

MARS

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OBSERVATIONS

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07/08 CMO Note (11)

The Noachis Great Dust Storm in 2007

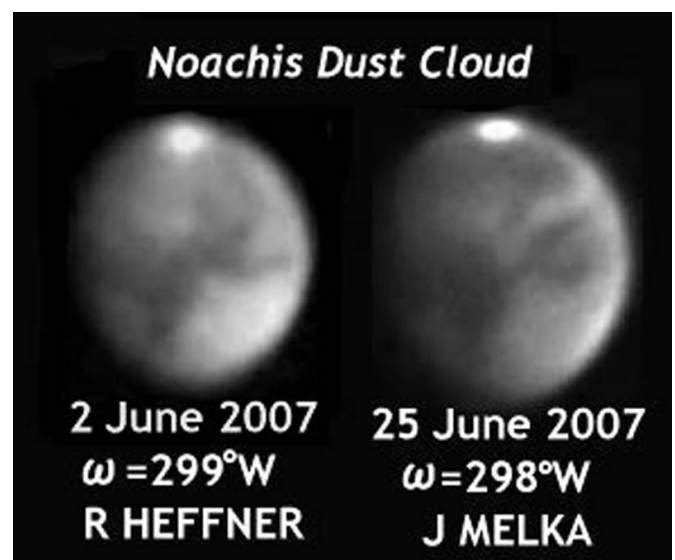
2007年のノアキス大黄雲

0° One of the biggest event in the apparition of Mars in 2007 was the great dust storm started at Noachis in June 2007 at $\lambda=264^\circ\text{Ls}$ which ranks with the great dust storm 1971b in September 1971 at $\lambda=260^\circ\text{Ls}$. However, while the latter was entrained when the apparent diameter was $\delta=19.3''$, the present one was hit when δ was only $6.2''$, and hence it was/is not easy to trace the emergence as well as the developing phase. On the other hand, this was a rare and happy case which showed us the situation after the decay phase just when the planet approached the Earth. We therefore here give an analysis of the preceding periods when the images were small by referring to the later Martian aspect which was quite dirty because of the precipitation of dust whereas the angular diameter became larger.

1° The entrainment of the Noachis dust was expected from around $\lambda=250^\circ\text{Ls}$ since it was so in 1956, and so we sent out an alert to the observers in Japan and Australia. In Australia Maurice VALIMBERTI (*MVI*), Stefan BUDA (*SBd*) et al and in Japan Robert HEFFNER (*RHf*) as well as the visual observers as ours were on the alert but no great dust did not occur. *RHf*'s image on 2 June ($\lambda=250^\circ\text{Ls}$) which shows the area of Noachis and M

Serpentis was depicted in CMO #332 (25 June 2007 issue). At that time Don BATES (*DBt*) shot another surface on 3 June ($\lambda=250^\circ\text{Ls}$), and Damian PEACH (*DPc*) produced an excellent sets of images at Barbados on 4 June ($\lambda=251^\circ\text{Ls}$, $\delta=5.8''$) where Thyles Mons was clearly shown, and hence we should say it was possible to shoot any significant dust if it might have occurred at that time.

2° In reality, the Noachis dust cloud was detected in the US first on 24 June ($\lambda=264^\circ\text{Ls}$) at $\omega=329^\circ\text{W}$ by Dave MOORE (*DMr*), and independently on 25 June ($\lambda=264^\circ\text{Ls}$) at $\omega=298^\circ\text{W}$ by Jim MELKA (*JMI*). See CMO #333 (10 July 2007 special issue). In #333 we showed the *JMI*'s image in comparison with the *RHf*'s before the advent of the dust storm, which



we here again cite. We should recall of course, however, that as was stated in #335 (25 August 2007 issue) the MARCI onboard the MRO already detected a patch of local dust near Eos on 21 June ($\lambda=262^\circ\text{Ls}$), and it caused a resonance dust near there

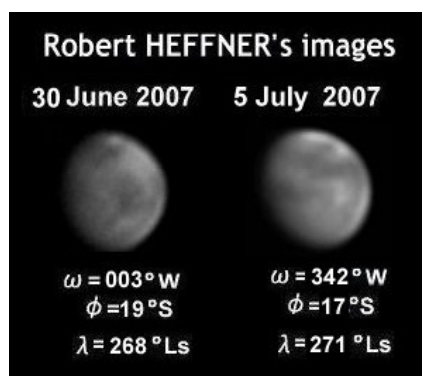
on the following day. Therefore it may be quite possible the Noachis dust on 24 June must have been a sort of resonant dust of the precursory dust near Eos, but we should recall that in order for the dust to be global it needs to be raised at the latitudes of Noachis in summer, and hence we call this dust event as the Noachis dust storm. So 24 June 2007 was the first day (Day 1) of the succession. The images by MARCI are seen on

http://www.msss.com/msss_images/2007/07/19/Opportunity_620_0718_storm_big.jpg

On 21 June ($\lambda=262^\circ\text{Ls}$) we have a set of images by GORCZYNSKI (*PGc*) at $\omega=320^\circ\text{W}/323^\circ\text{W}$, but they were early to the area of Eos, and we had no image on 22 June. On 23 June ($\lambda=263^\circ\text{Ls}$), *PGc* also gave images between $\omega=297^\circ\text{W}$ and $\omega=327^\circ\text{W}$, but Noachis particularly did not show an irregularity.

3° The detection or the discovery of the great dust core in the US was readily announced, and on 26 June ($\lambda=265^\circ\text{Ls}$) Ed LOMELI (*ELm*) and Yukio MORITA (*Mo*) produced some images, the latter showing an expansion to Argyre, and on 27 June ($\lambda=266^\circ\text{Ls}$) a lot of work were issued. See the CMO Gallery. On 28 June, 29 June, and 30 June, the dust looked dispersed ascending at the high altitudes, and the images by *Mo* on 29 June ($\lambda=267^\circ\text{Ls}$, Day 6) suggested it expanded to the northern hemisphere. On 30 June ($\lambda=268^\circ\text{Ls}$, Day 7) the images of Sean WALKER (*SWk*), *PGc* and *ELm* show that the area Trinacria had changed due to the dust over Hellas. See also the images by *PGc*, *JMI* and *ELm* on 2 July ($\lambda=269^\circ\text{Ls}$).

4° On the other hand, if we compare *RHf*'s image on 30 June ($\lambda=268^\circ\text{Ls}$, Day 7) and his on 5 July ($\lambda=271^\circ\text{Ls}$, Day 12) (see the Fig here), we may be allowed to say during this period



a big change already happened that the area of M Erythraeum turned to be darker and the area of Margaritifer S did to be weaker. The area of the spc

was also blurred. The darkening of M Erythraeum remained until later, and on 14 July ($\lambda=276^\circ\text{Ls}$) BIVER (*NBv*) drew it clearly and the images of *RHf* on 7 August ($\lambda=291^\circ\text{Ls}$) and 8 August ($\lambda=292^\circ\text{Ls}$) also proved the change. Thus we should say the M Erythraeum began to look darker in an early stage, because of a wash-out of the sands around there, though on around 8 July ($\lambda=272^\circ\text{Ls}$, Day 15) its atmosphere was obscure because of the local resonance dusts at Solis L.

5° The observations during the period between 1 July and 15 July ($\delta=6.3''\sim 6.7''$) were reviewed day by day in CMO #334: On 7 July ($\lambda=272^\circ\text{Ls}$, Day 14) a report reached us from the UK by Dave TYLER (*DTy*) who proved that a resonance dust was raised near Solis L: This dust lasted for a few days with a thick observations in the UK. On the images produced by Don PARKER (*Dpk*) on 11 July ($\lambda=274^\circ\text{Ls}$, Day 18), the summit of Olympus Mons appeared dark implying that the dust storm already turned to be global (since the angular diameter was only at $\delta=6.6''$, the stage must have reached much earlier. In the case of the 2001 global dust storm, it was recognised at around Day 14).

6° The bright yellow cloud over Noachis was largely seen from the end of June to the beginning of July, while the images on 21 July 2007 ($\lambda=280^\circ\text{Ls}$, Day 28) made by David ARDITTI (*DAr*) show no bright cloud any longer. The images by *SWk* on 1 August ($\lambda=287^\circ\text{Ls}$, Day 39) and *Mo*'s ones on 15 August 2007 ($\lambda=296^\circ\text{Ls}$, Day 53) show that M Serpentis was dark. Probably the surface sands to be swirled in Noachis might have been much scarce recently.

7° Now we are in a position to state when the decay mode of the global dust storm began. This began to occur during the angular diameter was still small, and so it is not an easy task. In the case of 1971b case, the planet was closest to the Earth on 12 August 1971, and the Noachis global dust occurred, as has been said, on 21 September 1971 ($\lambda=260^\circ\text{Ls}$) when $\delta=19.3''$ and hence the initial dust situation was more easily grasped whereas the decay

mode was difficult to pin down because it visited when the angular diameter became much smaller. See the situation stated in <http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/261Note7.htm> or in M MINAMI & T NAKAJIMA, Mars Observations in 2001. Part II, *Bull. Fukui City Museum of Nat. His.* #55 (2008) 1-16. As to the 1971b dust, the half-life visited on around Day 60, and the decay phase was judged around Day (100~)120. On the other hand in the case of the 2001 global dust storm, the half-life period visited on around Day 74 and the decay phase was around Day (110~)130. This time an earlier judgment of the half-life period was, as stated in CMO #335, was around Day 52 when the surface desert at Aeria appeared to us reddish on 14 August 2007 ($\lambda=296^\circ\text{Ls}$). Just the apparent diameter was just $\delta=7.5''$, and so possibly it must have visited slightly earlier. At any rate the half-period looked slightly earlier than the case of 1971b, whereas it should be recalled that the phase depends on the sizes of the particles of the sands. As stated in #335, after that the present writer was forced to be confined in hospital for half a month, and when he resumed the observation on 12 September 2007 ($\lambda=313^\circ\text{Ls}$) the Martian surface remained still dirty contrary to his expectations. This fact was basically due to the sediments of the dusts on the dark markings, and he thought that, though the main original sources of the dust areas were unknown, this time the coarser sand particles were much swirled up and precipitated earlier to make the dark markings dirty. The decay phase of the floating dust must have been settled by 26 September 2007 ($\lambda=320^\circ\text{Ls}$, Day 95) (see CMO #337). The reasons were : 1) On 26 September a tip of Syrtis Mj appeared from the following limb at $\omega=214^\circ\text{W}$ and completely at $\omega=224^\circ\text{W}$: Usually when the atmosphere is cleaner, the tip of Syrtis Mj used to appear from the limb at $\omega=212^\circ\text{W}\sim 214^\circ\text{W}$ (by the use of the 20cm refractor we usually use), 2) The images produced by Bill FLANAGAN (WFI) on 28 September ($\lambda=321^\circ\text{Ls}$) and so on showed a shadow of the ridge of Tharsis Montes ($t=43^\circ$), and 3) Valhalla which is

caused by the shadows of the surface complex also showed up around then. Thus we may say the 2007 global dust had a scale as large as the 1971b.

