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2013/2014 Mars Observations during the Latter Half of April 2014

♂・・・・・The planet Mars was moving backward inside Vir in the sky during the period of the second half of April 2014 (from 16 April to 30 April 2014) just after the closest approach to the Earth on 14 April. During April, the apparent diameter did never fall below δ=14", and it was δ=14.5" at the end of April. So we received the observation reports more than expected. The Martian season proceeded from λ=117°Ls to λ=124°Ls, and hence we enjoyed the observations of the northern summer of the planet. The phase angle ι was ι=06° on 16 April, while it increased to ι=18° at the end of April. The central latitudes (tilts) went from φ=22°N to 24°N, so that the northern hemisphere was well observed together with the north polar cap (npc) at the minimal state. As has been expected, an arctic cloud appeared to the Northern West of M Acidalium in the shape of a horseshoe, and the observations nicely continued toward May 2014 (to be reported in the next issue).

♂・・・・・ During the period, we received with thanks a total of 143 observations from 34 observers: Domestically we received 33 observations from 5 members, and 6 observers in Australia contributed 17 observations, 15 European observers did 53 observations, 7 observers in the American continents sent us 38 observations, and one observer in Iran reported 2 observations. The following are the contributed observers with the apparatus used. We would like to express our gratitude to all observers for their kind contributions.

AERTS, Leo *(LAt)* BELGIUM

1 *Colour* Image (16 April 2014) 36cm SCT with a DMK21AU618

ALBERT, Jay *(JAl)* Lake Worth, FL, the USA

1 Drawing (24 April 2014) 310×28cm SCT

ARDITTI, David *(DAr)* Stag Lane, Edgware, Middx, the UK

2 *Colour* Images (17, 18 April 2014) 36cm SCT with a Flea 3

BATES, Donald R *(DBt)* Houston, TX, the USA

4 Sets of *RGB* Images (16, 19, 20, 25 April 2014) 25cm Spec with an ASI 120MM

BOSMAN, Richard *(RBs)* Enschede, The Netherlands

1 Set of *RGB* + 1 *Colour* Images (16, 23 April 2014) 36cm SCT with a Basler Ace

BUDA, Stefan *(SBd)* Melbourne, AUSTRALIA

1 Set of *RGB* Images (30 April 2014) 40cm Dall-Kirkham with a DMK21AU04

CURCIC, Bratislav *(BCr)* Melbourne, AUSTRALIA

3 Sets of *RGB* Images (27, 30 April 2014) 28cm SCT with a QHY5L-II

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

1 Set of *RGB* Images (19 April 2014) 18cm Spec with an i-NOVA PLA C+

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

1 Set of *LRGB* Images (29 April 2014) 36cm SCT @*f*/27 with a Flea 3 ICX618

GHOMIZADEH, Sadegh (*SGh*) Roudehen, IRAN

2 *Colour* Images (17, 25 April 2014) 36cm SCT with a DMK21AU04.AS

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

7 Sets of *RGB* + 7 *IR* Images (17, 21, 22, 25, 28 April 2014) 36cm SCT with an ASI 120MM

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

8 *Colour* Images (23, 24, 26 April 2014) 31cm Spec with a SONY HC9 VideoCam

JUSTICE, Mark *(MJs)* Melbourne, AUSTRALIA

10 Sets of *RGB* Images (24, 27, 30 April 2014) 30cm Spec with a DMK21AU618

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

2 *Colour* + 1 *IR* Images (24, 30 April 2014) 28cm SCT with a DMK21AU618

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

9 *Colour* Drawings (22,~24, 26, 27 April 2014) 600×, 500×30cm SCT

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

4 *LRGB* + 4 *B* Images (18, 23, 24, 30 April 2014)
28cm SCT @ *f*/45 with an ASI 120MC & Basler Ace acA1300-30gm

LAWRENCE, Pete *(PLw)* Selsey, WS, the UK

1 *Colour* Image (22 April 2014) 36cm SCT with an ASI 120MM

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

2 *Colour* Images (28*, 30 April 2014) 45cm Spec, 25cm Spec* with an ASI 120MC

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

15 *Colour* Images (17, 20, 22 April 2014) 25cm SCT with a ToUcam Pro II

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

5 Drawings (25 April 2014) 400×20cm ED refractor* Fukui City Observatory*

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

6 Sets of *RGB* Images (17, 19, 21, 23, 25, 29 April 2014) 31cm SCT with a Flea 3

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

7 Sets of *RGB* + 7 *LRGB Colour* + *7 L* Images (22, ~24, 26 April 2014) 36cm SCT with a Flea 3

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

10 *Colour* + *4 B* Images (16, ~22 April 2014) (36cm SCT)

PELLIER, Christophe *(CPl)* Nantes, FRANCE

2 Sets of *RGB* + 1 *IR* Images (16/17 April 2014) 25cm Spec with a PLA-Mx

SMET, Kris *(KSm)* Bornem, BELGIUM

1 Drawing (22 April 2014) 220×30cm Spec

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

1 *Colour* Image (17 April 2014) 36cm SCT with a QHY5L-II

SUSSENBACH, John S ***(JSb)*** Houten, the NETHERLANDS

1 Set of *RGB* + 1 *Colour* Images (19, 22 April 2014) 28cm SCT @*f*/20, 25 with a QHY5L-II

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

11 *Colour* Images (16, 18, 19, 26, 29, 30 April 2014) 36cm SCT with a Flea 3

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

1 Set of *RGB* Images (30 April 2014) 36cm SCT @*f*/24 with an ASI 120MM

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

5 Sets of *RGB* Images + 1 Drawing (19, 27, 29, 30 April 2014)
308×20cm Spec, and with a DBK21AU618

WELDRAKE, David ***(DWr)*** Bungendore, NSW, AUSTRALIA

1 Set of *LRGB* Images (17 April 2014) 13cm refractor @*f*/70 with an ASI 130MM

WILLEMS, Freddy ***(FWl)*** Saint Johns, FL, the USA

4 Sets of *RGB* + 4 *IR* Images (22, ~24 April 2014) 36cm SCT with a DMK21AU618.AS

♂ · · · · · · As in the preceding issue, we shall here try to give a simple review chronologically to each observation made during the second half of April 2014. The observer's name will be abbreviated to the code symbol whose family name will be found however when he first appears in this column. The code name is familiar to us, but otherwise the observer's list above should be helpful.

16 April 2014 (λ=117°Ls, δ=15.2")

Don BATES (*DBt*) gives a set of images at ω=053°W, where the R image looks to show a normal detail, but the RGB does not. Since G and B roughly give the Tharsis dots, this insufficiency may be due to a lack of the seeing.

Damian PEACH (*DPc*) obtained a superb colour image of Mars at ω=062°W as well as a B image at ω=064°W on the occasion of his expedition to the Barbados Islands. The colour image here can be said the best one among ever shot for this area from any terrestrial bases. S Meridiani and Brangæna are sharply described despite the fact they are located quite near the evening limb. Several minor markings which lie from Oxia P westward beyond Eos upto Tithonius L are shown quite definitely. Auroræ S looks quite faded but shows its fine structure together with a few antennae. Juventæ Fons here is described most naturally. The area of Solis L, though near the southern limb because of ϕ, is detailed as well as the area of Aurea Cherso. The area of M Erythræum looks however rather blunt, maybe because it has moved to the evening side. The area of Argyre is locally associated with a misty patch near the southern limb. The evening mist is a thick condensation to the north of Thymiamata. Chryse is however not misty (because of ι ?). The morning side is deeply whitish misty. It is clearly seen how the mist expands to the southward (to the west of Solis L). The Tharsis trio summits poke out from the lower lying mist as the dark brownish dots. Especially the Arsia terrace is outstandingly exposed as if a large comma-shaped bead. The Ascræus white cloud is thick upto the area of Olympus Mons, which appears now as a considerably large dark brownish roundish area. Alba Patera is a bit misty. M Acidalium shows a complex light and shade inside, and the lighter part is of a brownish-sandy tint. The preceding so-called "bridge" is here no more than an isolated dark point. Hyperboreus L is rather fainter, maybe due to some dust disturbance

around there. The description of the npc (north polar cap) and its neighbourhood are quite naturally depicted: Chasma Boreale's inlet shows naturally a brownish dusty spread aspect. It is amazing for us to be able to find Olympia to the rear side of the npc quite near the northern limb. The preceding ice crystals are made of two flakes. The B image shows a small mist patch inside Chryse and another at Ophir-Candor.

David TYLER (*DTy*) shows three colour images side by side at ω=319°W, 326°W, 335°W. The images are above average, but the time intervals should be said shorter. The aspect of the evening mist which goes up and then curves down to the northern part of Syrtis Mj is shown well by the three images. The eastern end of S Sabæus is faded and M Serpentis looks very faded or nothing left. Huygens crater is definite on the three images. S Meridiani is shown modestly together with Brangæna. The morning mist comes to the north of S Meridiani, but the condensation of mist to the north of Thymiamata is not thickly moulded yet. The so-called "bridge" preceding M Acidalium is roughly visible. On the final image, Oxia P is nicely structured. Hellas is white near the evening limb with some shaded part inside. The npc is detailed to some extent. The second image at ω=326°W was also shot on the preceding day and they should be compared. The image at ω=335°W is also compared with the one at ω=334°W on the preceding day. The canal following Iaxartes is clearer this day, so that the seeing must be a bit better on this day. Since the procedure by *DTy* looks very stable, and if some abrupt and unexpected incidences happen on the surface, the method of lining up the same angles would be very valuable.

Leo AERTS (*LAt*) made a colour single image at ω=329°W where S Sabæus and S Meridiani are quite delicately described. However the expansion of the Hellas cloud looks quite different than the case of *DTy*'s image on 15 April 2014 at ω=329°W. On the other hand N Alcyonius is more clearly shown on *LAt*'s image.

Richard BOSMAN (*RBs*) issued a single colour image at ω=341°W: The colour is not so vivid that the evening Hellas and the morning mist look duller, while the dark markings appear quite detailed. There are several ghosts due to the processing, while it is amazing to see that S Sabæus and S Meridiani show fine structures (some look too bizarre), and the area of Oxia P is nicely resolved as if the author might apply a dexterous procedure to sharpen a blurred dot into a sharp point: The details of the Aryn's nails as such however could become a standard in the near future. The so-called "bridge" preceding M Acidalium is here quite a small and distinct dot. The present image is comparable with *DTy*'s image on 15 April 2014 at ω=341°W which looks quite classical.

