COMMUNICATIONS IN 東亞天文學會「火星通信」since 1986

MARS

350 25 September 2008

BSERVATIONS

Published by the OAA Mars Section

••••• 07/08 CMO Note (4)

Smearing-out of M Acidalium on 4 November 2007 and the Dusts on 2 November (λ =341°Ls) at Nilokeras

4 Nov 2007のマレ·アキダリウムの消失と 2 Nov (λ=341°Ls)のニロケラス黄塵

Dave TYLER on 2 Nov 2007 $\lambda = 341^{\circ}Ls$ $\delta = 12.3''$ $\iota = 35^{\circ}$ Fig 1 $\phi = 07^{\circ}N$ ω=029°W

1° On 2 November 2007 (λ = 341°Ls, δ =12.3", ι=36°, φ=07°N), before opposition, a bundle of bright dusts was observed at Nilokeras by Jesús SÁNCHEZ (ISc) on his set of five

images at ω =020°W, 025/026°W, 036/038°W, 047°W. It was also detected by TYLER (DTy) at ω =029°W, by CASQUINHA (PCq) at ω =042°W, and also by

HIDALGO (EHd) at ω =042°W. Here we cite DTy's image as Fig 1. The dusts roughly looked divided to three branches and located at the lower places of the area. The northernmost dust seems to be adjacent to the north polar hood (nph). The image of EHd suggests an interaction between the dust and the nph, but not clear.

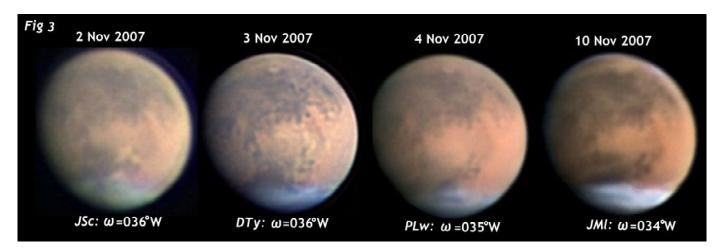
On 5 November (λ =342°Ls, δ =12.6", ι =34°, φ=07°N), a new bright dust appeared inside a hook of Nilokeras which was the same place also showing one of the dust points on 2 November (at around Ω =060°W, Φ =25°N). On the day PEACH (DPc) observed successively at ω =328°W, 339°W, 344°W, 351°W, 003/007°W, 014°W, and at ω =023/ 027°W, and after ω =351°W this dust was apparently caught from the limb side (note 1=34°). The dust looks to stay unchanged during more than 2 hours and a half. This dust was also detected by ARDITTI (DAr) on the day at ω =000°W, 003/005°W, by SHARP (ISp) at ω =006°W, by DUPONT (XDp) at ω =006°W, 025°W, and by *ISc* at ω =015°W/018°W.

Figure 2 shows a set of images (where ISc, DPc

Fig 2 2 Nov 2007 5 Nov 2007 10 Nov 2007 DPc: $\omega = 027^{\circ}W$ DPk: $\omega = 0.26$ °W JSc: $\omega = 0.26$ °W

and DPk stand for J SÁNCHEZ, D PEACH and D PARKER respectively): ISc's image on 2 November at ω = 026°W and DPc's one on 5 Nov at $\omega = 027^{\circ} W$. It should be noted

Ser2-0978 ______ CMO No. 350



that the dust at Nilokeras on 5 November is not the same dust which was seen on 2 November though the place was similar. At that time the global airborne dust was already so thin that the troposphere at the night side must have returned weaker; that implies the dust patches on 2 November already dispersed, and the resonace one on 5 November must have been newly entrained on the morning of the day. Don PARKER (*DPk*)'s image on 10 November was also taken at a similar angle.

3° We so here construct another figure made of the 2, 3, and 4 November images as Fig 3 (where JSc, DTy, PLw and JMl stand for J SANCHEZ, D TYLER, P LAWRENCE and J MELKA respectively): The image on 2 November here is the one by *JSc* at ω =036°W, the one on 3 November by *DTy* at ω =036°W, and the one on 4 November by LAWRENCE (PLw) at ω =035°W. Apparently the bright cores of dusts on 2 November dispersed on 3 November, and Niliacus L looks slightly fainter. On 4 November, Niliacus L and the south-eastern area of M Acidalium have been concealed by a yellow cloud. It must have extended also to Chryse but it looks not so dense and not so bright. The dusty aspect of the area on 4 November was also shot by DAr at ω =351/354°W, 005°W, 007/010°W, by PCq at ω =001°W, 013°W, by *DTy* at ω =043°W, by *ISp* also at ω =044°W, and finally in the US by *DPk* at ω =056°W, 073°W. These show Nilokeras was just like an isolated dark cudgel-like marking.

On 5 November, as seen from *DPc*'s image(s) on the day, the dark markings at Niliacus L and the neighbourhood slightly recovered, but another dust stream mingled with water vapour runs obliquely over M Acidalium. The image of MELKA (*JMl*) on 10 November at a similar angle is added where the dark marking was quite recovered. Note that the *PLw*'s image and *JMl*'s one show a bit the Dawes slit.

