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Use the Phase Angle:

How to Use Our Ephemeris

By

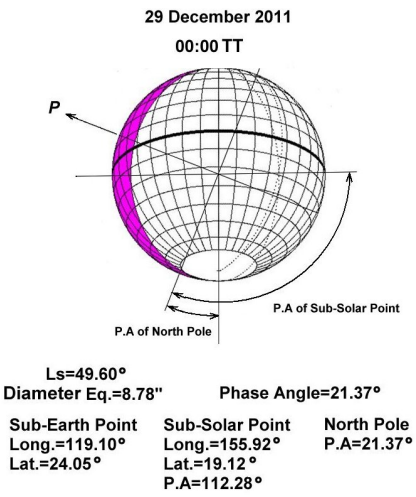
Masami MURAKAMI and Masatsugu MINAMI

In every issue of the CMO/ISMO we lay out the corner of "Ephemeris", while there is few sign for any to use it. There are listed a lot of excessive data associated with the images and sketches while there is no description of the "phase angle ι".

We should say it is important to observe the morning and the evening side of Mars carefully. To know how much of the morning side is not seen because of the phase angle, and how much of the region before sunset is already hidden to the rear side is an important perception every observer should hold. Soon we will face the situation where the orographic clouds rapidly go to the rear side from the evening limb though it is still bright. On the morning limb, the observation of the very side is indispensable because the dawn line is the critical region for the dust disturbances (in addition to the polar regions). Apparently any germ of the dust clouds will receive a decisive effect at the dawn line (just when the dust cloud afterward ascends to the higher altitude and becomes global, the effect will be weakened). It is ridiculous to consider that the dust cloud moves like the Typhoons or Tornados on the Earth: Contrarily the initial state of the dust cloud *in the night* must be calm and quiet, but at the dawn time it will arouse a definite violence but do not move so rapidly. Hence any sequence map of the images of the day-to-day variation of dust clouds is meaningless. Instead we should be more attentive at the dawn line every time. This point of view was caused by the 1956 dust event when no more than a few observations were obtained; and especially no observation of the morning side was produced. Perhaps the 1973 case was one of the most appropriate cases since the occurrence of the storm was knocked down when the phase angle was nearly zero, but unfortunately observations at the Pacific Ocean region were few. We have so begun to appeal to an international network of observations on every occasion and to recommend every observer to check the morning side every 40 minutes, but this idea is not yet widely spread.

The consciousness how much the "phase angle" is given will also describe in the head how far the "noon-line" (*n*-line) is separated from the centre of the illuminated disk. This is not an easy task at first glance, and as shown in the Figures at the page ser3-0189 of CMO #389, the morning side or the evening side is not better balanced than expected (even in December 2011): These figures will give the

readers how importantly the "phase angle" gives easily an idea of the morning and evening distribution every occasion. However it is very tedious to draw every day the grid-figure. The *n*-line of course connects the both poles but usually it's asymmetrical. As said, our Ephemeris depends on the *Astronomical Almanac* (it should be cautioned however that the *Almanac* is mostly written in TT, but our Ephemeris is written for GMT: At the beginning of 2011, the difference is 66.184 seconds). The *Almanac* happily gives a column of the "phase angles". Furthermore it gives the values of the Long(itude) and Lat(itude) of the Sub-Earth Point. We usually denote these values as ω and ϕ (replaced in GMT) respectively (note however ϕ is not simple because the planet is never real globular). As well it gives the Long and Lat of the Sub-Solar Point. In addition of these, the P.A. of the Sub-Solar Point is given. The Latitude of the Sub-Solar Point is usually written *Ds*, though we don't use this because the season should be given by "Ls". The P.A. is the value of the position of the Sun measured from the Celestial North in the anticlockwise direction when we project the global Mars to the plain. The opposite side by 180° is the part of the most shadowy area of the defect of illumination. We call the *m*-line which is composed of the great circle perpendicular to the great circle of the night part. The *m*-line is directed to the Sun from the NS line, and hence at the intersection of the *n*-line and *m*-line the Sun shines at the zenith (or the Martian point is at the Sub-Solar Point). On 29 December 2011, it comes to 19.1°N.