Christophe PELLIER (*CPl*) gives a couple of image sets at ω=350°W, ω=002°W as well as an IR image at ω=358°W. RGB images are made mildly. The white Hellas is going away. The evening mist over Syrtis Mj is shown up as if condensed on the first image. On the second image the evening mist strides over Syrtis Mj to flow into Æria. See also excellent B ingredients. The morning mist is also mild. One phenomenon to be noticed is the fact that, if checked in B, to the north of Oxia P there is a mist patch which is related with the mist seen to the north of Thymiamata. The so-called "bridge" is visible in R and G and looked doubled. The shape of the npc is also well described in R and G. The IR (685nm) image at ω=358°W shows the bridge clearly.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140416/DBt16Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140416/DPc16Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140416/DTy16Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140416/LAt16Apr14.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140416/RBs16Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140416/CPl16Apr14.jpg

17 April 2014 (λ=117°~118°Ls)

David ARDITTI (*DAr*) gave a single LRGB image at ω=002°W. The general shade of the image is not so different from the one in his previous work. An influence of the evening mist over Syrtis Mj is shown, while *CPl*'s RGB image at ω=002°W on the previous day 16 April is more carefully taken and more dynamically expresses the relation of the mist over Syrtis Mj including the real depiction of the overflow into Æria. The description of the morning mist also looks different on both images. That is, *CPl*'s is natural. The npc however is more detailed in *DAr*: This might have come from the difference of the apertures.

Efrain MORALES (*EMr*) took one set of R, G and B images at ω=046°W. Already, nicely depicted S Meridiani is near the evening limb together with Brangæna, and M Acidalium is at the afternoon side. The description of the markings is beyond the average: Several minor markings from Oxia P to Agathodæmon and Tithonius L are well to be checked. Unfortunately, however, the region of Solis L to M Erythræum looks rather dull. Note to the north of Thymiamata a thick patch of evening cloud is visible separated from the mist at the evening limb. The B image shows a series of white mist patches along the equator. Inside the morning mist, Ascræus Mons pokes out as a dark brownish singularity, and its preceding wine-coloured markings are interesting.

Frank MELILLO (*FMl*) worked for about three hours and produced ten images at ω=050°W, 053°W, 059°W, 063°W, 067°W, 071°W, 075°W, 079°W, 084°W, 089°W. The lhs of the Martian disk exactly indicates the true limb (on the northern hemisphere), and so we here note until ω=067°W S Meridiani can be traced (but afterward it hides at the rear side). The darker area at the WN part of M Acidalium was visible yet at ω=089°W. The morning terminator must have been considerably inside from the possible morning limb: By ω=063°W, Ascræus Mons pokes out, and the other Tharsis Montes appear. The Ascræus cloud appear early, and shows itself at its best at around ω=075°W～084°W.

DPc gave at Barbados also an excellent colour image on 17 April at ω=055°W: This compares favourably with the previous one obtained on 16 April at ω=062°W. There is a little difference between the two: On the colour image on 16 April, the blackish markings are weakened so that the shade and light aspect is made more obvious in lower contrast while it appears on the image on 17 April, the blackish aspect looks more favoured. Even then the brownish-like tint caused by the dust inside Hyperboreus L is well shown. Because of a difference of contrast, the description around Solis L and the area of Aurea Cherso looks to have lost clarity, while such minor ria markings at the southern boundary of Chryse appear more lively. Also the poking out of Tharsis Montes is clearer. Note that the tint of Tempe is not very the same. The dot of the so called "bridge" is denser because of the difference of contrast. Olympia lying to the rear side of the npc is obscurer by the processing applied on 17 April. On this day *DPc* gives two B images at ω=048°W and ω=058°W to show how the appearances of Montes are different. The B images look however to lack a richness compared with HST's B image in 1997.

Peter GORCZYNSKI (*PGc*) obtained one set of R, G, B and IR images at ω=058°W. The RGB image looks to lack a distinction, but quite detailed. Especially, the depiction of around Solis L and Aurea Cherso is good, and the preceding area of M Erythræum (and its north) attracts our interest. Inside the morning mist, Ascræus et Pavonis Montes appear as coloured dots. Olympus Mons is also coming. The

npc is detailed. Another point to be noticed is a white cloud patch seen near the terminator to the following area of Tanais. This is clearly seen in G and B (also see *DPc*'s B image at ω=058°W (same angle as *PGc*'s).

David WELDRAKE (*DWd*) gives an LRGB image at ω=158°W. In addition to the cloud associated with Olympus Mons, the orography of Tharsis Montes is visible each separated. However it is difficult to judge on which side of the mountains the clouds are located. The Alba cloud is also quite whitish. There are no explicit details of the npc and Olympia; just the npc may suggest a faint misty ejection to the SE direction. Elysium is coming near the morning terminator: Phlegra is broad and shadowy even in B. Propontis I is apparent in R.

Sadegh GHOMIZADEH (*SGh*) gives a nicer single colour image at ω=250°W. The centre of Hellas is very white, while the perimeter is unclear. Elysium is whitish near the evening limb, and discriminated from the pinkish eastern boundary of the Ætheria dark patch. The dark markings are all shown up, but too high contrasted.

Josep SOLDEVILLA (*JSv*) sent us his single colour image at ω=324°W which was taken by the use of a C14. The dark markings look detailed to some extent, while the tint of the image looks as if it's just monochromatic. Because of a lack of the B ingredient, the evening mist is just suggested by a mottled expression of Syrtis Mj and the brightness of Æria. The Huygens crater is visible, and the complex aspect of the northern end of Syrtis Mj and a detail of S Sabæus are well described. A bit more device of processing will improve soon the images.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/DAr17Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/EMr17Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/FMl17Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/DPc17Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/DWr17Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/SGh17Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/JSv17Apr14.jpg

18 April 2014 (λ=118°Ls)

PGc gives two nice sets of R, G, B and IR742 images at ω=026°W and ω=056°W. The RGB images are excellent in details though the colour scheme is a bit limited. The former shows a slightly light part to the north of M Erythræum, and the latter quite shows the area around M Erythræum as well as the area from Solis L to the neighbourhood of Aurea Cherso. The former also shows M Acidalium near the CM and preceding it the "bridge" appears as likely a dark dot (originally in R). There is seen a canal from S Meridiani to S Margaritifer. At the evening limb a condensed mist is seen after Syrtis Mj went to the rear side. The latter image shows a mist patch to the north of Thymiamata near the evening limb (still separated from the limb. This mist patch was also visible weakly at ω=026°W (see B). On the morning side the Tharsis summits poke out in a dark brownish tint from the lower morning mist. Olympus Mons is a bit inside the disk. The mist extends to the northern side of Thitonius L, while to the west of Noctis L, there is a small area which is free from the mist. At the arctic region, we can see a small cloud to the east of Tanais, and also a dusty disturbance at the inlet of Chasma Boreale inside the npc.

DPc gave just, as on the preceding day, a colour single image at ω=057°W from Barbados. This is also taken at a similar angle to *PGc*'s second image at ω=056°W, and hence the characteristics revealed by

PGc are all described in further details. Since *DPc* also worked on the preceding day (17 April) at ω=055°W with which the present image is so very comparable. In fact it is rather difficult to find much difference in the processed images: Some slight differences may be found at the position of the morning mist patch to the east of Tanais, the density or distribution of the white mist patch to the north of Thymiamata, the mist status to the SE direction of Arsia, and so on. Hence we shall skip without giving further descriptions, but hope the review on *DPc*'s colour image on 17 April (as well as *PGc*'s RGB image above) is to be referred.

Teruaki KUMAMORI (*Km*) shot at ω=188°W. A whole of M Cimmerium has just been inside the disk: The ant's feet are visible, maybe as well as the Herschel crater. M Sirenum precedes and is seen near the evening limb. The conjunction between Maria looks interesting. The cloud associated with Olympus Mons is still isolated, but its whiteness has a little weakened. Elysium is a little light in the morning side, and reminds us of the classical Elysium: The cloud or mist spread inside is however weak. The pinkish border of the Ætheria dark patch seems to exist. The two streaks of the southern part is visible. The area of Phlegra looks boundless in a brownish colour. Propontis I is near the CM. The preceding part of Olympia is separately visible, and from the tail of Olympia a misty string is connected with the npc across Rima Borealis.

DTy gives a single colour image at ω=302°W, where Hellas is whitish bright at its eastern side followed by a slightly shadowy part, the boundary of Hellas being blurred. Elysium is at the evening limb, very whitish bright. Syrtis Mj is not sharply shot, but the delicately mottled inside is apparent. The Huygens crater is visible. S Sabæus is totally inside the disk as well as S Meridiani; this being morning misty and to the north of it there is a particular mist patch near the terminator. The perimeter of the npc is very irregular. Olympia is sinking.

DAr also gives a single colour image at ω=342°W. The colour tone is not favourable including the white colour, but the author must have prioritised the details: Really the description of S Sabæus is suggestive of the truly detailed aspect, but not enough and the image does not say anything about the white mist patch to the north of Thymiamata. The connection of Syrtis Mj with the evening mist is also unknown. It is also impossible to see the morning cloud to the east of M Acidalium. This image however shows up the so-called "bridge" preceding M Acidalium and some canals which link S Meridiani with Margaritifer S.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140418/PGc18Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140418/DPc18Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140418/Km18Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140418/DTy18Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140418/DAr18Apr14.jpg

19 April 2014 (λ=118°~119°Ls)

Xavier DUPONT (*XDp*) obtained an RVB set made of R, V, B images at ω=006°W. Good images mildly processed. Aryn's nails are about to be seen. It is interesting to compare how the southern part of M Acidalium varies on R, V and B. The original faintness of the part is apparent in R and the effect of the morning mist is seen on B (or on RVB). The RVB composite shows a remnant of the evening mist originally at Syrtis Mj (which is already at the rear side) and at Æria. The morning mist is thick at Chryse and at the terminator side following M Acidalium. It is quite apparent that the canal Iaxartes and the fol-

lowing canal connect M Acidalium and Hyperboreus L. There must be a white cloud following the canals.

DPc gave another impressive set of a colour single at ω=013°W and a B image at ω=017°W. The colour image is really another thunderbolt to us from Barbados: First of all, the description of S Sabæus (and S Meridiani) is noticeable. The pipe-like sinus looks quite hollow though S Sabæus usually appears more solid to us. The inner structure of S Meridiani also gives us a slightly different impression than the one from the HST images. However this may have been caused by the time lapse: In fact, our images in our mind depend on the HST images taken 20 or 10 years ago. *DPc*'s Brangæna is different from the one on the 2001 HST image, but this is apparently due to a dust moving. The area of Oxia P gives also a fresh impression, though Aram Chaos is not clear. The canal-like streak which we called Oxus proves to be composed of complex speckles (we can see a doubled canal-like chain of dots). The so-called "bridge" preceding M Acidalium is nicely depicted as a definite spot. It is conversely interesting why the spot turned to appear as a bridge. The present writers (*Mn* and *Mk*) have not yet fully looked into the past records. However the "bridge" appears as a "segment" (maybe doubled) on the 2001 HST image and the 2002 MGS images. Its central position seems to be inside (000~001°W, 34~36°N). It's located to the south separated by about 30km~50km from Oxus Cavus (name approved in 2012, MC4) on Arabia Terra. The darkened portion looks to be made of a larger depression. We shall hereafter call tentatively this dark portion as the *Oxus dark segment*. M Acidalium here may also suggest how Achillis Pons had become of. Hyperboreus L is also not simply very dark, but suggests further details. The rifts inside the npc are nicely described to allow us to give a bird's eye view at this season. There is seen a stream of the morning cloud whose development might have been important. Finally we point out that the southern high latitude areas show an interesting aspect.