 4° One of the most interesting points was that we met with the case where the dust cloud which extended from M Acidalium to Chryse on 4 Nov (λ =342°Ls) was never called to be very bright. It must have been partly because the density of the yellow cloud was low and as well the underneath area was quite a dark marking (M Acidalium). We consider that the yellow cloud was not one that was newly created at the morning side but rather the dispersed one that must have been durable at the preceding nights because the troposphere had not

completely vanished since the 2 November night. It is an interesting problem to see the interrelation between the northern dust and the nph but the data were not gathered to the full.



5° The not-so-dense yellow cloud observed on 4 Nov 2007 (λ =342°Ls) (we here cite as Fig 4 one of *PCq*'s images since his look rich in colour graduation) reminds us of the yellow cloud case we ob-

served in 1986 at around 11 August (λ =223°Ls). See Mn's drawings on 11 August 1986 and on 15 August 1986 (λ =225°Ls) at ω =033°W cited at the following Site (CMO #289):

http://homepage3.nifty.com/~cmomn3/289Note02_03/index.htm

Both yellow clouds are quite similar extending from the extra-northern district to Chryse: The decisive difference is the season. One is before the winter solstice while the other is after. We should however here remember that the seasons where the northern originated dust clouds occur are twofold:

One is at the period (A) λ =210°Ls~230°Ls and the other at (B) λ =310°Ls~350°Ls. The 2007 case occurred at the period (B), while the 1986 case did at

the (A) period.

As a recent dust phenomenon which was observed around Nilokeras was the one on 2 July (λ =214°Ls) 2003 (the main theme treated in the above-cited Site), and this was the one seen in the period (A). Another case in (A) was the one at Nilokeras trapped by the MGS-MOC on 8 October 1999 (λ =221°Ls). On the other hand the one at Nilokeras observed by MGS on 25 January 2002 (λ =316°Ls) belongs to (B). See the abovementioned CMO-Web Site. (*Mn*)

1° 衝前の2 Nov (λ =341°Ls、 δ =12.3"、に=36°、 ϕ =07°N) にニロケラスの數ヶ所で斷續的な黄塵が立ったことが、ヘスス・サンチェス (JSc)氏の ω =020°W、025/026°W、036/038°W、047°Wの五像に冩し込まれている。同じくタイラー(DTy)氏が ω =029°W(圖1)で、カスキニャ (PCq)氏が ω =042°W、イダルゴ(EHd)氏も ω =042°Wで撮っている。黄塵は三箇所に分かれニロケラスの比較的低地の砂塵を巻き上げたように見える。最も北側の黄塵は北極雲と接しているように見える。EHdの角度では少し相互作用があるように見えるが確固たる影像ではない。

2° 5 Nov (λ =342°Ls、 δ =12.6"、 ι =34°、 φ =07°N) にはニロケラスの腕の中にまた黄塵が現れた(Ω =060°W, Φ =25°N邊りで、2Novにも黄塵が在ったところ)。この日にはピーチ (DPc)氏が ω =328°W、339°W、344°W、351°W、003/007°W、014°W、023/027°Wで撮像し、 ω =351°W以降西端から現れてく

るこの黄塵を追っている。二時間半の間殆ど變化がない。この黄塵は他にもアルディッチ(DAr)氏が ω =000°W、003/005°Wで撮っているほか、シャープ (ISp)氏も ω =006°Wで、デュポン (XDp)氏の ω =006°W。025°Wでも仄かに、JSc氏の ω =015°W/018°Wでも撮られている。

圖2には2NovのJSc氏の ω =026°W像と5NovのDPc氏の ω =027°W像を並べた。5Novの黄塵は2Novから残っているものではない。この頃には浮遊黄塵は殆ど沈下乃至消滅しているので、夜側に對流圏は顕著ではなく、2Novの黄塵は夜には幾らか縮小し、5Novの黄塵は新しく5Novの朝に吹き上げられた共鳴黄塵であろうと思われる。DPk氏の像は後日の同じ角度のものである。

3°そこで、2Nov、3Nov、4Novのこの邊りの状 景を比較する爲に圖3を作った。2NovはJSc氏の ω=036°W、3NovはDTy氏のω=036°W、4Novはロ ーレンス(PLw)氏の ω =035°Wを並べたものである。 明らかに3Novには2Novの明るい黄塵が擴散して しまっており、ニリアクス・ラクスが稍淡化して いる。4Nov(λ=342°Ls)には更にニリアクスからマ レ・アキダリウムの南東部が擴散した雲に隠され ている。當然クリュセの方にはみ出しているはず であるが、黄雲の濃度はあまり高くないと思われ る。この4Novの様子は他に、DAr氏のω=351/ 354°W、005°W、007/010°W、PCq氏のω=001°W、 013°W、DTy氏のω=043°W、ISp氏のω=044°W、ア メリカに渡ってドン・パーカー(DPk)氏のω= 056°W、073°Wなどに出ている。後者ではニロケ ラスは太い棒状である。

