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2016 CMO/ISMO Mars Observations Made During the One-Month Period in November 2016 (λ=253°Ls~λ=272°Ls 2016)

♂・・・・・The following article deals with the 17th Report of the 2016 CMO/ISMO Mars observations made during November 2016. The planet Mars steadily continued to move from the constellation Sgr to the constellation Cap, and its apparent declination D returned to 17°S, and shined a bit higher seen from the terrestrial Northern Hemisphere, where it was seen on the SW sky and soon set to the west chasing after the planet Venus. The Martian season proceeded from λ=253°Ls to λ=272°Ls in November (the southern summer equinox λ=270°Ls visited on 28 November). The apparent diameter became smaller from δ=7.5" to δ=6.5" during one month. The tilt largely changed from ϕ=12°S to ϕ=20°S, and hence the south polar cap appeared roundish bright around from the angle to which the cap deviated. The phase angle decreased from ι=44° to ι=41° but still large.

♂・・・・・In Japan, the weather and the temperature turned to be unstable and wintry. At the end of November, the earliest snowfall hit the Kwanto district (including Tokyo) for the first time in half a century.

♂・・・・・As the CMO/ISMO Mars observations made in November 2016, we received with thanks a total of 52 observations from across the world (including the observations which we have further received but made before). The following are the contributed members and their instruments.

FOSTER, Clyde *(CFs)* Centurion, SOUTH AFRICA

8 *Colour* + 10 *IR* Images (1, 3,~ 8, 12, 13, 15, 16 November 2016) 36cm SCT @*f*/33 with an ASI290MC

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

1 *Colour* Image (20 November 2016) 36cm SCT with a DBK21AU618

KONNAÏ, Reiichi *(Kn)* Ishikawa-cho, Fukushima, JAPAN

3 *Colour* Images (4, 7, 13 November 2016) 41m SCT @*f*/62 with an ASI290MC

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

1 *Colour* Image (29 November 2016) 45cm Spec with an ASI174MC

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

3 Sets of *RGB* + 3 *IR* Images (3, 6, 7 November 2016) 25cm Dall-Kirkham with an ASI290MM

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

7 *IR* Images (1, 2, 12, 13, 16, 27 November 2016) 25cm SCT with a DMK21AU618.AS

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

4 Sets of *RGB* + 2 *IR* Images (2, 14, 19, 25, 29 November 2016) 31cm SCT with a Flea 3

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

4 Set of *LRGB* Images (3, 5, 6, 20 November 2016) 36cm SCT with a Flea 3

♂····· **We Further Received from**

DELCROIX, Marc (*MDc*) Tournefeuille, France

1 *R* + 1 *IR* Images (3 August 2016) 32cm speculum with an ASI290MM

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

15 Sets of *RGB* + 15 *IR* Images (5, 7,~12, 14, 21,~24, 26, 27, 30 October 2016)
25cm Dall-Kirkham with an ASI290MM

♂·····We are now in a position to give a short comment chronologically to each observation made in November 2016. Every image is found in the Web of the ***ISMO 2016 Mars Gallery***. However we did not received any observation made on a dozen of days: really on 9,… 11, 17, 18, 21,… 24, 26, 28, 30 November (by 22 December).

1 November 2016 (λ=253°Ls, δ=7.5", φ=12°S)

Frank MELILLO (FMl) obtained, by using a 25cm Meade which is equipped with a DMK, an IR610 image at ω=086°W. The seeing condition is recorded 5/10, there are shown no details other than the darkish Solis L area. The area of the south polar cap (spc) is light.

Clyde FOSTER (CFs) secured by a C14 SCT an L-colour image at ω=324°W by the use of an ASI290MC and also associated IR 685 image. The spc looks smaller and compact totally inside the disk, but partly makes a projection. The Hellas basin shows an internal structure (as also shown by the IR image), but its inside is yellowish and not well solved; the upperpart shows an outward projection toward SW direction. Noachis is dusky. Syrtis Mj does not show further details. S Sabæus is rather apparent but the tail of M Serpentis is not definite (on IR685, it is shown to be made of three sub-tails (the leftmost piece is Yaonis Fr).

2 November 2016 (λ=253°Ls~254°Ls, δ=7.5"~7.4")

FMl took an IR image at ω=034°W under a favourable condition 8/10. Here S Meridiani is well isolated, and Margaritifer S and the region to its west are dark, and it looks M Erythræum is dark. There runs a canal from Margaritifer S/Oxia Palus to Niliacus L. The spc area is light (to Ω =030°W, the spc has been deviated).

Efrain MORALES (EMr) obtained by using his favourite 31cm SCT an RGB composite at ω=047°W. The markings are shown well but slightly flabby: However Aram is nicely clear-cut, showing a bit reddish tint. The area of Argyre is also a bit reddish. The spc is evident and well white: The deviated part must be looking towards us. Margaritifer S shows its usual shape. Niliacus L is dark. In Chryse a shadowy area hangs down from Eos. M Erythræum looks definite.

3 November 2016 (λ=254°Ls~255°Ls, δ=7.4")

Paul MAXSON (PMx) obtained an RGB composite at ω=079°W by the use of a 25 cm Dall-Kirkham equipped with an ASI 290MM. Due to the bugged R image, a ghost line appears at the evening limb, but the white spc is beautiful: It's seen rather because the deviated side of the spc is roughly on this side. The main dark marking visible is the area of Solis L; though not so detailed in R. It's good for us to know PMx continues still the chasing.

Yukio MORITA (Mo) took by using C14 an RGB composite as well as LRGB one at ω=203°W. This time the LRGB composite looks better. However the image is dissatisfying due to the unfavourable seeing condition. The dark belt from M Sirenum to M Cimmerium is seen, and Elysium is suggested due to a presence of Cerberus. Unfortunately the spc is never caught, mainly because the deviated spc must be away since ω=203°W.

CFs obtained an L-colour image at ω=302°W. The procedure of the evening limb is clumsy. Syrtis Mj looks nice in shape as if seen on the occasion of the great apparition, but looks dirty. The spc is small but distinct.