EMr gives an RGB image together with R, G, B images at ω=034°W. The RGB has been magnified to provide an image to be easier to see. The white mists are well depicted, and the southern limb looks misty. The white mist patch to the north of Thymiamata is faintly seen, and it is related with the evening mist as well as the mists over Chryse and the southern part of M Acidalium. Iaxartes is followed by a mist patch area. The morning mist is thick along the terminator, into which the summit of Ascræus Mons has just come in. The morning cloud to the west of Tanais is also visible, being not so particularly developed compared with the image on the preceding *DPc*'s. This cloud however looks to be connected with the colder area of the npc rather than the area of Tempe, though Tempe also looks misty. This reminds us of the season where the cyclonic arctic cloud should come on stage. So the season is coming where every observer should be on the alert.

DBt gave a nice image set at ω=036°W. By a first glance we notice that the evening mist left by Syrtis Mj is broadly connected with the morning mist via those at Chryse and at the southern part of M Acidalium. On B, the white mist at Tempe is shown as well as the lenticular clouds near the terminator to the west of M Acidalium.

John SUSSENBACH (*JSb*) obtained one set at ω=296°W. Syrtis Mj is near the CM, and the image looks dignified but the colour nuance is not so vivid. This shows however certain details, showing nicely around the Huygens crater, and also the relief of the Schröter crater is also nicely given as well. The northern end of M Tyrrhenum and the complex around Syrtis Minor are well depicted. However Hellas and the npc do not show the brightness. The sinking Elysium is not white but dull. The shade and light inside of Hellas look interesting: the brighter part show the shape of the letter Z.

DTy put three images side by side made at ω=297°W, 303°W, 312°W. Note that the first image was

shot at the angle similar to the angle taken by the preceding *JSb*. The processing by *DTy* is stable, and the whiteness shown at Hellas, Elysium near the evening limb, and the npc stands out. Shining of Elysium varies during the one-hour, but the inside of Hellas remains quite similar. The morning mist rather concentrates to the north of Thymiamata, and varied wider during the time.

Johan WARELL (*JWr*) is an old Mars friend of ours, and now is a professional astronomer. This apparition he started to collect Mars images (including drawings) from 27 February, but he was belated to report them to us. This set of R, G, B images were made at ω=299°W by the use of a 22 Newtonian. The RGB composite shows a good nuance of colour, while there is no details to be pointed out (perhaps because of the seeing). Just the morning mist condensate to the north of Thymiamata at the terminator is conspicuous.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/XDp19Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/DPc19Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/EMr19Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/DBt19Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/JSb19Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/DTy19Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/JWr19Apr14.jpg

20 April 2014 (λ=119°Ls)

DPc gives a colour image as well as a B image at ω=013°W. The colour image gives partly the impression that the surface has some scratched marks, but they may be a canal-like gathering of series of minor dots. Otherwise S Meridiani and the like show details as on the preceding day. At the evening limb, the slim Syrtis Mj is covered across by an evening mist which further flows into Æria. This time the northern part of Margaritifer S may show faintly Aram Chaos. It is also particular that surrounding area of the Oxus Dark Segment is roundish light. In addition to the usual morning mist, there is a stretched cloud patch to the west of Tanais along the morning terminator. The shape of this cloud is slightly different than the one seen on the preceding day.

DBt's set of images is given at ω=042°W: The central mist band is clearly visible on the RGB composite. The mist band invaded to the southern part of M Acidalium. Inside the morning mist, the summit of Ascræus Mons is coming in. To the WS of the npc there seems to exist a cloud patch, but it's not obvious.

FMl gives two images at ω=044°W and at ω=050°W. The density of the dark markings is so high that both images look dirty. The morning mist is whitish bright, but other weak mists do not appear. The WN direction of M Acidalium suggests a cloud patch.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140420/DPc20Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140420/DBt20Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140420/FMl20Apr14.jpg

21 April 2014 (λ=119°~120°Ls)

DPc gave a triple series of colour images at ω=347°W, 001°W, 012°W. The third image is an image of similar workmanship gained at ω=013°W on 20 April, and really a rival or surpass. Still the impression of scratches is accommodated. However some other minor markings may be more definite here. Aram

Chaos is now slightly more vivid. Three images show a vanishing of Hellas. Since the evening limb is not the terminator, we can determine that Hellas's west end has come just on the limb, and hence this is a standard result. The cloud condensation to the west of Tanais is checked from 19 April at ω=013°W, while on 20 April at ω=013°W it appears more definite, and on 21 April ω=012°W, it again levelled down. However there are preceding images at ω=347°W, 001°W, these will well show the process of generation of polar cloud. We should note any clouds or dusts are regenerated on the early morning. These images as well as those of the preceding days all give the aspect of the npc with several rifts, and we may be able to easily draw a bird's eye view of the npc. Note also the distinguished Oxus dark segment looks as if it is enshrined on a roundish light disk.

PGc gives an RGB and associated R, G, B and IR ingredients at ω=033°W. The RGB colours may not be loud, while the markings are unintentionally detailed, some reminding us of the forgoing *DPc*'s images. S Meridiani, near the evening limb, shows quite an enough detail. The description of the northern part of Margaritifer S is excellent including Oxia P and possibly Aram Chaos. They may suggest these and other observers will give easily the similar details on the occasion of next apparition in 2016 by the use of the C14 and equivalents. The Oxus dark segment is still a dark spot, but here it is at the centre of a small roundish disk as was turned out by *DPc*. The southern part of M Acidalium is also quite resolved (see R, IR: The dark markings in IR however are not necessarily deepened. They should be finely depicted). Inside the morning mist, Ascræus Mons is appearing. The cloud which attracts us to the west of Tanais is smaller than expected, but well complex (doubled partly). The complex npc is also nicely expressed.

EMr's set with R, G, B ingredients is at ω=035°W. The RGB is extraordinarily large, but the markings are not sharply defined. The details are mediocre, while the distribution of white mists are nicely shown. The mist patch to the north of Thymiamata is rather evident. Tempe is largely misty. The arctic cloud to the east of Tanais is well described and inside it, a ground partly looks to appear. The trace of Ascræus Mons is obvious on the morning terminator.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140421/DPc21Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140421/PGc21Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140421/EMr21Apr14.jpg

22 April 2014 (λ=120°Ls)

DPc reported two colour images side by side, one is obtained at ω=349°W, and the other at ω=006°W. On both images, S Sabæus and S Meridiani stay at the central place. These markings on images are now stable because of *DPc*'s dexterity. As well we are now accustomed to the hollow skeletons of S Sabæus and S Meridiani. The second image now shows Aram Chaos definitely. As to the depiction of the area Brangæna to the southern part of M Acidalium, the second image is more excellent. The Oxus dark segment (first called "bridge") stay at the centre of a small light disk on both cases. Huygens and Schröter craters inside the area of Syrtis Mj are already fully evident on the first image. The first image may suggest to provide a detailed mechanism of the covering across Syrtis Mj of the evening mist. Note also there is seen an arctic morning cloud to the WN of M Acidalium. We just want to see the arctic cloud more inside the disk. Finally it was amazing to see that on the first image N Alcyonius was clearly shown up quite near the northern evening limb. This is really the first time for us to meet with such a scene.

FMl put five colour images side by side at ω=358°W, 015°W, 023°W, 029°W, 036°W. At first, Sinus

Sabæus is wholly caught, and Syrtis Mj is visible pushed to the preceding limb with the covering evening mist. Ultimately Meridiani S came down nearly to the evening limb. Finally M Acidalium is near the CM, and Nilokeras showing a bifoliate-like projection is evident. The northern part of M Acidalium is followed by a terminator while cloud.

PGc gives a set at ω=360°W=000°W: The colour nuance improved, and the tint of the deserts turned to be much warmer than before. The dark markings are finished milder. S Sabæus and S Meridiani are quite detailed more than average. Hellas is quite near the evening limb, and will soon move to the rea side. Syrtis Mj is also near the evening limb, and its northern part is covered by a white mist which appears thus as bluish: Æria is whitish with the outflow of the evening mist. The misty area to the north of Thymiamata is quite thinner than that at Æria. The mist at Chryse and the southern part of Acidalium (plus Niliacus L) continues to the morning mist. The morning mist is beautiful. This mist is also recognised in the B image; while the densest and most conspicuous white cloud in B is the arctic one near the terminator following the WN end of M Acidalium. This is the kind of cloud to be chased.

Freddy WILLEMS *(FWl)* gives two sets of images at ω=007°W, 019°W. However both of R images are awful. Both appear as if scratched (especially the second R). Because of these R images, the RGB images must have been disqualified. However the distribution of the white mist seems to have been well caught, and some dark markings seem to show latently a delicate detail. The white cloud patch which follows M Acidalium is shown at ω=019°W, but the image could not be much useful.

Reiichi KONNAÏ (*Kn*) produced a colour drawings at ω=140°W. The cloud associated with Olympus Mons is detected to a bit east of the CM, detached from the preceding Tharsis cloud. Near on the evening limb, the Xanthe cloud stays. Propontis I is visible. The npc is evident, and Olympia is coming to the west of the npc. Near at the southern limb, maybe M Sirenum is visible. The southern limb is finely whitish-lit.

Yukio MORITA (*Mo*) made an LRGB as well as an RGB composite at ω=154°W from the R, G, B and L ingredient images. The clouds associated with Olympus and Ascræus Montes and the cloud at Alba Patera make apexes of a triangle. The evening limb is whitish bright because of the preceding cloud. Following Propontis I, the Ætheria dark patch is now visible together with an Elysium cloud which is just a morning mist. Rima Borealis pinched between the npc and the rising Olympia is extraordinarily dark. There is suggested a faint misty projection from the npc to the SE direction. Visible is M Sirenum near the southern limb. The limb itself looks covered by something (but not visible on B).

Kris SMET (*KSm*) made a colour drawing at ω=269°W. Syrtis Mj is drawn on the morning side together with the whitish Hellas at the terminator. On the evening side Elysium is drawn white. To the south of the npc the triangular Utopia is visible.