Note that this is not at the CM, because we have still the phase angle which is not null. The season is λ= 050°Ls. In 2011 the northern spring equinox came on 12 September: At that time the Lat (namely *Ds*) of the Sub-Solar Point vanished. We should save labour, and so the Martian season will be described by Ls (not by *Ds*), and we just employ ω and ϕ as the GMT central latitude and the tilt respectively. Otherwise we need the apparent diameter δ: Since the planet Mars is not truly globular, the *Almanac* gives two columns of the diameter, while we employ the "Equatorial diameter" part.

Incidentally, the *Almanac* gives the value P.A. of North Pole: This is the angle from the Celestial North anticlockwise to the north of the planet. Since the celestial west is found if we stop the motor drive so that we easily find the position of the north pole of Mars. As far as we know Don PARKER and Yukio MORITA derive the direction of the north pole by this method. We therefore add a column of *Π* in our Ephemeris.

The "phase angle" is derived by the P.A. of the Sub-Solar Point. That is, the projected plain of Mars will give the most defect illumination at the opposite side of P.A. Let *r* and ι be the radius of Mars and the phase angle respectively. Then the highest width of the defect is given by *r*(1-cosι)/2: We regard (1+cosι)/2 as the "phase". However geometrically ι is more fundamental and also gives us concrete images. If ι is 30° near the following terminator the hidden morning part is 2 hours MLT. One point we should be careful is that this is at the deepest part, and for example at the equatorial zone the value will be somewhat different. However, the possible difference is smaller (counted by minutes). Note; usually the phase angle does not vanish.

We finally pick out the declination D: This value is useful if we would like to find the planet in twilight or hazy sky. If the equator is rightly regulated and graduated, we can find at least one direction of the planet and if we move the telescope slowly along WE direction, then finally catch the planet inside the eye field.

Recently many use some softwares to find the necessary elements (plus unnecessary elements) for their images, but in our opinion everybody should

calculate the values by himself since they are simple and give them unknown intuition. It is regretful to receive some images without important data but with excessive data.

Note that even the ω is easily obtainable: Read ω_1 of the day, and then ω_2 of the following day: Then $\omega_h=(360°- (|\omega_2 - \omega_1|))/24$ will give the angle of rotation by 1 hour (note that this is different every day). Next change the observation time to GMT and denote it as H (15h45m GMT should be 15.75 GMT). Then you will find your ω by $\omega=\omega_1+H\times\omega_h$

$=\omega_1+H\times((360 - (|\omega_2 - \omega_1|))/24)$.

When $\omega_2 > \omega_1$, you should use $\omega_1+360°$ as ω_1.

Finally we should say again don't forget the *phase angle* ι which is easily gotten from our Ephemeris.

Ephemeris for the Observations of the 2011/12 Mars. VI

January 2012

Masami MURAKAMI

AS a sequel to the preceding list of the Ephemeris for the physical observations of Mars, we here list up the necessary elements of the Ephemeris in January 2012 (exactly for period from 29 December 2011 to 5 February 2012): The data are listed for every day at 00:00 GMT (not TDT). Several symbols are explained in the preceding article. The data here are basically based on *The Astronomical Almanac for the Year 2011 & 2012*.