4 November 2016 (λ=255°Ls, δ=7.4", φ=13°S)

Reiichi KONNAÏ (Kn) used a 41cm SCT to obtain an ASI 290MC colour image at ω=171°W. The image is duller under the unfavourable seeing condition 0~1/10. The dark band near the equatorial zone does not tell anything positive, but looks to imply the dust free.

CFs obtained an L-colour image at ω=291°W. The image is quite yellowish, but the spc is compactly bright. Hellas shows a colour of beige, while the preceding Ausonia looks slightly reddish. M Tyrrhenum is dark and Hesperia clearly isolates the western side of M Cimmerium. The shape of Syrtis Mj in IR685 is nicely trimmed. N Alcyonius is evident on the IR image.

5 November 2016 (λ=255°Ls~256°Ls, δ=7.4"~7.3")

Mo obtained a set of RGB and LRGB composites at ω=194°W. Both of RGB and LRGB are not good, but the RGB composite looks more equable. It is not good the spc is shown, but it must be caused because the deviated part of the spc is away. The dark marking on the evening side must be M Sirenum. Hope the R image could be unfaltering.

CFs secured an L-colour image at ω=272°W. The image looks less yellowish than before, but the spc appeared more blurred. Ausonia's reddish tint has become thinner. The western part of M Cimmerium is now widely visible.

6 November 2016 (λ=256°Ls~257°Ls, δ=7.3")

PMx made an RGB composite image at ω=052°W from ingredients taken by 290MM. The spc is very white and looks roundish. The large area of Margaritifer S to Auroræ S is darkly described, but M Erythræum is not so distinguished. S Meridiani is also shown near the evening limb, but not well described. M Acidalium is also shown and its northern part looks covered by an evening mist.

Mo got a set of RGB and LRGB composites at ω=178°W. The RGB somewhat improved because of the better R. The effect of the spc is suggested but the depiction is not enough. To shoot the spc, the tripartite filter-work should be appropriately allied. On R, such markings as M Sirenum are checked. The spc seems to face towards mainly the rear side.

CFs secured an L-colour image at ω=253°W. M Cimmerium is largely appearing. The spc is not distinct: it may be the half of it must be beyond the limb. The shape of Ausonia is well described by the IR685 image.

7 November 2016 (λ=257°Ls, δ=7.3"~7.2", φ=14°S)

PMx obtained an RGB composite image at ω=042°W under a good 8/10 seeing condition. The evening limb side is mal-processed, but the spc is roundish white viewed from the deviated side (and so one of the best images of the spc our members took in November). Aram is light. Margaritifer Sinus is dark apparent with *Hydaspes*. Auroræ Sinus is also dark evident but Mare Erythræum is not particularly visible. Niliacus L is dark, while Achillis Pons looks covered by a white mist. Mare Acidalium is visible near the arctic limb side.

Kn obtained an L-colour image by 290MC at ω=133°W. The seeing condition is still 1~2/10, and so the spc is not distinct, but the deviated spc is a bit light since we take a side view of the spc. The dark markings, presumed from the value of ω, may suggest that the area of Solis L lies on the evening side and M Sirenum on the morning side.

CFs obtained an L-colour image at ω=256°W. The spc lies mainly on the rear side, but shows up as it is. M Cimmerium and M Tyrrhenum are dark on both sides of Hesperia. Ausonia looks to show a reddish tinge. On the IR685 image, the Ætheria dark patch is dark evident near the northern limb.

8 November 2016 (λ=257°Ls~258°Ls, δ=7.2")

CFs shows an IR685 image at ω=232°W. M Cimmerium and a bit of M Sirenum are evident. Ausonia is light. The spc is almost away.

12 November 2016 (λ=260°Ls, δ=7.1", φ=15°S)

CFs gave an L-colour image at ω=181°W, but no IR image. M Sirenum is shown as a dull broad marking. The area of the spc is dull light. The season reached λ=260°Ls.

FMl obtained an IR610 image at ω=299°W. Syrtis Mj is a main marking. The area from Hellas to the spc is light.

13 November 2016 (λ=260°Ls~261°Ls, δ=7.1"~7.0")

Kn gave an L-colour image at ω=078°W. The seeing condition was 1~2/10, and the image is blurred, but the spc shows a presence. The area around Solis L appears dark vastly. The area of Argyre looks fainter. The northern limb side has also a shadowy part.

CFs gave an L-colour and an IR685 image at ω=188°W. The configuration of the dark markings is: M Sirenum on the evening side and M Cimmerium on the morning side. The spc shows no thickness

but visible on the L-colour (not on the IR685).

FMl shows IR610 images at ω=288°W and ω=307°W. Since φ=15°S, the dark Syrtis Mj looks like hanging down to the north. Hellas and the spc are separated. Syrtis Mj is depicted better on the first image, while the spc shows a presence more on the second image.

14 November 2016 (λ=261°Ls~262°Ls, δ=7.0", φ=16°S)

EMr obtained an RGB composite at ω=284°W: The image lacks sharpness, but looks pretty in general. Hesperia is well shown cut. Ausonia is a bit reddish in good contrast with Hellas's tint of beige. Syrtis Mj is large on the morning side but blurry. The spc is whitish but rather thin perhaps because the thicker part must be away. The arctic white cloud appears beautiful.

15 November 2016 (λ=262°Ls, δ=7.0")

CFs gave an IR685 image at ω=161°W. M Sirenum is visible dark though blurred. M Chronium is identified. The spc shows a faint trace. There is a dark patch near the northern limb.

16 November 2016 (λ=262°Ls~263°Ls, δ=7.0"~6.9")

CFs gave an IR685 image at ω=180°W. At last the angular diameter went down to δ=7". The northern half of M Sirenum looks darker than the other side. The shade and light appearance of the southern hemisphere looks complex. The spc is quite faint; just a tail.

FMl obtained an IR610 image at ω=260°W. M Tyrrhenum is dark as well as M Cimmerium. Syrtis Mj must be near the morning terminator. Hellas does not show up in particular. The spc area looks light.

19 November 2016 (λ=264°Ls~265°Ls, δ=6.9"~6.8", φ=17°S)

EMr obtained an RGB composite at ω=231°W. M Cimmerium stays near the CM. The area of Ausonia is a bit reddish light, and to the south of the area M Chronium runs. The spc is not distinct but the south circumpolar area looks largely hazed. On the R image, the area of Elysium is suggested by the shadowy boundaries.