5Novには先のDPc氏の像に見られる通りニリアクス・ラクスなどの暗色模様はやや回復しているが、新たに斜めに走る水蒸氣混じりの黄塵の筋が見えている。10Novのメルカ(JMI)氏の同じ角度の像も添加したので比較されたい。マレ・アキダリウムの邊りはほぼ回復していると言える。尚、4NovのPLw氏の像以降ではドーズのスリットの片割れが見えている。

4°最も興味深い点は、4 Nov (λ=342°Ls)にニリアクス・ラクスやマレ・アキダリウム、更にはクリュセに至るまで黄雲に包まれたが、決して明るくは成らなかったということである。北部は地が暗色模様の所爲もあるが、黄雲自體が朝方に新し

く蘇生したものというより、2Nov以降の夜間に 對流圏が殘っていて、そのまま昼にも持續した擴 散型の黄雲であったからだろうと思われる。この 黄雲と北極雲の相互作用も面白い問題だが、充分 鮮明な連續影像が得られていない。

5°4 Nov 2007(λ =342°Ls)のマレ・アキダリウムからクリュセに擴がった黄雲(ここでは色階調が豊富なPCq氏の畫像-圖4-を引用する)は1986年の11Aug(λ =223°Ls)頃に觀られた現象を彷彿とさせるものである。11Aug1986と15Aug1986(λ =225°Ls)のMnによるスケッチはCMO#289のサイト

http://homepage3.nifty.com/~cmomn3/289Note02j_03/index.htm を 察照されたい。よく似ていると思う。違いは 季節である。一方は冬至前であり、他方は冬至後で

ある。これはどういうことかというと、北極起源の黄塵は二手に分かれ(A) λ =210°Ls~230°Ls、と(B) λ =310°Ls~350°Lsに起こるからである。2007年の場合は(B)期間に起こっており、1986年の場合は(A) 期間に起こったものである。

最近の例では2003年の2July(λ =214°Ls)にクサンテ北、ニロケラス附近に起こった黄塵が記憶に新しい(上のサイトのメインテーマである)。これは(A)期間に起こったものである。同じ様なニロケラス附近黄塵はMGS-MOCの畫像で1999年に8Oct(λ =221°Ls)等で見られる。一方(B)期間のものとしては25Jan2002(λ =316°Ls)に全く似た形の黄塵が見られている。いずれも上のサイトで扱われている。

(Mn)

便り

Letters to the Editor

• · · · · · Date : 24 August 2008

南政次様、残暑お見舞い申し上げます。お世話 になっています。

クライド・トムボー教授の火星観測ノートのコピーをお送りします。同教授の手紙にもあるように、もう一頁あったはずですが、目下(永久に?)行方不明です。手紙にもあるトムボー教授の写真は『惑星ガイドブック2』(誠文堂新光社1981年発行)の203頁に掲載してあります。・・・

では何とぞお大事に

(註)添付されたClyde W TOMBAUGH氏のスケッチは1954 年六月のものです。

佐藤 健 (Takeshi(Ken)SATO廿 目市Hiroshima)

• · · · · · · Date: Mon, 25 Aug 2008 08:41:06 +1000 Subject: My best Jupiter in a while - last night 24/08

Hi all, Skies were nice and clear last night, and while the seeing started out less than average, it improved over the session and this image was taken right at zenith just before a meridian flip was needed. I would've liked to have continued imaging but I'd already promised my wife I'd be back inside by 8:30pm (I made that promise when the seeing wasn't as good doh! LOL:))

The WSZ is very prominent at the CM (NEBn) (some material can be seen swirling on the following edge) and the rest of the NEB is very busy with the NEB outbreak on the p side coming up to the CM. The SEB is also very busy with an outbreak around the same longitude as the NEB outbreak.

My motivation had been declining for the last few months; a run of good seeing would certainly help lift the spirits. Hopefully I can get a few more nights like this before Jupiter disappears for me for another year. With trees in my backyard I lose it about an hour past zenith

so I've only got 3-4 weeks or so to go.

12" newt, 5x powermate, DMK21AU04. 60s each channel, ~700 frames from each stacked.

http://www.iceinspace.com.au/mygallery/displayimage.php?pos=-749 Thanks for looking.

O····· Date: Mon, 25 Aug 2008 09:33:38 +1000 Subject: last night 24/08 (one more image)

All, Here's one further image from the session, 30 minutes earlier than the other one.

http://www.iceinspace.com.au/mygallery/displayimage.php?pos=-750

O····· Date: Mon, 1 Sept 2008 08:35:02 +1000 Subject: Jupiter and the NEB outbreak in good seeing - 29/08

Hi all, Another quite nice night on the 29th August, with the WSZ and NEB outbreak on display. The seeing improved as the session went along, however it was cut a little short just after meridian flip when the temperatures dropped suddenly and caused tube currents to distort the image. By the time I'd cooled the mirror again it would've been behind the tree, so it put an end to the session. ...

