still presents, the side at M Serpentis has become much milder. On 7 September, the trace of the disturbances are weakened and milder, the darkened tail of M Serpentis began to show that it has become widened. This feature was quite definite on 8 September ($\lambda=219^\circ\text{Ls}$). Still at the southern Noachis there remained two traces of dust. The darkening of the tail of M Serpentis was recorded by Reiichi KONNAI (Kn) on 10 September at $\omega=358^\circ\text{W}$ as well as by Tadao OHSUGI (Og) on 11 September at $\omega=002^\circ\text{W}$. The whole aspect of the darkening was given by Clyde FOSTER (CFs) on 19 September 2016 ($\lambda=226^\circ\text{Ls}$) and on the following days. Unfortunately, because of the dismal meteorological condition, it was too late to check the phenomenon from the terrestrial bases.

This "darkened and widened" phenomenon of M Serpentis was once observed in 2003. See the Façade of the CMO Web to find the following series of images in F of "2003 CMO NEWS HEADLINES" ("Mare Serpentis still darkened and widened"):



http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomk/2003/M_Serpentis_June_Nov.gif

In the case of 2003, this was an aftereffect of the dust disturbance entrained at the eastern area of Deucalionis Regio on 4 July 2003 ($\lambda=215^\circ\text{Ls}$) found by Hiroshi ISHADOH and Masatsugu MINAMI at Okinawa, Japan. It was observed that the broadening of the M Serpentis tail really started from around 8 July 2003 ($\lambda=218^\circ\text{Ls}$) and supposed that the sand grit on the involved surface must have been blown away. The record of the phenomenon in 2003 was later published in the *Bulletin of the Fukui City Museum of Natural History* No.58 (2011) as "Mars Observations in 2003. Part I" (written by Takashi NAKAJIMA and Masatsugu MINAMI). Especially Plate IV at page 10 shows how the area was observed from 3 July 2003 to 10 July 2003 by every 40 minutes observations. This article with Plates is viewable in the PDF form:

<http://www.nature.museum.city.fukui.fukui.jp/shuppan/kenpou/58/58-1-10.pdf>

As is suggested from the above Figure this widening will be a long-term phenomenon if not something serious happens, and hence we hope the further chasing would be decently performed by members.

On 13 September 2016, a set of small dust disturbances was observed at the eastern side of Niliacus L, but looked it soon subsided. No other serious dust was recorded in September.

♂.....As the Mars Observations made during September 2016, we received with thanks a total of 70 Mars observations from around the world by the deadline: The following are the contributed members and their instruments:

FLANAGAN, William (WFl) Houston, TX, the USA

2 Sets of RGB Images (7, 8 September 2016) 36cm SCT @f/17 with a PGR GS3-U3-32S4M-C

FOSTER, Clyde (CFs) Centurion, SOUTH AFRICA

19 Colour + 19 IR Images (6,~9*, 11,~15, 19,~29 September 2016) 36cm SCT@f/33 with an ASI 290MC
*15cm OG @ f/36 with an ASI290MC, Johannesburg Observatory

HOOD, Mike (MHd) Kathleen, GA, the USA

2 Sets of RGB + 2 IR images (5, 7, ~ 9 September 2016) 20cm OG @ f/52, 54 with an ASI 290MM

KONNAĪ, Reiichi (Kn) Ishikawa-cho, Fukushima, JAPAN

1 Colour Image (10 September 2016) 41m SCT @f/33 with an ASI290MC

KUMAMORI, Teruaki (Km) Sakai, Osaka, JAPAN

1 LRGB + 1 B Images (9 September 2016) 36cm SCT @f/38 with an ASI224MC & ASI290MM

MAXSON, Paul (PMx) Surprise, AZ, the USA

6 Sets of RGB + 6 IR Images (1, 3,~ 6, 9 September 2016) 25cm Dall-Kirkham with an ASI290MM

MELKA, Jim (JMI) Chesterfield, MO, the USA

1 Set of RGB Images (3 September 2016) 45cm Spec with a DBK21AU618AS

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

5 Colour + 3 IR* Images (8, 12, 16, 22, 24, 27 September 2016)
25cm SCT with a ToUcam pro II & DMK21AU618.AS*

MORALES RIVERA, Efrain (EMr) Aguadilla, PUERTO RICO

11 Sets of RGB Images (2, 2n, 7/8, 11, 12, 16, 17, 23, 28 September 2016) 31cm SCT with a Flea 3

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

1 Set of LRGB Images (9 September 2016) 36cm SCT with a Flea 3

MURAKAMI, Masami (Mk) Yokohama, Kanagawa, Japan

2 Drawings (10 September 2016) 320×20cm (F/8) Spec

OHSUGI, Tadao (Og) Komatsu, Ishikawa, JAPAN

3 Colour Images (2, 11, 23 September 2016) 25cm Dall-Karkham with an ASI 290MC

SCHULZ, Robert (RSz) Wien, AUSTRIA (→ *Expedition* to the IAS Observatory, Hakos, NAMIBIA)

6 Sets of LRGB + 6 IR Images (1,~4 September 2016) 51cm Ritchy-Crétien with an ASI 290MM

TRIANA, Charles (CTr) Bogota, COLOMBIA

1 Set of RGB + 1 IR Images (19 September 2016) 25cm SCT @f/27 with an ASI 120MM

WALKER, Gary (GWk) Macon, GA, the USA

3 Sets of RGB Images (7, 9, 11 September 2016) 25cm OG with an ASI 174MM

♂..... **We Further received** (the work made earlier but received late)

MAXSON, Paul (PMx) Surprise, AZ, the USA

8 Sets of RGB + 8 IR Images (22, 24, 26,~ 31 August 2016)
25cm Dall-Kirkham with an ASI290MM

SCHULZ, Robert (RSz) Vienna, AUSTRIA (Loc. IASternwarte, Hakos, NAMIBIA)

9 Sets of LRGB + 11 IR Images (25,~31 August 2016) 51cm Ritchy-Crétien with an ASI290MM

PEACH, Damian (DPc) Selsey, WS, the UK (→ *Expedition* to the Barbados Islands)

1 Set of RGB Images (25 March 2016)

♂.....The following pages are spent for our chronological comments about each of observations made during the period from 1 September until 31 September 2016. Every image can be viewed in our ISMO 2016 Mars Gallery. (However we have received no observations made on 18 & 30 September.)

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmoms/2016/f_image.html

1 September 2016 ($\lambda=214^\circ\text{Ls}$ - 215°Ls , $\delta=10.5''$ - $10.4''$, $\phi=6^\circ\text{N}$)

Paul MAXSON (PMx) made a set of R, G, B ingredients to compose an RGB image at $\omega=350^\circ\text{W}$ + an IR685 image by the use of a 25cm Mewlon (Dall-Kirkham) equipped with an ASI 290MM. The spc is whitish bright with a dark fringe. Hellas is obscure due to the artificial brightness of the evening limb, while Mare Serpentis and its south look normal (an important check observation since M Serpentis could soon underwent a metamorphosis). Apparently Sinus Sabæus lies near the centre, and since the seeing condition is preferable (7/10), the two nails of Aryn's look forked. The arctic cloud is largely thin-whitish.

Robert SCHULZ (RSz) made an expedition from Wien to Namibia and made observations at $\omega=201^\circ\text{W}$ and 239°W by the use of a 51cm Richey-Chrétien at the Internationale Amateur-Sternwarte (IAS) by the use of an ASI 290MM. The composite image was made by IR-RGB. However IR image cannot play the role of the usual L-image, since for example any IR filter cut down the important shorter wave-length light. Because of this the IR-RGB image does never show the white cloud, i.e. the arctic white cloud which is a focussing subject during this season. In this case the RGB composite must be better, and we hope the single R filter image conveys easily details as suggested by the IR742 image (we are also not satisfied with the procedure of the limb line by IR-RGB).

2 September 2016 ($\lambda=215^\circ\text{Ls}$ - 216°Ls , $\delta=10.4''$ - $10.3''$)

Efrain MORALES (EMr) made an RGB composite image first at 00:19 GMT on the day at $\omega=311^\circ\text{W}$. The composite image based on the R,G,B components draws a deserts in a reasonable tone, and shows well Syrtis Mj and the eastern part of S Sabæus as well as Yaonis Fr + Hellespontus in some blurred tone. The south polar cap (spc) is whitish bright, definite in R. At the season of $\lambda=215^\circ\text{Ls}$, the spc is quite on the way of recessing so that the skirt at the CM of the spc is receding southwards while the sub-Earth point ϕ is moving southwards (which implies that the centre of the spc is moving northwards) and hence the variation of the depth depends and its movement must appear dull.

N.B: As to the size of the spc, refer to the following description:

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/01Coming07.htm>

Figures in it suggests that at the season $\lambda=215^\circ\text{Ls}$, the snow line lies near around 60°S . The Figure at the top was drawn based on the observations of one of us (Mn) at Taipei in 1986 by Le-Hsia CHANG of the Taipei City Observatory (published in CMO #029 (25 March 1987 issue)): The Figure shows a plot of the data obtained during a one month period from $\lambda=198^\circ\text{Ls}$ (1 July 1986) to $\lambda=216^\circ\text{Ls}$ (31 July 1986) by pursuing every 40 minutes observations by Mn. The size of each spc was calculated by the formula used by Audouin DOLLFUS (presented in CMO #003 (25 February 1986)).

Here it should also be noted that though the inside of Hellas looks as if overflowing even if on R, but if we refer to the MRO-MARCI image on 2 September 2016, at the area near 1 September, the western wall of Hellas is clearly bounded (as is also on EMr's image: See the R image). However on EMr's image, it is shown that something inside of Hellas is overflowing northward to the area of Syrtis Mj, while on the

MRO-MARCI image the northern wall of Hellas is clearly visible, and it is at the northern outside of Hellas that we can see some dust disturbance, and some other water-vapour condensate governs the area of the southern Syrtis Mj (remember that the water vapour works inevitably for the initial stage of the dust storms). We have an impression that the uptake of something on G and B images is insufficient.

Tadao OHSUGI (Og) took an ASI290MC colour image at $\omega=091^\circ\text{W}$ by using a 25cm Mewlon. Ophir is lighter, but no spc is shown nor the white arctic white cloud.

RSz observed at $\omega=222^\circ\text{W}$ but the IR-RGB composite is no good. On R, the western part of M Cimmerium is a bit shown and if it further shows more clearly, the possible RGB composite will provide nicer data. (Even in R, the upper limb side looks ill-processed.)

EMr's second image at 23:50 GMT shows the surface at $\omega=294^\circ\text{W}$. This is a good image. The Hellas basin suggests a fine structure in R. The B does not look best arranged, but the arctic cloud is shown beautifully. Syrtis Mj shows a good figure. Mare Serpentis and its south look mottled (maybe due to some dusts).

3 September 2016 ($\lambda=216^\circ\text{Ls}$, $\delta=10.3^\circ$)

Jim MELKA (JMI) obtained a colour image by using a 45cm spec at $\omega=325^\circ\text{W}$ based on DMK images. The seeing condition must be very poor because Syrtis Mj on R does not show any detail. The inside of Hellas does not provide any probable information. The area around M Serpentis looks too duller to say something.

PMx gave a clearer and important image set at $\omega=329^\circ\text{W}$. The seeing condition is recorded as 8/10. The evening limb looks ill-processed, but Hellas is clearer near the limb showing some inner structures. To the west of Hellas there are seen some irregularities: The southern end part of Yaonis Fr is quite darkened, and there looks to exist a small dust disturbance inside Yaonis Regio. The eastern root of S Sabæus looks cut by a dust streak which goes down to the southern part of Æria. There must be some dust irregularities at Noachis (as is more suggested by an IR685 image). The arctic cloud (whitish with a slightly bluish tinge) is beautiful thanks to the good B image. The dark fringe of the spc is quite dark bluish (which is separated from the darkened part of Yaonis Fr). The area to the south of Syrtis Mj looks to have been fainter.