Date (00:00GMT)	ω	φ	λ	δ	ι	*Π*	*D*
29 December 2011	119.37°W	24.1°N	049.60°Ls	8.78"	34.5°	21.4°	+06°51'
30 December 2011	110.00°W	24.0°N	050.04°Ls	8.86"	34.3°	21.5°	+06°46'
31 December 2011	100.62°W	24.0°N	050.49°Ls	8.94"	34.2°	21.6°	+06°41'
01 January 2012	091.27°W	24.0°N	050.93°Ls	9.01"	34.0°	21.8°	+06°37'
02 January 2012	081.92°W	24.0°N	051.37°Ls	9.09"	33.8°	21.9°	+06°33'
03 January 2012	072.57°W	23.9°N	051.81°Ls	9.17"	33.6°	22.0°	+06°29'
04 January 2012	063.25°W	23.9°N	052.25°Ls	9.25"	33.4°	22.2°	+06°26'
05 January 2012	053.92°W	23.9°N	052.69°Ls	9.33"	33.1°	22.3°	+06°22'
06 January 2012	044.62°W	23.9°N	053.13°Ls	9.41"	32.9°	22.4°	+06°19'
07 January 2012	035.32°W	23.8°N	053.57°Ls	9.50"	32.6°	22.5°	+06°16'
08 January 2012	026.01°W	23.8°N	054.01°Ls	9.58"	32.4°	22.6°	+06°13'
09 January 2012	016.74°W	23.8°N	054.45°Ls	9.67"	32.1°	22.7°	+06°10'
10 January 2012	007.47°W	23.8°N	054.89°Ls	9.75"	31.8°	22.8°	+06°08'
11 January 2012	358.21°W	23.7°N	055.33°Ls	9.84"	31.5°	22.9°	+06°06'
12 January 2012	348.96°W	23.7°N	055.77°Ls	9.93"	31.2°	22.9°	+06°04'
13 January 2012	339.73°W	23.7°N	056.21°Ls	10.01"	30.9°	23.0°	+06°03'
14 January 2012	330.50°W	23.7°N	056.65°Ls	10.10"	30.6°	23.1°	+06°01'
15 January 2012	321.28°W	23.6°N	057.09°Ls	10.19"	30.3°	23.1°	+06°00'
16 January 2012	312.09°W	23.6°N	057.53°Ls	10.29"	30.0°	23.2°	+06°00'
17 January 2012	302.89°W	23.6°N	057.97°Ls	10.38"	29.6°	23.2°	+05°59'
18 January 2012	293.72°W	23.5°N	058.41°Ls	10.47"	29.3°	23.3°	+05°59'
19 January 2012	284.55°W	23.5°N	058.85°Ls	10.57"	28.9°	23.3°	+05°59'
20 January 2012	275.40°W	23.5°N	059.29°Ls	10.66"	28.5°	23.3°	+05°59'
21 January 2012	266.25°W	23.5°N	059.72°Ls	10.76"	28.1°	23.4°	+06°00'
22 January 2012	257.14°W	23.4°N	060.16°Ls	10.85"	27.7°	23.4°	+06°00'
23 January 2012	248.01°W	23.4°N	060.60°Ls	10.95"	27.3°	23.4°	+06°02'
24 January 2012	238.92°W	23.4°N	061.04°Ls	11.04"	26.9°	23.4°	+06°03'

Date (00:00GMT)			ω	φ	λ	δ	ι	Π	D	
25	January	2012	229.83°W	23.3°N	061.47°Ls	11.14"	26.4°	23.4°	+06°05'	
26	January	2012	220.76°W	23.3°N	061.91°Ls	11.23"	26.0°	23.4°	+06°07'	
27	January	2012	211.70°W	23.3°N	062.35°Ls	11.33"	25.5°	23.4°	+06°09'	
28	January	2012	202.65°W	23.2°N	062.79°Ls	11.43"	25.0°	23.4°	+06°12'	
29	January	2012	193.63°W	23.2°N	063.22°Ls	11.52"	24.5°	23.3°	+06°15'	
30	January	2012	184.61°W	23.2°N	063.66°Ls	11.62"	24.0°	23.3°	+06°18'	
31	January	2012	175.59°W	23.2°N	064.10°Ls	11.72"	23.5°	23.2°	+06°21'	
01	February	2012	166.61°W	23.1°N	064.54°Ls	11.82"	23.0°	23.2°	+06°25'	
02	February	2012	157.63°W	23.1°N	064.97°Ls	11.91"	22.4°	23.1°	+06°29'	
03	February	2012	148.67°W	23.1°N	065.41°Ls	12.01"	21.9°	23.1°	+06°33'	
04	February	2012	139.72°W	23.1°N	065.85°Ls	12.11"	21.3°	23.0°	+06°38'	
05	February	2012	130.78°W	23.0°N	066.29°Ls	12.20"	20.8°	22.9°	+06°42'	- - -

CMO/ISMO 2011/12 Mars Report #04

2011/2012 Mars Observations in November 2011

♂・・・・・・The present report is concerned with the Mars Observations by the ISMO members made in November 2011: During the month the angular diameter δ went up from 5.9" to 7.1" and the season proceeded from λ=023°Ls to λ=037°Ls. The central latitude moved from φ=22°N to 24°N. The phase angle ι was from ι=36° to 37°; during the end of the month it remained maximal.