12" newt on EQ6, 5x powermate, DMK21AU04. 30fps for 55-60 seconds each channel. Approx 600-700 frames stacked in each channel.

The images are in reverse chronological order (the last image is from earlier in the night when the seeing wasn't as good).

http://www.iceinspace.com.au/mygallery/displayimage.php?pos=-753 http://www.iceinspace.com.au/mygallery/displayimage.php?pos=-752 http://www.iceinspace.com.au/mygallery/displayimage.php?pos=-751

Thanks for looking. O····Date: Thu, 11 Sept 2008 14:33:21 +1100 Subject: Jupiter from last night - 10th Sep

Hi all, Unfortunately average conditions again last night, but _just_ good enough to stay out in the cold and capture these.

Looks like the NEB outbreak has scooted past the WSZ which is prominent in both of these images. I can't seem to capture any other face of Jupiter! I can't remember the last time I saw a moon or shadow transit. 12" newt, 5x

powermate, DMK21AU04. Thanks for looking.

http://www.iceinspace.com.au/mygallery/displayimage.php?pos=-754 http://www.iceinspace.com.au/mygallery/displayimage.php?pos=-755

Mike SALWAY (マイク・ソルウェ NSW 澳)

●・・・・・ Date: Tue, 26 Aug 2008 19:39:36 +0900 Subject: [Fwd: Re: 『火星通信』ホームページ]

南 様:以下のようなメールが一本氏から届きま した。アクセスする方は、南さんと村上さんでよ ろしいでしょうか? アカウントは、CMO でいか がでしょう。野上君は知っていますので、私が窓 口になりましょう。以上、ご連絡まで。

>◆・・・・Date: Tue, 26 Aug 2008 16:54:18 +0900
>Subject: Re: 『火星通信』ホームページ

浅田様、『火星通信』ホームページの花山サーバー利用につ
>大のもり天文台教員で話し合い、使っていただく方向で検
>討することになりました。つきましては、内容管理のため
>どのような方(々)がサーバーアクセスすることになるか、
>またアカウントについてご提案がありましたら、お知ら
>せください。
> 会後技術的なことについては既しましまゆまり。で、

> 今後技術的なことについては野上君と連絡をとってい>ただきたく、よろしくお願いします。> 花山・飛騨天文台は火星とも縁が深く、そのあたりの

>紹介記事を載せてほしいとの意見もありましたこと、申 >し添えておきます。一本 潔 ○・・・・・ Date: Wed, 27 Aug 2008 14:45:35 +0900 Subject: [Fwd: Re: 『火星通信』ホームページ]

南 様:京都大学天文台の野上氏より以下のよ うなメールをもらいました。電話に出ていただけ る時間帯をお教えいただければ幸いです。

>◆・・・・ Date: Wed, 27 Aug 2008 13:28:02 +0900 >Subject: Re: 『火星通信』ホームページ

>浅田様 Cc: 一本様>こんにちは。野上です。お久し振りです。>飛騨のサーバにcmoのアカウントを作り、

>http://homepage2.nifty.com/~cmo/hp.htm >の内容を

>http://www.hida.kyoto-u.ac.jp/~cmo/hp.htm >にコピーしてみました。ご確認下さい。

> 更新については cmoのアカウントのパスワードをお伝え >しなければならないのですが、メールで書くのはセキュ >リティ上の問題がありますので、できれば電話で口頭で >致します。野上

○・・・・・ Date: Thu, 28 Aug 2008 15:17:55 +0900 Subject: [Fwd: Re: 『火星通信』ホームページ]

南 様:私のほうにも野上氏から以下のようなメ ールをもらいました。

>◆・・・・ Date: Thu, 28 Aug 2008 11:56:07 +0900 > Subject: Re: 『火星通信』ホームページ > 浅田様、こんにちは。野上です。 > つい先にざ村上さんとお電話させて頂きました。複数の > プロバイダに分けてファイルを置くなど、かなり手間の かかえ 等学を強いされていた トラでせれ、飛騨の方でけ >かかる運営を強いられていたようですね。 飛騨の方では >よほどのことがない限りは容量的には問題にならないと思 >いますので、この点は安心して頂ければと思います。
>技術的な面でのサポートはなるべくしたいと思いますの
>で、また何かお困りのことがありましたらご連絡頂けれ
>ばと思います。よろしくお願い致します。野上

···· Date: Thu, 04 Sept 2008 09:52:13 +0900 Subject: [Fwd: [wtk 82] 「砂嵐観測と火星気象」勉強会のお知らせ]

南 様:以下のような火星気象の勉強会の案内が 来ております。私は天文学会で岡山に行っている ので行けませんが、興味がおありならご出席くだ さい。小郷原さんも話すようです。