N.B. At the north-western end of Syrtis Mj, this RGB composite shows a small dark spot which may be called "Antigones Fons" which was said found by T. SAHEKI in 1937 at Kwasan, and was confirmed by E. C. SLIPHER in 1939 at Bloemfontein. However we now know that the area at around the Antoniadi crater does not show anything like that. It is therefore highly possible that "Antigones Fons" is a misnomer.

Note added in proof: As to the dust streak which cuts the root of S Sabæus and flows into the southern area of Æria, the MRO-MARCI image on 3 September does not show it explicitly because the area is governed by the water-vapour condensate. The dust streak exists on the surface, and hence the observer must be able to catch the dust by a longer wave-length light, but it implies that a thinner water-vapour condensate is easily missed.



RSz issued two sets of IR-RGB images at $\omega=178^\circ\text{W}$ and at $\omega=213^\circ\text{W}$. The first R image shows Gordii Dorsum and its environment so that if R and G are nicely processed, the RGB composite will have been more successful. The B image must not be made light of.

4 September 2016 ($\lambda=216^\circ\text{Ls}$ - 217°Ls , $\delta=10.3''$ - $10.2''$)

PMx gave a set $\omega=322^\circ\text{W}$ to make an RGB image. The R image clearly shows that a considerable dust disturbance has occurred to the south of M Serpentis. The darkening of the southern Yaonis Fr is still seen also in IR685 image). A fainter description of the markings on this RGB image should be said a correct processing. The spc is however vivid and the description of the arctic cloud is nice.

N.B: The MRO-MARCI image on 4 September shows that the dust to the south of M Serpentis is followed by another resonance of dust to the south of the longitude of the Schiaparelli crater. Furthermore the main dust to the south of M Serpentis has a dust tail which goes down northwards to cut S Sabæus. Just around there a water-vapour condensate drifts.

RSz gave an IR-RGB image at $\omega=197^\circ\text{W}$. The B image looks good, while the G and R images look quick and easy.

5 September 2016 ($\lambda=217^\circ\text{Ls}$, $\delta=10.2''$)

Mike HOOD (Mhd) gave an IR image at $\omega=287^\circ\text{W}$. Used a 20cm OG equipped with ASI 290MM. The seeing condition is recorded 2~3/10. The markings are shown mildly, but Noachis is not yet coming.

PMx gave an RGB set at $\omega=310^\circ\text{W}$. Seeing: 6/10. The darkened area at the southern district of Yaonis Fr is still seen dark and its north looks affected by a dust which may have further expansion.

N.B: The MRO-MARCI image on 5 September shows that the dust to the north of the darkened southern Yaonis Fr looks now blurred than before but appears to goes down to cut S Sabæus though the area is under the water-vapour condensate. Not yet coming into PMx eye-field, but there follows a drastic dust disturbance from the south of Schiaparelli crater upwards to the circumpolar area linearly (or zonally) along the longitudinal line.

6 September 2016 ($\lambda=217^\circ\text{Ls}$ - 218°Ls , $\delta=10.2''$ - $10.1''$, $\phi=05^\circ\text{N}$)

PMx still chased the area at $\omega=302^\circ\text{W}$ and obtained an excellent image set. The spc is whitish bright bounded by a dark fringe. The darkened area of Yaonis Fr is dark evident (separated from the dark fringe). Adjacent to the darkened Yaonis Fr there is seen a light streak inside Hellas along the western wall of Hellas. This may imply that the area is free from the hanging clouds. In R, the northern part of Yaonis Fr is visible as a thin line. There is still suggested some dust disturbances to the south of M Serpentis. Otherwise Syrtis Minor is definite. The arctic cloud is thick on the evening side, and outside the cloud, Utopia looks dark also in G (and also in B).

Clyde FOSTER (CFs) obtained an L-colour image at $\omega=133^\circ\text{W}$, $\phi=05^\circ\text{N}$ by the use of an ASI 290MC. Less details, but the old Tharsis is light in a V-shaped, where Ophir makes a left-hand side light area. The summits of Tharsis Montes are recognised. Olympus Mons is definite in IR. The spc is white, and the arctic cloud dull whitish.

7 September 2016 ($\lambda=218^\circ\text{Ls}\sim 219^\circ\text{Ls}$, $\delta=10.1''\sim 10.0''$)

Gary WALKER (GWk) obtained an RGB composite at $\omega=271^\circ\text{W}$ from three components, by the use of a 25cm OG equipped with 174MM. The seeing condition is recorded 3~4/10. M Cimmerium is seen on the afternoon side separated from the area of Syrtis Minor. The southern hemisphere is largely hazy without explicit expression of the spc. Hellas is not so shown up. The core of the arctic cloud is localised on the afternoon side of the arctic area.

Bill FLANAGAN (WFI) produced an RGB composite at $\omega=284^\circ\text{W}$. The spc is caught in G and B beautifully. The arctic white cloud gives an impression of a broadly spread haze. N Alcyonius is definite beneath the haze. Hellas' border is not clear, and in R from the eastern edge of Hellas a straight light streak goes down to M Tyrrhenum. Ausonia is a bit reddish.

MHd gave an RGB composite at $\omega=285^\circ\text{W}$. The seeing condition is recorded 2~3/10. The spc and Hellas looks blurred in a whitish colour. M Cimmerium and Syrtis Minor are separated. The shape of Syrtis Mj is not clear and the arctic cloud does not show the outline.

CFs gave an L-colour image at $\omega=124^\circ\text{W}$. Is not the L filter akin to IR because the details by both filters look similar? The light ring at Fortuna is apparent. Phoenicis L and Tharsis three mountains are suggested. Olympus Mons is evident in a brownish colour

EMr obtained two successive RGB composites at 23:49GMT ($\omega=246^\circ\text{W}$) and at 00:32GMT ($\omega=257^\circ\text{W}$). Both in R show some details of M Cimmerium and Elysium, but they are not distinguished in the RGB composites. The spc is not outstanding in R. Hellas is whitish on the morning side, and at $\omega=246^\circ\text{W}$ Ausonia looks a bit reddish. The arctic cloud is not so thick but governs largely.

8 September 2016 ($\lambda=219^\circ\text{Ls}$, $\delta=10.0''$)

WFI obtained an RGB composite at $\omega=274^\circ\text{W}$ together with excellent R, G, B components. In R, several details are detected from M Tyrrhenum to M Cimmerium, especially there is recorded a minor marking detached from Syrtis Minor. However the image of the RGB composite shows as if a thin haze is mildly covering the surface. The inside of Hellas is shows a fine structure in R though the border of the Hellas basin looks a bit indistinct. Ausonia, beyond M Hadriacum, is slightly reddish. Syrtis Mj is still near the morning limb, but its shape is nicely suggested. The white spc is visible, and the arctic white cloud is thinly spread.

MHd got an IR(685-700nm) image at $\omega=278^\circ\text{W}$. The southern hemisphere looks blurred with some suggesting markings. The spc is not explicit. Hesperia can be identified.

CFs obtained an L-colour image at $\omega=112^\circ\text{W}$. Ganges is now visible but not so brownish in particular. The Tharsis dot series and Olympus Mons are definite as well as in IR685. The doughnut ring at Fortuna is very bright explicit.

Frank MELILLO (FMI) took a Tou-cam colour image at $\omega=232^\circ\text{W}$, $\phi=04^\circ\text{N}$ (at 23:29 GMT), and as

well an IR610 at $\omega=227^\circ\text{W}$. M Cimmerium is described but scarcely the area of Elysium. The spc and the arctic cloud are rough. The apparent diameter is now $\delta=10''$.

9 September 2016 ($\lambda=219^\circ\text{Ls}-220^\circ\text{Ls}$, $\delta=10.0''\sim 9.9''$, $\phi=04^\circ\text{N}$)

GWk obtained an RGB composite at $\omega=251^\circ\text{W}$. The indication $p\leftarrow$ is first represented. However the centre of the spc is blurred. The arctic haze is well seen. The area of Syrtis Minor is identified as well as M Cimmerium.

MHd gave an RGB image at $\omega=251^\circ\text{W}$. The seeing condition is very poor (1~2/10), and the spc is not detected. M Cimmerium is suggested. The arctic white cloud is surely visible.

PMx gave an RGB composite at $\omega=272^\circ\text{W}$. In R, G and IR685, the spc is well shown up. In R and IR685, at the peripheral area to the SE of Hellas there is visible a bright spot (quite near the dark fringe of the spc) which is rather whitish on the RGB composite (however it is hard to detect it on the MRO-MARCI image). Hellas is not distinguished. Ausonia is a bit reddish. Syrtis Minor and the WN area of M Cimmerium look darkish. Utopia is largely beneath the arctic white haze. Seeing=7/10.

Teruaki KUMAMORI (Km) obtained an L-colour image at $\omega=027^\circ\text{W}$ (the colour image by 224MC and the L and B images by 290MM). "Seeing" is denoted 2~3/10. The image looks blurred but quite natural. The spc is roughly detected and the arctic cloud is checked. M Acidalium is appearing to the SW of the arctic cloud. At the equatorial region, S Sabæus/S Meridiani and the northern part of Margaritifer S are quite suggested. Moab is reddish and Chryse has some areas which are dusty. The southern area of Noachis shows a distribution of light and shade. The area of Argyre is slightly light.

Yukio MORITA (Mo) made an LRGB and an RGB image at $\omega=047^\circ\text{W}$. The L image shows a ghost line on the morning side, and so not appropriate. Hence the RGB is better. S Meridiani is about to go the rear side, and Margaritifer S and Auroræ S are shown up. M Acidalium is pale. The spc is not so described explicit. Argyre looks dusty, so Mo wonders whether the previous dust has reached Argyre. The arctic cloud looks shrunk at the evening side, and at its neighbourhood (just to the SW of the cloud core), there is seen a darker area in R (darker than the mainland of M Acidalium).

CFs obtained a single L-colour image at $\omega=126^\circ\text{W}$ by the use of the 15cm Franklin Adams OG at the Johannesburg Observatory. Solis L is dark near the evening limb. Tharsis Montes and Olympus Mons are not so clear. Arsia Mons appears as if it sticks Phœnicis L. The arctic haze looks smallish.

10 September 2016 ($\lambda=220^\circ\text{Ls}-221^\circ\text{Ls}$, $\delta=9.9''\sim 9.8''$)

Reiichi KONNAI (Kn) caught the planet at twilight and gave an L-colour image at $\omega=358^\circ\text{W}$ when the seeing condition is very poor (0~1/10). The above Japanese observers (Km, Mo and Kn) are in standby every evening, while the weather in Japan remained too poor for them to catch Mars no more than one a week. Already the angular diameter was under $10''$, and hence they all were in a fix. This image by Kn just shows S Sabæus with a darker/broader tail of M Serpentis and the reddish tint of the desert (while Æria shows an exceptional part which is less reddish but lighter).

Masami MURAKAMI (Mk) tried to watch the situation by sitting on the fence by 320×20cm Spec since he thought the evening Mars might break through the clouds: He really had a few chances and made visual observations at $\omega=006^\circ\text{W}$ and at $\omega=015^\circ\text{W}$. The seeing condition improved once or twice (to 3~4/5): However he could not catch the spc at the former time and just saw the southern hemisphere was largely blurred in a beige tint. S Meridiani/S Sabæus looked rather dark. The arctic white cloud was caught with a bit bluish tinge. On the second case, he caught the brightness of the spc but its border was indistinct. The shadow of Margaritifer S to M Acidalium was seen on the morning side. The terrestrial clouds often flow while the planet gradually became lower.