♂・・・・・・We received the observation reports as follows this month:

ABEL, Paul G (*PAb*) Leicester, the UK

1 *Colour* Drawing (28 November 2011) 310×20cm speculum

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

3 Sets of *RGB* + 2 *Colour* + 1 *L* + 1 *B* + 4 *IR* Images (5, 28 November 2011)
36cm SCT *@f/40* with a DMK21AU04, DFK21AU04

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

2 Sets of *LRGB* Images (29 November 2011) 36cm SCT *@f*/27 with a Flea3

GHOMIZADEH, Sadegh (*SGh*) Tehran, IRAN

2 *Colour* Images (4, 5 November 2011) (28cm SCT with a DMK21AU04.AS)

GRAY, David (*DGr*) Duhram, the UK

1 Set of *Colour* Drawings (7 November 2011) 370×, 540×42cm Dall-Kirkham

MAKSYMOWICZ, Stanislas (*SMk*) Ecquevilly, FRANCE

1 Set of Drawings (1 November 2011) 340×31cm Cassegrain,

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

1 *Colour* Image (25 November 2011) 25cm SCT with a ToUcam pro II

MINAMI, Masatsugu (*Mn*) Fukui City Observatory, Fukui, JAPAN

26 Drawings (3, 4, 8, 17, 26, 27, 29 November 2011) 400×20cm Goto ED refractor

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

5 Sets of *RGB* + 5 *LRGB Colour* + *5 L* Images (3, 7, 16, 23 November 2011)
25cm speculum *@f*/80 with a Flea3

NAKAJIMA, Takashi (*Nj*) Fukui City Observatory, Fukui, JAPAN

21 Drawings (3, 4, 8, 26, 27, 29 November 2011) 400×20cm Goto ED refractor

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

2 Sets of *RGB* Images (18 November 2011) (36cm SCT with a SKYnyx 2-0M)

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

1 Set of *RGB* Images (20 November 2011) 35cm Cassegrain with a SKYnyx 2-0

ROSOLINA, Michael (*MRs*) Friars, WV, the USA

1 *Colour* Drawing (12 November 2011) 390, 490×35cm SCT

WALKER, Sean (*SWk*) Manchester, NH, the USA

1 Set of *RGB* + 1 *IR* Images (2 November 2011) 32cm speculum with a DMK21AU618.AS

WARELL, Johan (*JWr*) Skivarp, SWEDEN

2 Sets of *RGB* Images (6, 15 November 2011)
22cm speculum @*f*/17 with a ToUcam pro III

♂・・・・・・This month the region of Elysium was rather densely observed: FLANAGAN (*WFl*)'s excellent set of images on 29 Nov (λ=036°Ls) at ω=215°W/219°W show that the area of Phlegra looks broad while the whole aspect was normal, and the Ætheria dark patch was similar to the preceding apparition and its leading new canal extended to further south though angular disk is still small (δ=7.0").

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111129/WFl29Nov11.jpg

Elysium is light including B as is the case in AKUTSU (*Ak*)'s set of images on 5 Nov (λ=026°Ls) at ω=217°W/220°W. The B image of POUPEAU (*JPp*) on 20 Nov (λ=032°Ls) at ω=227°W also shows the thin cloud at Elysium. These three show the coming of Syrtis Mj at the following limb (*JPp*'s is showing a tint of a slight greenish since the angel a bit proceeded). Note that in *Ak*'s case the eastern side of the north polar cap (npc) is faded while *WFl*'s npc at the end of the month is wholly bright though a shadowy segment is visible inside.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111105/Ak05Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111120/JPp20Nov11.jpg