◆ · · · · Date: Thu, 04 Sep 2008 09:20:33 +0900

Subject: [wtk 82] 「砂嵐観測と火星気象」勉強会のお知らせ

惑星大気ファンの皆様、「砂嵐観測と火星気象」勉強会のお知らせです。 日本独自プランによる火星探査計画が議論されています. 火星表層で の砂嵐は火星の気象システムを特徴付ける重要な現象ですが、 では黄砂の発生・輸送が気象学の研究課題として活発に取り上げられて います. 今回はタクラマカン砂漠での黄砂発生の観測に取り組んでいら

っしゃる名古屋大学・甲斐先生に黄砂の観測の話をしていただくととも に、火星気象方面からダストに関する最新の話題を提供していただき、 黄砂観測と火星気象学、火星気象観測計画との接点を探る予定です。

講演および質疑応答には充分な時間を確保したいと思いますので、惑 星大気の研究者はもちろん、初学者の皆様、惑星大気を専門としないが 興味をお持ちの幅広い分野の皆様も含め、ご参加をお待ちしております。

- 日時 2008年9月12日 (金) 13:00-17:40
- 場所 東京大学 (本郷キャンパス)・理学部3号館310号室

http://www.eps.s.u-tokyo.ac.jp/jp/info/access.html

■ プログラム

1. 13:00-14:30

タクラマカン砂漠での黄砂発生観測 甲斐憲次 (名古屋大学·大学院環境学研究科)

2. 14:30-15:00

火星での大気電気観測

高橋幸弘 (東北大学・大学院理学研究科)

- *** 休憩 (15:00-15:10) ***
- 3. 15:10-15:40

火星気象観測計画

今村剛 (宇宙航空研究開発機構・宇宙科学研究本部)

4. 15:40-16:10

高解像度火星大気大循環シミュレーションで表現されたダスト巻上げ 渦程 高橋芳幸 (神戸大学・大学院理学研究科)

Hellas盆地周辺におけるダストの挙動の地域差 小郷原一智 (京都大学・大学院理学研究科)

6. 16:40-17:10

タイトル未定

小高正嗣 (北海道大学·大学院理学研究院)

7. 17:10-17:40

総合討論

世話人・連絡先

栗田敬 (東京大学・地震研究所)

松田佳久 (東京学芸大学·自然科学系)

高木 征弘 (東京大学大学院理学系研究科地球惑星科学専攻)

TAKAGI Masahiro (Dept. Earth and Planetary Science, U. Tokyo) Date: Sun, 14 Sept 2008 13:54:38 +0900 Subject: 广火星通信』#349

南様:『火星通信』#349を拝受いたしました。私 は岡山に行っていて留守にしていたので、正確に いつ届いたのかは不明ですが、家内の話では木曜 か金曜だったそうです。いつも有難うございます。

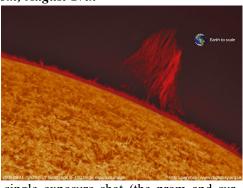
岡山の学会は太陽系の話も少なく、惑星関係は 私のものだけでした(中小口径望遠鏡のセッショ ンでしたが)。私のポスターも見ている人が少な く、質問もされませんでしたが、置いておいた木 星の論文の別刷りが7部無くなっていましたので、 少しは興味を持って貰ったのかと考えています。

学会では野上氏に『火星通信』のホームページ の件でお礼を言いました。一本氏には先週の月曜 日に彼が博多にやって来たので、その時にお礼を 言っています。

正 (Tadashi ASADA 宗像 Fukuoka)

···· Date: Wed, 27 Aug 2008 20:33:33 +0100 Subject: Big prom, August 27th

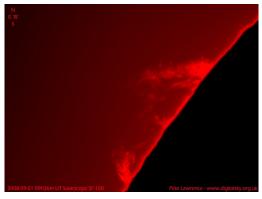
Hi all, A brief restbite in the constant cloud blanket allowed me to grab an image of the big prom currently visible on the north-west



limb. This is a single exposure shot (the prom and surface were captured as one) with the prom and surface areas being processed independently. Best regards,

Subject: Large proms, September 1st

Ser2-0982 ______ CMO No. 350



Hi all, Some great proms on view today. Blowing a gale in Selsey today and lots of cloud popping up out of nowhere

just to add to the irritation. Seeing pretty poor as well. I think the jet stream has taken up permanent residence over the UK. Best regards,

O····· Date: Wed, 03 Sept 2008 00:33:09 +0100 Subject: Re: Prominence 2nd Sept 2008

Excellent Dave. Blowing a gale down in Selsey today and the clouds didn't really clear until after the Sun had culminated. Still, the main prom was putting on a superb display. Regards,

O····· Date: Fri, 19 Sept 2008 09:08:26 +0100 Subject: Re: Solar 18th sept 08

Hi Dave, Great images as usual. It's a master of quiet at the moment isn't it?! No Kevin Bacon moment for me (although I knew exactly what you were on about!) but here are yester-



day's proms taken through the Solarscope SF-100 filter. The "sniffy dog" prom was pretty bright.