EMr gave an RGB composite at $\omega=219^\circ\text{W}$ (23:58 GMT). The spc is roughly recognised. The arctic white haze is also beautiful though not quite satisfactorily. M Cimmerium lies near the CM. The seeing condition must have been very poor, but the tinge of the deserts looks natural.

11 September 2016 ($\lambda=221^\circ\text{Ls}$, $\delta=9.8''$)

GWk gave an RGB composite at $\omega=227^\circ\text{W}$ ($\leftarrow 174\text{MM}$). Though the indication of $p\leftarrow$ is denoted, the centre of the spc is difficult to be determined (seeing: 3~4/10). The outlines of M Cimmerium and Elysium are recognisable. The arctic cloud looks nice.

Og gave an 290MC colour image at $\omega=002^\circ\text{W}$. We do not know whether the amount of the stacking is sufficient, but the image looks very coarser. But Aram is so light that S Meridiani is separated from the northern district of Margaritifer S. The tail of M Serpentis appears dark and broader. Syrtis Mj is still visible near the evening limb. The spc and the northern cloud are not described.

CFs returned to C14, and obtained an L-colour image at $\omega=083^\circ\text{W}$. The spc is considerably clear. The dark fringe is not so dark. Argyre is a bit light in a triangular shape. The area of Solis L is quite dusky: Thaumasia is not so incisively cut as in the IR685 image. The area of Tithonius L is roughly described. The humanoid shape of Auroræ S is rather distinct. The brownish colour of Ganges is weak. The doughnut ring at Fortuna is apparent. Ascræus Mons is dark on the morning side. The nipper of Nilokeras is rather evident while M Acidalium looks fainter near the evening limb. The arctic haze is just hazy.

EMr gave an RGB composite at $\omega=196^\circ\text{W}$. The spc shows a tint of whiteness. A part of M Sirenum and the following M Cimmerium are suggested. The arctic white cloud shows a nice gradation.

12 September 2016 ($\lambda=221^\circ\text{Ls}$ ~ 222°Ls , $\delta=9.8''$ ~ $9.7''$, $\phi=03^\circ\text{N}$)

CFs gave an L-colour image at $\omega=074^\circ\text{W}$. The present image is superior to the preceding CFs' image, but the colour balance is not good as always. The spc, its fringe and the inverted triangular Argyre are definite. The humanoid shaped area including Auroræ S is explicit, and Ganges starts from Juventæ Fons downwards. Nilokeras is more definite while M Acidalium appears through a veil. There seems to span a white cloud bridge at the middle of M Acidalium, but not well described. Ascræus Mons is dark distinguished near the morning terminator.

EMr gave an RGB composite at $\omega=193^\circ\text{W}$. A glimpse of the spc is shown. The shadowy band of

M Sirenum and M Cimmerium is suggested, but Elysium is not clear. The limb of the B image looks artificial.

FMI gave a Tou-cam colour image at $\omega=197^\circ\text{W}$ as well as an IR610 image at $\omega=188^\circ\text{W}$. In colour, the outline of the spc is not depicted. The arctic cloud is shown in colour. M Sirenum is distinguished from the following Mare.

13 September 2016 ($\lambda=222^\circ\text{Ls}$, $\delta=9.7''$)

CFs gave an L-colour image at $\omega=062^\circ\text{W}$. Argyre is now brighter because it is more inside the disk. S Meridiani is near the evening limb. The western neighbour of Oxia Palus is lighter but reddish, while at its north, two bright dust streaks are visible at the eastern side of Niliacus L. Nilokeras is definite but M Acidalium looks somewhat veiled and cut by a white cloud belt at the middle district. The humanoid shaped area at Auroræ S is more apparent. The spc's perimeter on our side may show a string of the ice-beads.

14 September 2016 ($\lambda=222^\circ\text{Ls}-223^\circ\text{Ls}$, $\delta=9.7''-9.6''$)

CFs obtained another L-colour image at $\omega=054^\circ\text{W}$. The general situation is similar to the one on the preceding day. Just the two dust streaks at Niliacus L reduced to one.

15 September 2016 ($\lambda=223^\circ\text{Ls}-224^\circ\text{Ls}$, $\delta=9.6''$)

CFs gave then an L-colour image at $\omega=042^\circ\text{W}$. S Meridiani is more inside the disk and the two nails of Aryn are quite clearer with Brangæna. The inversed triangular Argyre is now near the CM and quite explicit. The dust at Niliacus L must have dispersed.

16 September 2016 ($\lambda=224^\circ\text{Ls}$, $\delta=9.6''-9.5''$)

FMI shows a Tou-cam colour at $\omega=149^\circ\text{W}$. The spc looks to be described partly. M Sirenum includes a darker part. The arctic cloud is visible but indefinite.

EMr made an RGB image at $\omega=159^\circ\text{W}$. The whiteness of the spc is shown up. M Sirenum is dark. The northern district of the northern hemisphere is covered by a whitish haze. On the deserts there are suggested several spots. Near the evening limb, the pair of Phoenicis L and Arsia Mons precedes the area of Olympus Mons.

17 September 2016 ($\lambda=224^\circ\text{Ls}-225^\circ\text{Ls}$, $\delta=9.5''$, $\varphi=02^\circ\text{N}$)

EMr obtained an RGB composite at $\omega=142^\circ\text{W}$. This image shows more of key markings: Arsia Mons is visible side-by side with Phoenicis L, Pavonis Mons is seen faintly, and Ascræus Mons is more apparent. Olympus Mons looks evident in a dark-brownish tint. The whiteness of the spc is obvious. The northern neighbour of M Sirenum is a bit reddish. The arctic haze is still seen in gradation but more localised than before.

19 September 2016 ($\lambda=226^\circ\text{Ls}$, $\delta=9.4''-9.3''$)

Charles TRIANA (CTr) sent us from Bogota, Colombia an LRGB image at $\omega=152^\circ\text{W}$, $\varphi=02^\circ\text{N}$ made by the use of a 25cm SCT, (otherwise associated with an IR807 image). Not to say comparable with

EMr's image at $\omega=159^\circ\text{W}$ on 16 September, this image set shows similar tendency. The summits of the Tharsis three mountains as well as Olympus Mons are suggested. The whiteness of the spc is well mapped. The larger the size of the images is, the better/more your image will appeal.

CFs obtained an L-colour image at $\omega=006^\circ\text{W}$, $\phi=01^\circ\text{N}$. This set of images is important in the following sense: Apparently the tail of M Serpentis has appeared to have been widened. This phenomenon is considered to have first occurred around 8 September 2016 if we refer to the MOC-MARCI images. The present case of CFs is regarded as the extended versions of rudimental growth of the tail of M Serpentis observed by R KONNAI at $\omega=358^\circ\text{W}$ on 10 September and also by Tadao OHSUGI (Og) at $\omega=002^\circ\text{W}$ on 11 September. This must be happened because the surface-sands at the area were blown away as a by-product of the preceding dust disturbances, and quite similar to the case in 2003 as noted in the above introductory statements (see the composed Figure over there). We hope any observer would like to chase the area in coming months because the 2003 case implies that the blown-away phenomenon looks stubborn.

20 September 2016 ($\lambda=226^\circ\text{Ls}$ - 227°Ls , $\delta=9.3''$, $\phi=01^\circ\text{N}$)

CFs produced an L-colour image at $\omega=358^\circ\text{W}$, $\phi=01^\circ\text{N}$. Mare Serpentis moved further inside the disk, and the broadening of the tail continues. The disk looks hazy, but Aryn's nails and Brangæna are evident. The depth of the spc looks to have been deeper.

21 September 2016 ($\lambda=227^\circ\text{Ls}$, $\delta=9.3''$ - $9.2''$)

CFs obtained an L-colour image at $\omega=344^\circ\text{W}$. M Serpentis shows the broadened tail more clearly. Hellas also is seen more inside the disk: The border with Yaonis Fr look clearer. No darker southern part of Yaonis Fr is caught. The inside of Hellas shows a tint of beige. The arctic cloud looks complex but is not well shown.

22 September 2016 ($\lambda=227^\circ\text{Ls}$ - 228°Ls , $\delta=9.2''$, $\phi=01^\circ\text{N}$ - 00°N)

CFs also got an L-colour image at $\omega=335^\circ\text{W}$, $\phi=01^\circ\text{N}$. Hellas is now more inside. The streak at the western wall along Yaonis Fr is lighter.

FMI obtained a Tou-cam colour image at $\omega=090^\circ\text{W}$, $\phi=00^\circ\text{N}$. The spc is glanced. The area of Solis L is dark and a structure of Tithonius L is suggested. Ganges (maybe dark brownish) extends to Nilokeras. The dark summit of Ascræus Mons looks visible. The arctic cloud is thin but looks large. Seeing 6/10.

23 September 2016 ($\lambda=228^\circ\text{Ls}$ - 229°Ls , $\delta=9.2''$ - $9.1''$, $\phi=00^\circ\text{N}$)

Og gave a 290MC image at $\omega=250^\circ\text{W}$. The spc is not depicted. Ausonia looks a bit reddish. M Cimmerium shows scarcely the details, but dark in general. The Ætheria dark patch is outstanding.

CFs gave an L-colour image at $\omega=325^\circ\text{W}$. The image shows a stable description about Hellas as well as the extended M Serpentis. Yaonis Fr looks normal. The arctic cloud is not so explicit, but looks made of several layers.

EMr made an RGB composite based on the three ingredients at $\omega=092^\circ\text{W}$. (The B image looks

larger in diameter than the other R and G images). Ophir is lighter but other markings look blurred. Ganges seems to have a brownish tint. The arctic white haze starts down to the morning haze near the pole (which is at the polar night).

24 September 2016 ($\lambda=229^\circ\text{Ls}$, $\delta=9.1''$, $\phi=00^\circ\text{S}$)

CFs gave an L-colour image at $\omega=315^\circ\text{W}$. Hellas is almost all inside the disk, and Hellas' inside shows a tint of beige. The associated IR685 image suggests a fine structure inside Hellas where its western wall is shown clearly by Yaonis Fr. Yaonis Regio is now visible followed by the widened tail of M Serpentis.

FMI gave a Tou-cam colour image at $\omega=064^\circ\text{W}$, $\phi=00^\circ\text{S}$. The area of the spc is nicely whitish, but the cap itself does not make its shape. Its northward area is largely darkish. S Meridiani looks spotted near the evening limb. The arctic haze is thinner but large.

25 September 2016 ($\lambda=229^\circ\text{Ls}-230^\circ\text{Ls}$, $\delta=9.1''-9.0''$)

CFs obtained an L-colour image at $\omega=307^\circ\text{W}$. Hellas shows an inner structure inside. Yaonis Fr is clearly bounds Hellas, and Yaonis R is faintly seen to the SE of the widened tail of M Serpentis. A distribution of light and shade inside Syrtis Mj is roughly checked including the Huygens crater and the western sloppy coast of Isidis Planitia (low plain). The dark band between the spc and Hellas appears in a singular colour. Utopia is largely inside the shadow and the arctic haze is not distinct.

26 September 2016 ($\lambda=230^\circ\text{Ls}-231^\circ\text{Ls}$, $\delta=9.0''$, $\phi=01^\circ\text{S}$)

At last the southern geometrical pole has come down to the inside of the disk. **CFs** obtained an L-colour image at $\omega=299^\circ\text{W}$. Hellas is totally visible and suggests a fine structure inside. The east coast is somewhat blurred. Syrtis Minor is well seen. The detail of the arctic haze is not well described: Some parts of Utopia show some cloud patches. N Alcyonius is visible.

27 September 2016 ($\lambda=231^\circ\text{Ls}$, $\delta=9.0''-8.9''$)

CFs shows us an IR685 image at $\omega=282^\circ\text{W}$. The spc is spotted and Hellas shows an inner structure. Utopia is just dark without information of the arctic cloud.