8° Henceforward the airborne dusts still floated more than usual, and so they caused several local dusts in November but they did not develop much. Almost all of the dark markings however remained quite irregular (devastated) up until the end of the apparition as has been well-known. (Mn)

0° 2007年の火星面で最も大きな事件の一つは六月のノアキス大黃雲の発生であったと思う。但し、このノアキス大黃雲は発生季節が $\lambda=264^\circ\text{Ls}$ で、1971年b型であったが、今回は視直径 $\delta=6.2''$ で、その發達具合を分析するのは資料の點から容易ではない。然し、これだけ早く捉えられた例は嘗て無いのではないかと思うし、大黃雲後の火星面を後の最接近の頃に詳細にわたり追求出来る機會を得たというのは稀な僥倖とも言えるものであった。そこで、ここでは後半の大きな火星面から照らして像の小さいときの影像からその様子を推察するという形で話を進めてみようとする。

1° ノアキスに黄雲が期待されたのは $\lambda=250^\circ\text{Ls}$ 邊りからであって、當時日本や澳大利ヤにもアラートを出して呼び掛け、日本ではヘフナー(RHf)氏他、澳大利ヤではヴァリンベルティ(MVI)氏やブダ(SBd)氏が影像を得、又福井では眼視觀測を續行していたが、黄雲には出逢わなかった。2June($\lambda=250^\circ\text{Ls}$)でのノアキス-マレ・セルペンティスのRHf氏の畫像はCMO#332(25June號)に掲載されている。當時は美國ではベーツ(DBt)氏が3June($\lambda=250^\circ\text{Ls}$)で別の面を撮っており、またピーチ(DPc)氏も4June($\lambda=251^\circ\text{Ls}$, $\delta=5.8''$)にバルバドステュレス・モンスの良像を得ていて、充分黄雲検出の可能性はあった譯である。

2° 然し實際にはノアキス黄雲は美國で24June($\lambda=264^\circ\text{Ls}$)の $\omega=329^\circ\text{W}$ でムーア(DMr)氏に依って、又25June($\lambda=264^\circ\text{Ls}$)の $\omega=298^\circ\text{W}$ でメルカ(JMI)氏の依って獨立に検出された(CMO#333(10July)特別號)。#333にはRHf氏のbeforeの畫像とJMI氏の畫像とが並べてあるが、ここで再録する。實際には#335(25Aug號)で述べた様に、MRO搭載のMARCIが21June($\lambda=262^\circ\text{Ls}$)にエオスの邊りで黄塵を見附

けており、翌日も近くに共鳴黄塵を起こしているようで、ノアキス黄雲もこれらの先驅の共鳴黄塵に依ると考えられるが、時期的に緯度の上から夏のノアキス地方に黄雲が立つことが大黃雲の發生に關かせないと思われるので、われわれは依然この黄雲をノアキス黄雲と呼ぶ。従って24Juneを第一日目(Day1)とする。尚、MARCIの畫像は

http://www.msss.com/msss_images/2007/07/19/Opportunity_620_0718_storm_big.jpg

を見られると好い。21Juneにはゴルチンスキイ(PGc)氏の $\omega=320^\circ\text{W}$ があるのみで、エオスには早過ぎ、22Juneには畫像が得られていない。23June($\lambda=263^\circ\text{Ls}$)には同じくPGc氏が $\omega=297^\circ\text{W}$ から $\omega=327^\circ\text{W}$ まで像を與えているが、特別ノアキスには光點が見当たらない。

3° 美國でのノアキス黄雲の觀測は直ぐ速報され、26June($\lambda=265^\circ\text{Ls}$)にはロメリ(ELm)氏の觀測や森田(Mo)氏のアルギュレ進出の畫像などが得られたが、27June($\lambda=266^\circ\text{Ls}$)には多くの觀測が揃った。Gallery参照。28June、29June、30Juneにはノアキス-ヘッラス上空へ昇って擴散しており、29June($\lambda=267^\circ\text{Ls}$ 、Day6)のMo氏の畫像では既に北半球にも渡っていると思う。30June($\lambda=268^\circ\text{Ls}$ 、Day7)のウォーカー(SWk)氏やPGc氏、ELm氏の畫像ではヘッラス上空の黄雲によって、トリナクリアに變化が既に出ていると思われる。2July($\lambda=269^\circ\text{Ls}$)のPGc氏、JMI氏、ELm氏の畫像にも注意されたい。

4° 一方、RHf氏の30Juneと5July($\lambda=271^\circ\text{Ls}$ 、Day12)の畫像を比較すると(圖参照)、この期間にマレ・エリュトウラエウムの邊りが濃化し、マルガリティフェル・シヌスの邊りが淡化するという大きな現象が既に起こっているように思われる。また南極冠にもボケが來た。このマレ・エリュトウラエウムの濃化は後々まで遺ることで、後の14July($\lambda=276^\circ\text{Ls}$)のビヴェール(NBv)のスケッチやRHf氏の7Aug($\lambda=291^\circ\text{Ls}$)、8Aug($\lambda=292^\circ\text{Ls}$)の畫像でハッキリして來る。既に早い段階でマレ・エリュトウラエウムの邊りの濃淡は決まり、その多くが砂の洗い流しと大粒の砂塵の沈澱によるものと思われる。但し、8 July ($\lambda=272^\circ\text{Ls}$ 、Day 15) 邊りではソリス・ラクス邊りの共鳴黄塵の發生により上空は惚けている。

5° 七月1日~15日間の觀測($\delta=6.3''\sim 6.7''$)はCMO#334

に日毎載せてあるが、7July($\lambda=272^\circ\text{Ls}$ 、Day14)には英國のタイラー(DTy)氏の觀測が入り、ソリス・ラクス周邊で共鳴黄塵が立っていることが示され、これは數日續き、英國の觀測も揃っている。11July($\lambda=274^\circ\text{Ls}$ 、Day18)のパーカー(DPk)氏の畫像ではオリュムプス・モンスが暗點となり、黄雲の既にグローバル化が固定化していることが如實である($\delta=6.6''$ の段階なので、もっと早い段階で暗點化していると思う。2001年の場合、Day14ぐらいにチェックされた)。

6° 尚、ノアキス上の明るい雲だが、六月の下旬から七月の初めに掛けて大きく擴がっているものの、21July($\lambda=280^\circ\text{Ls}$ 、Day28)のアルディッチ(DAr)氏の畫像には既に明るい雲は見られなくなっている。1Aug($\lambda=287^\circ\text{Ls}$ 、Day39)のSWk氏の畫像や、15Aug($\lambda=296^\circ\text{Ls}$ 、Day53)のMo氏の畫像ではマレ・セルペンティスが濃く出ている。案外とノアキスには巻き上がる砂塵の量が減っているのかもしれない。

7° では、いつから半減期、衰退期に入ったかということであるが、これも未だ視直徑 δ の小さい内だから詳細は難しい。1971年の場合、12Augが最接近で、ノアキス黄雲1971bの發生は21Sept($\lambda=260^\circ\text{Ls}$)、この時 $\delta=19.3''$ であったから、黄雲の様子は好く掴めたはずであるが、今度は衰退期の方が視直徑 δ の小さくなってからで矢張り難しい状態であった。詳しくは

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/261Note7.htm> やMinami, M & T Nakajima, Mars Observations in 2001. Part II, *Bull. Fukui City Museum of Nat. His.* #55 (2008) 1-16をご覧ください。1971bの場合は半減期が60日邊り、衰退したのは(100日~)120日であろうと判断されている。一方、2001年の場合は半減期が74日目あたり、衰退は(110日~)130日という判断である。では今度の場合であるが、半減期の候補は、CMO#335で述べているとおり、14Aug($\lambda=296^\circ\text{Ls}$)にアエリアの赤味を觀察しているので半減期はこの頃からであると思われる。只、依然 $\delta=7.5''$ の状態であるから、これより早いかも知れない。約52日にあたるので、1971bより少し早いと言えよう。但し、沈静化は規模の他に砂塵の質にも依る(砂塵が粒子が大きいと速い)ので、比較は難しい。CMO#335で述べているが、實は

筆者は(病気で)十八日間観測を餘儀なくされたのであるが、12Sept($\lambda=313^\circ\text{Ls}$)に再開したとき、豫想以上に火星面が汚れていることを知った。これは砂塵の沈澱に據るもので、今回は何處の砂塵が主に上空に擧げられたか分からないが、粒子の「粗い」砂塵が吹き上げられ、従って早く沈澱し、而して暗色模様を汚したのではないかと考えられる。半減期から衰退期へは26Sept($\lambda=320^\circ\text{Ls}$, Day 95)には入って居ると考えられる(CMO#337)。これは第一にシュルティス・マイヨルが西端から見えてくるのは、大氣が正常な場合、 $\omega=212^\circ\text{W}\sim 214^\circ\text{W}$ であるが(これは筆者の20cm屈折による基準)、この日には $\omega=214^\circ\text{W}$ でシュルティス・マイヨルの先端が確認出来、 $\omega=224^\circ\text{W}$ では確實であつ

たからで、地面の汚染に比して大氣は正常に近附いて居ると判断された爲である。第二にはフラナガン(WFl)氏の28Sept($\lambda=321^\circ\text{Ls}$)の畫像などではタルシス三山が連結して影が出ていること($t=43^\circ$)、第三にはヴァルハッラ(これも影で出来る)がこの頃見え始めていることなどに據る。ほぼ1971bに相當する規模であつたと思われる。

8° 以後は勿論エアボーンダストが通常より多い形で浮遊していたであろうから、十一月に入って局所黄塵が數回現れる等の現象が見られるが、大きな發展はしなかった。ただ、砂塵粒子の沈澱による火星面の汚れは最後まで續いたことはご承知の通りである。 (Mn)

便り

Letters to the Editor

●.....**Subject: Solar images 20th Feb**
Received: Tue 23 Feb 2009 20:15:45 JST

Hi Guys, Here's a feast of images from a fine day on the 20th, my new Registax friendly Vista driven computer, (which is actually rather fun, I like the switch between windows 3D image of all the open screens). The remains of what I think is AR11012 was still visible. Although the proms were small, there were a few filaments on show. All images from Solarmax scope 60 DS adapted for 2inch straight blocking filter unit.. Using 2.5x, 4x and 5x powermates. Camera Lu075m

○.....**Subject: solar images 27 Feb 2009**
Received: Tue 03 Mar 2009 09:02:58 JST

Hi Guys here are some belated images from the 27th Feb. I have put more on my website, see http://www.david-tyler.com/upload/upload_page.asp?IMU_PAGE_NAME=Solar%20February%202009/2 and

http://www.david-tyler.com/upload/upload_page.asp?IMU_PAGE_NAME=Solar%20February%202009

A much enlarged view can be seen by clicking the images. The details are alongside the images on the webpage. The attached file has been exposed so as to generate a real view of the chromosphere "skin", prominence, and surface detail. Some detail in the otherwise overexposed surface, has been "reclaimed".