O····· Date: Fri, 19 Sept 2008 13:00:19 +0100 Subject: Re: Solar 18th sept 08

Hi Rich, They I would guess that they are a processing artifact. The seeing wasn't that great yesterday being rather jet-stream jittery (it's worse today!). I think what's happening there is that the definite boundary at the limb of the photosphere is bouncing between frames and giving Registax a hard time recognising what's real and what isn't. I could have reduced the effect by using less frames but the capture and processing for single exposures (as this image is) tends to be a bit noisy, so I didn't

>Rvbest123321_at_aol.com wrote:

>Hi Pete, very nice! what are the horizontal lines /banding in >the chromosphere? are they real or processing artefact

rich best South Downs Astronomy

···· Date: Mon, 22 Sept 2008

12:25:07 +0100

Subject: Active region ahoy...

At last!! Regards,

Pete LAWRENCE (t°-1.12-1/2)



Selsey 英)

• · · · · · · Date: Thu, 28 Aug 2008 21:56:16 +0100 Subject: TODAYS BIG PROM

Hi Guys the sky cleared at last but very late in the afternoon, when tree branches were waving to the image. Even so, the seeing was not too bad. at 19° alt. I was glad to see Pete's big prom was still there.

One for my website I think, to join the other

Augustians, on:-Images/recent images/solar Aug 2008. Many other 2008 images are also on there. During this cloudy weather I have been updating it. Its frus-



trating to see how active it was in April/May 2007.

O····· Date: Mon, 1 Sept 2008 16:51:23 +0100 Subject: Solar images 30th August

Hi Guys, Here are a few prominences from the 30th



August 2008, the day we had a heat wave here in the UK. The 1103 image a n d 1649 image, are of the same prominence group

but over 5 hrs apart. There is still a group in this position the 1st Sept. Vixen 6 inch f9 stopped to 4.5 and 108 inches efl. image is enlarged approx 30% for the images mentioned. Best wishes

O····· Date: Mon, 1 Sept 2008 23:10:24 +0100 Subject: the sun today

Hi guys, Whilst a local town was having funnel clouds, I was just having fun, in the sun. I did notice the clouds were moving half as fast as the planes taking off from Heathrow were flying through them.

Anyway, great Images and sketches Pete, Alan and Erika, I guess we were all at it today. At least there were some worthy Prominences on show.

I captured a very early one with a low sun, timed 07:22 ut, it is the same Prominence as the 11:48 image. Note the big changes during that time. Pity the racing cloud gap captures, did not allow lime lapse imaging.

O····· Date: Tue, 2 Sept 2008 20:31:09 +0100 Subject: Prominence 2nd Sept 2008

Hi Guys, This Prominence is one of the same ones as imaged yesterday. Seeing was actually rather good in between clouds. Best wishes

O···· Date: Wed, 3 Sept 2008 21:50:19 +0100 Subject: todays prom

Hi Guys this Prominence is in its 3rd day (I didnt image 31st Aug) but appears to be sinking fast. It is still the biggest on the Sun, A newcomer at the 3 o-clock posn' may take over. Best wishes

O···· Date: Thu, 4 Sept 2008 23:57:02 +0100 Subject: the sun today

Hi Guys another cloud break another capture. This Prom refuses to die, and now has a big spooky buddy. I added another 3 frames on the coloured one for a wider field composite. The Prom at the 3 oc posn i.e. west with South at the bottom, started yesterday.

O · · · · · · Date: Fri, 12 Sept 2008 13:08:27 +0100

Subject: Solar images 11th sept

Hi Guys, After years of continual cloud cover a patch of thin carp clouds, commonly known as altocumulous stratiformis perlucidus was briefly revealed by lower cloud of the "ubiquitous nuisance" catagory.

One scrabbled to capture what meagre offerings the sun had on this joyful day.

I tried out a newly aquired INTES wedge. The seeing shimmer was far greater then the moving fine details so only 37 frames were stacked out of 800 in the Registax miracle machine. Excellent contrast was my first impression. Along with the supplied 30x ND filter. I also used a green Baader solar continuum filter and an IR blocker. H α revealed a few proms, this one being the largest.

White light capture was at full 6 inch aperture from the f9 Vixen @ F18 with a 2x barlow, ok, a little more due to about 12mm of stretch. H α was at 4.5 inch aperture and f30 with a 2.5x powermate into the Daystar filter which reduces to 2x between the filter and camera due to stretching. Best wishes

O····· Date: Mon, 15 Sept 2008 11:06:58 +0100 Subject: Solar Images 14th Sept

Hi guy here are a few images from a nice sunny day here in the UK. Seeing was fair too. The Prominance is shown here in two magnifications, 118 inches and 216 inches effective focal lengths. The difference in surface detail in the higher mag is interesting.