FMI took an IR610 image at $\omega=038^\circ\text{W}$. The area of the spc and some dark markings are shown blurredly.

28 September 2016 ($\lambda=231^\circ\text{Ls}-232^\circ\text{Ls}$, $\delta=8.9''$)

CFs obtained and L-colour image at $\omega=276^\circ\text{W}$. The image is quite yellowish in general. The form of the spc looks strange, while the IR685 gives a flat spc. Hellas shows an inner structure. Ausonia is a bit reddish. The arctic haze looks thin but large covering Utopia.

EMr gave an RGB composite at $\omega=023^\circ\text{W}$. The spc is not sharp, but well white. S Sabæus is coming in, but it is a little too late to show the widening of the tail of M Serpentis. The arctic haze covering is shown thinly. In R, Noachis shows a distribution of light and shade.

29 September 2016 ($\lambda=232^\circ\text{Ls}$, $\delta=8.9''\text{--}8.8''$, $\phi=02^\circ\text{S}$)

CFs gave an L-colour at $\omega=270^\circ\text{W}$. Still yellowish image, but the shadowy markings from M Cimmerium and M Tyrrhenum to Syrtis Mj nicely expands. Hellas is of a beige colour while Ausonia a bit reddish. Utopia is vague beneath a thinly covering arctic haze.

♂.....As to several precious observations which we further received late in time, we have an intention to give another space when the things of the present season settled down.

(Masatsugu MINAMI and Masami MURAKAMI)

Forthcoming 2016 Mars (#13)

Ephemeris for the Observations of the 2016 Mars. VII

November & December 2016

By

Masami MURAKAMI

AS a sequel to the preceding list of the Ephemeris for the physical observations of Mars in CMO #453, we here list up the necessary elements of the Ephemeris for period from 01 November to 31 December 2016. The data are listed for every day at 00:00 GMT (not TDT). The symbols ω and ϕ denote the Longitude and Latitude of the sub-Earth point respectively. The symbols λ , δ and ι stand for the Areocentric Longitude of the Sun, the Apparent Diameter and the

Phase Angle respectively. We also add the column of the Position Angle Π of the NS axis rotation, measured eastwards from the north point: This is useful when we try to determine the north pole direction from the $p \leftarrow \rightarrow f$. The Apparent Declination of the planet is also given at the final column (denoted D). The data here are basically based on *The Astronomical Almanac for the Year 2016*.

Date (00:00GMT)	ω	ϕ	λ	δ	ι	Π	D
01 November 2016	083.96°W	11.70°S	252.71°Ls	7.49"	43.9°	13.1°	-23°13'
02 November 2016	074.17°W	12.00°S	253.34°Ls	7.45"	43.9°	12.6°	-23°04'
03 November 2016	064.38°W	12.30°S	253.98°Ls	7.42"	43.8°	12.2°	-22°55'
04 November 2016	054.58°W	12.60°S	254.61°Ls	7.38"	43.7°	11.7°	-22°46'
05 November 2016	044.77°W	12.90°S	255.25°Ls	7.35"	43.6°	11.3°	-22°39'
06 November 2016	034.97°W	13.20°S	255.88°Ls	7.31"	43.5°	10.8°	-22°27'
07 November 2016	025.16°W	13.49°S	256.52°Ls	7.28"	43.4°	10.4°	-22°17'
08 November 2016	015.35°W	13.79°S	257.15°Ls	7.24"	43.3°	9.9°	-22°07'
09 November 2016	005.54°W	14.08°S	257.79°Ls	7.21"	43.2°	9.5°	-21°57'
10 November 2016	355.72°W	14.37°S	258.42°Ls	7.17"	43.1°	9.0°	-21°46'
11 November 2016	345.90°W	14.65°S	259.06°Ls	7.14"	43.0°	8.6°	-21°36'
12 November 2016	336.08°W	14.94°S	259.69°Ls	7.10"	42.9°	8.1°	-21°25'
13 November 2016	326.26°W	15.22°S	260.32°Ls	7.07"	42.8°	7.7°	-21°14'
14 November 2016	316.43°W	15.50°S	260.96°Ls	7.04"	42.7°	7.2°	-21°02'
15 November 2016	306.60°W	15.78°S	261.59°Ls	7.00"	42.6°	6.7°	-20°51'
16 November 2016	296.77°W	16.06°S	262.22°Ls	6.97"	42.5°	6.3°	-20°39'
17 November 2016	286.93°W	16.33°S	262.85°Ls	6.94"	42.4°	5.8°	-20°27'
18 November 2016	277.09°W	16.61°S	263.49°Ls	6.91"	42.3°	5.3°	-20°15'
19 November 2016	267.25°W	16.88°S	264.12°Ls	6.87"	42.2°	4.9°	-20°03'
20 November 2016	257.41°W	17.15°S	264.75°Ls	6.84"	42.1°	4.4°	-19°50'

Date (00:00GMT)	ω	ϕ	λ	δ	ι	Π	D
21 November 2016	247.56°W	17.41°S	265.38°Ls	6.81"	42.0°	3.9°	-19°38'
22 November 2016	237.71°W	17.67°S	266.02°Ls	6.78"	41.9°	3.5°	-19°25'
23 November 2016	227.85°W	17.93°S	266.65°Ls	6.75"	41.7°	3.0°	-19°12'
24 November 2016	218.00°W	18.19°S	267.28°Ls	6.72"	41.6°	2.5°	-18°59'
25 November 2016	208.14°W	18.44°S	267.91°Ls	6.69"	41.5°	2.0°	-18°45'
26 November 2016	198.28°W	18.69°S	268.54°Ls	6.66"	41.4°	1.6°	-18°32'
27 November 2016	188.41°W	18.94°S	269.17°Ls	6.63"	41.2°	1.1°	-18°18'
28 November 2016	178.54°W	19.19°S	269.80°Ls	6.60"	41.1°	0.6°	-18°04'
29 November 2016	168.67°W	19.43°S	270.43°Ls	6.57"	41.0°	0.2°	-17°50'
30 November 2016	158.80°W	19.67°S	271.06°Ls	6.54"	40.9°	-0.3°	-17°35'
01 December 2016	148.92°W	19.90°S	271.68°Ls	6.51"	40.8°	-0.8°	-17°21'
02 December 2016	139.04°W	20.14°S	272.31°Ls	6.48"	40.7°	-1.3°	-17°06'
03 December 2016	129.16°W	20.37°S	272.94°Ls	6.45"	40.6°	-1.8°	-16°52'
04 December 2016	119.27°W	20.59°S	273.57°Ls	6.43"	40.5°	-2.2°	-16°37'
05 December 2016	109.38°W	20.82°S	274.19°Ls	6.40"	40.3°	-2.7°	-16°22'
06 December 2016	099.49°W	21.04°S	274.82°Ls	6.37"	40.2°	-3.2°	-16°06'
07 December 2016	089.60°W	21.25°S	275.45°Ls	6.34"	40.1°	-3.7°	-15°51'
08 December 2016	079.70°W	21.46°S	276.07°Ls	6.32"	40.0°	-4.1°	-15°36'
09 December 2016	069.81°W	21.67°S	276.70°Ls	6.29"	39.8°	-4.6°	-15°20'
10 December 2016	059.90°W	21.88°S	277.32°Ls	6.26"	39.7°	-5.1°	-15°04'
11 December 2016	050.00°W	22.07°S	277.94°Ls	6.23"	39.6°	-5.6°	-14°48'
12 December 2016	040.09°W	22.27°S	278.57°Ls	6.21"	39.4°	-6.1°	-14°32'
13 December 2016	030.19°W	22.46°S	279.19°Ls	6.18"	39.3°	-6.5°	-14°16'
14 December 2016	020.27°W	22.65°S	279.81°Ls	6.15"	39.1°	-7.0°	-14°00'
15 December 2016	010.36°W	22.83°S	280.43°Ls	6.13"	39.0°	-7.5°	-13°43'
16 December 2016	000.45°W	23.01°S	281.05°Ls	6.10"	38.9°	-8.0°	-13°27'
17 December 2016	350.53°W	23.19°S	281.67°Ls	6.08"	38.7°	-8.4°	-13°10'
18 December 2016	340.61°W	23.37°S	282.29°Ls	6.05"	38.6°	-8.9°	-12°53'
19 December 2016	330.68°W	23.53°S	282.91°Ls	6.03"	38.5°	-9.4°	-12°36'
20 December 2016	320.76°W	23.69°S	283.53°Ls	6.00"	38.4°	-9.9°	-12°19'
21 December 2016	310.83°W	23.85°S	284.14°Ls	5.98"	38.2°	-10.3°	-12°02'
22 December 2016	300.90°W	24.01°S	284.76°Ls	5.95"	38.1°	-10.8°	-11°45'
23 December 2016	290.97°W	24.15°S	285.38°Ls	5.93"	38.0°	-11.3°	-11°28'
24 December 2016	281.04°W	24.30°S	285.99°Ls	5.90"	37.8°	-11.7°	-11°11'
25 December 2016	271.11°W	24.44°S	286.61°Ls	5.88"	37.7°	-12.2°	-10°53'
26 December 2016	261.17°W	24.58°S	287.22°Ls	5.85"	37.5°	-12.7°	-10°36'
27 December 2016	251.23°W	24.71°S	287.84°Ls	5.83"	37.4°	-13.1°	-10°18'
28 December 2016	241.29°W	24.83°S	288.45°Ls	5.81"	37.2°	-13.6°	-10°00'
29 December 2016	231.35°W	24.96°S	289.07°Ls	5.78"	37.1°	-14.1°	-09°42'
30 December 2016	221.40°W	25.08°S	289.68°Ls	5.76"	36.9°	-14.5°	-09°25'
31 December 2016	211.46°W	25.19°S	290.29°Ls	5.74"	36.8°	-15.0°	-09°07'
01 January 2017	201.51°W	25.30°S	290.90°Ls	5.71"	36.6°	-15.5°	-08°49' - - -

Letters to the Editor

●.....Subject: Mars July 17
Received: 1 September 2016 at 02:29 JST

Good seeing today.
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160717/PMx17July16.jpg>

○.....Subject: Mars July 22
Received: 1 September 2016 at 10:37 JST

Thin clouds kept the contrast low
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160722/PMx22July16.jpg>

○.....Subject: Mars July 24
Received: 2 September 2016 at 09:01 JST

Average seeing, but very hot
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160724/PMx24July16.jpg>

○...**Subject: Mars July 25**

Received: 4 September 2016 at 09:15 JST

Average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160725/PMx25July16.jpg>

○...**Subject: Mars September 4**

Received: 6 September 2016 at 09:01 JST

Showing dust in the Hellas region. Poor seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160904/PMx04Sept16.jpg>

○...**Subject: Mars September 5**

Received: 7 September 2016 at 08:45 JST

Wish there was better seeing..