○.....**Subject: Saturn 1-March-2009**
Received: Thu 05 Mar 2009 09:08:05 JST

Hi Guys Saturn is now imageable at a much more sensible time of the evening. Seeing has been quite good too. Most solar imaging days have also been good. Rhea and a smudged Dione popped up on the captures. Interesting is the bright blue belt just peeping out from the rings across the globe. The image also shows a blue north polar region and a green southern pole. Images enlarged 130%. Best wishes

○.....**Subject: Image and channels Sat 28Feb & 1st Mar**

Received: Thu 05 Mar 2009 22:33:36 JST

Hi Guys, Here is Saturn from the 28 Feb and 1st March including the colour channels. Transparency was poor on the 28thFeb but excellent on the 1st March. Seeing was about 6-7 good for the 43deg altitude. Difficult to judge form the different appearance of Saturn to what I have been used to in the past. The blue shadow cast by the rings, (as pointed out by David Arditti,) is odd. I wonder what Saturns rings actually look like when viewed from that posn, with the sun shining through and reflecting off all that ice?. Awsome no doubt. Seeing the image generated last night in Daylight, looked a little too red and a little dim. I am using a new LCD monitor, as opposed to my tired old CRT, thats my excuse. Thank you for your comments guys. Best wishes

○.....**Subject: solar images 1-Mar-2009**
Received: Mon 09 Mar 2009 06:30:38 JST

Hi Guys here are a couple of images of the proms and AR's visible on the 1st March, seems ages ago. What with Saturn and consecutive sunny days I have a bit of a back log. Best wishes

○.....**Subject: Solar Proms 2-March-2009**
Received: Tue 10 Mar 2009 03:52:37 JST



Hi Guy
Here are a couple of proms from 2nd March. Both were taken with a solarmax 60 filter screwed into an 80mm TMB

with a straight blocking filter. I have tried to show what the view is like in the eyepiece, A 4x powermate was used, with an LU075Mono CCD. Best wishes

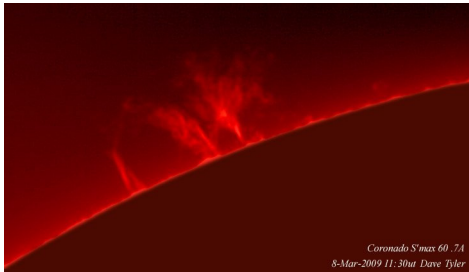
○.....**Subject: Proms from 4th March**
Received: Wed 11 Mar 2009 01:18:26 JST

Hi Guys, Continuing with the as near to visual as I can get theme, here are two prominences from the 4th March. Scope was TMB 80mm x 600mm fl. stopped down to 60mm with the Solarmax filter. A 2" fit straight through blocking filter was used and fitted with a 4x powermate. Camera was Lu075M. This "as near to visual" does not really take advantage of the "better than visual" method of showing detail of the surface, but as the surface is a little lacking in activity just now, we wont worry. I think it does however, get near to capturing what I experience at the eyepiece. Best wishes

○.....**Subject: solar image 6th March**
Received: Wed 11 Mar 2009 06:25:50 JST

Hi Guys, Ploughing through the backlog, Here is quite a nice group from the 6th now attached! Solarmax 60 on 80mm TMB .7A. As long as the sun keeps popping these up , there will always be something to look out for in the sunspot doldrums. best wishes

○.....**Subject: Solar images 8-March-2009**
Received: Fri 13 Mar 2009 05:06:10 JST

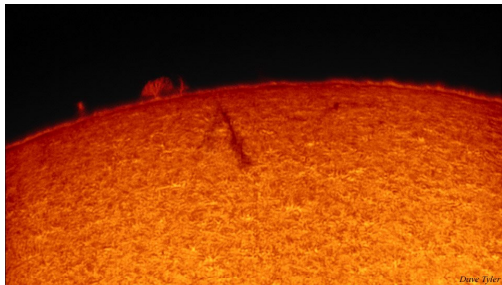


Hi Guys, Here is a couple from the 8th March , one of the AR 11014 and one of quite a nice Prom that Pete

also caught and did a very nice, quite inspirational, job on. best wishes

○.....**Subject: Nice filament 11 March 2009**
Received: Fri 13 Mar 2009 21:53:22 JST

Hi Guys it was a nice surprise to see this filament between the clouds.



Coronado S'max 60DS scope with straight blocking filter. LU075M CCD. Best wishes

○.....**Subject: Solar image 15-March-2009**
Received: Tue 17 Mar 2009 06:10:25 JST

Hi guys, The filament near the limb with some small proms made a quite photogenic subject. Solarmax 60 DS scope with 2.5x powermate. LU075M CCD. Best wishes

○.....**Subject: Saturn 16 march 2009**
Received: Wed 18 Mar 2009 08:33:56 JST

Hi Guys, the 16th was mild 6C, dim but steady , a bit like me. A bit too late for the Tethys transit, but never the less the best o/all evening's seeing for me so far. The blue channel gives testimony to the fickle seeing compared to the green. There seems to be the addition or intensifying of another band in the orange south polar collar, since the Hubble image of the 28th. Best wishes

○.....**Subject: Some solar images 17th March**
Received: Thu 19 Mar 2009 07:32:19 JST

Hi Guys, here are a couple of small ARs plus a delicate little prominence. Smax 60DS with straight blocker, 3x

tv barlow and Lu075M ccd. Best wishes

○.....**Subject: Saturn 21 March 2009**
Received: Mon 23 Mar 2009 19:20:16 JST

Hi Guys, We had some decent seeing on the night of the 20th into am of the 21st. An EZ storm was picked up strongly in the red image of 00:48 mid exposure, and has a slight influence in the r/g luminance used in the LRGB.

Dave TYLER (テ`ウ`イト`・タイラー Bkh 英)

●.....**Subject: Saturn 2009, Feb. 21st**
Received: Mon 23 Feb 2009 21:31:43 JST

Dears, Saturn under average seeing:

<http://astrosurf.com/delcroix/images/planches/se.php?y=2009&m=2&d=21>
A composite image of the R+IR image with Tethys enhanced:

http://astrosurf.com/delcroix/images/saturne_20090221_sat_2200_4439_ondx2_1_3_1-5_8_13_3_lev.jpg

○.....**Subject: Saturn 2009.02.19, spots & satellites under very good seeing**
Received: Sat 28 Feb 2009 04:42:09 JST

Dears, Here are images of Saturn under very good seeing (these are some of my best saturn images ever). The best image (red+infrared) shows white spots in EZn (including the one imaged regularly since weeks) and SEBz. There is also a dark spot in SEBs (or EZs?), i measured its drift rate to $-22^{\circ}\text{LIII}/\text{day}$. The red image shows also an irregular SEBs edge and EZs white zones, and i made 2 images with different filters around the 889nm methane absorption band:

<http://astrosurf.com/delcroix/images/planches/se.php?y=2009&m=2&d=19>
An animation with the two luminance show the dark spot and EZn spot moves:

http://astrosurf.com/delcroix/videos/saturne_20090219-anim.gif

I also made some composite images with satellites from different takes, here is a RGB with from left to right Tethys, Enceladus, Saturn, Mimas, Dione and Rhea :

http://astrosurf.com/delcroix/images/saturne_20090219_rgb_rgb_lev_sat_rot.jpg

The blue color of the south tropical area is an obvious sign of the end of southern summer.

Red+infrared image with satellites:

http://astrosurf.com/delcroix/images/saturne_20090219_RIR_3700_4622_ondx2_1_3_1-5_15_20_4_lev_sat.jpg

Red image with satellites:

http://astrosurf.com/delcroix/images/saturne_20090219_R_2000_2478_ondx2_1_3_1-5_10_10_1_lev_sat.jpg

○.....**Subject: Saturn 2009.02.28**
Received: Sun 08 Mar 2009 23:57:26 JST

Dears, Here is Saturn under correct seeing, showing the SEBz spot.

<http://astrosurf.com/delcroix/images/planches/se.php?y=2009&m=2&d=28>

Two animations in R+IR and L show the spot and satellites moving:

http://astrosurf.com/delcroix/videos/saturne_20090228_rir_sat_anim.gif

http://astrosurf.com/delcroix/videos/saturne_20090228_l_anim.gif

And 2 composite images in R+IR showing from left to right Saturn, Mimas, Rhea, Dione, a star and Hyperion (plus Titan on the larger image):

http://astrosurf.com/delcroix/images/saturne_20090228_rir_sat_3550_4446_ondx2_1_2-5_1-5_12_5_1_lev.jpg

http://astrosurf.com/delcroix/images/saturne_20090228_rir_sat_large_3550_4446_ondx2_1_2-5_1-5_12_5_1_lev.jpg

○.....**Subject: Saturn 2009.03.13, with spots and satellites**
Received: Thu 19 Mar 2009 07:40:44 JST

Dears, We had nice weather here in France for the last days, with for me the best conditions last friday (correct seeing only). All images are here:

<http://astrosurf.com/delcroix/images/planches/se.php?y=2009&m=3&d=13>

A R+IR animation shows two spots:

http://astrosurf.com/delcroix/videos/saturne_20090313_rir_anim.gif

A possible white spot in NEBn, and the other one is the dark spot on SEBn. A composite image in red+infrared, with Enceladus, Saturn, Tethys just above the ring, Dione, Rhea and Titan :

http://astrosurf.com/delcroix/images/saturne_20090313_sat_2700_4459_ondx2_1_3_1-5_12_5_1_lev_sat.jpg

Just for fun, a simple addition of 80 images showing two more satellites - from left to right: Iapetuys lower left, Enceladus, Dione, Rhea, Titan and Hyperion (lower right there is a star):

http://astrosurf.com/delcroix/images/saturne_20090313_satall.jpg

Other later images under conditions not as good follow...