Pete LAWRENCE (*PLw*) put forward a single colour image having a massive feeling at ω=276°W. The surface looks 3D spherical. The dark markings suggest several detailed parts. For instance, the north-western end of M Cimmerium is not simply an arrowhead but shows the crossed-fingers shape. From its eastern part, already near the evening limb, shows a broad dark canal to the southward. This is a kind of a déjà-vu but looks very fresh. The area of Syrtis Mj shows a good expression as well as the Cassius coast. The blurred aspect of the perimeter of Hellas and the thick cloud at Elysium on the evening side look normal. However the mist distribution from Elysium is not clear. The npc shows a brownish part adjacent to Rima Borealis.

JSb's image is a single colour image at ω=296°W. The whiteness is not conspicuous, and Hellas and

the npc look dull. Elysium may be on the evening limb, but uncertain. Just the area of the Schröter crater is a special place to be referred. The shape of the npc is interesting.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/DPc22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/FMl22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/PGc22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/FWl22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/Kn22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/Mo22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/KSm22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/PLw22Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/JSb22Apr14.jp

23 April 2014 (λ=120°~121°Ls)

FWl gives two set of images at ω=350°W, 005°W. The effect of the evening mist over Syrtis Mj is nicely caught near the evening limb. It may be interesting to chase the morning arctic cloud patch near the terminator, but the area on the second image is so different from the first image that we cannot judge the development. The one-hour separation is not appropriate in these cases, but a set of every 40 minute shootings will be more appropriate.

EMr gave a set of images at ω=030°W. The arctic white cloud to the NW of M Acidalium is indistinct in R while very vivid in G. On RGB, the cloud is associated with a peculiar brownish patch. This looks to expand to the terminator beneath the arctic cloud. This light brownish nuance was also seen, though somewhat diffused, on *EMr*'s RGB image on 21 April at ω=035°W.

Tsutomu ISHIBASHI (*Is*)'s image at ω=131°W must be aimed to shoot the cloud associated with Olympus Mons, but it just appears faintly as well as the preceding clouds. Olympia is however loud to the west of the npc. Maybe Rima Borealis must be dark.

Mo took two image sets at ω=134°W and at ω=139°W. Both show the position of Olympus Mons more clearly together with the preceding sets of orography at Tharsis Montes. The B image of the former is more excellent than the B of the latter to the extent that the surface of the disk appears darker in B. This image may prove that the orography is now essentially weaker. The evening limb side is whitish bright may be at Xanthe. At the morning side Propontis I is visible. Rima between the npc and Olympia is dark, and it seems that there rises a misty projection from the npc upward.

Km gave a colour image and a B image at ω=146°W. The summits of Ascræus, Pavonis and Olympus Montes are visible. The clouds at the western flanks are really not so thick. Propontis I is brownish, and the Elysium cloud is coming in. The evening misty filament at the arctic limb beyond Rima Borealis weighs on our minds.

Kn produced two colour drawings at ω=150°W, 159°W. On the former, the clouds associated with Olympus et Ascræus Montes are separated from the forgoing limb cloud at Xanthe, while on the latter only the rather roundish cloud of Olympus Mons is separated. On the latter drawing, the morning terminator cloud following Propontis I is whitish brighter. Is Elysium coming in ? Olympia which rises to the west of the npc is more distinct on the former.

RBs gave an RGB good image ω=274°W together with R, G and B ingredients. Hellas shows a fine structure (with a Z shaped brighter part) and is weak in R while strong in B. Elysium near the evening limb is whitish bright with double cloud structure. Syrtis Mj shows Huygens. The tip of Utopia is not

simple, but may show a fractal-type split in half. This is a kind of detail. The npc shows an interesting shape with a certain brownish sprinkle. The tail of Olympia is intricate.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140423/FWl23Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140423/EMr23Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140423/Is23Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140423/Mo23Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140423/Km23Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140423/Kn23Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140423/RBs23Apr14.jpg

24 April 2014 (λ=121°Ls)

Jay ALBERT (*JAl*)'s Mars drawing at ω=332°W. This was sent to *DPk* and came to us as a Cc mail. Syrtis Mj and S Sabæus are shown, and M Acidalium is coming. Used a 28cm SCT.

FWl made two sets at ω=338°W and at ω=351°W. The two sets may show a relation of the evening mist with Syrtis Mj. However the morning mist aspects on the two are too different to compare. There is certainly an arctic cloud near the terminator, which is separated with the morning mist.

Kn gives two colour drawings at ω=090°W, 101°W. The area of Solis L is shadowy, and M Acidalium lies in the evening area. On the former, the morning mist is quite thick: Maybe the Ascræus cloud prevails. On the latter, Alba Patera is a bit roundish white. *Kn*'s expression of the evening limb is quite exquisite.

Is gives three images at ω=118°W, 128°W, 138°W (every forty minutes). The seeing condition must have improved so that it is shown how the evening Solis L and Thitonius L approaches the evening limb. On the other hand, the cloud of Olympus Mons is so weak that it is hard to chase the motion. Note in particular that Rima is dark to the east of Olympia and that a misty projection upward from the npc is shown all on the three images (refer also to *Mo*'s observations on the preceding day).

Mo also put forward two image sets at ω=124°W and at ω=134°W. The seeing condition here also looks to have improved, and the images are more detailed than those on 23 April. Olympus Mons appears in R as a ring surrounding the summit, while in RGB the west side of the ring is made of a cloud. The cloud of the west flank of Ascræus Mons is quite conspicuous and followed by a long cloud streak running toward the WN direction. This is visible in L and R. Since it is not so conspicuous in B, it must be partially dusty. In RGB, the Tharsis ridges appear dark brownish. Alba Patera is thick in B, but seen also in R and L. A misty ejection from the npc southward is surely seen. The Rima Borealis gap between the npc and Olympia is quite dark. The images at ω=124°W show well Solis L, Thitonius L near the evening limb, and Phœnicis L is also visible. M Acidalium lies long near the evening limb, but no explicit cloud condensate is found around.

Km shot at ω=129°W, where the Olympus Mons's ring is very evident on L+ colour image. The associated B tells us the western part is made of cloud. Thitonius L and Phœnicis L are visible near the preceding limb. M Sirenum is also evident. Propontis I is at the morning side. The streak from the Ascræus cloud is faintly seen.

Mark JUSTICE (*MJs*) gave an RGB image based on R, G, and B components at ω=181°W. The cloud associated with Olympus Mons is white and thick, still separated from the forgoing orography of the Tharsis ridges. Alba is also whitish near the evening limb. On the morning side, the southern half of Ely-

sium is covered by the morning mist. The Ætheria dark patch is partly seen through the morning mist. Propontis I and Phlegra are outside the misty area.

Manos KARDASIS (*MKd*) gave a colour image at ω=211°W, and RUIR image at ω=213°W. Elysium is near the CM with a bit misty inside. This may be connected with the morning mist. Olympia is not clearly separated, but it looks normal on RUIR.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/JAl24Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/FWl24Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/Kn24Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/Is24Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/Mo24Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/Km24Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/MJs24Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140424/MKd24Apr14.jpg

25 April 2014 (λ=121°~122°Ls)

DBt gives one set at ω=321°W: G and B images are nicely given, while the R image looks to have been excessively processed. The irregular perimeter of the npc is caught, but because of the over processed R image, Olympia is fainter on RGB, though it is clear on G and B. The morning mist to the far north of Thymiamata is thick near the terminator. Note that in G and B, a glimpse of a white cloud is visible to the WN of M Acidalium (not fully appearing). It should be checked its aftermath at this season.

PGc gives one set at ω=326°W. As *PGc* wrote "Seeing was poor" in his email to us on 27 April, the images do not produce well the misty matter and looks dull. The arctic cloud to the north of M Acidalium is not well separated from the morning mist along the terminator.

EMr gave one set at ω=330°W: The arctic cloud, now quite inside, is separated from the usual morning mist, and the density of the whiteness is high. The morning mist covers the southern part of M Acidalium, and extends faintly into inside to the north of Thymiamata (see B). On the other hand the evening mist is mainly along the evening limb. However B says a weaker mist strides over Syrtis Mj and extends further to Æria. In B, we also see that there is a rising mist from the npc.

Masatsugu MINAMI (*Mn*) tried a series of observations around from 12h GMT. *Mn* tried to operate by himself because of the absence of *Ns*, and visually observed at ω=116°W, 126°W, 136°W, 145°W, 155°W (15:20 GMT): The seeing was mediocre, the npc was apparent from the outset. It was not uniform in brightness; the eastern side was brighter. Hyperboreus L lay and was seen quite dark. Olympus Mons (or its cloud) was very weak before the CM, and it was supposed that we could no more see the cotton ball-like cloud. At ω=126°W the cloud of Olympus Mons is weak compared with the morning mist's density. At the eastern side a weak shadowy band was seen. At the evening limb side there was seen a thick mist, and a part looking like to protrude. Near the southern limb a remnant of Solis L seemed to exist. The east side of the shining npc looked shadowy. To the SE direction, a wine-coloured area is visible. At ω=136°W, the area around of Olympus Mons, maybe near the CM, is never conspicuous. The white cloud expansion at the evening limb side looked to have some rifts inside. On the morning side Propontis I was checked, and Elysium might be lighter, but it was hard to discriminate it from the morning mist. At ω=145°W, the planet went to the western sky. Temperature inside the dome was 14°C. As before Olympus Mons was not obvious. The edge of the evening cloud was as if outlined. Finally at ω=155°W,

the seeing was not improving, though the npc is constantly visible. The slimmed Ætheria dark patch was inside the disk, but Elysium is uncertain with the morning mist. The evening limb is well light. But it is difficult to pin down the Ascræus cloud. The cloud of Olympus Mons is barely caught.

SGh shot at ω=226°W: The classical Elysium is near the CM. The inside is a bit light. Syrtis Mj is near the morning terminator with a bluish tint. Olympia does not separate.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140425/DBt25Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140425/PGc25Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140425/EMr25Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140425/SGh25Apr14.jpg

26 April 2014 (λ=122°Ls)

Is gave four images from Video at ω=090°W, 100°W, 110°W, 116°W. At ω=090°W, the npc is bright, and M Acidalium lies near the evening limb. On the southern hemisphere, a trace of Solis L is visible near the limb. The image at ω=110°W looks the best among *Is*'s image, to the east of the npc, Hyperboreus L is dark, and Rima Borealis is deep at the western side of the npc. At the southern hemisphere Solis L and Thitonius L are quite visible. At ω=116°W, adjacent to the dark Hyperboreus L, the npc is visible and Olympia is rising. Olympus Mons is weak on each image, while the Ascræus cloud is sharply whitish at ω=110°W and at ω=116°W. Note also that a misty ejection is seen from the npc upward.