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160905/PMx05Sept16.jpg>

○...**Subject: Mars September 6**

Received: 8 September 2016 at 04:35 JST

Better seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160906/PMx06Sept16.jpg>

○...**Subject: Mars July 27**

Received: 9 September 2016 at 04:01 JST

Back to July processing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160727/PMx27July16.jpg>

○...**Subject: Mars July 28**

Received: 11 September 2016 at 09:18 JST

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160728/PMx28July16.jpg>

○...**Subject: Mars July 29**

Received: 13 September 2016 at 00:36 JST

Unsteady seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160729/PMx29July16.jpg>

○...**Subject: Mars July 31**

Received: 13 September 2016 at 09:06 JST

More of the same.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160731/PMx31July16.jpg>

○...**Subject: Mars August 7**

Received: 16 September 2016 at 03:56 JST

Average seeing only.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160807/PMx07Aug16.jpg>

○...**Subject: Mars August 8**

Received: 17 September 2016 at 08:40 JST

Average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160808/PMx08Aug16.jpg>

○...**Subject: Mars August 9**

Received: 21 September 2016 at 08:34 JST

Average at best.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160809/PMx09Aug16.jpg>

○...**Subject: Mars August 9**

Received: 22 September 2016 at 11:12 JST

Shot in windy conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160810/PMx10Aug16.jpg>

○...**Subject: Mars August 12**

Received: 24 September 2016 at 06:30 JST

Average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160812/PMx12Aug16.jpg>

○...**Subject: Mars August 14**

Received: 25 September 2016 at 11:20 JST

Poor seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160814/PMx14Aug16.jpg>

○...**Subject: Mars August 15**

Received: 28 September 2016 at 08:14 JST

Average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160815/PMx15Aug16.jpg>

○...**Subject: Mars August 22**

Received: 29 September 2016 at 12:01 JST

Unsteady seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160822/PMx22Aug16.jpg>

○...**Subject: Mars August 24**

Received: 30 September 2016 at 11:48 JST

Better seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160824/PMx24Aug16.jpg>

○...**Subject: Mars August 26**

Received: 2 October 2016 at 03:43 JST

Average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160826/PMx26Aug16.jpg>

○...**Subject: Mars August 27**

Received: 4 October 2016 at 08:59 JST

Decent for once.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160827/PMx27Aug16.jpg>

○...**Subject: Mars August 28**

Received: 6 October 2016 at 08:49 JST

Below average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160828/PMx28Aug16.jpg>

○...**Subject: Mars August 29**

Received: 8 October 2016 at 04:16 JST

Decent seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160829/PMx29Aug16.jpg>

○...**Subject: Mars August 30**

Received: 11 October 2016 at 11:44 JST

Average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160830/PMx30Aug16.jpg>

○...**Subject: Mars August 31**

Received: 13 October 2016 at 08:44 JST

Below average seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160831/PMx31Aug16.jpg>

○...**Subject: Mars September 1**

Received: 15 October 2016 at 08:36 JST

Average seeing

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160901/PMx01Sept16.jpg>

○...**Subject: Mars September 3**

Received: 18 October 2016 at 08:24 JST

Good seeing, showing dust flowing out of Hellas.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160903/PMx03Sept16.jpg>

Paul MAXSON (Surprise, AZ)

●.....*Subject: Mars (June 17th.)**Received: 3 September 2016 at 21:30 JST*

Hi all, Good seeing. Syrtis Major nicely on view. Some dust activity remains over Mare Erythraeum.

RGB1: <http://www.damianpeach.com/mars1617/m2016-06-17-RGB1.jpg>RGB2: <http://www.damianpeach.com/mars1617/m2016-06-17-RGB2.jpg>

Best Wishes

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160617/DPc17June16.jpg>○.....*Subject: Mars (June 18th.)**Received: 14 September 2016 at 03:04 JST*

Hi all, Here are some Mars images from June 18th showing Syrtis Major. Seeing was excellent.

RGB1: <http://www.damianpeach.com/mars1617/m2016-06-18-RGB01.jpg>RGB2: <http://www.damianpeach.com/mars1617/m2016-06-18-RGB02.jpg>

Best Wishes

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160618/DPc18June16.jpg>○.....*Subject: Mars opposition move 2016**Received: 15 September 2016 at 05:16 JST*

Hi all, Here is animation made from all the Barbados Mars imagery taken between June 4th - 18th. Best Wishes,

<http://www.damianpeach.com/mars1617/marsanim2016.gif>○.....*Subject: Mars (March 23rd.)**Received: 23 September 2016 at 05:56 JST*

Hi all, Finishing off some sessions taken back in March. This one taken in good seeing shows the Tharsis orographics especially nicely. Best Wishes,

<http://www.damianpeach.com/mars1617/m2016-03-23-RGB.jpg><http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160323/DPc23Mar16.jpg>○.....*Subject: Mars (March 25th.)**Received: 18 October 2016 at 03:59 JST*

Hi all, Here is a session from back on March 25th under good conditions. Lots of clouds over Tharsis into Chryse. Olympus Mons is flanked by clouds.

<http://www.damianpeach.com/mars1617/m2016-03-25-RGB.jpg>

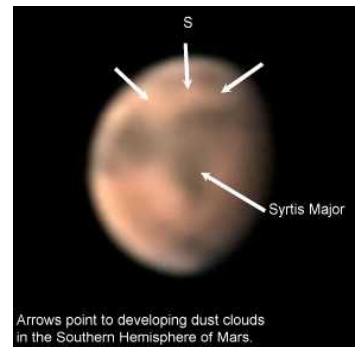
Best Wishes

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/16325/DPc25Mar16.jpg>**Damian PEACH** (Selsey, West Sussex, the UK)●.....*Subject: Large dust cloud in Hellas and to the East**Received: 5 September 2016 at 04:36 JST*

Hi folks, Only large scale features discernible with a 'seeing' of 2/10 but good enough to recognize a dust cloud in Hellas and covering Mare Hadriacum to the East. Please see attachment. Good seeing,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160903/JMI03Sept16.jpg>○.....*Subject: Dust storm has almost tripled in size...**Received: 7 September 2016 at 08:13 JST*

Hi again Roger and Richard, The attached image is better quality than my Sep. 3rd image. Yes, it still has a long way to go to be planet-wide. Need to watch for new clouds elsewhere



than Hellas region. Good seeing,

○.....*Subject: Re: Mars 2016/09/12 1520UT CM74**Received: 13 September 2016 at 07:29 JST*

Hi Clyde, Your previous image and this one shows Argyre to elongated and much brighter than usual. I'm thinking it's dust clouds. If you can keep imaging, then we will know for sure. Thanks,

○.....*Subject: Re: Mars 2016/09/19 1519UT CM6**Received: 20 September 2016 at 14:39 JST*

Hi Clyde, Your picture shows a massive dust storm to the West of Hellas. Now the question is are the dust clouds produced by South to North winds from the edge of the subliming CO₂ ice or are they produced by East to West prevailing winds in the current season? Possibly both! There is a lot of imagery to interpret. Thanks.

○.....*Subject: Re: Mars 2016/09/22 1512UT CM335**Received: 24 September 2016 at 06:24 JST*

Hi Clyde, It looks like the dust clouds West of Hellas have dissipated, but Hellas shows dust inside and in lobes in the Southwest and Northeast corners. It's hard to tell if airborne dust or recently deposited fine dust on the ground. Good seeing,

○.....*Subject: Re: Pickering's Mars photos of 1888**Received: 1 October 2016 at 06:35 JST*

Hi Richard, Thanks for copying me on the 1888-1890 images by Pickering. I took the liberty of enhancing them by removing the prominent noise and then on two of them erasing the bright field of view around the disks. See attachment. One hundred years later I imaged Mars for Lowell Observatory on 10 nights using a 24" 75 Cassegrain scope in an observatory on Mauna Kea in 1988. I'll try to make a composite of some of my images.

Good seeing,

Jim MELKA (Chesterfield, MO)

●.....*Subject: Mars 9-05-2016 CM = 287*
Received: 6 September 2016 at 03:29 JST

Hi, This image of Mars catches the dust cloud in Hellas. I had poor conditions and only took a black and white image. I restricted the image to a 685nm - 700nm range.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160905/MHd05Sept16.jpg>

○.....*Subject: Mars 2016 09-07 CM = 284.5*
Received: 8 September 2016 at 04:28 JST

Hi, This image of Mars was taken with a TEC 200 ED refractor with Mars only 24 degrees above my horizon. It shows the progression of the dust cloud in Hellas.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160907/MHd07Sept16.jpg>

○.....*Subject: Mars2016_09_08 CM=278.2*
Received: 9 September 2016 at 05:00 JST

Hi, This image in black and white was taken with Mars at 22 degrees above my horizon with very poor seeing. It was taken with a TEC 200 ED refractor at F-52. The dust can be seen in Hellas.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160908/MHd08Sept16.jpg>

○.....*Subject: Mars2016 09-09 CM = 251.1*
Received: 10 September 2016 at 06:31 JST

Hi, This image of Mars with poor seeing at an altitude of 29 degrees has Hellas coming around the limb. Telescope was a TEC 200 ED refractor @ f-52.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160909/MHd09Sept16.jpg>

Mike HOOD (Kathleen, GA)

●.....*Subject: Mars 2016/09/06 1527UT CM134*
Received: 7 September 2016 at 04:28 JST

Hi all, Returned from my road trip to Cape Town a few hours ago and was keen to see the latest conditions on Mars, given the recent activity in and around Hellas. Unfortunately seeing was rather poor. However, Olympus Mons and the Tharsis volcanoes are detectable, and to me there does not seem to be any significant activity on this face of Mars. The cloud in the North Polar region seems fairly well consolidated. As always, should there be any alternative comments, I would be interested to hear them. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160906/CFs06Sept16.jpg>

○.....*Subject: Mars 2016/09/07 1527UT CM124*

Received: 8 September 2016 at 05:33 JST

Hi all, Mars at 10 arc seconds with the Tharsis region central and Olympus Mons lower right of central. Conditions made processing a bit of a challenge and the SPC is overprocessed. During processing light cloud was noted close to the SPC. No obvious significant activity. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160907/CFs07Sept16.jpg>

○.....*Subject: Mars 2016/09/08 1519UT CM112*
Received: 9 September 2016 at 02:41 JST

Hi all, Improved conditions this evening. A few notes:

- I have left the preceding limb region, including the spc, less processed in order to reduce burnout.
- A fine line of cloud is visible just below the spc
- The sp limb (upperleft) appears to be quite bright
- I have left the limb arc unprocessed as this may give misleading interpretation.
- This hemisphere appears to remain fairly clear.

Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160908/CFs08Sept16.jpg>

○.....*Subject: Mars 2016/09/09 1654UT CM126*
Received: 10 September 2016 at 18:38 JST

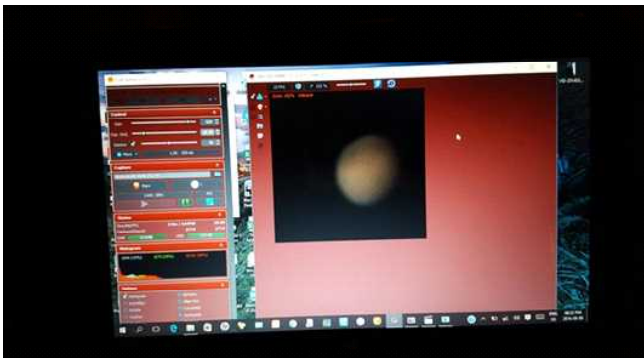
Hi all, Something a bit different and rather special for me. With my recent appointment as Director of Shallow Sky Section of the ASSA, one of the rather pleasant spin-offs has been an increase in interaction with some of the great South African Astronomical institutions. Yesterday I was invited by Jerome Jooste of ASSA Johannesburg to visit the Johannesburg Observatory (previously known as the Transvaal, Union and Republic Observatory) to test my imaging on the



had a great session taking some lunar images and then managed to capture a couple of Mars images as the sky darkened. Seeing for the Mars session was

historical 6" Franklin-Adams refractor. I am trying to dig out more information on the telescope, but believe it dates back to the 1880's, and is an $f18$ Cooke triplet. The Observatory also still houses the 26,5" Innes refractor which is currently being used for double star work, but which has been used for planetary work in the past.

I had a great session taking some lunar images and then managed to capture a couple of Mars images as the sky darkened. Seeing for the Mars session was deteriorating (although also not terribly bad) with intermittent cloud moving in. The colour correction on the scope looked excellent and it certainly was a privilege for me to be able to image through this scope. Attached is the Mars capture (south is top), which, given that it was a 6" scope, the seeing, and that Mars is now below 10", I was fairly happy with. I used a 2× Barlow.