MORITA (*Mo*) took the sets of images on 3 Nov (λ=025°Ls) at ω=214°W, 223°W, but Elysium in B is not explicit: However Phlegra is broad at ω=214°W, and the images at ω=223°W show Syrtis Mj. His images are better in R and Elysium is light though vague in B. This time Cebrenia is not distinct. *Mo*'s images on 7 Nov (λ=026°Ls) at ω=178°W look duller, while the R image shows an extension of Phlegra. *WFl*'s images depict some details inside Elysium, but it is not so whitish in colour. An overflow of the white cloud from the npc is seen on *WFl*'s images.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111103/Mo03Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111107/Mo07Nov11.jpg

As angles more advanced, PEACH (*DPc*)'s sets of images on 18 Nov (λ=031°Ls) at ω=242°W, 247°W are excellent and show clearly the evening cloud inside Elysium. These images also show an interesting detail of Utopia, and also prove that the morning Hellas near the limb is whitish. MELILLO (*FMl*)'s image on 25 Nov (λ=035°Ls) at ω=246°W is small but clearly shows the Elysium cloud and the brilliant npc.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111118/DPc18Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111125/FMl25Nov11.jpg

As an image which caught Hellas near the CM is the one of GHOMIZADEH (*SGh*) on 4 Nov (λ=025°Ls) at ω=287°W, but Hellas is not whitish: Since the npc is not white there must have been an ill procedure. On the other hand *SGh*'s npc is processed to be white on 5 Nov (λ=025°Ls) at ω=276°W. We need the original decomposed elements. Argyre was observed by MAKSYMOWICZ (*SMk*) to be light near the southern limb on 1 Nov (λ=023°Ls) at ω=041°W by the use of Wr#82A.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111104/SGh04Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111105/SGh05Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111101/SMk01Nov11.jpg

As reported in the preceding issue, *Ak* detected a dust disturbance along the npc to the east of M Acidalium on 22 Oct (λ=019°Ls) at ω=356°W: This was proved by the MRO-MARCI image. It was diffused later but as far as GRAY (*DGr*) visually observed on 7 Nov (λ=026°Ls) at ω=331°W/335°W it still remains. Furthermore *Ak* also shot a similar matter on 28 Nov (λ=036°Ls) at ω=352°W, 003°W: This must be related with the thawing of the npc and the back ground is revealed. Here also a white cloud is ejected vastly from the npc to the south. *Ak*'s description of the morning side is no good, but at the afternoon side S Meridiani is shown rather completely.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111107/DGr07Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111128/Ak28Nov11.jpg

WALKER (*SWk*) produced a good set of images on 2 Nov (λ=024°Ls, δ=6.0") at ω=085°W where there is seen a light band along the latitude about 40°N and it was said that it might be a dust streak. However we spotted the rightmost light area is at Alba, and PELLIER (*CPl*) is of the opinion that this is due to the usual Albedo feature and not dust. Nevertheless this *SWk*'s set of images is excellent: it shows well the area of Solis L with the bright Ophir: Furthermore the forked shape of Nilokeras is seen near the evening terminator. The npc was not so bright and showed a shadowy part inside (near the centre of the npc). This may be related with the aforementioned segments seen inside the npc of the images of *DPc* and *WFl*. As to Alba, *Mo* caught on 16 Nov (λ=031°Ls) at ω=094°W, but not yet whitish. Rather its B image shows a whitish evening cloud to the north of Solis L near the terminator. Is it a special cloud? This B is interesting in that some of the NH part is quite cleared and looks black.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111102/SWk02Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111116/Mo16Nov11.jpg

In Japan the weather condition remained very poor. *Mo* caught the area of M Acidalium on 23 Nov (λ=034°Ls) near at ω=044°W, but the images look blurred.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111123/Mo23Nov11.jpg

At Fukui, NAKAJIMA (*Nj*) and MINAMI (*Mn*) stayed at the Observatory as possible as they could, but the results have been poor. KONNAÏ (*Kn*) kindly recommended them to use a penta-prism when the planet was high up, and but it is hard even to try it enough because of the poor weather. However since 3 Nov (λ=025°Ls) the npc appeared to be bright to them and since 26 Nov (λ=035°Ls) it turned to be very brilliant from our side. On 29 Nov (λ=037°Ls) at ω=292°W, *Nj* saw a bright Hellas near the southern limb.