20 November 2016 (λ=265°Ls, δ=6.8")

Mo gave a set of RGB and LRGB composites at ω=034°W, but both of R and L images are not good, and hence such markings as S Meridiani are not described. Just the following dark markings are suggested. The spc must have been deviated towards us but its shape does not show up.

Manos KARDASIS (MKd) sent us a composite image after a while silence. This image, obtained by using C14 and DBK21AU618 at ω=134°W, is one of the best images taken by our members in November. The spc, seen from the side, looks ambiguous in shape, but quite definite. M Sirenum and the area of Solis L are well visible, and the area of Phaethontis and M Chronium is within the scope. The NE neighbourhood looks hazed. In the vicinity of Solis L, Agathodæmon is about to go to the rear side and to the west of Tithonius L, Phœnicis L is visible as a dark spot. Further to the west of Phœnicis L, there

follows Arsia Mons weakly. On the morning side, Gordii Dorsum and its light environment are visible as well as a complex associated with Olympus Mons.

N.B.1 : On the occasion of the 2003 apparition, Stefan BUDA (SBd) took a nice image of Mars at ω=134°W, φ=19°S on September 2003 (λ=252°Ls) when δ=25″. See

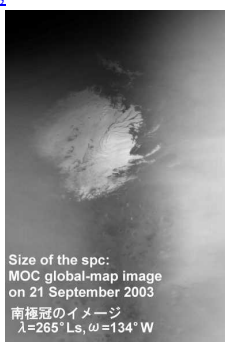
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomk/2003/030901/SBd01Sept03.jpg

At that time, the phase angle was small (ι=6.0°), and so Olympus Mons is bright due to the opposition effect. But this time we were far from the opposition (ι=42°) and hence Olympus Mons looks dull. We should also note that on 23 September 2003 Don PARKER (DPk) made an image at ω=138°W, φ=20°S when δ=22.2″ as shown in the following file:

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomk/2003/030923/DPk23Sept03.jpg

On the day, ι was about 21°, and hence Olympus Mons did not shine any longer. These images are contained in the following 2003 Mars Gallery:

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomk/2003/f_image.html



N.B.2: In the 2003 Gallery we cannot find any image in which the deviated spc faces to us at the season λ=265°Ls. So we here show a MOC global-map image on 21 September 2003 when the central line is at ω=134°W when λ=265°Ls.(→)

25 November 2016 (λ=268°Ls~269°Ls, δ=6.7", φ=19°S)

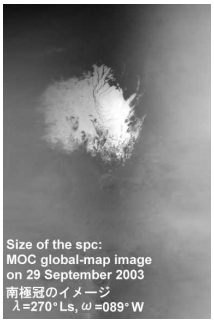
EMr got an RGB composite image at ω=189°W. M Sirenum stands out in a different tinge. To the south of M Sirenum, Phaethontis and Electris are shown side by side to the north of M Chronium. The spc does not show up perhaps because it was deviated.

27 November 2016 (λ=269°Ls~270°Ls, δ=6.6")

FMl gave an IR610 image at ω=151°W. The area around Sirenum Mare is dark. The area of the spc is light.

29 November 2016 (λ=270°Ls~271°Ls, δ=6.6"~6.5", φ=20°S)

Martin LEWIS (MLw) obtained a nice ASI 174MC colour image by the use of a 44 cm Dobsonian at ω=071°W. The spc seen from the side Ω =070°W is considerably facing to us and looks roundish. The dark markings are those from Margaritifer Sinus to Auroræ Sinus. The region of Solis Lacus is also darkish. At the arctic area, Mare Acidalium looks covered by the white haze or condensate.



N.B.3: As a sequel to NB.2, we searched a MOC global-map image when λ=270°Ls while we could not find the swath of the same central line as MLw's but just the central line at Ω=089°W on 29 September 2003 is here (→).

EMr obtained an IR685 image at ω=143°W. Mare Sirenum is dark and the area around Depressio Pontica is also particularly dark (though this phenomenon is unfamiliar). Solis L is a bit seen. The spc seems to be half shown.

♂·····**Note:** We intend to give a summary of the observations which we further/later received after the dead line as soon as the present season will come to the end.

Masatsugu MINAMI and Masami MURAKAMI

Forthcoming 2016 Mars (#14)

Ephemeris for the Observations of the 2016 Mars. VIII

January & February 2017

By

Masami MURAKAMI

AS a sequel to the preceding list of the the Ephemeris for the physical observations of Mars VII in CMO #455, we here list up the necessary elements of the Ephemeris for period from 01 January 2017 to 28 February 2017. The data are listed for every day at 00:00 GMT (not TDT). The symbols ω and ϕ denote the Longitude and Latitude of the sub-Earth point respectively. The symbols λ, δ and ι stand for the Areocentric Longitude of the Sun, the Apparent Diameter and the Phase Angle respectively. We also add the column of the Position Angle *Π* of the axis rotation, measured eastwards from the north point: This is useful when we try to determine the north pole direction from the *p*←→*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 2017*.