Marc DELCROIX (マルク・テールクロア Tournefeuille 法)

●.....*Subject: 2009 Feb 23 solar*
Received: Tue 24 Feb 2009 01:53:48 JST

A fairly tall prominence stood out on the eastern limb that looked like a pair of hands loosely pressed together in prayer. Par for the course on these larger delicate features, they look almost detached until you concentrate on that area for a more in depth look. This is the prominence I concentrated on for the observation sketch. There was another smaller prom just north on the western limb close to a position angle of 290-300 degrees. It consisted of two arches messed together with small spikes on the limb next to them. Another slender prominence worth mentioning was located on the southern limb.

A thick, squat filament was just inside the limb about 45 degrees further south than the sketched prominence on the eastern limb. Best regards,

○.....*Subject: 2009 Feb 24, new AR*
Received: Wed 25 Feb 2009 02:08:20 JST

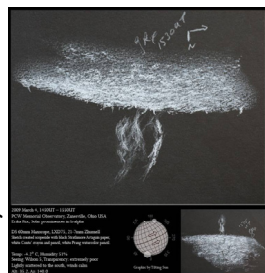
The eastern hemisphere, especially east to the northeast, was scattered with prominences. As transparency improved, details of these little prominences came to light.

The most obvious set was around 90° position angle and then a squat hedgerow one around 40°. I stopped my first sketch midway and began a fresh one with a larger limb span to include the majority of them, most which were faint and wispy or very tiny.

I counted 8 more small slender ones that weren't included in this sketch. I'm sure that given a little more time (or perhaps ambition to stay out there longer) the improvement in transparency would have revealed a few more. There was a very sharp small plage about 20 degrees in from the north limb as well as a few very hair-like filaments, particularly west, south, and east. It is reported by another solar observer that there are two new spots in that same location, indicating a new AR.

○.....*Subject: 2009 March 04 h-alpha*
Received: Thu 05 Mar 2009 02:37:49 JST

Transparency was horrible which made pulling detail out of the fainter areas of the prominences a struggle. Seeing was rock steady. Kind re-



gards,

Erika RIX (エリカ・リックス Zanesville OH 美)

●.....*Subject: Saturn 2009 February 08*
Received: Tue 24 Feb 2009 08:24:54 JST

Seeing was poor, but some interest here as a spot is probably visible in the N edge of the EqZ in the R image f the CM. I measure the longitude as I=136.2. It could be the same as that recorded at I=88 on Jan 7 (Wesley) and I=100 on Jan 17 (Buda).

The blueness of the southern temperate regions, noted by others as a new development, is visible here.

<http://www.davidarditti.co.uk/sat2009-02-08-DLA.jpg>

○.....*Subject: Saturn 2009 February 14*
Received: Wed 25 Feb 2009 05:57:21 JST

Good seeing on this occasion. We see here the shadow of Rhea, and the moon itself as a light smudge just below the ring plane to the following side. I think the NEqZ white spot is visible here as well in the R image, rather close to the f limb just following Rhea. If this is it, its system I long is 140.8 on this date, which sounds consistent with other results - but the measurement won't be accurate so far from the CM.

<http://www.davidarditti.co.uk/sat2009-02-14-DLA.jpg>

○.....*Subject: Comet Lulin (2007N3) 2009 February 12*
Received: Thu 26 Feb 2009 05:18:13 JST

This is a not very good image which it has taken me 12 days to process, my first of Comet Lulin. Rather symmetrical-looking at that time, it is not now according to reports. Taken with a blue filter (that was accidental) and a C14. It would now be better imaged with a much smaller telescope. Some artefacts in the image I am afraid.

http://www.davidarditti.co.uk/2007n3_20090212_ard.jpg

○.....*Subject: Saturn 2009 March 01*
Received: Wed 18 Mar 2009 08:35:11 JST

Fair seeing. Nothing new to report here, apart from the general blueness of the planet.

<http://www.davidarditti.co.uk/sat2009-03-01-DLA.jpg>

○.....*Subject: Saturn 2009 March 16*
Received: Wed 18 Mar 2009 09:07:08 JST

A bit of a late capture, hence low, but fair seeing.

<http://www.davidarditti.co.uk/sat2009-03-16-DLA.jpg>

○.....*Subject: Saturn 2009 March 17*
Received: Wed 18 Mar 2009 10:07:57 JST

We had excellent seeing and a lovely view last night, as attested by three members of West of London AS who were at my observatory, testing a new video camera and viewing through binoviewers.

This activity meant that I did not image until after culmination, but perhaps that was a good thing, since several interesting features are present in these images. There are two bright spots in the EqZ visible in both R and G, just S of the ring shadow on the globe, that ?I measure using JUPOS at I=352.5 and I=10.2. Also there seems to be a reddish barge on the N edge of the SEB, dark in G, between the longitude of these white spots, at I=358.8. I have not seen anything like this before.

Dione and Tethys were also close enough in to be caught in the same images, but require a brightened red

image to reveal them, also attached. Dione is to the S, Tethys to the N of the rings.

<http://www.davidarditti.co.uk/sat2009-03-17-DLA.jpg>

<http://www.davidarditti.co.uk/sat09-03-17-0034rbright.jpg>

○.....Subject: Saturn 2009 March 18

Received: Fri 20 Mar 2009 08:41:39 JST

We had really rather good seeing, owing to the stable high-pressure area over the UK, possibly the best this apparition. On the other hand, transparency was very low, necessitating capture at 8.5 rather than my usual 17

TEN YEARS AGO (163)

---CMO#213(10 Mar) & #214(25 Mar 1999) pp2427~2454 ---

CMO#213は特別号で、CMO#212で既述の様に明るくなったヘッラスの観測が日本で二月中旬から得られたので、CMO Mars Report 1998/99 #06 として、その結果の纏めである。衝前の夕方側の欠けの大きいときに、ヘッラスの輝部が日没線に隠れていく時の観測がポイントで、ヘッラス西端の位置を決定とする方法を採り上げた。位置決定には衝の頃の子午線の通過時刻から求める方法の他に、このような次善の方法もあることを示している。観測結果から、輝部の西端と火星の地形図との比較もされ、経度的に異同のある原因についての考察もされている。他には、ビヴェール(NBv)氏の追加報告に関してと、マッキム(RMk)氏からのグレイ(DGr)氏が21Febに観測した黄塵らしきものについての連絡がある。グレイ氏の観測についてはCMO#214にあらためて纏められている。

1996/97 Mars Sketch (15) はCMO#213に掲載された。

"OKANO's CCD Mars on 20 March 1997" 「CCD火星像に寄せて - 岡野邦彦氏の20Mar1997の像を中心に-」と題した岡野氏の画像とパーカー氏・HSTの画像との比較によるCCD画像の考察である。

CMO#214のCMO Mars Report 1998/99 #07では三月前半迄の一月間の観測が纏められている。海外からの観測者も増えて報告者は十七名となった。グレイ氏の黄塵の観測に引き続いて28Febにパーカー(DPk)氏が捉えた白雲塵の報告がある。続いてこの期間のオリュムプス・モンスの夕端での様子その他、様々な地域での現象が述べられている。この期間に火星は、視直径 δ は、9.1"から11.9"に大きくなり、 λ は098°Lsから110°Lsまで進んだ。

また、Coming 1998/99 Mars (8)として、"Ephemeris for Observation of Mars in 1989/99. III" A NISHITA「火星観測暦表(その3)」1 May ~ 31 May 1999 が掲載された。

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming/9908/08.html> (English)

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming/9908/08j.html> (Japanese)

LtEは二号合わせて、Nicolas BIVER (Hawaii), Mike MATTEI (USA), Sam WHITBY (USA), 頼武揚(Taiwan), Rik HILL (USA), Richard MCKIM (UK), Nelson FALSARELLA (Brasil), Damian PEACH (UK)の外国の各氏から寄せられた。DPc氏はこのときが初登場だったか?

国内からは、阿久津富夫(栃木)、比嘉保信(沖縄)、佐藤健(広島)、岩崎徹(福岡)、成田広(神奈川)、伊舎堂弘(沖縄)の各氏の来信が紹介されている。

TYA(43)は、CMO#070(25Mar1989)からで、1989年三月15日までの一月間の様子が述べられている。廿年前の火星は夕方の「おうし座」にあり、遅くまで西空にあったが、観測者は福井と小倉の三名になった。この期間は西日本では天候が悪く観測は捗らず報告数は少なかった。11Mar1989で $\delta=5.7''$, $\lambda=011^\circ$ Lsとなっていた。

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/214/tya043.html> (Japanese)

村上昌己(MK)

ISSN 0917-7388
東国天文学会「火星通信」since 1986

MARS

No. 214
25 March 1999

OBSERVATIONS Published by the OAA Mars Section

CMO Mars Report # 07 (1998/99) OAA Mars Section

が.....今期六巻目の定期報告である。16Febから15Mar迄の一月間の観測を扱う。三月5日には春一番が来て、成層圏のあたりは比較的春めいて観測が楽になったが、ただ三月はどなたも天候の状態に恵まれず、成績は振るわない。村上昌己(MK)氏は横浜から古来の藤澤への引っ越しがあり、未だ落ち着かない。一方、鹿野・派克(DPk)氏は天候・シーイングに恵まれて、大活躍である。海外からは、イギリスのピーチ(DPc)氏とブラジルのファウサレラ(NF)氏、フランスのタイシャート(GTs)氏が今期も参加である。

16Febには視直径 δ は1秒角であったが、15Marには11.9秒に伸び、急速に大きくなっていく。季節は098°Lsから110°Lsに進んだ。位相角 λ は34°から27°に落ちている。中央緯度も17°Nから15°Nへ、北極冠は薄っぺらい。一應下げ止まる。火星は18Marに留まり、それから徐々に少し昇る。

The planet Mars is rapidly approaching, though we are still suffering from a dismal weather. Don PARKER however enjoys good skies and is playing an active part. We heard an interesting news of a dust cloud from David GRAY. We also received newly several observations from D PEACH, N FALSARELLA and G TEICHERT. This is the 6th regular report and deals with the CMO observations obtained during the period from 16 February 1999 (098°Ls) to 15 March 1999 (110°Ls).