Mo gave two sets at ω=107°W and at ω=124°W. Since both do not show well the npc, the seeing condition must be quite poor. The images at ω=124°W may be better, where the remnant of the Ascræus cloud is clearer than the cloud at Olympus Mons. The streak from Ascræus Mons to the NW direction is visible. Rather unexpectedly, the white Alba Patera is caught. M Acidalium may go to the rear side with covering mist.

Kn made a colour drawing at ω=110°W. At the evening limb, some remnants of Solis L and M Acidalium are caught. A white patch of Alba Patera is visible near the CM. A morning mist is thick near at the northern terminator.

DTy puts two colour images at ω=227°W and at 237°W. There appears a delicate difference of the whitish bright Olympus Mons at the evening limb, as well as on the aspect of Syrtis Mj. The latter Syrtis Mj must be completely inside, but still covered by the morning mist to become bluish. Note also a delicate difference of two Olympia. Most interesting is the depiction of the inside of Elysium at this season (quite at the centre). Note also the colour of South Ausonia near the upper limb.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140426/Is26Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140426/Mo26Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140426/Kn26Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140426/DTy26Apr14.jpg

27 April 2014 (λ=122°~123°Ls)

Kn gave three colour drawings at ω=050°W, 071°W, 119°W. On the first image, S Meridiani is visible near the evening limb. M Acidalium is drawn faintly. To its WN direction an arctic cloud is concentrated near the terminator. At ω=071°W, the inside of the morning mist shows a series of the Tharsis ridges in a brownish tint. Olympus Mons comes in the disk, poking out from the ground morning

mist. M Acidalium shows a bit grass green tinge. *Kn* further chased: At ω=119°W the arctic cloud is shown to follow the motion of M Acidalium. Olympia is poking out.

MJs spent nearly four hrs and obtained a piece of laborious work at ω=065°W, 079°W, 088°W, 102°W, 107°W, 117°W, 121°W. The first three images look duller due to the seeing condition, but even then the R images show some details above average, and above all else, they show a distribution of mists. We can recognise the poking out of the Tharsis ridges and Olympus Mons. Especially we can see how the water vapour condensate is concentrated to the southern part of M Acidalium. The last four image sets are excellent if they are given individually. The set at ω=102°W or at ω=107°W is the best among the present work: A bright white cloud is attached to the western flank of Ascræus Mons, and the lower spread of mist of the Ascræus cloud is still visible. This remains until ω=121°W. The ground of the Arsia terrace is roughly seen in a brownish tint, and Olympus Mons is also seen barely in a ring around the summit. The Alba cloud is not so strong. The morning mist goes into the north of Solis L. and even Ophir-Candor is filled with the mist (see B), and these are also realised in the following images. Notable is the following: from the ice-flakes which precedes Olympia, several misty streaks are ejected from the flakes. The image at ω=107°W must be taken at nearly the same angle as the case HST mapped on 30 March 1997 (said at ω=105°W): And several markings and phenomena on the two largely coincide with, but the blow-off ejections like on *MJs*'s images were not detected by the HST in 1997. In the case of *MJs*, this ejections are still visible at ω=121°W. These may also remind us of as a possibility of a rudiment of the arctic cloud.

BCr gained two sets of images at ω=087°W and at ω=096°W: Though the R looks over processed, the global distribution of the mists is well described. It seems to show that the evening mist is finally pushed to the north of Thymiamata, but to the eastern part of M Acidalium. In G and B, Olympus Mons pokes out from the cloud as well as the Tharsis trio. It will be interesting to note that an artefact ghost line is partly bluish on RGB because of the effect of G and B. If one says "Blue Syrtis" or "Blue cloud", one should admit the word "Blue ghost."

JWr gave a set of RGB, R, G, B images at ω=233°W. The classical Elysium with a light cloud inside is located after the CM. Syrtis Mj is still near the terminator and looks bluish. On the southern district, M Cimmerium is dark visible, and at the northern district, Utopia prevails. The density of Utopia is not uniform. The B image nicely shows that the cloud at Elysium is connected with the morning mist.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140427/Kn27Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140427/MJs27Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140427/BCr27Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140427/JWr27Apr14.jpg

28 April 2014 (λ=123°Ls)

PGc gave one set of R, G, B and RGB at ω=299°W and IR742 image at ω=301°W. From the very white Elysium at the evening limb the evening mist jumps into Syrtis Mj. Hellas is detailed: The west side decreased the brightness, and the fine structure is changing. The markings are generally not clear, but such a minor as Huygens is visible.

Martin LEWIS (*MLw*) gives us a single colour image at ω=232°W. The colour difference inside Elysium is rich: The cloud at Elysium Mons is white, and the following ground pinkish colour is very evident. The aspect of the Ætheria dark patch looks fresh because a southern branch is brownish. Utopia's

inside looks loosely mottled. The tail of Olympia is fainter. On the southern hemisphere, South Ausonia is light brownish. Ant's eye (Herschel crater) and feet (around the Gale* crater and the Knobel** crater) at M Cimmerium may be checked.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140428/PGc28Apr14.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140428/MLw28Apr14.jpg

* **Walter Frederick GALE** (1865 - 1945) Australian banker/astronomer
Edward Ball KNOBLE (1841 - 1930) English businessman/amateur astronomer

29 April 2014 (λ=123°~124°Ls)

EMr gives one set at ω=302°W: There arises a misty gas starting from Elysium which lies on the evening limb, but its movement toward Syrtis Mj is illegible. Hellas has a depressive part at the western side, and the eastern brighter part comes largely from G and B. The morning mist is thick along the northern terminator preceding M Acidalium which is coming in the disk. The npc looks to consist of two white cores, and the tail of Olympia looks misty.

Bill FLANAGAN (*WFl*) first comes onstage this season and gives a set at ω=315°W. Hellas shows a detail inside and the less whitish side toward us looks to form. Also its perimeter looks to be frilled. At the Syrtis Mj region, the Huygens and the Schröter crater are visible. The northern end of S Sabæus appears to be made of dots. Aryn's nails are inside the disk, but the terminator side is shadowy because ι =17° at present. The morning mist precedes the southern part of M Acidalium and looks as if it expands toward Thymiamata. The depiction of Boreosyrtis is quite complex. The two cores of the npc is stable, but it is amazing to see that the tail of Olympia continues quite long. On the way it is also connected with the npc through a misty string across Rima Borealis to the east of the npc.

JWr issued two sets at ω=209°W and at ω=226°W. The former was shot before the CM, and the second was shot after the CM. The latter image set is better. Syrtis Mj is visible in a bluish tint near the morning terminator. M Cimmerium appears nicely where the ant's feet (made of the Gale and Knoble craters) are evident. The WN end of M Cimmerium is also well depicted. Elysium is detailed, and the pinkish streak inside is apparent. Cassius is also clearly cut. On the B images, Elysium is lighter on the second image, while the connection of Elysium cloud with the morning mist is more definite and clear on the B image of the first set.

DTy gives a single colour image at ω=210°W: Elysium is near the CM, while its inside is rather dull. The area of Phlegra is faintly seen but broad. Olympus Mons's cloud is very whitish bright near the evening limb, but just before reaching limb.

***JWr* (again)** visually observed the surface, and left a drawing at ω=216°W. The classical Elysium is near the CM, and *JWr* surely checked the white cloud around Elysium Mons, while Phlegra and others at the eastern side as well as the following boundary at Ætheria are not mapped realistically.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/EMr29Apr14.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/WFl29Apr14.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/JWr29Apr14.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/DTy29Apr14.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/JWr29Apr14d.jpg

30 April 2014 (λ=124°Ls)

Maurice VALIMBERTI (*MVl*) gave first an important observation concerning an arctic cloud at ω=

052°W when he made an RGB image from R, G, B images. The R image is quite detailed and even on G we can detect Brangæna so that the seeing condition must have been excellent. However the colour of the RGB image looks slightly less vivid, and hence the arctic cloud seen to the WN of M Acidalium is not so bright. However the cloud is particular because it shows the shape of a horseshoe (or the shape of a tuning fork or the shape of one of Landolt C optotypes) opened to the south. This cloud has a branch facing north, and the branch is connected with the ice-flakes preceding Olympia, though actually it looks adjacent to Hyperboreus L. Quite near it, there is seen a complex dusty disturbance at the inlet of Chasma Boreale. On the other hand, there is seen Ascræus Mons inside the morning mist as usual. The mist patch to the north of Thymiamata is conspicuous.

BCr then obtained a set at ω=062°W (just 10°W after *MVl*). The Landolt cloud is still visible and a bit moved inside. It's clear in B. The morning mist now additionally shows the summit of Pavonis Mons. Olympus Mons is coming.

MJs thirdly gave two image sets nicely at ω=071°W and at ω=081°W. We have thus got four images aligned every about 40 minutes. The images at ω=071°W show additionally Arsia Mons inside the morning mist. Olympus Mons is now evident. To the east of Arsia terrace there is an area where the mist is thin, while from Noctis L there runs a thick mist streak southward. At the evening limb side, the cloud patch at the northern Thymiamata is thick but separated from the limb cloud. This is interesting. The horseshoe-shaped cloud in question is suggested to be connected with the morning mist near at Olympus Mons, but, for the present we may say it flows toward the cloud at Alba Patera. The "eye" of the horseshoe-shaped cloud looks brown. The arctic cloud is still thriving at ω=081°W. It's now quite inside and the preceding branch may be a bit thinner. The colour of the "eye" is quite similar to those of Arsia et Olympus Montes. It is still recognised that a northern part of the cloud is connected with some flakes preceding Olympia.

SBd gave an excellent set of images at ω=073°W. The RGB composite is good in describing the distribution of the fainter mists. The thick mist patch at the northern Thymiamata is explicit, and the morning mist has a hollow to the east of the exposed Arsia Mons (seen in a 3D shape) while it is again thick near the WN part of Solis L. The areas of Solis L and Aurea Cherso are well depicted. The arctic cloud is still visible in the form of a tuning fork, and this RGB shows well how the north of the arctic cloud is related with the preceding part of Olympia. The npc itself is also nicely mapped as well as the inside of Hyperboreus L. The aspect between the northern M Acidalium and Hyperboreus L may also say something important. The fact that the eye of the arctic cloud is of a brownish tint may imply that the central mist has been driven away by a cyclonic wind.

Km shows a colour image finally at ω=086°W (B image at ω=088°W). The tuning fork shaped cloud is still alive. The northern part of the arctic cloud is now adjacent to one of the preceding ice-flakes of Olympia. On this colour composite Olympus Mons appears as if mapped three dimensional.