I unfortunately did not have the fittings to attach an electronic focuser, so resorted to manual- not ideal, but do-able. Regarding the recent dust storm activity, the south following limb (upper right) appears suspiciously bright. I have attached a few photos from the session- a memorable experience. Best regards, and I will be back in my own observatory this evening, weather permitting,



<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160909/CFs09Sept16.jpg>

○...**Subject: Mars 2016/09/11 1516UT CM83**

Received: 12 September 2016 at 04:12 JST

Hi all, An early twilight capture of Mars with Argyre region appearing bright, although this appears to extend across quite a large area. Possibly my first capture of the activity that initiated in Hellas and has extended east and west? The fine line of cloud near the SPC is persisting. I have not tried to process out the preceding limb arc. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160911/CFs11Sept16.jpg>

○...**Subject: Mars 2016/09/12 1520UT CM74**

Received: 13 September 2016 at 05:01 JST

Hi all, Resorting to almost daylight conditions to try and get the best seeing conditions, but processing is becoming more difficult. The Argyre region remains bright. Best Regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160912/CFs12Sept16.jpg>

○...**Subject: Re: Mars 2016/09/12 1520UT CM74**

Received: 13 September 2016 at 14:18 JST

Thanks, Jim. I've seen a number of images over the last week indicating the expansion (and possible dissipation?) of the Hellas dust storm to both the east and west, so was expecting (hoping!) to see at least some indication of dust possibly on the south preceding part of the planet, which may actually be the case. However I agree that Argyre looks bright enough in the red to indicate that there may be additional dust storm activity taking place.

Comments welcome. Regards,

○...**Subject: Mars 2016/09/13 1512UT CM62**

DUST IN ARGYRE AND ACROSS NILIACUS LACUS/CHRYSE?

Received: 14 September 2016 at 03:05 JST

Hi all, The Argyre region appears to remain active with the red channel indicating substantial dust. There also appears to be dust activity over Niliacus Lacus/Chryse. This seems to be either a single storm with two sections, or two storms in close proximity. Again, any comments or alternative interpretations are welcome. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160913/CFs13Sept16.jpg>

○...**Subject: Mars 2016/09/13 DUST IN NILIACUS....**

Received: 14 September 2016 at 16:37 JST

Hi all, A separate colour image highlighting the current activity in both hemispheres. Best regards,

○...**Subject: Mars 2016/09/14 1518UT CM54**
Received: 15 September 2016 at 02:57 JST

Hi all, A cold front has come through and cloud only cleared in time for this capture. However, seeing was very poor, making for difficult processing. Despite that, it appears to me that the cloud in Argyre has dissipated somewhat, whilst the two clouds over Niliacus Lacus may have consolidated and may even have increased in intensity. Hopefully I will be able to monitor over the next few days, although cloud and rain is forecast for the weekend. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160914/CFs14Sept16.jpg>

○...**Subject: Mars 2016/09/15 1508UT CM42**
Received: 16 September 2016 at 02:29 JST

Hi all, My Mars capture from this afternoon.
 Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160915/CFs15Sept16.jpg>

○...**Subject: Mars 2016/09/19 1519UT CM6**
Received: 20 September 2016 at 04:10 JST

Hi all, After a few days of overcast weather there was a sufficient gap this afternoon to capture the attached image set. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160919/CFs19Sept16.jpg>

○...**Subject: Re: Mars 2016/09/19 1519UT CM6**
Received: 20 September 2016 at 15:57 JST

Hi, Jim, Thanks as always for your comments. My initial thoughts regarding the large, broad band across the upper section of the planet was that it may be "fallout" (settled/settling dust) from the recent Hellas storm. I haven't seen many "after the storm" images over the last few days, so I am hoping that the weather settles here and I can monitor this region and also Hellas over the next week or so. Best regards,

○...**Subject: Mars 2016/09/20 1527UT CM358**
Received: 21 September 2016 at 03:31 JST

Hi all, Unfortunately very poor conditions this afternoon. The image is quite heavily processed although the SPC and Hellas regions are less processed in order to minimise burnout. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160920/CFs20Sept16.jpg>

○...**Subject: Mars 2016/09/21 1508UT CM344**
Received: 22 September 2016 at 13:00 JST

Hi all, Somewhat improved conditions for this capture from this afternoon. Hellas coming into view.
 Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160921/CFs21Sept16.jpg>

○...**Subject: Mars 2016/09/22 1512UT CM335**
Received: 23 September 2016 at 16:17 JST

Hi all, My Mars capture from yesterday afternoon. The main (Colour) image is a little bit less processed than normal, as I have tried to highlight some structure extending over the north western edge of the Hellas basin. The separate channel images have been generated from a more processed image. The bright north western side of Hellas can be seen quite nicely in the IR and R images. Hoping for reasonable conditions over the next few days. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160922/CFs22Sept16.jpg>

○...**Subject: Mars 2016/09/23 1511UT CM325**
Received: 24 September 2016 at 15:04 JST

Hi all, Mars capture from yesterday afternoon. Jim, pretty much in agreement with your comments of yesterday-thanks. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160923/CFs23Sept16.jpg>

○...**Subject: RE: Mars 2016/09/24 1507UT CM315**
Received: 25 September 2016 at 17:42 JST

Hi all, Mars capture from yesterday afternoon. Possibly some subtle linear markings in Hellas. Best ...,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160924/CFs24Sept16.jpg>

○...**Subject: RE: Mars 2016/09/25 1517UT CM307**
Received: 26 September 2016 at 02:34 JST

Hi all, Mars capture from this afternoon, with the planet now down at 9". The subtle markings in Hellas seem to be reasonably consistent (note the IR images) over the last couple of days, possibly indicating that the dust is settled? Other interpretations are welcome.

Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160925/CFs25Sept16.jpg>

○...**Subject: Mars 2016/09/26 1523UT CM299**
Received: 27 September 2016 at 03:31 JST

Hi all, Mars capture from this afternoon. Unfortunately seeing conditions were very poor.

Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160926/CFs26Sept16.jpg>

○...**Subject: Mars 2016/09/27 1450UT CM282 IR**
Received: 28 September 2016 at 02:50 JST

Hi all, Mars capture from this afternoon. Seeing conditions were very poor and the IR image was taken through high cloud which rapidly thickened and closed over the planet. Colour imaging was not possi-

ble. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160927/CFs27Sept16.jpg>

○...**Subject: Mars 2016/09/28 1507UT CM276 IR**
Received: 30 September 2016 at 16:30 JST

Hi all, My apologies for a rather poor image set from 28 September. Seeing conditions were very poor. Submitting for the record, and at least there is some detail visible on the IR image. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160928/CFs28Sept16.jpg>

○...**Subject: Mars 2016/09/29 1523UT CM270**
Received: 30 September 2016 at 18:04 JST

Hi all, Conditions a little improved yesterday afternoon. There appears to be some cloud in the NP region. Other than that it looks like Curiosity rover doesn't need to be too worried about the weather just yet. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160929/CFs29Sept16.jpg>

○...**Subject: RE: Mars 2016/09/29 1523UT CM270**
Received: 30 September 2016 at 18:54 JST

Dawie, That is awesome! Thanks for sharing. Me-thinks that some more Mars images should be taken through that scope.... Best regards,

○...**Subject: RE: Mars 2016/09/29 1523UT CM270**
Received: 30 September 2016 at 20:11 JST

Dawie, I'm not too sure about the "better than Hubble" part, but I like the way you are thinking!

Thanks for the great historical work you are doing down at Boyden Observatory. It is important, at least in my mind, that this Mars heritage is protected and is shown the light of day, to the likes of what you are doing down there. Best regards,

○...**Subject: RE: Mars 2016/09/29 1523UT CM270**
Received: 30 September 2016 at 20:41 JST

Dawie, Let me also express my appreciation for the support you are getting from Harvard Observatory and, as you mentioned when I was there, Lindsay Smith in particular. It is fantastic that they have been prepared to contribute to the exhibit in this way. Best.

○...**Subject: Mars 2016/10/02 1514UT CM239**
Received: 3 October 2016 at 04:16 JST

Hi all, Mars this afternoon under below average conditions. Mare Cimmerium and Elysium are reasonably prominent. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161002/CFs02Oct16.jpg>

○...**Subject: Mars 2016/10/03 1514UT CM229 IR**

Received: 4 October 2016 at 02:03 JST

Hi all, Unfortunately seeing was so poor this afternoon that I was limited to the attached IR capture.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161003/CFs03Oct16.jpg>

○...**Subject: Mars 2016/10/04 1702UT CM246**
Received: 6 October 2016 at 15:39 JST

Hi all, Some commitments meant I was only able to capture a bit later on the 4th. I was pleasantly surprised that the seeing was not that bad. The scope was swung across the pier, and a rather severe limb effect was noted, which I have not processed out in the decomposed channel images. I am wary of the possible contrast/limb effect just below the SPC, and am not sure how accurate this is in reality. Out of interest, I have been testing live streaming from my observatory, and may do further testing, including live streaming of Mars, later today (6 October) from about 15.00UT, weather permitting. If you want to have a look, please go to my Youtube channel (I will set it to public) at between 15.00 and 15.15UT. You should pick it up if you search for "Clyde F". Seeing has not been great, and we have been having late afternoon cloud the last few days, so I cannot guarantee a decent view. However, it is Mars, and it will be live! Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161004/CFs04Oct16.jpg>

○...**Subject: RE: Mars 2016/10/05 1513UT CM209**
Received: 7 October 2016 at 20:54 JST

Hi all, Some reasonable seeing for this capture. Conditions appear fairly stable on Mars, at least in this view. M Cimmerium is prominent. The subtle shading that forms a giant "?" around the Amazonis region is

also still visible, and well seen in the IR image. Best.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161005/CFs05Oct16.jpg>

○...**Subject: Mars 2016/10/06 1515UT CM200**
Received: 7 October 2016 at 23:37 JST

Hi all, Mars capture from yesterday afternoon. Daylight capture and seeing was reasonable. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161006/CFs06Oct16.jpg>

○...**Subject: Mars 2016/10/07 1514UT CM190**
Received: 10 October 2016 at 03:11 JST

Hi all, Mars capture from 7th October. Daylight capture and seeing was reasonable. Subtle markings including the light markings in the Gordii Dorsum region are still visible. The south preceding limb appears a bit diffuse.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161007/CFs07Oct16.jpg>

I note with interest the recent press release from NASA JPL regarding the prediction of the next Martian global dust storm: Best regards,

<http://www.jpl.nasa.gov/news/news.php?release=2016-256>

○...**Subject: RE: Mars 2016/10/09 1541UT CM177**
Received: 10 October 2016 at 04:37 JST

Hi all, Clouded out yesterday. Exceptionally poor conditions this afternoon forced me to limit imaging to the attached IR capture. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161009/CFs09Oct16.jpg>

○...**Subject: Mars 2016/10/10 1459UT CM157**
Received: 11 October 2016 at 02:03 JST

Hi all, An early capture from this afternoon as clouds were moving in, and poor conditions are continuing. The Tharsis region coming into view, with Olympus Mons and the other three main volcanoes just visible. There is quite a distinct bright spot adjacent to the NPC. I will be visiting family in Durban for the next few days so will only be able to image again on Friday, weather permitting. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161010/CFs10Oct16.jpg>

○...**Subject: Mars 2016/10/14 1518UT CM123**
Received: 15 October 2016 at 03:21 JST

Hi all, Back at home although seeing conditions were poor this afternoon. Olympus Mons is seen to the lower right and the Tharsis volcanoes are visible in the IR image. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161014/CFs14Oct16.jpg>

○...**Subject: Mars 2016/10/16 1731UT CM136**
Received: 17 October 2016 at 16:24 JST