The apparent diameter δ was 9.1" on 16 February, while it went up to 11.9" on 15 March. The season moved from 098°Ls to 110°Ls. The phase angle λ went down from 34° to 27° during the period, and the central latitude from 17°N to 15°N (a minimum). The planet is stationary on 18 Mar, and will then slightly come up.

が.....CMOに寄せられた報告は以下の通りである。今回は我が国は天候が悪く全粒に低調だが、海外からの報告は増えている。

We acknowledge receipt of the Mars observations this period submitted to the CMO as follows:
AKUTSU, Tomio 阿久津 富夫 (AK) 栃木・鹿山 Karayama, Tochigi, Japan
12 CCD Images (15, 16, 22, 25 February; 12, 13 March 1999)
/60x32cm speculum equipped with a Teletis 2
BIVER, Nicolas ニコラ・ビヴェール (NBv) ハワイ Hawaii, USA
4 Colour Drawings (7, 12 March 1999) 510x26cm speculum
FALSARELLA, Nelson ネウソン・ファウサレラ (NF) ブラジル Rio Preto, Brasil
9 Drawings (13, 19, 24 February; 4, 5, 6, 10, 14, 15 Mar) 260, 325x20cm speculum

2 4 3 9

frames per second for red and green (blue is always the lower rate). Here are two complete sets:?

<http://www.davidarditti.co.uk/sat2009-03-18-DLA.jpg>

Here also is a link to an animation of the RGB data:

<http://www.davidarditti.co.uk/sat2009-03-18-DLA.gif>

What I believe this shows is the transit of Enceladus just N of the ring plane preceding, plus a white spot in the SEB(N) and another in the SEBZ, both on the p side, the SEBZ spot leading, plus other less distinct details.

David ARDITTI (デ`ウ`イット`・ア`テ`イチ Edgware ME 英)

●.....**Subject: Saturn + Titan + Dione, Feb 24**
Received: Wed 25 Feb 2009 16:46:46 JST

The sky was clear for the titan transit last night, but I lost most of the early portion due to very poor seeing (Saturn was low in the north-east, in a layer of smoke and high altitude haze from the fires). I do have some video showing the shadow transit of Titan, but I'll look at that last as it's probably not usable. Instead, here is an image from later in the transit, showing Titan and (I think) Dione at a time of reasonable seeing. Please check and correct me if I have the wrong moon :-)

I have a lot more images from later in the transit to process. regards,

○.....**Subject: saturn this morning, March 1**
Received: Sun 01 Mar 2009 18:22:17 JST

Some good seeing for a short period this morning - here's a 2 frame animation that shows a lot of cloud detail by comparison. Also Dione was captured completely by chance. Link:

<http://www.acquerria.com.au/astro/gallery/saturn/20090228-1440-1448-R/s20090228-1440-1448-R.gif>

Anthony WESLEY

(アンソニイ`ウエス`リー Murrumbateman, NSW 澳)

●.....**Subject: Echoes of the Universe**
Received: Mon 02 Mar 2009 17:41:17 JST

Hi all, Inspired entirely by Bruce's excellent YouTube video, my Son Tom has prepared a similar effort using my images. Pink Floyd fans will like this (I hope) as we have shamelessly used their music!

<http://www.youtube.com/watch?v=zGiLr8Py4eU>

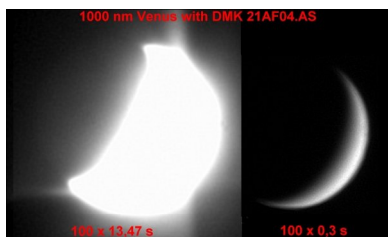
A lot of quality was lost in loading it to YouTube, so here is a bigger and much better quality version (25MB):

http://www.astro-sharp.com/videos/astro%20project_large.wmv

Thanks for looking, Best Regards

Ian SHARP (イアン`シャープ` WS 英)

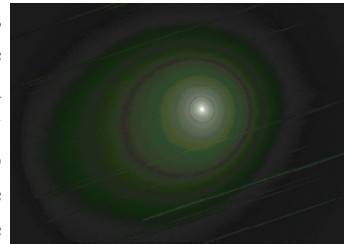
●.....**Subject: nightside of venus & comet lulin**
Received: Tue 03 Mar 2009 14:32:30 JST



Hi Guys, one clear night in one month, so I tried to get the nightglow and perhaps some surface-structures of venus on february, 28th with DMK 21AF04.As and 1000 nm IR Filter at the 80 cm Cassegrain/f=10. But the illuminated surface was too mighty (19,3%), so the dark side was overradiated :-(... I

will try again in the next clear evening, if there is one in the next few weeks...

Later on Till Credner captured the inner part of comet Lulin with his Nikon. 137 images, each 40 sec. exposed with the 80 cm mirror at Observatory Zollern-Alb, Germany between 22:30 and 24:30 UT. Field of view is 15 x 10 Arcminutes. All images centered at Lulins Core with "Giotto", sharpened and contrast enhanced show very symmetric shells, no jets. Bright stars mark the moving of Lulin during the observation as "stripes" ... CS



○.....**Subject: Venus Nightglow 7.3.09**
Received: Sun 08 Mar 2009 10:46:07 JST

Hi Guys, this evening I was successful again. In a very small cloud whole (15 min.) I could capture some images :-))... Cheers

○.....**Subject: Re: Venus Nightglow 7.3.09**
Received: Sun 08 Mar 2009 16:22:34 JST

Hi Frank, I am using the 80 cm mirror usually at secondary focus (f=10), in the prime focus (f=3,3) our ST10 is fix installed. If I want to use the ST10, I have to disconnect the "small" mirror in front of it. But to do this, I need some help from other guys. I am to short (on the last tip of our biggest ladder I don't reach the mirror) and with about 40 kg the mirror is toooo heavy to handle it alone...

The sky was clear when I left my home, but at the observatory a huge cloud band in western sky blocked Venus. I hoped, that Venus will come soon and so I put my Camera with the filter instead the eyepiece to the telescope, opened the dome and switched on the mount. Last Saturday I measured the sharpening point with this configuration, and now fixed it blind... Then I had to wait for 2 1/2 hours to get a view of Venus. In this time I cleared the whole sidewalk, parking place for 15 cars and the observing rooftop from 20 cm high snow. Then Venus was visible in only 17,9° altitude and our Mount stops at 15°. The mirror is 400 kg. heavy, so we cant observe the horizon! I really was in hurry, I never thought to do such a "quick and dirty" observation. 2 minutes to run up the stairs, center Venus, to find the exact sharpening point, to set the exposure time on 1/15 sec, grab 100 images, change exposure time to 13,7 seconds and hit the "capture button" of my program again :-))... Well, so I got 59 images from Venus through Cirrus Clouds, fog from the cold ground, 55 images I could use for the stacking process. At Image 60 I got a black image, the mount had stopped. After a view on my clock, I recognized that I had to change the Camera against the eyepiece again - in 15 minutes a lot of visitors shall look through the telescope - Saturday evening is public viewing... I hope the weather will allow some more observations, but then I have to use a shaply-lens. Venus becomes too huge for the field of view at 8 meter for my DMK 21AF04.As... In the moment, I don't know how to

enhance the contrast more. I store all my raw-data on aexternal hard disc and hope to find out how this works. This is extreme processing and I never tried it before... Maybe I learn how to do at *Violau Planet Workshop* this Spring...

Here is the website, sorry just in German in the moment. An English translation will follow...

<http://www.sternwarte-zollern-alb.de/beobachtungen/ir/Venus>

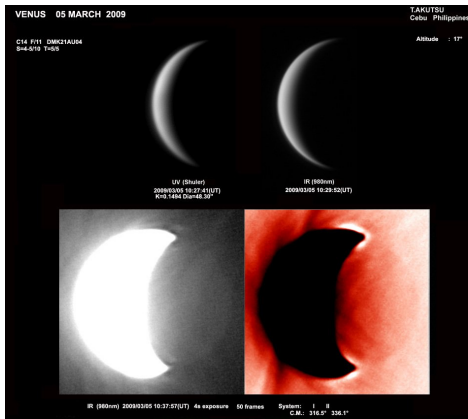
Silvia KOWOLLIK

(シルヴィア・コワロリク Ludwigsburg 徳)

●.....Subject: 金星V090305

Received: Sat 07 Mar 2009 12:40:42 JST

こんにちは、金星画像です。C14, F/11. IR-980、4秒露出で暗い部分が写りますね。長い露出では変なゴーストが出ます。コントラストの良い屈折系が良いです。筒の内面反射の抑える遮光が必要と感じています。



先日、日本人部屋オーナーの要望で現地小学生の天体(月、金星、土星、シリウス)観望会を行いました。子供、父兄とも望遠鏡で初めて見る人ばかりで、大変興奮し、感激していました。好評で週二回開催し、学校長はいたく喜んでくれました。



●.....Subject: 土星 S090307 S090312
Received: Sat 14 Mar 2009 02:12:13 JST

最近の土星画像です。衝を向かえ、少しリングが明るくなっています。12日の夕方には土星本体にタイタン本体とその影が通過しました。土星の高度が低く、seeingが悪い状態でしたが、画像は得られました。双眼ではその珍しい現象(特に影が大きかった)を楽しめました。

●.....Subject: 今シーズンの木星
Received: Sat 14 Mar 2009 09:45:38 JST

おはようございます。明け方、木星が見え出し、画像が撮れるようになりました。気流は低空(高度が30度未満)でフラフラ、仔細は見えませんが、昨年末の特徴はそのまま、継続しているようです。今年は昨年より高く、木星が昇り、条件は良くなっています。位置的には秋空になります。

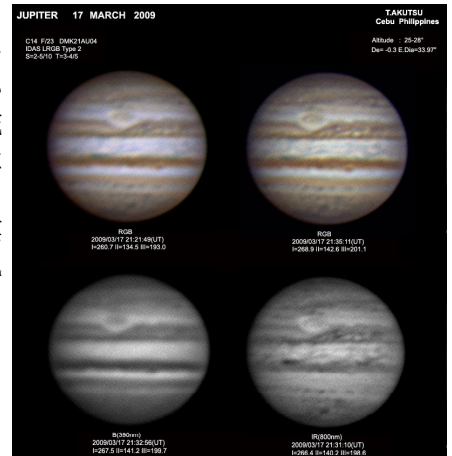
●.....Subject: 木星画像 J090316
Received: Tue 17 Mar 2009 15:16:10 JST