WARELL (*JWr*) issued two kinds of images produced on 6 Nov (λ=026°Ls) at ω=326°W and on 15 Nov (λ=030°Ls) at ω=252°W: Though small, the latter shows Syrtis Mj and the npc is bright.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111106/JWr06Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111115/JWr15Nov11.jpg

We received a colour drawing from ROSOLINA (*MRs*) made on 12 Nov (λ=029°Ls) at ω=022°W, but the defect illumination seems to be erroneous. We also received a colour sketch from ABEL (*PAb*) made on 28 Nov (λ=036°Ls) at ω=112°W where the evening terminator cloud is seen but the spot inside (near the CM) is unknown at this angle.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111112/MRs12Nov11.jpg

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111128/PAb28Nov11.jpg

(*M MINAMI & M MURAKAMI*)

Letters to the Editor

●・・・・*Subject: Mars 2011 Nov 15*
Received: Thu 17 Nov 2011 15:11 JST

Dear friends, Another image from Nov 15, a bit sharper this time. Will soon try out a 5× powermate for better image scale. Best regards,

○・・・・*Subject: Mars 2011 Dec 8*
Received: Mon 12 Dec 2011 06:51 JST

Dear all, Attached is my latest Mars image, as well as the previous two with the disk orientation corrected.

Best regards, **Johan WARELL** (Skivarp, SWEDEN)

●・・・・*Subject: Mars 2011/11/20*
Received: Sun 20 Nov 2011 22:00 JST

Hello, Here is Mars on 2011/11/20. The seeing was average. The transparency was decreasing. T = +0.6°C. Regards

○・・・・*Subject: Mars 2011/12/10*
Received: Sat 10 Dec 2011 17:26 JST

Hello, Here is Mars on 2011/12/10 06H32 UT. The seeing was bad, while the transparency was average. T = +0.3°C

○・・・・*Subject: Mars 2011/12/11*
Received: Sun 11 Dec 2011 22:01 JST

Hello, Here is Mars on 2011/12/11. The seeing was average. The transparency was fair. T = -3°C. Regards

Jean-Jacques POUPEAU (Essonne, FRANCE)

●・・・・*Subject: Visual Mars Observation 12 November*
Received: Thu 24 Nov 2011 21:04 JST

Hello, Please find attached my first observational sketch of the 2011-12 Mars apparition. Mars was very small, but I could not wait to use my new 35cm telescope. As you can see, I could not see very much detail. Best regards,

○・・・・*Subject: Visual Mars Obs 03 December 2011*
Received: Mon 5 Dec 2011 07:58 JST

Sirs: Please find attached my recent observational sketch of Mars. Notes are with the sketch and in the body of this message. **Michael ROSOLINA** (WV)

●・・・・*Subject: Mars images (November 18th, 2011.)*
Received: Fri 25 Nov 2011 02:46 JST

Hi all, Here are some Mars images from Nov 18th in good seeing. Syrtis Mj and the Elysium clouds are prominent.

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2011/111118/DPc18Nov11.jpg

Best Wishes, **Damian PEACH** (Selsey, the UK)

●・・・・*Subject: Mars: November 25, 2011*
Received: Sun 27 Nov 2011 01:04 JST

Hi - I have attached my very first image of Mars November 25, 2011 at 11:11 UT to be posted. Thanks,

○・・・・*Subject: Mars: December 3, 2011*
Received: Sun 4 Dec 2011 09:53 JST

Hi - I have attached my latest image of Mars December 3, 2011 to be posted. Thanks,

○・・・・*Subject: Mars: December 12, 2011*
Received: Thu 15 Dec 2011 13:33 JST

I have attached my latest image of Mars December 12, 2011 to be posted. **Frank J MELILLO** (Holtsville, NY)

●・・・・*Subject: Mars on 29 November 2011*
Received: Wed 30 Nov 2011 10:01 JST

Dear Masatsugu, Attached is my first set of images for the 2011-2012 Mars apparition.