Hi all, A capture of Mars taken less than an hour after the Schiaparelli lander separation from the Trace Gas Orbiter (TGO) yesterday. The N/S planetary orientation has been aligned in Winjupos, with planetary south at top. Conditions, as best as can be seen, appear to remain "calm". Wishing the ESA team every success with the landing. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161016/CFs16Oct16.jpg>

○...**Subject: Mars 2016/10/17 1457UT CM89**
Received: 18 October 2016 at 03:51 JST

Hi all, Unfortunately very poor conditions this afternoon with extensive cloud forcing me to an early (daylight) capture between gaps in the clouds before being clouded out. Mars is now at 8". The Vallis

Marineris complex is central. I was surprised how bright the SPC was today. In my opinion the albedo features seem rather subdued, although no indication

of any major activity as yet. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161017/CFs17Oct16.jpg>

Clyde FOSTER (Centurion, SOUTH AFRICA)

●...**Subject: Mars - August 29th**
Received: 7 September 2016 at 12:54 JST

Hi Mr. Minami and All!, Here is a session from August 29th under average conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160829/EMr29Aug16.jpg>

○...**Subject: Mars - August 31st, September 2nd**
Received: 7 September 2016 at 12:45 JST

Hi Mr. Minami and All!, I submit here my latest sessions From August 31st, September 2nd (2) sets under below to average conditions. T/S has departed our region to continue on imaging.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160831/EMr31Aug16.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160902/EMr02Sept16.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160902/EMr02Sept16n.jpg>

○...**Subject: Mars - September 7th, 8th**
Received: 9 September 2016 at 12:41 JST

Hi Mr. Minami and All!, here are my latest sessions from Sept. 7, 8th. Under average conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160907/EMr07Sept16.jpg>

○...**Subject: Mars - Sept.10,11,12th**
Received: 15 September 2016 at 00:14 JST

Hi Mr.Minami and All!, Here I submit my sessions from Sept.10,11 and 12th. under below/average conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160910/EMr10Sept16.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160911/EMr11Sept16.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160912/EMr12Sept16.jpg>

○...**Subject: Mars - Sept.16th, 17th, 23rd**
Received: 27 September 2016 at 10:14 JST

Hi Mr. Minami and All!, Here are my sessions under below average conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160916/EMr16Sept16.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160917/EMr17Sept16.jpg>

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160923/EMr23Sept16.jpg>

○...**Subject: Mars - Sept.28th**
Received: 1 October 2016 at 03:37 JST

Hi Mr.Minami and All!, Here is my session from Sept.28th under below average condition. Between rain bands of T/S now hurricane Matthew.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160928/EMr28Sept16.jpg>

○...**Subject: Mars - October 6th**
Received: 9 October 2016 at 02:45 JST

Hi Mr. Minami and All!, First wishing you a good health!. Here I submit my session from Oct. 6th. The blanket of clouds from hurricane Matthew has finally left our region hopefully the weather should improve.
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161006/EMr06Oct16.jpg>

○.....*Subject: Mars - October 10th*
Received:13 October 2016 at 02:33 JST

Hi Mr. Minami and All!, Here is my session from Oct.10th under average conditions.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161010/EMr10Oct16.jpg>
Efrain MORALES (Aguadilla, PUERTO RICO)

●.....*Subject: Mars - September 7*
Received: 8 September 2016 at 05:01 JST

Dear Masatsugu and Masami, Attach is a set of images of Mars taken on September 7th. There appears to be a dust cloud over Hellas which is particularly visible in the red image. Hopefully it will clear the evening and I will be able to capture to some more images of this event. Best wishes,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160907/WF107Sept16.jpg>

○.....*Subject: Mars - September 8*
Received: 9 September 2016 at 05:26 JST

Dear Masatsugu and Masami, Attach is a set of images of Mars taken on September 8th. The dust cloud over Hellas is still obvious but perhaps a little dissipated from the previous day. I will try again tonight

but it's pretty cloudy here right now. Best wishes,
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160908/WF108Sept16.jpg>

Bill FLANAGAN (Houston, TX)

●.....*Subject: Mars2016_07 Sept*
Received: 8 September 2016 at 10:57 JST

Rather poor resolution due to seeing and low altitude.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160907/GWk07Sept16.jpg>

○.....*Subject: Mars2016_09 Sept RGB images*
Received: 11 September 2016 at 07:14 JST

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160909/GWk09Sept16.jpg>

○.....*Subject: Mars2016_11 Sept RGB images*
Received: 11 September 2016 at 11:52 JST

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160911/GWk11Sept16.jpg>

Gary WALKER (Macon, GA)

●.....*Subject: Mars: September 8, 2016 UT*
Received: 9 September 2016 at 10:34 JST

Hi, I have attached my latest Mars images Septem-

ber 8, 2016 at 23:12 UT and 23:29 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160908/FMI08Sept16.jpg>

○.....*Subject: Mars: September 12, 2016*
Received: 13 September 2016 at 11:43 JST

Hi, I have attached my latest images of Mars September 12, 2016 at 23:07 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160912/FMI12Sept16.jpg>

○.....*Subject: mars: September 16, 2016 UT*
Received: 18 September 2016 at 09:50 JST

Hi, I have attached my latest image of Mars September 16, 2016 at 23:09 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160916/FMI16Sept16.jpg>

○.....*Subject: Mars: September 22, 2016*
Received: 27 September 2016 at 12:18 JST

Hi, I have attache my image of Mars September 22, 2016, Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160922/FMI22Sept16.jpg>

○.....*Subject: Mars: September 24, 2016*
Received: 27 September 2016 at 12:21 JST

Hi, I have attached my latest image of Mars September 24, 2016 at 22:37 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160924/FMI24Sept16.jpg>

○.....*Subject: Mars: September 27, 2016*
Received: 28 September 2016 at 12:37 JST

Hi, I am sending in my latest images of Mars September 27, 2016 at 22:50 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160927/FMI27Sept16.jpg>

○.....*Subject: Mars: October 5, 2016*
Received: 8 October 2016 at 09:13 JST

Hi, I have attached my latest image of Mars on October 5, 2016 at 22:51 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161005/FMI05Oct16.jpg>

○.....*Subject: Mars: October 7, 2016*
Received:12 October 2016 at 12:03 JST

Hi, I have attached my image of Mars October 7, 2016 at 23:17 UT. The seeing was horrible but at least the details are seen. Best,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161007/FMI07Oct16.jpg>

○.....*Subject: Mars: October 11, 2016*
Received:13 October 2016 at 11:40 JST

Hi, I have attached my latest image of Mars October 11, 2016 at 23:17 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161011/FMI11Oct16.jpg>

○.....*Subject: Mars: October 16, 2016*
Received:17 October 2016 at 10:17 JST

Hi, I have attached my latest image of Mars October 16, 2016 at 22:20 UT. Thanks,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161016/FMI16Oct16.jpg>

Frank J MELILLO (Holtsville, NY)

●.....*Subject: Mo09Sept_16*

Received: 11 September 2016 at 22:15 JST

Mo09Sept2016: Poor sky. Dusty upto Argyre?

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160909/Mo09Sept16.jpg>

○.....*Subject: Mo10Oct_16*

Received: 16 October 2016 at 23:18 JST

Mo10Oct16, National Holiday with very poor seeing.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161010/Mo10Oct16.jpg>

Yukio MORITA (Hiroshima, JAPAN)

●.....*Subject: Mars 10 September 2016*

Received: 12 September 2016 at 13:20 JST

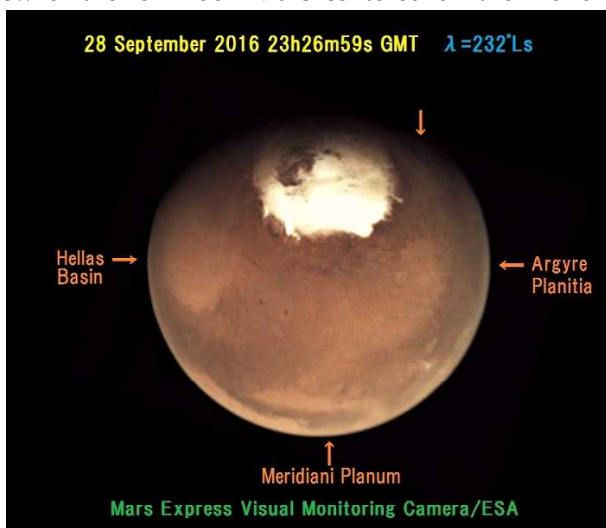
Dear Dr. Minami, Attached here is my latest Mars image with my new ASI 290MC camera, managed to capture through a hole in the heavy clouds. Seeing was better go out drinking one, but the image suggests the extension of the dust along southern mid to high latitude zone. Clear Skies with Good Seeing!

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160910/Kn10Sept16.jpg>

○.....*Subject: A reminding image*

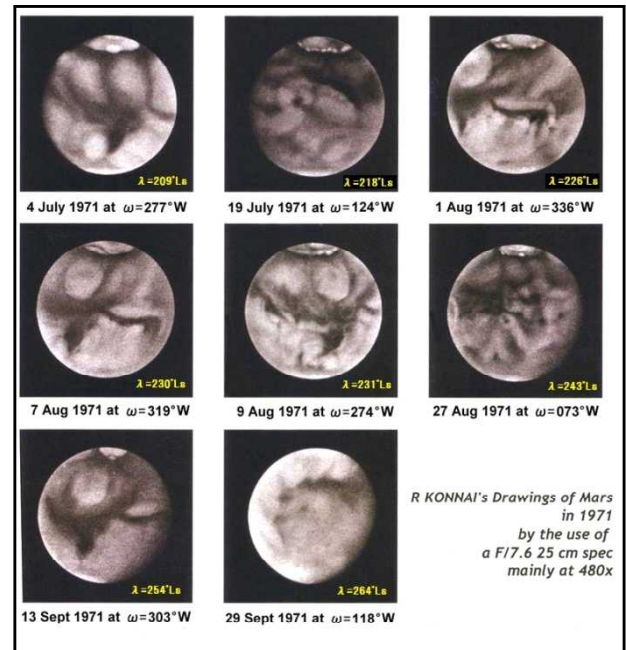
Received: 3 October 2016 at 01:34 JST

Dear Dr. Minami, All, Attached here is an image taken with a little VMC webcam on board Mars Express/ESA on this 28 September 2016, a south polar view of the full noon Mars centered on the meridian.



I fondly remember the views of the same Martian season in my first apparition of Mars observation in 1971 (please see attached my drawings ↗).

According to Richard McKim's "*Telescopic Martian Dust Storms: A Narrative and Catalogue*", p86, a bar-like dust cloud over Mare Serpentis was seen on the night of 10/11 July 1971 at $\lambda=213^\circ\text{Ls}$. The dust soon diffused



but the activity last detected on 22 July; This seems to be comparable to the latest regional dust storm activity observed by CMO imagers which began on 03 September 2016 at $\lambda=216^\circ\text{Ls}$ at the eastern end of Deucalionis Regio/Pandoræ Fretum, entering its final "decay phase" around ten sols after the start (according to the comment in the MRO MARCI Weather Reports for the Week of 12-18 September 2016). In 1971, the historic global dust storm (which have welcomed Mariner 9 probe) was entrained on 22 September at $\lambda=260^\circ\text{Ls}$...We can expect an exciting event within a couple of coming months!? Best Regards,

○.....*Subject: Mars 07 October 2016*

Received: 8 October 2016 at 21:49 JST

Dear Dr. Minami, It cleared up finally, and attached here is my latest Mars image. Seeing was atrocious for the red planet near its culmination. I'm gonna try my best without leaving everything in the lap of Gods.