今朝は透明度が良く、Oval BAが見えていました。セブでも30度以下の低空では像がフヤフヤですが、30度以上になるとシンチレーションが少なくなり、60度では細かなブレとなるパターンです。今年は高度が高くなるので良く見えるはずで

BAはII=4.4°、幅は9.3°です。

●.....Subject: 木星画像 J090317
Received: Wed 18 Mar 2009 14:09:23 JST

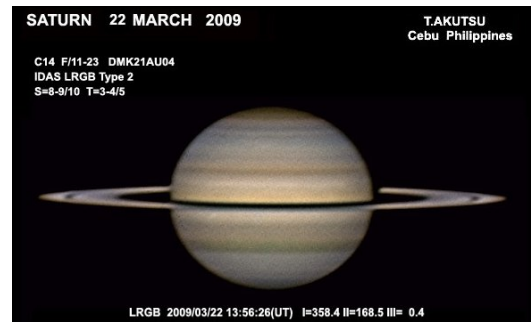
今朝はGRSが見える位置になり、かまえていましたが、気流が悪く、仔細は見えませんが、GRSの前に白雲があり、白く見え、北側が淡く、昨年末より淡くなっています。GRSはII=131.2°、NEBnには大きなバルジ (II=158.9°) があります。



●.....Subject: 木星画像 J090321
Received: Sun 22 Mar 2009 12:35:10 JST

木星高度が低い。BAは赤みがある。NTB-NPRまでは暗い。

●.....Subject: 木星、土星画像S090322 J090322
Received: Mon 23 Mar 2009 18:19:26 JST



昨夜は気流が安定し、美しい土星が見えました。明け方の木星は最悪で残念。

阿久津 富夫 (Tomio AKUTSU セブThe Philippines)

●.....Subject: Saturn images 28 february
Received: Sat 07 Mar 2009 20:13:40 JST

Hi all, Here are some new images - the planet is still bluish. I have spent some time looking directly through the eyepiece ; at moderate magnification, the temperate latitudes of the planet looked grey-blue, the tipycal yellow hue of the globe is only present now on the equatorial zone...

<http://www.astrosurf.com/pellier/S090228-CPE>

Some spots are again detected in red and R+IR.

PS: a french amateur, Jean-Luc Dauvergne, with François Colas, has recently took some excellent images at the Pic du Midi with an incredible resolution in infra-red light. You can see the images on Astrosurf :

<http://www.astrosurf.com/ubb/Forum3/HTML/021299.html>

●.....Subject: Saturn images 2-3 march 2009
Received: Sun 08 Mar 2009 21:24:45 JST

Hi all, A few R and IR images on an average night. Again one spot on s. hemisphere

http://www.astrosurf.com/pellier/S090302_03-CPE

Best wishes

●.....Subject: Re: Saturn images 28 february
Received: Sat 14 Mar 2009 22:38:54 JST

Hi all, Marc Delcroix has noticed that there was a prob-

lem with the second spot appearing on my R image of 00H15. In reality I made a mistake with my original fits images and it results that the high contrast R+IR image of 00H04 was the same R image: Please find attached the good set of image and correct your previous data - there is one spot and not two, it has not been observed on any other image taken that night. Nice week-end to everyone.

Christophe PELLIER (クリストフ・ペリエ nr Paris 法)

●.....*Subject: Re: Venus Nightglow 7.3.09*
Received: Sun 08 Mar 2009 14:48:26 JST

Excellent Job Sylvia! Unfortunately, I was clouded out tonight. Tomorrow will not be too good either.

You may have a clearer shot this time. With a bit more contrast, perhaps something may be seen on the dark side. Is this at prime focus? Or you use some kind of magnification? The glare is less noticeable in your image now than of Feb. 28th.

I should have less trouble with the glare now since the crescent is getting thinner and thinner. So far, I took only two nights, March 3rd and 4th. Lets see what I will get this coming week. Keep up with your great work!

○.....*Subject: Re: Venustian Nightside (March 6th, 2009.)*
Received: Mon 09 Mar 2009 02:34:26 JST

Damian - Congratulations! I assume it is your first image of the dark side. Unfortunately at this stage, we can only image the dark side just shortly before and after inferior conjunction. This opens the whole new chapter of observing Venus. The main thing is to image the dark spherical-shaped and then follow by any possible details on the surface or the lower part of the atmosphere. We can tell if it is quite uniform across the dark side and/or if some dark blotches scattered around which it indicates the temperature difference. There is a debate as to whether we are actually seeing the surface which is transparent enough at 1-micron or seeing the lower part of the atmosphere where the light is scattered from below. This is due to the thermal radiation which the surface is hot enough to glow.

There is more work to be done on this topic...

Keep up with your good work!

Frank J MELILLO (フランク・メリッホ Holtsville NY美)

●.....*Subject: Venustian Nightside (March 6th, 2009.)*
Received: Mon 09 Mar 2009 01:11:28 JST



Hi all, Here is an image from the evening of March 6th in the 1 micron wavelength (made using a Schott RG1000 filter) showing the nightglow of Venus at this wavelength. Many thanks to Christophe Pellier who's advice in doing this helped greatly. I will try for more such images in the coming weeks. Best Wishes

○.....*Subject: Re: Saturn 2009 March 19*
Received: Fri 20 Mar 2009 19:01:12 JST

It does seem very strange that there seems to have been distinctly different conditions on this night. For me about 5 miles east of David it was excellent - the best I've seen Saturn since Dec 07. I found transparency was misty but not bad as there was no high cloud. Dew was really heavy however. Dave Tyler 30 miles west also reported poor seeing on this night.

I don't recall a night in past years where the seeing conditions seemed to have varied so drastically on such a localised basis as seems to have been the case on this night.

--- On Fri, 20/3/09, Pete Lawrence Pete LAWRENCE wrote:

> Subject: Re: Saturn 2009 March 19

> Hi David,

> The seeing has been quite localised. Damian, who is pretty

> close to you I believe, reported excellent seeing on the

> night of the 18/19 while on the south coast, just 60 miles

> away, it was pretty poor. Interestingly, the south coast

> suffered from no dew at all while Damian reported heavy dew.

> Best regards, > Pete

>>David Arditti wrote:

>> We had really rather good seeing, owing to the stable

>> high-pressure area over the UK, possibly the best this

>> apparition. On the other hand, transparency was very low,

>> necessitating capture at 8.5 rather than my usual 17 frames

>> per second for red and green (blue is always the lower

>> rate).

Damian PEACH (デミアン・ピーチ London 英)

●.....*Subject: Re: Really big lunar mosaic 2009-03-04/5*
Received: Mon 09 Mar 2009 05:22:26 JST

Hi all, Clear skies resulted in a large amount of Lunar data. I have attached a link as the file is large. 44 frames went together to form this mosaic. Imaged through the C 11 (280 mm SCT) at f28 using the Skynyx 2-0 and I-R 742 nm filter. Seeing was poor and eventually the inevitable clouds rolled in but the results were promising for the future. This has to be my largest Lunar mosaic so far.

<http://maidenhead-astro.net/masgallery/displayimage.php?album=lastup&cat=0&pos=0>

Thanks for looking, Clear skies

○.....*Subject: Re: my site*
Received: Fri 13 Mar 2009 00:22:22 JST

Hi guys, Please see my blog site and leave me a comment and or photos. Appreciated

<http://kingsleyscosmos.blogspot.com/>

Bruce KINGSLEY (ブルース・キングスレイ Maidenhead 英)

●.....*Subject: Solar activity, March 7-8 2009*
Received: Mon 09 Mar 2009 08:01:22 JST

Hi all, Here are some solar results from the 7th and 8th March 2009. Best regards,

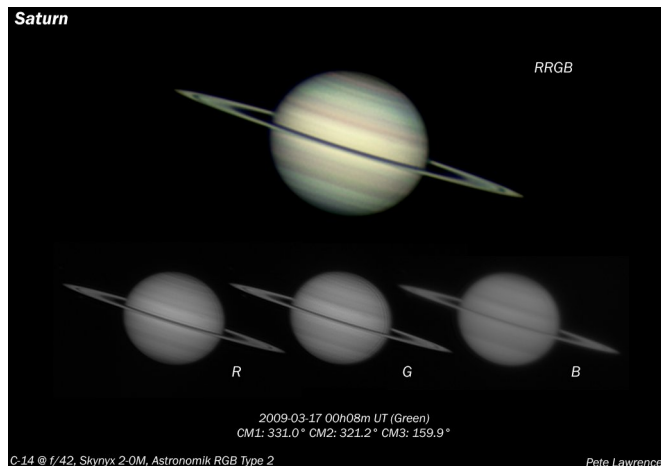
○.....*Subject: Re: Solar Clouds 11-Mar-2009*
Received: Thu 12 Mar 2009 17:50:43 JST

Hi Dave, I feel your pain! I managed it the other way round, catching the prominence element of the "V" but failing to secure the filament. A pity as the whole thing had a nice 3D feel to it. Attached are some of my images captured from the 11th under less than ideal conditions.

Cheers,

- > Dave TYLER wrote on 11 March 2009
- > What a nuisance these clouds are.
- > This is a single frame snapshot from the Lumenera, was taken whilst
- > attempting to capture an avi of the nice big inverted "V" shaped
- > filament near the solar north pole, ie.at top of the image.

○.....**Subject: Saturn 2009-03-16/17**
Received: Thu 19 Mar 2009 07:54:22 JST

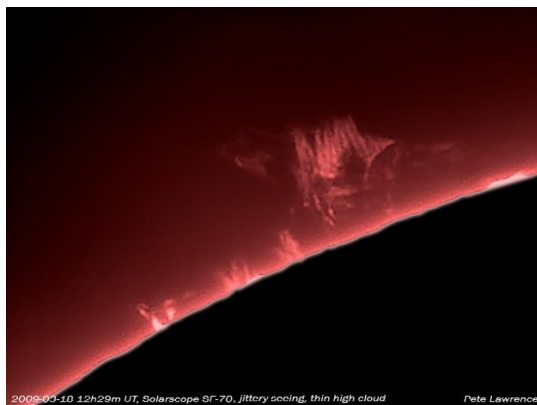


Hi all, Here's an image of Saturn with RGB channels showing a dark barge (?) just below the northern edge of the SEBn. The image was taken on the night of March 16/17 under good seeing conditions. Best regards,

○.....**Subject: Saturn, March 20th**
Received: Sun 22 Mar 2009 18:05:39 JST

Hi all, The seeing started off good low on the 20th (for me anyway) but by the time the planet was reaching its highest in the sky, the wobbles had set in. The consequently the red channel fared better than the green or blue. SEBn barge visible once more in these shots, more prominent in the two higher contrast reds at the bottom. Best regards,

○.....**Subject: Solar, March 18th**
Received: Sun 22 Mar 2009 18:14:25 JST



Hi all,
 Some nice prominence activity visible on the 18th, imaged through thin cloud.