I just got a new camera and I'm still in the process of learning how to get the most out of it. It seems to be more sensitive and less noisy than my old Lu-075, so hopefully I will be able to squeeze a little more detail out of Mars during this apparition. ・・・・

I'm looking forward to the next few months as Mars grows larger!・・・I hope you are doing well! Best regards,

○・・・・*Subject: Mars on 01 December 2011*
Received: Fri 02 Dec 2011 09:27 JST

Dear Masatsugu, I had another clear night last night, so I managed to get at least one set of images of Mars on December 1st. The weather does not look great for the next week, but I will continue to try and get some more images as the skies permit. Texas has been in a severe drought this year. In Houston the total rainfall this year is about 56% below normal, the worst on record. So in some respects the clouds and possible rain are a welcome change. ・・・・

Bill FLANAGAN (Houston, TX)

●・・・・*Subject: Mars: 28/11/11*
Received: Sun 4 Dec 2011 00:23 JST

Greetings all, Attached is a Mars drawing I made on 28th November 2011. ・・・・ **Paul ABEL** (Leicester, the UK)

●・・・・*Subject: Mars 12/2, good seeing*
Received: Mon 5 Dec 2011 04:20 JST

Clouds on Olympus Mons and Ascraeus Mons at the sunset terminator. Dark ring within the NPC. Image recorded at *f*/42.

○・・・・*Subject: Mars December 12*
Received: Tue 13 Dec 2011 01:04 JST

The red planet continues its approach each day; note the broken dark ring within the NPC.

Sean WALKER (S&T, NY)

●・・・・*Subject: mars sketch 10/12/'11*
Received: Sat 10 Dec 2011 22:47 JST

Hi, here is my sketch from 10 december 2011. ・・・・

Greetings, **Kris SMET** (Bornem, BELGIUM)

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See further: **www.hida.kyoto-u.ac.jp/~cmo/cmo/ISMO_LtE392.htm**

TEN YEARS AGO (2001)

-----CMO #254 (25 December 2001) pp3183~3206 -----

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn2/cmo254/index.htm

The 18th report in 2001 treated the period from 16 Nov to 15 Dec 2001: The planet was in the evening sky, and its δ went down from 8.0" to 6.8". The dust cloud decreased and the dark markings became modulated. The λ proceeded from 273°Ls to 291°Ls, and φ went up from 19°S to 25°S. The ι was from 44° to 42°. Don PARKER (*DPk*) was active in the US. Already in winter, but Mars was observed almost every day. In Nov, morning Hellas to M Sirenum was seen in the Orient. Hellas was a bit light.

The Ætheria patch was visible but information of the NH was not full because of the tilt. In the US, the region of Solis L to M Serpentis was covered: Quite detailed for the δ. A dark band from M Ionium to M Erythraeum was noticed. In December, the area of Solis L was first observed from Japan. A dark spot to the north of Solis L which was already observed by *DPk* was trapped. There is a bright area near Argyre on KUMAMORI (*Km*)'s image. On the US side a thin Syrtis Mj was caught. Hellas was bright however showing Zea L. The light Hesperia split M Tyrrhenum and M Cimmerium. M Chronium was dark to the south of Eridania and Ausonia. The spc was small and roundish.

As LtE, we received from *DPk* (FL), Ed GRAFTON (TX), Jeff BEISH (FL), Sam WHITBY (VA), Dave MOORE (AZ), Bill SHEEHAN (MN), Randy TATUM (VA), David GRAY (the UK), Elisabeth SIEGEL (Denmark), Frank MELILLO (NY), Brian COLVILLE (Canada), Wei-Leong TAN (Singapore). Domestically we received from HORIKAWA, *Km*, MORITA, ISHADOH, AKUTSU and et al.

CMO#254 also includes Forthcoming 2001 Mars (14) "Ephemeris for the 2001 Mars. VI" treating by NISHITA (*Ns*) the calendrical data from Jan to the end of Feb 2002:

TSUNEMACHI (*Ts*)'s Essay (#13) dealt with the topics at Bethlehem, and the star of David from the ancient as well as new points of view.

TYA (76) picked out CMO #112 (25 December 1991): Twenty years ago, the planet was in the morning sky, after conjunction in Nov 1991, but no observations yet. In this issue, there were introduced the ALPO report on 1990 dust cloud, BAA's 1988 report, and about MEPCO 1992. *DPk*'s images by the Lynxx CCD Camera were shown. Around the time *Mn* met Director C.-H. Tsai of the Taipei Observatory at Otsu. Soon after *Mn*'s mother fell down at Mikuni, and this #112 was the first issue edited in Hospital at Mikuni with NAKAJIMA (*Nj*) and NISHITA (*Ns*): 16 years later she died.