Date (00:00GMT)	ω	ϕ	λ	δ	ι	*Π*	*D*
01 January 2017	201.53°W	25.30°S	290.90°Ls	5.71"	36.6°	344.5°	−08°49'
02 January 2017	191.58°W	25.40°S	291.51°Ls	5.69"	36.5°	344.1°	−08°31'
03 January 2017	181.64°W	25.51°S	292.12°Ls	5.66"	36.3°	343.6°	−08°12'
04 January 2017	171.69°W	25.60°S	292.73°Ls	5.64"	36.2°	343.2°	−07°54'
05 January 2017	161.73°W	25.68°S	293.33°Ls	5.62"	36.1°	342.7°	−07°36'
06 January 2017	151.78°W	25.77°S	293.94°Ls	5.59"	35.9°	342.3°	−07°18'
07 January 2017	141.83°W	25.85°S	294.54°Ls	5.57"	35.8°	341.8°	−06°59'
08 January 2017	131.87°W	25.92°S	295.15°Ls	5.55"	35.7°	341.4°	−06°41'
09 January 2017	121.92°W	25.99°S	295.75°Ls	5.53"	35.5°	341.0°	−06°22'
10 January 2017	111.96°W	26.05°S	296.36°Ls	5.50"	35.4°	340.5°	−06°04'
11 January 2017	102.01°W	26.12°S	296.96°Ls	5.48"	35.2°	340.1°	−05°46'
12 January 2017	092.05°W	26.17°S	297.56°Ls	5.46"	35.0°	339.7°	−05°27'
13 January 2017	082.09°W	26.21°S	298.16°Ls	5.44"	34.9°	339.2°	−05°08'
14 January 2017	072.14°W	26.26°S	298.76°Ls	5.42"	34.7°	338.8°	−04°50'
15 January 2017	062.18°W	26.30°S	299.36°Ls	5.40"	34.5°	338.4°	−04°31'
16 January 2017	052.22°W	26.33°S	299.96°Ls	5.38"	34.4°	338.0°	−04°13'
17 January 2017	042.26°W	26.36°S	300.56°Ls	5.36"	34.2°	337.5°	−03°54'
18 January 2017	032.31°W	26.38°S	301.15°Ls	5.34"	34.1°	337.1°	−03°35'
19 January 2017	022.35°W	26.41°S	301.75°Ls	5.32"	33.9°	336.7°	−03°17'
20 January 2017	012.39°W	26.42°S	302.35°Ls	5.30"	33.8°	336.3°	−02°58'
21 January 2017	002.43°W	26.43°S	302.94°Ls	5.28"	33.6°	335.9°	−02°39'
22 January 2017	352.48°W	26.43°S	303.54°Ls	5.26"	33.5°	335.5°	−02°20'
23 January 2017	342.52°W	26.44°S	304.13°Ls	5.24"	33.3°	335.1°	−02°02'
24 January 2017	332.56°W	26.43°S	304.72°Ls	5.22"	33.2°	334.7°	−01°43'
25 January 2017	322.61°W	26.41°S	305.31°Ls	5.20"	33.0°	334.4°	−01°24'
26 January 2017	312.65°W	26.40°S	305.90°Ls	5.18"	32.9°	334.0°	−01°06'
27 January 2017	302.70°W	26.38°S	306.49°Ls	5.16"	32.7°	333.6°	−00°47'
28 January 2017	292.74°W	26.35°S	307.08°Ls	5.14"	32.5°	333.2°	−00°28'
29 January 2017	282.79°W	26.32°S	307.67°Ls	5.12"	32.4°	332.8°	−00°09'
30 January 2017	272.84°W	26.28°S	308.25°Ls	5.10"	32.2°	332.5°	+00°09'
31 January 2017	262.89°W	26.25°S	308.84°Ls	5.08"	32.0°	332.1°	+00°28'

Date (00:00GMT)	ω	ϕ	λ	δ	ι	Π	D
01 February 2017	252.94°W	26.20°S	309.43°Ls	5.06"	31.9°	331.8°	+00°46'
02 February 2017	242.99°W	26.15°S	310.01°Ls	5.05"	31.7°	331.4°	+01°05'
03 February 2017	233.04°W	26.09°S	310.60°Ls	5.03"	31.6°	331.1°	+01°24'
04 February 2017	223.10°W	26.04°S	311.18°Ls	5.01"	31.4°	330.7°	+01°42'
05 February 2017	213.15°W	25.97°S	311.76°Ls	4.99"	31.2°	330.4°	+02°01'
06 February 2017	203.21°W	25.90°S	312.34°Ls	4.98"	31.1°	330.1°	+02°19'
07 February 2017	193.27°W	25.82°S	312.91°Ls	4.96"	30.9°	329.7°	+02°38'
08 February 2017	183.33°W	25.75°S	313.49°Ls	4.94"	30.7°	329.4°	+02°56'
09 February 2017	173.39°W	25.66°S	314.07°Ls	4.92"	30.6°	329.1°	+03°14'
10 February 2017	163.46°W	25.57°S	314.65°Ls	4.91"	30.4°	328.8°	+03°33'
11 February 2017	153.52°W	25.48°S	315.22°Ls	4.89"	30.3°	328.5°	+03°51'
12 February 2017	143.59°W	25.39°S	315.80°Ls	4.87"	30.1°	328.2°	+04°09'
13 February 2017	133.66°W	25.28°S	316.37°Ls	4.85"	29.9°	327.9°	+04°27'
14 February 2017	123.74°W	25.18°S	316.95°Ls	4.84"	29.8°	327.6°	+04°45'
15 February 2017	113.81°W	25.07°S	317.52°Ls	4.82"	29.6°	327.3°	+05°03'
16 February 2017	103.89°W	24.96°S	318.09°Ls	4.80"	29.4°	327.1°	+05°21'
17 February 2017	093.96°W	24.84°S	318.66°Ls	4.79"	29.3°	326.8°	+05°39'
18 February 2017	084.05°W	24.71°S	319.23°Ls	4.77"	29.1°	326.5°	+05°57'
19 February 2017	074.13°W	24.59°S	319.79°Ls	4.76"	29.0°	326.3°	+06°15'
20 February 2017	064.21°W	24.46°S	320.36°Ls	4.74"	28.8°	326.0°	+06°32'
21 February 2017	054.30°W	24.32°S	320.93°Ls	4.73"	28.6°	325.8°	+06°50'
22 February 2017	044.39°W	24.18°S	321.49°Ls	4.71"	28.5°	325.6°	+07°07'
23 February 2017	034.48°W	24.03°S	322.06°Ls	4.70"	28.3°	325.3°	+07°25'
24 February 2017	024.58°W	23.89°S	322.62°Ls	4.68"	28.1°	325.1°	+07°42'
25 February 2017	014.68°W	23.73°S	323.18°Ls	4.66"	27.9°	324.9°	+07°59'
26 February 2017	004.78°W	23.58°S	323.75°Ls	4.65"	27.8°	324.7°	+08°17'
27 February 2017	354.88°W	23.42°S	324.31°Ls	4.63"	27.6°	324.5°	+08°34'
28 February 2017	344.98°W	23.26°S	324.87°Ls	4.61"	27.4°	324.2°	+08°51'
01 March 2017	335.09°W	23.09°S	325.43°Ls	4.60"	27.2°	324.1°	+09°08'