The "white light image" with green filter, shows how the visibility of the surface granulation diminishes quite sharply as the limb is approached. I guess this is a combination of foreshortening of the width of the granulation cells, plus looking through the turbulent solar atmosphere, put up by cells in the foreground, and the depth of the solar atmosphere there seems to be a "cutoff" point, akin to a "snow line". Any other ideas or the real answer to this effect? Best wishes

O····· Date: Thu, 18 Sept 2008 22:32:01 +0100 Subject: Todays largest solar prom

Hi guys there were a couple of proms on there today, I have yet to process the smaller one. This one reminds me of one of the best films of all time Tremors! Oh yes it was! Kevin Bacon is fighting a Graboid, surely you can see that! Best wishes

O····· Date: Fri, 19 Sept 2008 09:03:03 +0100 Subject: Solar 18th sept 08

Hi Guys, 2 more from yesterday, One in $H\alpha$ of the smaller "little sniffy dog" prominence and a shot in white light off a Herschel wedge, showing ,,,,,very little, other than the constant background, but still a rather grand erie view of our quiescent star. Best wishes

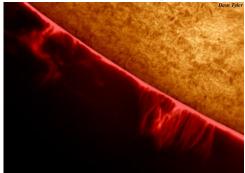
O····· Date: Fri, 19 Sept 2008 12:04:42 +0100 Subject: Re: Solar 18th sept 08

Excellent Pete, love the mono, what a filter! Good bit of seeing there to by the look of it. Great resolution in the edge of the chromosphere. cheers

O····· Date: Mon, 22 Sept 2008 00:59:34 +0100 Subject: Active Prominence

Hi Guys, Yesterday morning, I was lucky enough to bump into a very active prominence that destroyed itself as I watched. I picked it up as a small bright loop, that is the first frame, which is just ahead of the first real frame of the animation. It took a few minutes to sink in that I had a hot one. I set a scripted time lapse capture running at one and a half minute intervals, It had faded out after 6 more frames from the original loop image frame. One minute intervals would have been better. The total time of the animation is about 13 mins. Best wishes

O····· Date: Mon, 22 Sept 2008 11:00:15 +0100 Subject: Solar Prom 21st Sept 08



Hi Guys, Further to the animation from this day, I also captured this prominence group. The mono was at 90 inches efl

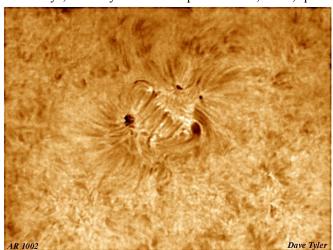
and the colourised version at 180" efl. Seeing was poor. Best wishes

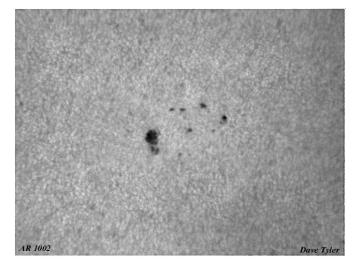
O····· Date: Mon, 22 Sept 2008 12:59:41 +0100 Subject: Re: Active region ahoy...

Nice one Pete , we were blessed with some clear this morning, and I have it in white light too. cheers

O····· Date: Mon, 22 Sept 2008 15:38:03 +0100 Subject: SUNSPOTS!!! 22nd Sept 2008

Hi Guys, Hooray some sunspots at last, well, pores





anyway, I read, as they do not yet have penumbras, but

they are big enough for their Hα signature to add a bit more Hα character to the solar surface.

The white light image with Herschel wedge and green filter was taken on the same scope set-up as the $H\alpha$ image, ie 6 inch aperture and 180 inches efl. Seeing was

O····· Date: Mon, 22 Sept 2008 23:43:44 +0100 Subject: Prom 22nd Sept 08

Hi guys, There are quite a few largish proms on there at the moment, but they are all so frustratingly faint. Here is

----CMO #207 (25 September 1998) pp2323~2338 ----

今号から、来るべき接近に備えて"Coming 1998/99 Mars" シリーズが始まった。巻頭から 二編、「1998/1999年の観測シーズンが目前です!」 "The 1998/99 Mars Season Is Come!" と「1998/1999年の火星観測暦表(その1)」 "Ephemeris for Observations of Mars in 1998 /99. I "が掲載された。前者は1998/1999年接近の概要と、1999年5月連休に福井で懇談会が 計画されていること、後者は1998年10月から12月末までの暦表が内容である。それぞれ次の Siteに納められている:

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming/9901/01j.html

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming/9901/01.html

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming/9902/02j.html

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming/9902/02.html

次いで、1996/97 Mars Sketch (10)として「オリュムプス・モンスとタルシス・モンテス

の間の暗帯」"A Shadowy Band between Olympus Mons and Tharsis Montes" が採り上げられている。 080°Ls~090°Lsころに見られた夕方のタルシスとオリュ ムプス・モンスの間の暗条に関する考察である。以下の URLでご覧いただける。

http://homepage2.nifty.com/~cmo/97Note10.htm

LtEは、 Wolfgang_MEYER (Germany), Samuel WHITBY (USA), 頼武揚 (Taiwan)の外国各氏からと、日 本からは森田行雄(広島)、阿久津富夫(栃木)、中嶋厚彦(北 海道・小樽)、長谷川一郎(兵庫)の各氏からのものが紹介 されている。