Best regards,

○.....**Subject: Solar, March 20th**
Received: Sun 22 Mar 2009 18:14:42 JST

Hi all, An unfinished mosaic from the 20th March taken under good seeing. This is a large and detailed image so I'll leave it as a link...

http://www.digitalsky.org.uk/solar/2009/2009-03-20_11-19-43_SVF70ss-1.jpg

An additional, single exposure image of on of the proms is attached. Best regards,

Pete LAWRENCE (ピート・ローレンス Selsey 英)

●.....**Subject: Re: 『臺北星空』を**
Received: Tue 10 Mar 2009 08:55:18 JST

南政次様、命日は訃に書いてあるとおりに二月3日が正しいはずですが。調べたところ、私が南さんと尾代さんに差し上げたメールだけ二月4日になったほかは、すべての文書が二月3日となっています。私がメールに二月4日と書いた理由は、今になると調べてもわかりません。訃に記載された日付が正確であるはずで、且つofficialなものとしてして受け入れるべきです。今は一先ずこのことをご返事申し上げます。...草々

○.....**Subject: 天文教育館への連絡**
Received: Fri 20 Mar 2009 07:13:20 JST

南政次様、邱國光館長への連絡は、私にちょっと事情があって、十日ほど遅延しました。館長はすぐに劉愷惺さんという私の知らない職員に指令し、劉さんから私に中国語白話文(口語体文章)のメールが来ました。その内容は次のとおりです。

=====
 頼先生、はじめまして。天文館は前々から『天界』を受け取っています。天文館に代わってお礼を述べてください(これは迷惑...頼)。私はあなたが送ってくださった郵送資料をわれわれの『臺北星空』の寄贈名簿に加えます。今後は中野圭一先生に、われわれの刊行物がきちんと届くでしょう。台北天文館の刊行物寄贈名簿には東亜天文學會が前々からありまして、その郵送は山本天文臺気付です。このアドレスが正しいかどうか確かめていただけますか。もし間違っているならわれわれは古い資料を削除して、資源の浪費を防ぎたいと思います。あなたの協力を感謝します。劉愷惺

○.....**Subject:Re: 台灣蔡章獻氏の追悼文和訳紹介**
Received: Mon 23 Mar 2009 03:13:44 JST

(蔡章獻さんの)東亜天文学会賞は昭和60年です。日航機が山に衝突して機上500人以上が死亡した大空難が発生した時です。あのとき蔡さんは奥様および陳正鵬さん同伴でOAAの会に赴き、一、二日遅れて私は単独で東京へ飛び、東京で大空難の報をテレビで見ました。蔡君一行は東京経由で帰台、私は東京で蔡君に会ってOAAの賞牌を見せてもらいました。記憶が鮮やかです。...

頼 武揚 (W.-Y. LAI 臺北 Taiwan)

●.....**Subject: Venus2009/3/11 16h16 UT**
Received: Thu 12 Mar 2009 06:42:03 JST

Hi all, afternoon between the cloud, Venus in normal light. Recording is a RGB, with ATK-2HS in F30 @ Some test images, working by 1000nm coming soon.

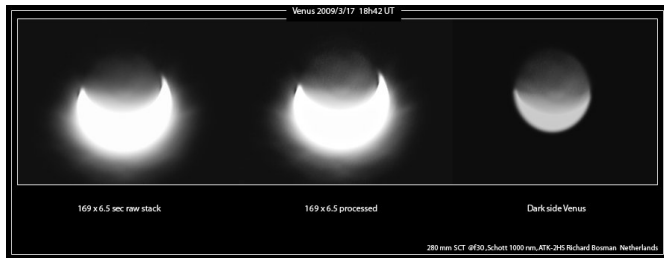
○.....**Subject: Dark side Venus 2009/3/11 18h39 UT**
Received: Thu 12 Mar 2009 22:07:06 JST

Hi, thank you for the previous Venus reactions. With this filter (100 nm Schott) you can see, night side, recording. The night side, just before and just after the conjunction to see, Venus is a narrow crescent. What we can see this phenomenon is a thermal surface of Venus. Light and dark structures are visible, dark areas are higher and therefore cooler than light areas.

Recording is made with the C11 @ f10 with a Schott 1000nm ir filter and ATK-2HS. Time: 2009/3/11 18h39 UT. Venus was 12.7 degrees high. Best regards

○.....**Subject: Dark side Venus 2009/3/17 18h42 UT**
Received: Wed 18 Mar 2009 18:37:31 JST

Hi, inclusion of Venus at 1000 nm light. Venus is now a very thin crescent. How smaller it get's how closer to the sun. As for the dark side is more difficult because she is pretty low on the horizon. The dark and bright



albedo formations are clearly visible. Visual is hard to see the darks side. Regards

Richard BOSMAN (リチャード・ボスマン Enschede 蘭)

●.....**Subject: Re: SATURN MOON TRANSIT- BBC The Sky at Night**
Received: Sat 14 Mar 2009 01:50:06 JST

Nice to hear from you, Jane (FLETCHER)! I do think I have some photos, probably submitted by some of the others you have copied on this email. I'll look, and send, along with their names.

My 2009 NASA IYA "What's Up" Podcasts feature Galileo's (and British Harriott in the February version) sketches along with NASA Missions.

Have a look/listen here:

February 2009 – the moon:

<http://www.jpl.nasa.gov/video/index.cfm?id=818>

January 2009 - Venus:

<http://www.jpl.nasa.gov/video/index.cfm?id=798>

IYA star party - (Jane and Mojo)

<http://www.jpl.nasa.gov/video/index.cfm?id=804>

March – about Saturn, should be up next week.

Cheers!

Jane H JONES (ジーン・ジョンズ JPL CA美)

●.....**Subject: Jupiter is back! First images for Season 2009!**
Received: Wed 18 Mar 2009 13:22:55 JST

Hi all, I was out this morning imaging Jupiter for the first time this season. Seeing was average for the altitude, with huge waves passing across the image distorting it terribly. I'm looking forward to the end of DST so I can image Jupiter before heading to work, instead of at the moment when I can only do it on days I'm working from home or on weekends. More here, plus a collection of other early-apparition images from Australia and the Phillipines.

<http://www.mikesalway.com.au/2009/03/18/jupiter-is-back-first-images-for-season-2009>

○.....**Subject: Jupiter from this morning, 19th March 2009 UT**
Received: Fri 20 Mar 2009 11:22:07 JST

Hi all, I had a fairly busy morning this morning - knowing that the skies were going to be clear (well, hoping), the waning crescent Moon was well positioned, a bright ISS and STS-119 Discovery pass was going overhead, and then of course Jupiter which is climbing to a manageable 35° altitude before dawn. I managed to capture all three objects, and here's the first one that has been processed. It's Jupiter in seeing that was very similar to what I captured on wednesday morning.

The resolution isn't great due to the seeing, but Oval BA is visible just past the CM. I missed the best of the seeing as it deteriorated further as dawn approached. I was busy capturing the Moon and the ISS when the seeing was good, and Jupiter was still too low.

<http://www.mikesalway.com.au/2009/03/20/jupiter-and-oval-ba-19th-march-2009>

○.....**Subject: Jupiter and Io Transit and Animation from Australia - 21st March 2009**
Received: Mon 23 Mar 2009 14:31:53 JST

Hi all, On Sunday morning, I was able to capture my first Jupiter moon transit for the season, with the volcanic moon Io transiting the gas giant. I also took the opportunity to create my first Jupiter animation for the season, hopefully the first of many to come.

It was another busy morning (like Friday morning) with an ISS pass, a lovely crescent Moon and then of course Jupiter. Seeing was quite reasonable, and improved as Jupiter climbed out of the muck, reaching an altitude of about 39° literally 5 minutes before sunrise when I captured my last image. The sky was already blue and by this time I could only just see Jupiter naked eye.

The attached image is the best from the session, taken 10 minutes before sunrise and shows Io just about to leave the disc of Jupiter. Oval BA is rising on the right. I captured 8 frames to create an animation, and you can see the seeing improves as Jupiter gets higher in the sky over the 1 hour of capture time. The first frame shows Io's shadow just leaving the disc.

To read more and see the animation, click here:

<http://www.mikesalway.com.au/2009/03/23/jupiter-and-io-transit-animation-21st-march-2009>

Thanks for looking.

Mike SALWAY (マイク・ソルウェー NSW 澳)

●.....**Subject: Re: Saturn 2009 March 13-15-16**
Received: Wed 18 Mar 2009 19:38:17 JST

Dear all, We are benefiting (for the first time in a while) from a nice high pressure system over Europe those days providing (I think) us with good seeing conditions. At least I got good images of Saturn since last Friday and I attach here a small picture I took simply with a compact Digital Camera (Canon Powershot A710) behind my 16" Dobson (no tracking, add-up of 10 1/25s pictures). These are default RGB colours but I think it is closer to eyepiece view - not so blue as some other pictures here. Picture taken on the 15.9 March but I got similarly good images on the 16.9. You can also see a drawing on the 13.0 at:

<http://www.wusr2.obspm.fr/~biver/SATURNE/sat13032009.jpg>

Otherwise, more especially for Mars imagers, do not forget the upcoming IWCMO meeting: we are gathering mars "Historians" but also aim at you also, those taking nice XX1st century images of the red planet.