The End this season

Letters to the Editor

●·····***Subject: Mars - November 14th***
Received: 18 November 2016 at 03:19 JST

Hi Mr. Minami and All!, Here is my session after over a week of heavy overcast and rain.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161114/EMr14Nov16.jpg

○····***Subject: Mars - November 19th***
Received: 21 November 2016 at 01:18 JST

Hi Mr. Minami and All!, My session after the rain showers and an opening through the clouds.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161119/EMr19Nov16.jpg

○····***Subject: Mars - November 25th***
Received: 27 November 2016 at 09:23 JST

Hi Mr. Minami and All!, My latest session on november 25th still under the influence of heavy rains and clouds.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161125/EMr25Nov16.jpg

○····***Subject: Mars - November 29th***
Received: 6 December 2016 at 04:47 JST

Hi Mr. Minami and All!, Here is my latest attempt under below average conditions just a short session only in Ir685 filter only RGB's were effected by clouds.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161129/EMr29Nov16.jpg

○····***Subject: Mars - December 6th, 8th***
Received: 12 December 2016 at 05:35 JST

Hi Mr. Minami and All!, Here are two sessions from december 6th, 8th from below to average conditions.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161206/EMr06Dec16.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161208/EMr08Dec16.jpg

Efrain MORALES (Aguadilla, PUERTO RICO)

●·····***Subject: Mars: November 16, 2016***
Received: 19 November 2016 at 10:37 JST

Hi, I have attached my latest image of Mars November 16, 2016 at 22:11 UT. Thanks,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161116/FMl16Nov16.jpg

○····***Subject: Mars: November 27, 2016***
Received: 28 November 2016 at 09:37 JST

Hi, I have attached my latest image of Mars November 27, 2016 at 22:06 UT. Thanks,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161127/FMl27Nov16.jpg

○····***Subject: Mars: December 4, 2016***
Received: 5 December 2016 at 10:49 JST

Hi, I have attached my latest images of Mars December 4, 2016. Thanks,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161204/FMl04Dec16.jpg

○····***Subject: Mars: December 10, 2016***
Received: 11 December 2016 at 13:38 JST

Hi, I have attached my latest image of Mars December 10, 2016 at 22:42 UT. Thanks,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161210/FMl10Dec16.jpg

○····***Subject: Mars: December 14, 2016***
Received: 15 December 2016 at 14:02 JST

Hi, I have attached my latest image of Mars December 14, 2016 at 22:02 UT. Thanks,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161214/FMl14Dec16.jpg

Frank J MELILLO (Holtsville, NY)

●·····***Subject: Mars 2016/11/20***
Received: 22 November 2016 at 23:56 JST

Hello, here is Mars in average conditions at 30 degrees altitude. Now is more than 200 mil.km away and presents a small disc but still with some details like the smal SPC.

http://www.astrovox.gr/forum/album_pic.php?pic_id=20258

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161120/MKd20Nov16.jpg

Manos KARDASIS (Glyfada-Athens, GREECE)

●·····***Subject: Mars October 2***
Received: 25 November 2016 at 23:42 JST

October 2 images

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161002/PMx02Oct16.jpg

○····***Subject: Mars October 5***
Received: 27 November 2016 at 08:05 JST

Fair seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161005/PMx05Oct16.jpg

○····***Subject: Mars October 7***
Received: 27 November 2016 at 11:07 JST

Average seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161007/PMx07Oct16.jpg

○····***Subject: Mars October 8***
Received: 28 November 2016 at 10:33 JST

Decent seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161008/PMx08Oct16.jpg

○····***Subject: Mars October 9***
Received: 29 November 2016 at 08:54 JST

Windy evening

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161009/PMx09Oct16.jpg

○····***Subject: Mars October 10***
Received: 30 November 2016 at 08:31 JST

Average seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161010/PMx10Oct16.jpg

○····***Subject: Mars October 11***
Received: 5 December 2016 at 10:37 JST

Decent.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161011/PMx11Oct16.jpg

○····***Subject: Mars October 11***
Received: 6 December 2016 at 08:49 JST

So so seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161012/PMx12Oct16.jpg

○····***Subject: Mars October 14***
Received: 9 December 2016 at 11:06 JST

Average seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161014/PMx14Oct16.jpg

○····***Subject: Mars October 21***
Received: 11 December 2016 at 08:58 JST

Average seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161021/PMx21Oct16.jpg

○····***Subject: Mars October 22***
Received: 13 December 2016 at 08:41 JST

Decent seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161022/PMx22Oct16.jpg

○····***Subject: Mars October 23***
Received: 14 December 2016 at 08:34 JST

Average seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161023/PMx23Oct16.jpg

○····***Subject: Mars October 24***
Received: 16 December 2016 at 08:52 JST

Below average seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161024/PMx24Oct16.jpg

Paul MAXSON (Surprise, AZ)

●·····***Subject: Antoniadi Mars article--and book project***
Received: 28 November 2016 at 06:01 JST

Dear Martian friends, I came across the following article from 2015, in the National Herald News, a Greek newspaper, about Antoniadi. It doesn't contain much new information, but I was gratified to see that Richard and I were referenced. I note that the Greek name is rendered in two different ways in the article --as Eugenios Mihal Andoniadi and as Eugenios Mihail Andoniadis. Do any of you know which is correct?

After innumerable distractions, I am finally starting work on a new edition of **The Planet Mars** for U of Arizona Press, which was published in 1996 and so is now more than twenty years out of date. The spacecraft results have become so numerous and the science so complicated that I have joined forces with Jim Bell to do the new edition. I am going to handle the historical results--i.e., up through perhaps Mariner 9 and Viking--with special emphasis on the classical observers. The latter will always be the province that will be nearest and dearest to my heart. I am thinking of having three chapters at the heart of this section of the book--Schiaparelli, Lowell, and Antoniadi.