Gone to Europe, ***MKd*** gave a single colour image at ω=155°W. The image looks like *bokeh*, but it is evident that the cloud at Olympus Mons, now at the afternoon side, is located at the western flank. The Tharsis ridges are evident with a remnant of the Ascræus cloud. Alba is whitish. Elysium is rather near the morning terminator.

DTy gives a single colour image at ω=197°W. This is a considerably good image, and the area of Phlegra is quite broadly depicted. The inside of Elysium is just dull light (partly pinkish) but a thin mist stays and flows out to the morning misty limb. M Cimmerium is nicely shown with several craters' posi-

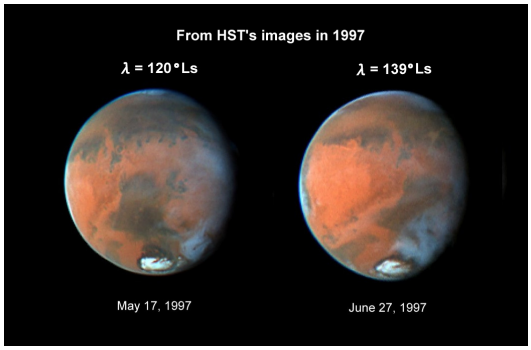
tions. The orography of Olympus Mons is whitish bright isolated from the forgoing evening clouds. Olympia enshrines to the south of the npc.

JWr obtained one set at ω=199°W. Olympus Mons is whitish near the evening limb, not reaching the limb yet. Elysium is classical while the different colours inside are about to be distinguished. The B image is excellent and shows the misty band from Elysium to the morning terminator. M Cimmerium in the R image looks well focused.

MLw finally gives a single colour image at ω=201°W. Including the depiction of the orography of Olympus Mons, *MLw*'s image well copes with *DTy*'s, but there seems that the eastern inside Elysium is a bit different than *DTy*'s description and the shape of Olympia is a bit more detailed on *MLw*'s. However the broad mist from Elysium to the morning terminator side is more explicit on *DTy*'s image.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/MVl30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/BCr30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/MJs30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/SBd30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/Km30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/MKd30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/DTy30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/JWr30Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/MLw30Apr14.jpg

♂・・・・・・***Editors's Note*:** As will be recorded in the next issue, the horseshoe shaped arctic cloud on 30 April turned out to be a cyclone-type spiral cloud on 1 May 2014. Just note here that the horseshoe/tuning-fork shaped arctic clouds are not new, but recorded by the 1997 HST for example on 17 May 1997 and on 27 June 1997.



♂・・・・・・**We Further received**

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

8 Sets of *RGB* Images + 1 Drawing (24 February; 3, 12, 21, 26, 29 March; 11 April 2014)
308×20cm Spec, and with a DBK21AU618

Masatsugu MINAMI & Masami MURAKAMI

Forthcoming 13/14 Mars (10)

Ephemeris for the Observations of the 2013/14 Mars. VI

July & August 2014

Akinori NISHITA

AS a sequel to the Ephemeris for the physical observations of Mars in CMO/ISMO #421, we here list up the necessary elements of the Ephemeris for period from 1 July 2014 till 31 August 2014: 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 longi-

tude 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 to determine the north pole direction from the $p\leftarrow$. The apparent declination of the planet is also given at the final column (denoted D).

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

Date (00:00GMT)			ω	φ	λ	δ	ι	Π	D
01	July	2014	033.67°W	24.71°N	154.20°Ls	9.48"	41.1°	34.6°	−07°39'
02	July	2014	024.12°W	24.65°N	154.72°Ls	9.41"	41.2°	34.7°	−07°49'
03	July	2014	014.56°W	24.58°N	155.24°Ls	9.35"	41.3°	34.8°	−07°59'
04	July	2014	004.99°W	24.51°N	155.77°Ls	9.29"	41.4°	35.0°	−08°10'
05	July	2014	355.42°W	24.44°N	156.29°Ls	9.23"	41.5°	35.1°	−08°20'
06	July	2014	345.84°W	24.37°N	156.81°Ls	9.17"	41.6°	35.2°	−08°31'
07	July	2014	336.25°W	24.29°N	157.34°Ls	9.11"	41.7°	35.3°	−08°42'
08	July	2014	326.66°W	24.21°N	157.86°Ls	9.06"	41.8°	35.5°	−08°53'
09	July	2014	317.07°W	24.12°N	158.39°Ls	9.00"	41.9°	35.6°	−09°04'
10	July	2014	307.47°W	24.04°N	158.91°Ls	8.94"	42.0°	35.7°	−09°15'
11	July	2014	297.86°W	23.94°N	159.44°Ls	8.89"	42.1°	35.9°	−09°26'
12	July	2014	288.26°W	23.85°N	159.97°Ls	8.83"	42.1°	36.0°	−09°37'
13	July	2014	278.64°W	23.75°N	160.49°Ls	8.78"	42.2°	36.1°	−09°49'
14	July	2014	269.02°W	23.65°N	161.02°Ls	8.72"	42.2°	36.2°	−10°00'
15	July	2014	259.40°W	23.55°N	161.55°Ls	8.67"	42.3°	36.4°	−10°11'
16	July	2014	249.78°W	23.44°N	162.09°Ls	8.62"	42.4°	36.5°	−10°23'
17	July	2014	240.15°W	23.34°N	162.62°Ls	8.56"	42.4°	36.6°	−10°34'
18	July	2014	230.51°W	23.23°N	163.15°Ls	8.51"	42.5°	36.7°	−10°46'
19	July	2014	220.87°W	23.11°N	163.69°Ls	8.46"	42.5°	36.8°	−10°57'
20	July	2014	211.23°W	22.99°N	164.23°Ls	8.42"	42.6°	36.9°	−11°09'
21	July	2014	201.59°W	22.87°N	164.76°Ls	8.37"	42.6°	37.1°	−11°21'
22	July	2014	191.94°W	22.75°N	165.30°Ls	8.32"	42.6°	37.2°	−11°33'
23	July	2014	182.29°W	22.62°N	165.84°Ls	8.27"	42.6°	37.3°	−11°44'
24	July	2014	172.63°W	22.49°N	166.38°Ls	8.23"	42.7°	37.4°	−11°56'
25	July	2014	162.97°W	22.35°N	166.92°Ls	8.18"	42.7°	37.5°	−12°08'
26	July	2014	153.31°W	22.22°N	167.46°Ls	8.13"	42.7°	37.6°	−12°20'
27	July	2014	143.64°W	22.08°N	168.01°Ls	8.09"	42.7°	37.7°	−12°32'
28	July	2014	133.97°W	21.93°N	168.55°Ls	8.05"	42.8°	37.8°	−12°44'
29	July	2014	124.30°W	21.79°N	169.10°Ls	8.00"	42.8°	37.8°	−12°56'
30	July	2014	114.63°W	21.64°N	169.64°Ls	7.96"	42.8°	37.9°	−13°07'
31	July	2014	104.95°W	21.48°N	170.19°Ls	7.92"	42.8°	38.0°	−13°19'
01	August	2014	095.27°W	21.33°N	170.74°Ls	7.88"	42.8°	38.1°	−13°31'
02	August	2014	085.59°W	21.17°N	171.28°Ls	7.83"	42.8°	38.2°	−13°43'
03	August	2014	075.91°W	21.01°N	171.83°Ls	7.79"	42.8°	38.3°	−13°55'
04	August	2014	066.22°W	20.84°N	172.38°Ls	7.75"	42.8°	38.3°	−14°07'
05	August	2014	056.53°W	20.67°N	172.93°Ls	7.72"	42.8°	38.4°	−14°19'
06	August	2014	046.84°W	20.50°N	173.48°Ls	7.68"	42.8°	38.5°	−14°31'
07	August	2014	037.15°W	20.33°N	174.03°Ls	7.64"	42.8°	38.5°	−14°43'
08	August	2014	027.45°W	20.15°N	174.59°Ls	7.60"	42.8°	38.6°	−14°55'
09	August	2014	017.76°W	19.97°N	175.15°Ls	7.57"	42.8°	38.6°	−15°07'
10	August	2014	008.06°W	19.78°N	175.70°Ls	7.53"	42.7°	38.7°	−15°19'
11	August	2014	358.36°W	19.60°N	176.26°Ls	7.49"	42.7°	38.7°	−15°31'
12	August	2014	348.66°W	19.41°N	176.82°Ls	7.46"	42.7°	38.8°	−15°42'

Date (00:00GMT)	ω	ϕ	λ	δ	ι	Π	D	
13 August 2014	338.95°W	19.21°N	177.38°Ls	7.42"	42.7°	38.8°	−15°54'	
14 August 2014	329.25°W	19.02°N	177.93°Ls	7.39"	42.6°	38.8°	−16°06'	
15 August 2014	319.54°W	18.82°N	178.49°Ls	7.35"	42.6°	38.9°	−16°18'	
16 August 2014	309.83°W	18.62°N	179.06°Ls	7.32"	42.6°	38.9°	−16°29'	
17 August 2014	300.12°W	18.41°N	179.62°Ls	7.28"	42.5°	38.9°	−16°41'	
18 August 2014	290.41°W	18.21°N	180.19°Ls	7.25"	42.5°	38.9°	−16°52'	
19 August 2014	280.70°W	18.00°N	180.75°Ls	7.21"	42.4°	38.9°	−17°04'	
20 August 2014	270.98°W	17.78°N	181.32°Ls	7.18"	42.4°	38.9°	−17°15'	
21 August 2014	261.27°W	17.56°N	181.88°Ls	7.15"	42.4°	38.9°	−17°27'	
22 August 2014	251.55°W	17.34°N	182.45°Ls	7.11"	42.3°	38.9°	−17°38'	
23 August 2014	241.83°W	17.12°N	183.01°Ls	7.08"	42.3°	38.9°	−17°49'	
24 August 2014	232.11°W	16.89°N	183.58°Ls	7.05"	42.3°	38.9°	−18°01'	
25 August 2014	222.39°W	16.67°N	184.16°Ls	7.02"	42.2°	38.9°	−18°12'	
26 August 2014	212.67°W	16.44°N	184.73°Ls	6.99"	42.2°	38.8°	−18°23'	
27 August 2014	202.95°W	16.21°N	185.30°Ls	6.96"	42.1°	38.8°	−18°34'	
28 August 2014	193.23°W	15.97°N	185.87°Ls	6.93"	42.1°	38.8°	−18°45'	
29 August 2014	183.50°W	15.73°N	186.45°Ls	6.91"	42.0°	38.7°	−18°55'	
30 August 2014	173.78°W	15.48°N	187.02°Ls	6.88"	42.0°	38.7°	−19°06'	
31 August 2014	164.05°W	15.24°N	187.59°Ls	6.85"	41.9°	38.6°	−19°17'	
01 September 2014	154.32°W	14.99°N	188.17°Ls	6.82"	41.8°	38.6°	−19°27'	---

Letters to the Editor

●·····***Subject: Mars 28th April 2014***
Received: 1 May 2014 at 07:53 JST

Hi, For those who were missing the attachment to yesterday's email, here is the link to my Mars image from 28th April; Apologies,

http://www.skyinspector.co.uk/USERIMAGES/Mars_2014-04-28_22-25UT_MLewis.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140428/MLw28Apr14.jpg

○····***Subject: Mars 30th April 2014***
Received: 2 May 2014 at 08:20 JST

Hi, Here is the Elysium region again, this time in fluttery seeing, but showing more detail than my previous image of 28th, Cheers

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/MLw30Apr14.jpg

Here is the link in case the attachment gets lost;

http://www.skyinspector.co.uk/USERIMAGES/Mars_2014-04-30_21-30UT_MLewis.jpg

Martin LEWIS (St. Albans, the UK)

●·····***Subject: BCC Mars images 2014 Apr 30***
Received: 1 May 2014 at 08:55 JST

Hello, here is a set of RGB images I have collected on the evening of April 30th. This is the only set I have managed to record, as the second session was cut short by rain! I was chasing holes in clouds, waiting for a large gap where I could run all three RGB exposures (each of those runs for 90 seconds).