Another essay was written by *Mn* in #254 entitled "(Dust.....)Too Early" (← spring ...too long) because the spectacle dust storm in 2001 arose before any international network was established: Even at the present time when the CCD technique was strengthened and the Internet era came, several sectionalisms being governing, the genuine network was not yet enough established. ***(Mk & Mn)***


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COMMUNICATIONS IN 東亞天文學會『火星通信』since 1986
MARS No.254
25 December 2001
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THE apparent diameter of Mars is decreasing, while the dark markings look comparatively apparent since the major dust cloud has dissipated. Furthermore the planet has become located much better in the sky seen from our hemisphere, so that our observable time has not run so short. This time we review the observations made during the period from

16 November 2001 (273°Ls) to 15 December 2001 (291°Ls)

during which the apparent diameter δ decreased from 8.0" to 6.8", while the apparent declination went up from -18° 26' to -10° 52'. The central latitude φ moved from 19° S to 25° S, and the southern hemisphere faces much toward us as in the coming 2003 case. The phase angle i was however still big though it went down from 44° to 42°.

The great storm of Leonids we met on 18 November was really a memorable event: We were fortunate this year because we didn't need to worry about the red planet at the Leonid time.

The planet Mars runs fast towards east, and it passed by the planet Uranus on 26 November. We hear TSUNEMACHI caught and watched the jade-greenish Uranus by moving the telescope from Mars a bit on 25 November.

On 10 December we had the first snow at Fukui and Kanazawa. We heard they had a snowfall of 50 cm in a night at Sapporo, Hokkaido. The first snow in Tokyo was on 21 December.

δ'……火星は視直径δを落としているものの、黄雲は沈静化して模様が顕在化し、観測にメリハリが出ている。火星の高度も夏に比べて高くなり、日没前から観測を始めれば観測時間は然程夏から減っていない。今回は *16 Nov 2001 (273°Ls) ~ 15 Dec 2001 (291°Ls)* が範囲であるが、この間、視直径δは8.0"から6.8"まで落ちた。一方、視赤緯は -18° 26'から -10° 52'まで昇った。足羽山には天文塞の南西に民間放送のテレヴィ塔があり、火星が緯度に入る頃から邪魔になるのであるが、視赤緯が-12°より高くなると上を通過する。中央緯度φは19°Sから25°Sとなり、季節と共に大接近型になっている。南極冠が larger 小さく明瞭だから、2003年の予備観測になる。ただ、位相角 i は44°から42°へと少し興味を帯びたものの、欠けは強い。

火星は順行が速く、これからも夕空に長く残る。26Novには天王星を追い越してその東に移ったが、TS氏は26日には昼が獲想されたので、前もって25Novに望遠鏡を少し動かして、翡翠色の天王星に別れを告げたそうである。

十一月19日未明の獅子座流星群は爆発的な流星雨となったが、幸い火星は夕方で今回は時間が重なることはなかった。然し、あれだけの輝度と光度があれば、街の灯りの頭上(足羽山の天文塞)で火星に取り憑いていても素晴らしい流星の幾つかは見ることが出来たのではないかと思われる。未だこちらの流星が飛びかっているときシーハン(Wish)氏からアメリカの最初のピークのNewsがemailされて来

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C_M_O Fu_Ku_I — T NAKAJIMA (*Nj*)

★We here acknowledge Hitomi TSUNEMACHI (452) for her kind donation to CMO/ISMO.

International Society of the Mars Observers (ISMO)

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

Bulletin: Kasei-Tsûshin CMO (http://www.mars.dti.ne.jp/~cmo/ISMO.html)

CMO #392/ ISMO #18 (25 December 2011)

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

☆ *Any e-mail to CMO is acknowledged if addressed both to*

cmo@mars.dti.ne.jp (Masami MURAKAMI at Fujisawa)

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

☆ *Usual mails to CMO are acknowledged if addressed to*

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