I was wondering, Richard and Randall, if you could recount to me what you found at the Paris Observatory when we were there in 2009? As I recall (though I was mainly eavesdropping on what you were finding out while working on other things), you found indications of a connection between Antoniadi to Basil Zaharoff, the notorious "Merchant of Death." What else did you discover about Antoniadi's family and his private life in Paris?

We had a few interesting small-scale events on the occasion of the centennial of Percival Lowell's death here in Flagstaff-- nothing grand. My article on Percival Lowell's last year is appearing in *the Journal for the Royal Astronomical Society of Canada* in December. I have already discovered something that needs correction (related to Lampland).

Best, Bill

Eugenios Mihal Andoniadi, The Famous Greek Mapmaker of Mars

By Constantinos E. Scaros

http://www.thenationalherald.com/author/dscaros/

August 17, 2015

Eugenios Mihail Andoniadis was one of the most famous of all planetary astronomers.Yet few Greeks anywhere in the world could readily identify this man. This is especially curious since E. M. Antoniadi (as he was later known) is the most renowned question of mapmaker of Mars in human history. It was not until the 1975 Viking orbiter images that Antoniadi's maps became a part of history rather than regularly consulted geographic guides. Such was the level of Antoniadi's overall work that he is attributed with finally resolving the most sensational and perplexing question ever to be raised by Mankind; the existence of the Martian canals.

On March 1, 1870, Antoniadi was born in the Tatavla quarter of Constantinople the son of Michel Antoniadi and Photini Alexiou. Antoniadi so quickly developed an interest in astronomy that by his late teens he was already systematically searching the night skies with a 3-inch (76-mm) refracting telescope. First in Constantinople and later on the beaches of the island of Prinkipo, the young Greek began to compile detailed drawings of the planets and other objects he observed. Antoniadi's exceptional talent as a draftsman was immediately recognized as he submitted his drawings to the *Société Astronomique de France* and the *British Astronomical Association.*

In 1893, the young Greek was invited by (Nicholas) Camille Flammarion (1842-1925), to work at his private observatory at Juvisy-sur-Orge, near Paris. Flammarion was one of the world's leading astronomers as well as the funder, in 1887, of the French Astronomical Society. Antoniadi published regularly in this society's official bulletin L'astronomie. While Antoniadi was to earn a reputation as a brilliant observer it is in his role as a publishing scholar upon which his international fame was to rest. Aside from French the young Greek was fluent in English and regularly wrote for the *Journal of the British Astronomical Association.* Once in France

Antoniadi devoted the rest of his life to the telescopic observation of planetary surfaces.

Clearly Antoniadi was a well-respected colleague who was read and listened to closely. But he was not initially a leading figure at the very center of the field of cutting edge astronomical debate. All that would come with the international controversy over life on Mars.

Giovanni Virginio Schiaparelli (1835-1910), an Italian astronomer was the director of the Milan observatory from 1862 until 1900, when he retired. Schiaparelli was the first to observe the asteroid Hesperia (1861) and is credited with identifying the orbits of numerous comets and shooting stars. Such was Schiaparelli's work that he was awarded the prestigious Lalande Prize of the French Academie des Sciences in 1868. Today, Schiaparelli is most known for his observations and writings on the planet Mars.

Schiaparelli was not the first astronomer to draw maps of Mars but he was the first to note specific geographic features such as mountain ranges, seas, islands, capes, straits and so on. More importantly Schiaparelli was the first to systematically assign specific names to these geographic forms on his published maps. It was the translation of the word canali, which in Italian can mean either "channels" or "canals" that caused an international sensation.

Percival Lowell (1855-1916), a wealthy businessman and intellectual, who founded and became the director of the Lowell Astronomical Observatory in Flagstaff, Arizona, immediately, responded to the implications of canals on Mars. In 1906, Lowell published *Mars and Its Canals* arguing that for these massive canals to exist some intelligence must be at work on the planet surface (New York: Macmillan). A charismatic individual and dynamic public speaker Percival Lowell soon had the world scientific community and the world press abuzz with his theories.

Antoniadi made his observations from the Grand Lunette at Meudon to study Mars's planetary oppositions between 1924 and 1941. While much of Antoniadi' public life and work is documented his private life remains largely unknown. Curiously Antoniadi never officially belonged to the observatory staff. He referred to himself simply as the "astronome volontaire à l'Observatoire de Meudon." Antoniadi was a man who could easily have secured a position in astromony literally anywhere in the world. But he did not seem to have needed such employment. On June 9, 1902, Antoniadi married Katherine Sevastupulo, who is said to have belonged to one of the leading families in Paris's Greek community. Curiously history does not now record how Antoniadi made his living, assuming that he needed to do.

It is perhaps difficult for the modern Reader to fully comprehend the degree of public response and interest in Percival Lowell's assertion of the intelligent life on Mars. What would otherwise have been dry academic articles read and argued by only a small circle of persons became the stuff of banner headlines in newspapers around the world. The scientific debate on the true surface of Mars became one of the very first international sensations of modern history.

At first, while at the Juvisy-sur-Orge observatory, Antoniadi was a supporter of Lowell's work. Yet, Antoniadi's own ongoing investigations and the publications of his colleagues caused him some considerable reflection. As William Sheehan has noted in, *The Planet Mars: A History of Observation and Discovery*, Antoniadi's: "confidence in the whole network had been badly shaken by the "discovery" by Lowell and his assistants of what Antoniadi referred to as "subjective" linear markings on Mercury, Venus, and the Jovian satellites. Whereas in 1898 Antoniadi had stated that "despite the skepticism of several eminent authorities, I do not hesitate to say that the famous canals of Mars have a true objective existence," by 1902 he characterized his position as "agnostic" (Tucson: U of Arizona Press, 1996)."

Such was Antoniadi's professional accomplishments that no less a figure than Henri Deslandres

(1853-1948) the director of the Meudon Observatory placed the Grand Lunette, then, as now the largest refractor telescope in Europe (and the third largest in the world) fully at the Greek's disposal. This led to a revelation. As Antoniadi's wrote of his observations of Martian deserts using the Grand Lunette, "[T]he soil of the planet then appeared covered with a vast number of dark knots and chequered fields, diversified with the faintest imaginable dusky areas, and marbled with irregular, undulating filaments, the representations of which was evidently beyond the powers of any artist. There was nothing geometrical in all this, nothing artificial, the whole appearance having something overwhelming natural about it."