I've managed to complete one set, then for the second run I recoded R and G and thought to myself "there won't be enough time for blue" as quite a large cloud was charging ahead. Surely enough, it covered Mars and better part of the sky so I decided to try a quick processing of the previous run to check the data, while waiting for another hole in the clouds. Imagine my surprise when rain started, quite hard! Now, my setup is portable, set in my backyard, so it was quite a panic deciding what to pack first! Disconnecting the mains was of course first priority, then I packed the laptop (which was quite damp by then), and by the time I got to the telescope water was running down the tube. Luckily I pointed it down instinctively already so it was only the outside that got wet. Everything electrical seems to be running fine this morning (laptop,

camera, mount controller, electric focuser and dew controller unit) so hopefully I'll be ready for the next opportunity. This time I'll have a large tarp ready, just in case!

Seeing was extremely variable, so I'm quite happy with the data I've managed to extract from the single run. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/BCr30Apr14.jpg

Bratislav CURCIC (Melbourne, AUSTRALIA)

●……***Subject: (Non Title)***

Received: 1 May 2014 at 13:43 JST

Hi everyone, At last a (partially) clear night with acceptable seeing. We, Melbournians, missed both the opposition and the closest approach because of the weather. Clear Skies,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/SBd30Apr14.jpg

Stefan BUDA (Melbourne, AUSTRALIA)

●……***Subject: Mars 2014/04/30-Kumamori***
Received: 1 May 2014 at 18:33 JST

Masatsugu MINAMI-sama, The usual PC looked broken, but it began to work by the use of another power source. The sky was not so clear, but I was allowed to shoot the planet when it peeped out through the clouds. The resolution is not enough, but I could catch the whitish arctic cloud.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/Km30Apr14.jpg

○……***Subject: Mars 2014/05/02-Kumamori***
Received: 3 May 2014 at 15:14 JST

Masatsugu MINAMI-sama, At length, we are endowed with a stable sky. The seeing was moderate to good, and a lot of mists were caught, including a horseshoe shaped arctic cloud. Thank you very much for your appreciation of my image on 30 April. With best regards.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140502/Km02May14.jpg

Teruaki KUMAMORI (Osaka, JAPAN)

●……***Subject: Mars 30th April UT***
Received: 1 May 2014 at 20:39 JST

Unfortunately the skies have been cloudy here for a while now. I managed to capture only one set of R, G & B data yesterday between two cloud banks, but did not have time to view Mars visually. From the data it appears to be quite a generally hazy/cloudy Mars particularly at the morning terminator all around to the NPC. The area around Eden/Cydonia also looks interesting. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/MVl30Apr14.jpg

Maurice VALIMBERTI
(Melbourne, AUSTRALIA)

●……***Subject: Mo01May_14***
Received: 2 May 2014 at 01:44 JST

Masatsugu MINAMI-sama, Since a lull and then a clear interval came, I began to shoot. The B image readily suggested me that something new was happening, and so I soon set out to process to find a spiral low pressure cloud following M Acidalium. I here send one of the best images to you. Because this appears also on other images, this is never any ghost. The seeing condition however gradually turned poorer.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140501/Mo01May14.jpg

○……***Subject: Mo02May_14***
Received: 5 May 2014 at 03:09 JST

Masatsugu MINAMI-sama, The seeing conditions on 2 May and 3 May turned to be very poor: Especially the image at ω=054°W was terrible. On 2 May the condition somewhat improved, even then never satisfactory. Here I put several RGB images side by side from ω=054°W to ω=074°W. The arctic cloud seems to have been reproduced on 2 May in a bit losing shape. At present I use the Windows XP to take images and process them, whereas I send them by the use of Windows 7. As a result, I have an impression that the colour proves slightly different. So I will try to process the images also by using W7. The images on 3 May are not yet processed. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140502/Mo02May14.jpg

○……***Subject: Mo06－16May_14***
Received: 19 May 2014 at 00:44 JST

Here are the Mars images on 6, 7, 8, 13, 16 May.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140506/Mo06May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140507/Mo07May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140508/Mo08May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140513/Mo13May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140516/Mo16May14.jpg

I am sorry I am late. There are lots to be done

even at home, and if the fine skies are kept, I can't afford to take time. I shot also on 10 May, but I have not had enough time to process. On 13 May the seeing was a bit better and the morning mist along the eastern nearest neighbourhood of M Acidalium looked interesting. Best regards.

Yukio MORITA (Hiroshima, JAPAN)

●····***Subject: Mars Images - April 28, 2014***
Received: 2 May 2014 at 07:38 JST

Dear Masatsugu and Masami, Attached is a set of images of Mars on 29 April. Very bright cloud over Hellas! Between cloudy nights and work I am sorry I have not been very productive imaging this apparition. Hopefully I will have more to send the next couple of months. Best Regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/WFl29Apr14.jpg

○····***Subject: RE: Mars Images - April 28, 2014***
Received: 3 May 2014 at 02:20 JST

Dear Masatsugu, Good to hear from you! I hope I have more to contribute before Mars fades away until the next time around. I also hope you were able to observe the cyclonic cloud near M Acidalium last evening. It does seem like things are starting to get interesting. Best wishes,

p.s. My wife Kris sends her regards. We really enjoyed the trip to Paris and Meudon for IWCMO conference back in 2009!

Bill FLANAGAN (Houston, TX, the US)

●····***Subject: Mars Images 28th/ 30th-Apr-2014***
Received: 2 May 2014 at 08:35 JST

Hi Guys two night of different seeing but both showing similar clouds. The bright one on the right is over Olympus Mons. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/DTy29Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/DTy30Apr14.jpg

○····***Subject: Mars 2nd and 5th of May-2014***
Received: 5 May 2014 at 22:23 JST

Hi Guys seeing was a bit better for me on the 2nd and even better on the 5th, encouraging a jump in mag for the last image in the set. A 2× TV Barlow was stretched 80mm by the double prism ADC, and the Fleas 3's nosepiece, thus increasing the C14'S *f*11 to *f*35. Still plenty of fast but low amplitude "limb lashing," but the dark stripe in the polar cap was constantly visible. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140502/DTy02May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140504/DTy04May14.jpg

○····***Subject: Mars 14-15th-May-2014***
Received: 18 May 2014 at 21:44 JST

Hi Guys here are a few Mars images from the reasonable seeing here this past week. They tend to be a bit samey over a week as Mars only appears to have rotated about 9 degrees for the same time each day. The Tharsis volcanoes can be seen rising in these images . Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140514/DTy14May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140515/DTy15May14.jpg

Dave TYLER (Bucks, the UK)
www.david-tyler.com

●····***Subject: Re: possible cyclone? Fw: Mo01May_14***
Received: 2 May 2014 at 11:22 JST

Dear. Dr. Minami, Christophe, This is an email from my mobile phone, I'm in the front seat next to my wife Reiko's driving. We are on our way on the highway from Hiraizumi to Hirosaki, chasing the cherry-blossom front going up north.

Yes, Dr. Morita caught really something, a big lady almost 1500km across with an explicit eye over 500km in diameter! Australian Big Guns may resolve into the spiral structure. I believe the next release of MRO MARCI weakly weather report will show a somewhat dissipated but enduring afternoon feature of this cyclonic spiral cloud.

Best Regards,

>----- -----
>from: Masatsugu MINAMI
>to: Christophe Pellier
>Cc: Reiichi KONNAI
>Date: Fri, 2 May 2014 02:06:14 +0900 (JST)
>Sugb: possible cyclone? Fw: Mo01May_14
>>Dear Christophe, I have just received this set of images
>from Yukio Morita.
>It is also possible (judged from KUMAMORI's image) that
>there occurred the same phenomenon on the preceding
>day. With best wishes,
>Masatsugu
>PS: CMO/ISMO #421 has been uploaded.
>----- -----

Reiichi KONNAÏ (Fukushima, JAPAN)

●····***Subject: Re: Mars image***
Received: 3 May 2014 at 08:32 JST

Dear Masatsugu, Very happy to be able to help. Thank you to you and your colleagues for all the hard work you put in maintaining the CMO image database. You are correct, the images are from the 30 April GMT not from the 29th as I stated. Apologises for my error, I will be more careful in future. Please find the attached corrected image set. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140430/MJs30Apr14.jpg

Mark JUSTICE (Melbourne, AUSTRALIA)

●····***Subject: Mars images Ak02May14***
Received: 3 May 2014 at 09:25 JST

MINAMI sama, Please find attached the Mars images on 2 May 2014. I think they show the cyclonic cloud which was announced in the Face -book. The seeing was unstable, and so no further good images. Tonight I intend to try again, but the weather forecast says it will be cloudy. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140502/Ak02May14.jpg

Tomio AKUTSU (Tochigi, JAPAN)

●····***Subject: Mars images from HIDA Observatory***
Received: 3 May 2014 at 16:36 JST

Dear Dr. MINAMI, Under the auspices of Dr Tadashi ASADA, I am here at the Hida Observatory, Kyoto University. Please find attached a set of Mars Images which I took by the use of the 65 cm Zeiss Refractor of the Hida Observatory. The B images are more improved than before because of the new Blue corrector, while the G image is unfavourable. Tonight I will try again. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140502/Ns02May14.jpg

Akinori NISHITA (Fukui, JAPAN)

(Editor's Note): *The Hida Observatory of Kyoto University was established in 1968 at a mountainous area of the Takayama City, Gifu Prefecture which is located in Central Japan. The highest mountain near the Observatory is called Mt Ōamami whose summit is 1336 metres above sea level.*

●····***Subject: Re: Mars Images 2014/04/13***
Received: 5 May 2014 at 00:49 JST

Dear Masatsugu, You can have all confidence. I appreciate your interest in my images. I understand the high level of work to the analysis and publication of observations. Thank you very much for including them in the CMO #421. I'm very interested in contributing to the report of observations and expect to post several images during this apparition. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140413/CTr13Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140601/CTr01June14.jpg

Charles TRIANA ORTIZ (Bogota, COLOMBIA)
AstroExplor Observatory
www.astroexplor.org
astromail@astroexplor.org

●····***Subject: hi*** (Complete version)
Received: 4 May 2014 at 09:27 JST

Dear Masatsugu, I was very glad to see that you were able to observe Mars in March. Your Parkinson's problems with the pencils "hit me close to home."