<http://www.wusr2.obspm.fr/~biver/IWCMO/>

Regards,

Nicolas BIVER (ニコラ・ビヴァール Meudon 法)

●.....**Subject: saturn 18 march**
Received: Thu 19 Mar 2009 21:47:25 JST

Hi My Guys, yesterday was average condition seeing was good but atmosphere was so-so I took this image PLS see you it Cheers

Sadegh GHOMIZADEH

(サデグ・ゴミザデ Tehran 伊朗)

●.....**Subject: Saturn 18/03/09**
Received: Fri 20 Mar 2009 17:22:18 JST

Hi All, Reasonable seeing the other night, this image shows a prominent light spot (and another fainter one nearby). All the best

Simon KIDD (サイモン・キッド[®] Herts 英)

●.....**Subject: 如何ですか**
Received: Sun 22 Mar 2009 18:12:07 JST

ご無沙汰しています。お体は如何でしょうか。少しは良くなりましたでしょうか。

こちらは、今年になって散々で、1月15日に腸からの出血で手術後の父が突然亡くなり(83歳)、それまで、色々とストレスをためていた所為でしょうか、今度は私が、2月21日に脳梗塞で倒れてしまいました。22日が誕生日で、病院での誕生日となってしまいました。症状は軽く、10日間の入院でしびれもとれ、現在は元に戻っています。

星の方は、月、金星、土星を見たりしています。以前買ったU-330のフィルターを探していますが、見つからず、結局、金星の雲は撮れずじまいです。

Lumeneraで撮った画像を見ると、実像の右側にゴーストが出て、像を拡大すると重なり合っています。何か良い解決方法はないのでしょうか



か。・・・他の方はどのように処理を行っておられるのでしょうか。興味のあるところです。

今年に入ってやっと撮った画像を送ります。

また、火星が始まります。よろしくお願いいたします。

森田 行雄 (Yukio MORITA 廿日市 Hiroshima)

☆☆☆

-----**編集部だより (Editorial)**

●.....**Subject: 火星の新クレーターについて**
Received: Sun 22 Mar 2009 18:30:35 JST

南先生、中野主一さんご指摘の火星の新クレーター情報の件ですが、『ニュートン』2009年四月号に次のような記事がありました。p9:火星探査機MGSは、1999年以来、火星に新しくできた小クレーターを20個以上発見している。カナダ、アルバータ大学のハード博士らは、今まで見のがされてきた小さなクレーターが地球にもあると予想し、云々(*Geology* 2008年Dec号)、以下、記事の趣旨は地球でも新しい小さなクレーターが発見されたというものです。・・・尚、Internetでは2001年と2006年とのMGS画像を比較したものが、

http://www.nasa.gov/mission_pages/mars/images/pia09020.htmlに出ていますし、他の例として2004年と2006年の比較が次に出ています、などなど・・・

http://planetary.org/image/R1300039_S1502322_3mpxl.jpg

西田 昭徳

(Akinori NISHITA CMO 編集部 Fukui)

Dossier

Visual Estimate of Martian Colors in 2003

by **William SHEEHAN**

AT the August 2003 opposition of Mars --when the planet made its closest approach to the Earth in 60,000 years-- my collaborators and I had the very rare privilege of using the Lick 36-inch Clark refractor for two weeks to make visual observations of Martian surface detail. The project was an attempt to reconstruct, as far as possible, the experience of visual observers of Mars in the 1890s and early 1900s, when famous astronomers such as James Keeler and E. E. Barnard worked with this telescope. It was certainly a great rush to observe Mars under such exquisite conditions, and to look "over the shoulder," as it were, of such legendary observers; such a direct emotional connection with history as we experienced during our "*Two weeks on Mars*" is rare.

The seeing on Mt. Hamilton during this period was remarkably steady; in the experience of a number of the

resident-astronomers, and the best they had experienced in many years. (The extreme dryness of the late summer in Northern California produced a ring of wildfires around the observatory, and there was even a small fire that broke out near E. E. Barnard's house on the Mt. Hamilton Road, but only once did we need to shut down for fear that airborne ash from these fires would descend on and damage the great lens.) The views of Mars in the telescope, under these conditions, was unforgettable. My first look at Mars recalled E. E. Barnard's impressions in early September 1894, when he reported that the surface of Mars appeared broken with mountain, ridge, and slope. As then, the Solis Lacus region was on view, and I wrote in my notebook after returning to my bedroom (in the basement under the Shane Reflector):

"What a magnificent world is Mars! It is brighter than Jupiter now, and seems goldenly splendid. We enjoyed five hours of steady --steel-engraving-- seeing. There were wild fires burning in the distance, lighting up the night with strange orange glows like those of the pit in which the cylinder landed in *The War of the Worlds*.

Solis Lacus was in view; the Valles Marineris appeared as a thick dark streak, and the whole region broke up into intricate beads and tessellated threads. I could well understand why W. H. Pickering in Peru thought he was seeing forty lakes! The whole region appeared complexly marked, windswept, streaked and spotted. It was impossible to do more than hint at all the detail in a drawing.”

The perception of colors of Mars by visual observers played a very important role in directing interpretations of the planet, and I decided --with advice from Professor Andrew T. Young-- to systematically study the visual impressions of color with the Great Refractor. It has been clearly realized, ever since the time of Isaac Newton at least, that (as Young writes) “color lies in the observer, rather than ‘out there’ in the light. The perception of planetary colors is difficult for a number of reasons. For one thing, the perceived color depends not only on the state of adaptation of the eye but on the visual context in which the stimulus appears. The colors of a planet seen in the eyepiece against a black surround correspond to what is referred to as “aperture” or “film” mode (with no gray content), and are not what would be seen when standing beside the planet, with familiar objects available for context. Thus, as seen in the eyepiece the Moon, though it is actually as dark as the average asphalt paving surface, appears bone-white. Mars, whose actual surface materials are dirty yellowish-brown, looks yellowish-orange (or, as often described, ochre). The dark areas of Mars consist of surface materials similar hue but lower lightness and saturation; if we were actually standing on the surface of the planet, they would appear brown, but in the eyepiece the “unrelated” colors tend to expand to fill the color space. (Young, A.T., 1985, What color is the solar system? *Sky & Tel.* 69, 399-403). Apparently what is happening is that the visual system turns up the gain on the chroma when presented with a scene of very limited color gamut. This, by the way, plays a part in Edwin Land’s well-known demonstration of producing a wide color gamut from a scene that really just contains various shades of pink--an extreme example of the phenomenon made use of in the old color movies shot in two rather than three colors, which used to be known as “Tru-Color” Westerns! Mars

--ever since Percival Lowell compared the colors to those seen in the Painted Desert from Mars’ Hill or Edgar Rice Burroughs opened the Princess of Mars on the deserts of Arizona-- has been a kind of “Tru-Color” Western for visual observers of the planet.

The vivid colors reported by classical observers of the planet viewing it in aperture mode --including olive-green and even blue in the dark areas, which, coupled with intensity changes due to the effects of windblown dust, led to fanciful ideas about the presence of seas or tracts of vegetation-- are due to this expansion of the range of perceived colors in a scene of limited color range. On Mars, the human visual system’s enhancement of low-contrast images causes the complex display of low-saturation yellow-orange to be revealed as an exaggerated gamut of colors extending from ochre to intense blue-green. In order to systematically study the perceived colors of the Martian palette with the Lick refractor, I adopted the standard Munsell Color System;

In order to study the perceived colors of the Martian palette, I viewed the planet with and without a neutral density filter, with and without the dome lights on, and made comparisons against the standards in the Munsell Color system (these are widely used in industry and provide quantitative information of high precision comparable to or better than that of wideband photoelectric systems such as UBV). (Munsell, A. H., *A Color Notation*, 12th ed., Introduction: Royal B. Farnum. Munsell Color Company, New Winsor, New York (195, 1946, 1971, 1975); *Munsell Book of Color* (Glossy Finish), Munsell Color Company, New Winsor, NUY (1980).) The following are my impressions:

Xanthe 5YR8/4; Mare Erythraeum 5YR7/4 (no filter and no dome lights); Arabia 5YR7/8; Noachis 5BG 6/4; Acidalia 5BG7/8 (neutral-density filter and dome lights); Syrtis Major 5BG8/6 or 5G8/6; Arabia 5YR8/6; Isidis 5YR8/2; Hellas 5YR 7/2

Descriptively, these colors correspond to dull brownish-grey (Hellas) to rather intense ochre (Isidis) to pale ochre (Xanthe) to brownish (Arabia), on the yellow-brown side of the palette; from intense blue-green (Acidalia) to dull olive-green (Noachis) to blue-green to greenish (Syrtis Major).

It was clear that these colors were subjective, and the impression of more or less vivid greens or blue-greens in the dark areas was largely a contrast effect produced by the intensity-difference at the boundaries of the adjoining light areas. That being the case, changes in intensity due to the deposition or removal of dust during the Martian dust storms would produce dramatic changes in the washes of color seen by the eye, as reported by the classical visual observers. Percival Lowell, for instance, recorded in his observing book in 1894, as he witnessed changes in the intensity of the markings from June when the Martian air was clear until October when a major dust storm got underway (as described in R. J. McKim, *Telescopic Martian Dust Storms; Mem. B. A. A.*, Vol. 44, 1999 June): “a whole-sale transformation of the blue-green regions into orange-ocher ones was in progress upon that other world.”

My study in 2003 adds emphasis to the fact that visual studies of Martian colors are fraught with many perils, and that the history of ideas about the planet have largely been “colored” by effects produced by the eye-brain’s expansion of the range of perceived colors in a scene of limited color range. We have so long been entranced by the “blue that is not really blue” on the Red Planet, as Ray Bradbury puts it—entranced by the evocative “pale blue, the usual sky-color” or “robin’s-egg blue” of

Percival Lowell’s chromatic descriptions; but blues are the colors of our world, not of the Martian one. On Mars, these colors are mirages.

If it is any consolation, the first colored images of the surface of Mars from the Viking spacecraft missions were no less misleading. Tim Mutch wrote two years after the publication of the first images from the surface of Mars which showed a blue sky: “We had no intimation of the immediate and widespread public interest in the first color products. Several days after the first release, we distributed a second version, this time with the sky reddish. Predictably, newspaper headlines of ‘Martian sky turns from blue to red’ were followed by accounts of scientific fallibility. We smiled painfully when reporters asked us if the sky would turn green in a subsequent version.” (T. A. Mutch, 1978, “The Viking lander imaging investigation: an anecdotal account” in *The Martian Landscape* (NASA SP-425), p. 27. Washington, D.C.)

Though mirages --artifacts of the eye-brain system-- the colors exhibited by Mars in the Great Refractor were nevertheless aesthetically pleasing and evocative of a bygone era -- the “amazing dream of reality” (Ray Bradbury, *The Martian Chronicles*, p. 43) that still haunts the dreams of those who put eye to eyepiece in wonderment at Mars.

シー・エム・オー・フクイ

中島 孝 Nj

★前号は2月27日(金)に福井で印刷・丁合し、国内は19時〆切迄に三国からメール便で発送しましたが、日曜が入った為か、藤沢(Mk氏)、宗像(As氏)には3月2日(月)の配達となったようです。不

☆ Kasei-Tsushin CMO (http://www.hida.kyoto-u.ac.jp/~cmo/cmo/oa_mars.html)

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