The ever-meticulous Antoniadi soon realized that various optical effects were at play. Some involved the diffraction of light by the Earth's atmosphere that gave the illusion of spots on his telescope lens. Other's had to do with the eye's linking of many tiny surface details into apparently meaningful patterns. In time Antoniadi took the unwavering position that, "Nobody has ever seen a genuine canal on Mars." He rightly concluded that the "completely illusory canals" seen on Mars were, in fact, irregular features on that planet's surface. The entry on Antoniadi in the International Encyclopedia of Astronomy flatly concludes, "he settled the controversy about the canals on Mars (Patrick Moore, editor, New York: Orion Books, 1987)."

In 1930, Antoniadi published, *La planète Mars, 1659-1929* (Paris: Hermann et Cie), which has been translated into English by Patrick Moore as *The Planet Mars* (Sheldon Devon, U.K.: Keith Reid, 1975). Much has been written about Antoniadi. For those interested in learning more about Antoniadi's career they can consult Richard J. McKim's, 1993, two part article, "*The Life and Times of E. M. Antoniadi, 1870-1944. Part I: An Astronomer in the Making"* (Journal of the British Astronomical Association **103**: 164_170. Bibcode: 1993JBAA..103..164M and Bibcode: 1993JBAA..103..219M). A serviceable overview that has extended passages on Antoniadi's career can be found in the William Sheehan book already mentioned.

Antoniadi has experienced lasting fame within the scientific community in yet another manner. No less than three geographic sites on two planets and one moon are named after him. On our Moon there is the Antoniadi Crater, on Mercury there is the Antoniadi Dorsum, and on Mars there is the 381 km Antoniadi Crater, so named in 1973. This means that quite literally in our solar system more geographic locations are named after Eugenios Mihail Andoniadis than any other single Greek in history. In like manner Modern Greek history will never be complete until figures such as Antoniadi, an internationally recognized astronomer, on an equal footing with figures such as Flammarion, Schiaparelli and Lowell are factored into the wider flow of historical events.

○····***Subject: Re: Antoniadi Mars article--and book project***
Received: 29 November 2016 at 05:30 JST

Dear Richard, I am looking forward to reading the draft of the paper in due course, and reminded of just how much effort it has taken to uncover the details about Antoniadi you did. He rather took some satisfaction, I think, in concealing them--witness his destruction of all his observations before his death. I suspect there are still some interesting stories to be found out, as there always are.

I was reminded of this just today, when I discovered that Clifford Cunningham, who has spent decades researching the early history of the asteroids, has found a new wrinkle in another old story--that of Piazzi and the discovery of Ceres. He somehow managed to scout out a passage in an old book, Basil Hall's Patchwork (1841), showing that Niccolo Cacciatore should be credited--as Heinrich d'Arrest has been--as co-discoverer of Ceres. Piazzi was calling out star positions while Cacciatore recorded them, and they kept this up for three nights--each time finding the position of one of them was off--before Piazzi realized they were dealing not just with observers' errors but with a new planet. I have rushed to add the epi-

sode into the chapter on asteroid discovery that I wrote up for the book on Pluto I've done with Dale Cruikshank.

***Regarding Antoniadi, I will send you the draft of the chapter for comment once I have it--as in the old days, when we routinely took turns with such favors; it will probably be sometime after the New Year. Like you, I have a number of literary projects in hand, and also like you, none of them are at all lucrative. (How could there be? There are so few of us enthusiastic about these topics on the whole planet -- alas!) One that I have undertaken has been a series of "guides" to planets, being published as part of a series for the Science Museum, London, by Reaktion Press. Bill Leatherbarrow was first out of the blocks with a Moon book; I have finished (with assistance from Tom Hockey of Northern Iowa University) ones on Jupiter and Mercury, and they are eager to have one on Mars. I'm not particularly keen to do the latter, since I've done so much already in that line, but if I can interest you in co-authoring it, I would change my mind in a trice. All the best.

○····***Subject: of possible interest***
Received: 29 November 2016 at 07:45 JST

Dear Richard (and other Martians), I realize you, except Randall, may not get the *Journal of the Royal Astronomical Society of Canada*, and so in the event it may be of interest I am sending the word file of "*Percival Lowell's last year*," the article I wrote for them which is about to appear (in the December issue of the journal). All the best, yours,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/Percival Lowell's last year.pdf

○····***Subject: RE: of possible interest***
Received: 29 November 2016 at 08:48 JST

Last line should be "despite Constance doing her worst" (autocorrect be d---d

Bill SHEEHAN (Flagstaff, AZ)

●·····***Subject: Re: Antoniadi Mars article--and book project***
Received: 28 November 2016 at 18:05 JST

Thank you Bill. I did not yet discover the precise relationship, for the use of the word Uncle is apparently somewhat flexible when used among Greeks of that time, but I will let you know my final conclusion. There would be no chance of getting birth certificates, as Mr Z is known to have covered his tracks. I have recently drafted a paper about this matter and if accepted will send you a pre-print for your use. It is not yet finished or submitted but ought to be in a month or two. I am not quite ready to give a full and accurate account because checking the information is not easy! I would not want to give you a half truth. I am glad to see us both referenced in the article you kindly sent, and it was not a mere copy of what we had written, so someone actually did some research there.

Good luck with the writing. I am busy with four simultaneous writing projects, but sadly none for money! All the best

Richard McKIM (Peterborough, the UK)

●·····***Subject: Mars 2016.08.03***
Received: 30 November 2016 at 16:10 JST

Dears, I found on my hard drive a forgotten session on Mars, dated from early August, under lower than average conditions: Steady skies,

in infrared: http://www.astrosurf.com/delcroix/images/planches/m20160803i-20h20.0UT-MDe.png
in red: http://www.astrosurf.com/delcroix/images/planches/m20160803r-20h39.9UT-MDe.png

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160803/MDc03Aug16.jpg

Marc DELCROIX (Tournefeuille, FRANCE)

●·····***Subject: Mars 03 December 2016***
Received: 5 December 2016 at 00:35 JST

Dear Dr. Minami, I have attached here my latest image of Mars captured under exceptionally (for ↙

our place in this season). Good seeing.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161203/Kn03Dec16.jpg

Recently I am trying the "*Drill-less Active Mirror Cooling System using a Portable Spot Cooler*" proposed by an excellent planetary imager Ryuichi IWAMASA in Yokohama. Please find an attached montage of my mirror cooling unit(↗), which seems to be very effective in controlling tube currents. GOOD Seeing!