...Now testing greater focal ratio for the smaller Martian disk. Good Seeing,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161007/Kn07Oct16.jpg>

○.....*Subject: Mars 14 October 2016*

Received: 15 October 2016 at 00:05 JST

Dear Dr. Minami, I am attaching here my latest image of Mars, daylight capture near its culmination. There seems to be no sign of the emergence of a large dust storm over the expected area. Clear Skies with Hopefully BETTER Seeing!

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161014/Kn14Oct16.jpg>

○.....*Subject: Mars 15 october 2016*
Received: 15 October 2016 at 21:51 JST

Dear Dr. Minami, Attached here is my latest image of Mars, again captured against the blue sky, just at the culmination, though the altitude was only 28 degrees, with horrible seeing as lately. No special view as yesterday. Better Seeing!

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161015/Kn15Oct16.jpg>

Reiichi KONNAI (Fukushima, JAPAN)

●.....*Subject: Re: Mars 2016/09/12 1520UT CM74*
Received: 13 September 2016 at 23:26 JST

In your latest image, Clyde, it appears to me that there may be three separate lumps of brightness within Argyre. This peculiarity is consistent with dust cores. On the other hand, in the red image Argyre is not brighter than eastern Chryse, and like eastern Chryse it is aligned in the second brightness ring of diffraction effects. I'm afraid that, just by viewing the image, I have to consider it suggestive of dust but, by itself, insufficient evidence to be sure. This type of reasoning is often applicable with suggestions of dust storms, and it's why we always want more images!

Keep up the good work.

Roger VENABLE (Chester, GA)

●.....*Subject: RE: Mars 2016/09/29 1523UT CM270*
Received: 30 September 2016 at 18:30 JST

Clyde et al. On the topic of Mars.... Just received two photographic plates from Harvard Observatory of the first series of photos ever taken of Mars by William Pickering in 1888 using Boyden's 13 inch Alvan Clark Telescope. For photos and more go to our facebook at <https://www.facebook.com/boyden123> Greetings

○.....*Subject: RE: Mars 2016/09/29 1523UT CM270*
Received: 30 September 2016 at 19:49 JST

Clyde! Funny you should mention this:

Hereby the Circle of Mars:

1. 1888 - William Pickering takes the first pic of Mars from the Alvan Clark 13 inch
2. 1894 - He shows the pics to Percival Lowell who asks him to build an observatory for the specific use to study Mars (and looking for canals and life), Lowell Observatory Flagstaff Arizona

3. 1939: - Earl Slipher from Lowell Observatory takes a Mars expedition to the Lamont Hussey Observatory in Bloemfontein to take the best photos yet of Mars, including the first colour photo ever. Got help from Boyden engineer Eric Burton to put up the camera.
4. 1964 - NASA uses Slipher's Maps of Mars for the first flyby (Mariner 4) to take the first Pics of the surface, and no canals! From here follows the rest of the Mars expeditions by NASA.
5. 2000 - Amateur Astronomers discovers the camera Slipher used for the first colour photograph of Mars behind the Elephant camp in the zoo.
6. 2014 - Slipher's exhibit opens at the Boyden Museum.
7. 20?? - 13 inch Alvan Clark exhibit opens with a (better than Hubble) Mars photo taken from the 13 inch by Clyde Foster.

How's That!

○.....*Subject: RE: Mars 2016/09/29 1523UT CM270*
Received: 30 September 2016 at 21:32 JST

Clyde, Attached meself holding the plates as well as the logbook with the first Mars entry.



Mars 1888 plates

Dawid Van JAARVELDT
 (Bloemfontein, SOUTH AFRICA)

●.....*Subject: Pickering's Mars photos of 1888*
Received: 1 October 2016 at 00:46 JST

Many thanks for these interesting items. Remarkably good prints of the 1888 Mars photos by Pickering were published by him more or less at the time (if I recall correctly), and then again years later in the series of (44 in all) popular Mars reports he published in

the now defunct US journal *Popular Astronomy*. I suspect the reproductions in the latter were slightly re-touched. The latter journal is certainly online, and the reports dealt with the work of a select group of amateur observers up to 1928. The last detailed reports published were for the 1926 apparition. Years later I looked for Pickering's original records of his drawings of Mars, but the main collections at Tulhane University archives in the USA did not have any of his Mars work, just notebooks dealing with his lunar observations, made from Mandeville, Jamaica. The suspicion is that an earlier archivist or director had discarded his Mars work, thinking it too controversial. But if anyone knows differently.....

It would be of much interest to see direct scans of the originals, or perhaps some stacked multiple images where available. With regards

Richard McKIM

(BAA Mars Section, Peterborough, The UK)

●.....*Subject: Pickering's Mars photos in 1888*
Received: 2 October 2016 at 03:12 JST

Dear Masatsugu, We have those images here also in the planetary patrol plate collection. On October 15, we are having a celebration--100 years since Percival Lowell's death--in the Putnam collection, and then a week later, the Antique Telescope Society will be visiting Mars Hill. I am giving a talk in the rotunda of the Slipper building (built 1916), "Percival Lowell's last year."

PS. You can forward this to others on your list if you think they would find it of interest.

○....*Subject: Fwd: JPL&NASA: Predicts Next Dust...*
Received: 8 October 2016 at 02:24 JST

Dear Masatsugu and Richard, May or may not interest you, but I thought I'd send it on. Best, Bill

----- Forwarded message -----

From: AAS Deputy Press Officer Larry Marschall
 <larry.marschall@as.org>

Date: Wed, Oct 5, 2016 at 7:04 PM

Subject: JPL&NASA: Study Predicts Next Global Dust Storm on Mars

To: Larry Marschall <larry.marschall@as.org>

THE FOLLOWING ITEM WAS ISSUED JOINTLY BY THE JET PROPULSION LABORATORY IN PASADENA, CALIFORNIA, AND NASA HEADQUARTERS IN WASHINGTON, DC, AND IS FORWARDED FOR YOUR INFORMATION. FORWARDING

DOES NOT IMPLY ENDORSEMENT BY THE AMERICAN ASTRONOMICAL SOCIETY.

5 October 2016

Contact Information Appears Below

Text and Images are available on:

<http://www.jpl.nasa.gov/news/news.php?release=2016-256>

STUDY PREDICTS NEXT GLOBAL DUST STORM ON MARS

Global dust storms on Mars could soon become more predictable -- which would be a boon for future astronauts there -- if the next one follows a pattern suggested by those in the past.

A published prediction, based on this pattern, points to Mars experiencing a global dust storm in the next few months. "Mars will reach the midpoint of its current dust storm season on October 29th of this year. Based on the historical pattern we found, we believe it is very likely that a global dust storm will begin within a few weeks or months of this date," James Shirley, a planetary scientist at NASA's Jet Propulsion Laboratory, Pasadena, California.

Local dust storms occur frequently on Mars. These localized storms occasionally grow or coalesce to form regional systems, particularly during the southern spring and summer, when Mars is closest to the sun. On rare occasions, regional storms produce a dust haze that encircles the planet and obscures surface features beneath. A few of these events may become truly global storms, such as one in 1971 that greeted the first spacecraft to orbit Mars, NASA's Mariner 9. Discerning a predictable pattern for which Martian years will have planet-encircling or global storms has been a challenge.

The most recent Martian global dust storm occurred in 2007, significantly diminishing solar power available to two NASA Mars rovers then active halfway around the planet from each other -- Spirit and Opportunity.

"The global dust storm in 2007 was the first major threat to the rovers since landing," said JPL's John Callas, project manager for Spirit and Opportunity. "We had to take special measures to enable their survival for several weeks with little sunlight to keep them powered. Each rover powered up only a few minutes each day, enough to warm them up, then shut down to the next day without even communicating with Earth. For many days during the worst of the storm, the rovers were completely on their own."

Dust storms also will present challenges for astronauts on the Red Planet. Although the force of the wind on Mars is not as strong as portrayed in an early scene in the movie "The Martian," dust lofted during storms could affect electronics and health, as well as the availability of solar energy.

The Red Planet has been observed shrouded by planet-encircling dust nine times since 1924, with the five most recent planetary storms detected in 1977, 1982, 1994,

2001 and 2007. The actual number of such events is no doubt higher. In some of the years when no orbiter was observing Mars up close, Mars was poorly positioned for Earth-based telescopic detection of dust storms during the Martian season when global storms are most likely.

Shirley's 2015 paper in the journal *Icarus* reported finding a pattern in the occurrence of global dust storms when he factored in a variable linked to the orbital motion of Mars. Other planets have an effect on the momentum of Mars as it orbits the solar system's center of gravity. This effect on momentum varies with a cycle time of about 2.2 years, which is longer than the time it takes Mars to complete each orbit: about 1.9 years. The relationship between these two cycles changes constantly. Shirley found that global dust storms tend to occur when the momentum is increasing during the first part of the dust storm season. None of the global dust storms in the historic record occurred in years when the momentum was decreasing during the first part of the dust storm season.

The paper noted that conditions in the current Mars dust-storm season are very similar to those for a number of years when global storms occurred in the past. Observations of the Martian atmosphere over the next few months will test whether the forecast is correct.

Researchers at Malin Space Science Systems, in San Diego, post Mars weather reports each week based on observations using the Mars Color Imager camera on NASA's Mars Reconnaissance Orbiter. A series of local southern-hemisphere storms in late August grew into a major regional dust storm in early September, but subsided by mid-month without becoming global. Researchers will be closely watching to see what happens with the next regional storm.

###

Guy Webster

Jet Propulsion Laboratory, Pasadena, Calif.

Tel: +1 818-354-6278

Email: guy.webster@jpl.nasa.gov

Dwayne Brown / Laurie Cantillo

NASA Headquarters, Washington

Tel: +1 202-358-1726 / +1 202-358-1077

Eml: dwayne.c.brown@nasa.gov / laura.l.cantillo@nasa.gov

Bill SHEEHAN (Flagstaff, AZ)

●.....*Subject: Mars Image 2016/09/19*
Received: 3 October 2016 at 07:31 JST

Dear Masatsugu, Dear Masami, I am sending an image of Mars on 2016/09/19. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmoms/2016/160919/CTr19Sept16.jpg>

SCT LX200UHTC 254mm + Barlow 2x + LRGB Filters + ASI120MM @ 0.11"/pixel (f/27)

LRGB: 13839/10719/4858/1943 frames @ 76/39/26/11 fps @ DeRot 23min S: 5/10 - T: 3/5 - Alt: 48°

Comments: This is an LRGB image of Mars on 19-Sept-2016. In the center are the regions of Tharsis, Arcadia, Amazonis. In south is Sirenum Mare. The visibility is very low in the image, which does not allow the observation of details. This was possible in a new night with low clouds, after almost a month of bad weather, but seeing conditions were poor-average.

Charles TRIANA (Bogota, COLOMBIA)
www.astroexplor.org

●.....*Subject: Mars observations August/September 2016*
Received: 9 October 2016 at 08:22 JST

Dear CMO/OAA-team! Here are my Mars observations from 25th August till 4th September 2016. I used the 20"RC of the IAS observatory located in Namibia. Thank You in advance for displaying this pictures on the CMO page! best regards

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmoms/2016/index_RSz.html

Robert SCHULZ (Vienna, AUSTRIA)

★ ★ ★

International Society of the Mars Observers (ISMO)

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

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

CMO n°455/ ISMO #81 (25 October 2016)

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



☆ Any e-mail to CMO/ISMO including the image files is acknowledged if addressed to

cmo@mars.dti.ne.jp (Masami MURAKAMI in Yokohama)

vzv03210@nifty.com (Masatsugu MINAMI at Mikuni-Sakai, Fukui)

☆ Usual mails to the CMO are acknowledged if addressed to

Dr Masatsugu MINAMI, 3-6-74 Midori-ga-Oka, Mikuni, Sakai City, Fukui, 913-0048 JAPAN