Maybe you will be interested in my experience with PD. Somewhere I read that, with fifty patients, you would have fifty sets of presenting symptoms. Our cases will therefore probably not be exactly alike. There may be enough similarity to be of some interest to you.

The first symptom that I noticed was difficulty in writing. Back then we wrote our nursing notes directly onto the patients' charts. I would put my pen on the paper, and nothing would happen. I would try harder, and maybe the pen would move a little. Try harder still, and the pen would scribble all over the page. My family doctor, who has been very helpful to me for quite a few years, referred me to a neurologist. The neurologist saw that my right arm did not swing when I walked. The right side of my body was slow and almost rigid. The PD has mainly affected my right side. Recently I have also had some difficulty moving my left side. My facial expression was waxlike, sometimes called the Parkinson's mask. At times I have had a lot of trouble walking. My balance is not good, and, frankly speaking, I am afraid of falling. I have a hard time

getting up from a chair, and sometimes I need help. Tyler has been very good about assisting me. The neurologist says that the PD symptoms will get worse, and I am likely to become completely disabled.

I am very fortunate in that my employer has found work that I can do on a part-time basis that is sort of a light duty work. Co-workers have usually be helpful and accepting of my limitations.

My wife has been helpful in many ways, and I cannot praise her too much.

Parkinson's itself is not physically painful, but arthritis, which may be connected with the medication, is sometimes very painful.

My PD has been treated with medication. I have been very fortunate in that the meds have usually worked well, and my body has tolerated the medication so far. I hope you are receiving good medical care, and that your symptoms can be controlled. If you have any questions or comments in regard to our health problem, please write to me. I am not a doctor, but I am your friend and willing to try to help. Best wishes,

Samuel WHITBY (Prince George, VA, the US)

●····***Subject: Mars M140504 ishibashi***
Received: 5 May 2014 at 09:56 JST

This is ISHIBASHI. On 4 May, the npc and its rhs neighbour were whitish conspicuous. The mist near the equator is narrower, but the morning mist is much wider. The image at 12h07m was taken through a thin cloud.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140504/Is04May14.jpg

Tsutomu ISHIBASHI (Kanagawa, JAPAN)

●····***Subject: Mars observations on 17 Apr and 1 May***
Received: 5 May 2014 at 17:29 JST

Dear Mr Murakami and Mr Minami, I hope you are both well. I am a new imager of the planet Mars from my back garden in Bungendore, NSW, Australia and I have taken some data on both the 17th April and May 1st and I wanted to submit them to the CMO/ISMO if that is ok. I was not sure of where I could send my data and an internet search led me to your group.

Please find attached two jpg images with the data. I use a Takahashi TOA-130NS refractor with a ZWO ASI120MM camera with LRGB filters.

Of particular interest is the image of May 1st, which I believe shows a new polar vortex over the Tempe region. There appears to be a lot of cloud over Tharsis too. By seeing such climatic details on Mars I was interested to submit the images to you. I hope to submit more images once the weather is a little better. Cheers, and all the best.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140501/DWr01May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/DWr17Apr14.jpg

○····***Subject: RE: Mars observations Apr 17th and May 1st***
Received: 6 May 2014 at 19:28 JST

Dear Mr. Minami, Thank you very much for your kind email and the request for me to send more data through to you. I am also very glad to hear that another observer also saw the polar votex on the same night. Very interesting that it also appeared in 1999. Let us hope that it continues to be visible for some time to come!

You asked if I had more data taken in April. I have one more image, taken on April 2nd, which was the first time I ever used my new camera system. Please find the image attached as a jpg file as before.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140402/DWr02Apr14.jpg

This time the Syrtis Major was on the meridian, and the fog in Hellas was very extensive. Please note that I can also send you the .tif files, one for each filter, as well as the attached image. These are the original images as output by registax. If you think that data would be useful please let me know and I will email them over to you for the three Mars images I have now submitted.

Thank you again and I will be in touch. Cheers,

David WELDRAKE
(Bungendore, NSW, AUSTRALIA)

●·····***Subject: Mars closest to Earth - April 14th.***
Received: 11 May 2014 at 00:11 JST

Hi all, Here is a colour and B filter image of Mars

from the night it was closest to Earth taken under excellent conditions during a recent stay on Barbados.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140414/DPc14Apr14.jpg

This is probably the sharpest image of Mars ive ever taken. Extensive delicate cloud features are visible across the planet. The volcano summits are all clear of clouds especially Arsia Mons. Olympus Mons appears as a ring like feature. Also note the lack of clouds in the northern polar latitudes especially over Mare Acidalium.

http://www.damianpeach.com/mars1314/2014_04_14_rgb08.jpg

Many more images to come covering almost the entire planet. Many weeks of work ahead. Best Wishes

○····***Subject: Mars images (April 14th, 2014.)***
Received: 17 May 2014 at 04:20 JST

Hi all, Here is the full set of images taken near Mars close approach to Earth (closest was April 14th, 1254UTC.) Seeing was close to perfect at times during the session allowing perhaps my most detailed images of the red planet to date.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140414/DPc14Apr14.jpg

Note the changes in the martian clouds over the course of the images.

RGB: http://www.damianpeach.com/mars1314/2014_04_14_rgbs.jpg

Blue: http://www.damianpeach.com/mars1314/2014_04_14_blue.jpg

Best Wishes

○····***Subject: Mars images (April 15th, 2014.)***
Received: 19 May 2014 at 06:22 JST

Hi all, Here are some Mars images from April 15th. Allot of clouds during the session and only a few opportunities to obtain images. Seeing was briefly very good for the RGB image but worsened with more clouds approaching. The Tharsis volcanoes are again well seen shrouded in clouds. The B image obtained sometime later again shows extensive cloudiness across the disk and structure within the ECB. Best Wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140415/DPc15Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_15rgb03.jpg

○····***Subject: Mars images (April 16th, 2014.)***
Received: 25 May 2014 at 02:45 JST

Hi all, Unfortunately skies were mostly cloudy and only one set of images were possible this night. Seeing was good. Tharsis is well placed shrouded in clouds. Best Wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140416/DPc16Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_16rgb.jpg

○····***Subject: Mars images (April 17th, 2014.)***
Received: 26 May 2014 at 22:12 JST

Hi all, Here are some Mars images from April 17th. Very good seeing for the RGB image though less good for the B filter images. Best Wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140417/DPc17Apr14.jpg

RGB: http://www.damianpeach.com/mars1314/2014_04_17rgb06.jpg

Blue: http://www.damianpeach.com/mars1314/2014_04_17blue.jpg

○····***Subject: Mars images (April 18th, 2014.)***
Received: 29 May 2014 at 03:44 JST

Hi all, Here are some Mars images from April 18th. Skies were mostly cloudy and this was the only image possible. Luckily seeing was very good (though the B image was affected by clouds.) Again plenty of clouds visible across the disk. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140418/DPc18Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_18rgb02.jpg

○····***Subject: Blue Mars image (April 19th, 2014.)***
Received: 3 June 2014 at 05:11 JST

Hi all, Here is a B filter image taken under great seeing on April 19th. Some delicate cloud structure is recorded. Chryse is covered in clouds thickening toward Tharsis on the limb. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/DPc19Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_19blue.jpg

○····***Subject: Mars image (April 19th, 2014.)***
Received: 4 June 2014 at 06:22 JST

Hi all, Here is a colour RGB image from April 19th under excellent conditions. Note the prominent Syrtis blue cloud. It was really striking visually at 350× glowing a distinct cyan/blue colour. Probably the clearest and most striking view of this phenomenon ive ever had. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140419/DPc19Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_19rgb03.jpg

○····***Subject: Mars images (April 20th, 2014.)***
Received: 7 June 2014 at 21:56 JST

Hi all, Here are some images from April 20th. Excellent seeing though not quite a superb in B as the previous night. Extensive clouds visible across the disk. Best Wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140420/DPc20Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_20rgb.jpg

○…***Subject: Mars images (April 21st, 2014.)***
Received: 15 June 2014 at 02:33 JST

Hi all, Here are some images from April 21st. Excellent conditions. The Syrtis blue cloud is very distinct. Lots of clouds/haze over Chryse and toward the NPC. Best Wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140421/DPc21Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_21rgb.jpg

○…***Subject: Mars images (April 22nd, 2014.)***
Received: 22 June 2014 at 03:02 JST

Hi all, Here are some images from April 22nd. They nicely show Syrtis Major passing over the limb with blue cloud again prominent. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140422/DPc22Apr14.jpg
http://www.damianpeach.com/mars1314/2014_04_22rgb.jpg

Damian PEACH (Selsey, WS, the UK)

●…***Subject: 23 Mars observations from the present apparition***
Received: 5 June 2014 at 06:20 JST

Dear Richard, Masatsugu and Masami,

Hope you are all well. I'm sending you here a batch of 23 Mars images from the present apparition. I have imaged with a 22 cm Newtonian and DBK 21AU618 color camera. Included in the set are two drawings and I am happy to have had good enough seeing to produce these. Comparing near-simultaneous drawings and images always provide interesting learning opportunities.

The low altitude of Mars has been problematic and causes lot of dispersion and bad seeing, and can of course not be compared to the results of experienced imagers having Mars higher in the sky. But at least I have acquired four images of which I am quite satisfied given the circumstances (March 29, April 29, May 15 and May 20).

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140329/JWr29Mar14d.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140329/JWr29Mar14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/JWr29Apr14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140429/JWr29Apr14d.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140515/JWr15May14.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/140520/JWr20May14.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/index_JWr.html

In any case, I hope these images are of interest and may be useful. Even though I have checked and rechecked, I am sure there is incorrect information hiding in the image labels, please let me know if you identify any.

I will continue following Mars as long as the bright skies and altitude allow and hope for a few more images this summer. Best regards,

Johan WARELL (Skurup, SWEDEN)

☆ ☆ ☆

International Society of the Mars Observers (ISMO)

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CMO #423/ ISMO #49 (25 June 2014)

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