○····***Subject: Mars 09 December 2016***
Received: 14 December 2016 at 15:49 JST

Dear Dr. Minami, Sorry to be late in submitting my latest Mars observation. Attached here is the image taken under poor seeing condition. SPC indistinguishable, SPR slightly lighter? Good Seeing!

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161209/Kn09Dec16.jpg

Reiichi KONNAÏ (Fukushima, JAPAN)

●·····***Subject: Mars 2016/12/06 1520UT CM323***
Received: 7 December 2016 at 02:49 JST

Hi all, I have returned from my family visit to the UK and it's nice to be back in the observatory and seeing our "small red planet" again. Mars is now at Ls 275 and 6,4" diameter. Subtle markings in Hellas seem to indicate that conditions are clear(?), and in my opinion, conditions appear calm from a dust storm perspective. The capture is a 3 × 90s derotation , and I have also aligned the planetary north/south in Winjupos. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161206/CFs06Dec16.jpg

PS: Although a family visit, it was a pleasure and a privilege to be able to meet up with Jeremy Shears (BAA president), John Rogers (BAA Jupiter section) and astro-imagers Martin Lewis and David Arditti for drinks and a meal (image attached) whilst I was ↗ in London. I was also able to pick up a copy of Richard McKim's monologue on Telescopic Martian dust storms, which is now proudly included in my growing Mars library at home.

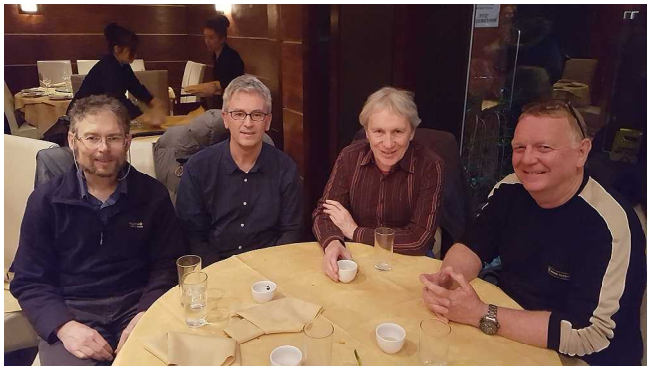


Image taken at the Imperial China Restaurant, Piccadilly London. L→R: David Arditti, Martin Lewis, John Rogers, Clyde Foster.

○····***Subject: Mars 2016/12/08 1649UT CM325***
Received: 9 December 2016 at 02:42 JST

Hi all, Very poor conditions this afternoon and this IR capture was through dense clouds. Submitting for the record. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161208/CFs08Dec16.jpg

○····***Subject: Mars 2016/12/10 1330UT CM257***
Received: 10 December 2016 at 23:27 JST

Hi all, This daylight IR capture from this afternoon is testament to the incredible technology and software we are privileged to have at our disposal nowadays. Current atmospheric conditions (cloudy and very hot) in my region can only be described as "terrible" and Mars was a boiling, blurry, dynamic mess, with only rare indications that I was observing a disk! Focussing was almost impossible and was eventually done by my own "gutfeel" and guessing the best focus point. Nonetheless, I was surprised that I got this final result, and I am again submitting for the record. Rather amazingly, in the circumstances, Mare Cimmerium, Mare Tyrrhenum, Hesperia, Ausonia and a hint of the Elysium regions are detectable. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161210/CFs10Dec16.jpg

○····***Subject: Mars 2016/12/11 1410UT CM257***
Received: 12 December 2016 at 00:30 JST

Hi all, Another IR capture of Mars from this afternoon. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161211/CFs11Dec16.jpg

○····***Subject: Mars 2016/12/11 1653UT CM296***
Received: 12 December 2016 at 16:32 JST

Hi all, Conditions improved a little late yesterday afternoon and I was able to capture a colour and a further IR. Syrtis Major and Hellas had rotated into view. Interesting that the outline of Hellas is very ill-defined, certainly not bright, and there appears to be quite large albedo features extending across the basin to the south and East. Despite the poor conditions, from my processing, this appears to be "real" although any comments are welcome.

Best regards

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161211/CFs11Dec16.jpg

○····*Subject: Mars 2016/12/12 1813UT CM306*
Received: 15 December 2016 at 03:18 JST

Hi all, IR capture from 12 December. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161212/CFs12Dec16.jpg

○····*Subject: Mars 2016/12/13*
1646UT CM275, 1734UT CM286 IR
Received: 15 December 2016 at 16:34 JST

Two IR captures from 13 December, as poor conditions are continuing. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161213/CFs13Dec16.jpg

Clyde FOSTER (Centurion, SOUTH AFRICA)

●·····*Subject: Mars and Uranus 29th Nov 2016*
Received: 8 December 2016 at 05:02 JST

Hi, Two very different targets, although both small, imaged during fairish seeing last Tuesday 29th Nov. from St Albans, UK.

First was Mars some four and a half months after my last attempt as the planet simply refuses to slip away quietly - in fact it is higher in altitude from here now compared to June/July, but is just a tiny 6.5" across.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/161129/MLw29Nov16.jpg

Later in the night I had a third attempt this apparition at imaging Uranus in IR with 610nm filter. Best of

the three with image colourised for aesthetic reasons and the moons processed separately. Stacked best 60% of the two best 3min videos (out of 6 taken). Quite pleased with this one. See at the top of the page here if you don't get the attachment for some reason;

Cheers,

Martin LEWIS (St Albans, the UK)
www.skyinspector.co.uk

☆ ☆ ☆

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CMO n°457/ ISMO #83 (25 December 2016)

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