「時時間間」1998年夏日時計:と題して、南政次氏の 夏の日記が続いている。森田氏、Fransis OGER氏の来 福と、Gianni QUARRA氏と京都で会った話を中心に進 められている。森田氏はCCD撮像と処理の実際を西田氏 と研究された。また、OGER氏は、足羽山の観望会に参加

COMMUNICATIONS IN 東亞天文學會『火星通信』since 1986

- 南政次MMINAMI

OBSERVATIONS Published by the OAA Mars Section

◆1998/99年の火星 COMING 1998/99 MARS 1998/1999年の観測シーズンが目前です! The 1998/99 Mars Season Is Come!

である。詳しい解説(視直徑變化をグリッドで示

だ火星の季節を観測することは勿論重要である。 point) ø is 23°N, and the northern hemisphere as well as the npc will be well observable. Fortu-

視赤緯は16°5で、商も夕方の最端は夏で日暮れ が遅いから、効果を上げるには今回の接近は何方 前側しの観測を狙う方が好いたろう。但し、進ん The central latitude (latitude of the sub-Earth

して、アルプス地方の日時計の写真集を繰りながら短い話をして好評だったとのことである。 QUARRA氏からいただいた雑誌にもイタリアの日時計に関しての記事があった。次のサイトに

含まれている。 http://homepage2.nifty.com/~cmomn/Zure3.htm

巻末には筆者のE-mailが、「藤澤だより」として埋草に使われた。

TYA(37)は、CMO#059(10Sept1988)とCMO#060(25Sept1988)からで、 二十年前の1988 年大接近の最接近直前の様子が報告されている。期待された黄雲の発生はなかったが、南極冠 の縮小に伴って、Novus Monsの分離の瞬間が捉えられた。臺北滯在中の南政次氏からは、 「臺北再見」など台湾でのエピソードのコラム記事が寄せられた。 村上 昌己(Mk)

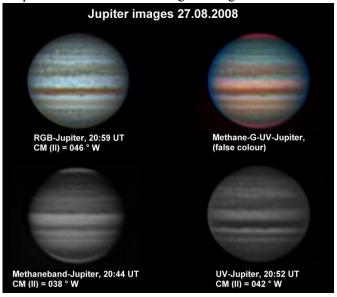
one of them taken in poor seeing. I couldn't just ignore it. Best wishes

Dave TYLER (デヴィド・タイラー Bkh 英)

• · · · · · · Date: Thu, 28 Aug 2008 22:47:10 +0200 Subject: Jupiter from 27. 08.2008

Hi all, last night I had good seeing and average transparency during a short time at the Observatory Zollern-Alb. So I first captured Methane band filtered jupiter images, then UV filtered jupiter images and then a normal RGB jupiter with the 80 cm Cassegrain and my DMK 21AF04.AS.

Jupiter was 18 - 17.25 - high during this time. I am



astonished how clear the UV-Signal was. I never got structures like this before...

In Methane band the cloud belts dont show any disturbances, they look like exact lines.

I generated a false colour image with UV (= blue), green and Methane band (= red).

South is up in my images, the whole northern hemisphere seams to be brighter in Methaneband, there seams to be more haze than in the southern hemisphere. But over the south pole is a very thick layer of bright haze. Does anyone know, if there is a temperature difference between both poles? cs

O····· Date: Fri, 29 Aug 2008 17:29:27 +0200 Subject: Re: R: Jupiter from 27. 08.2008

Hi Lorenzo.

- > Couldn't be the effect of atmospheric diffraction?
- > More blue on south and more red on north.
- > Thanks of your images.
- > Lorenzo

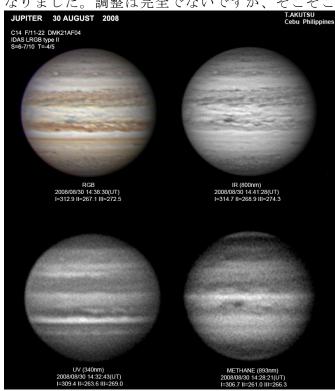
hmmm, I don't belive that. Jupiter has about 42 Arcseconds. The effect is shown half of the planet disk (northern hemisphere). With a colour Webcam (same pixelsize as the chip of my DMK) at the same altitude I see a red line about 1 Arcsecond and a blue line also 1 Arcsecond around Jupiters poles. Thats atmospheric diffraction and can be eliminated easy by moving the red and blue chanels up and down.

The colour channels where taken by single filters with a b/w camera. The effect with more brightness is seen very good at the methane band images, in red channel it is very very very weak... I took a stripe from the methane image from south to northpole, then also a stripe from the red chanel (same CM). Put them together into "cm-compare.jpg". Then I unsharpend the compare, to eliminate smal structures, seen in "unsharp.jpg". The last step was to cut the inner part of my compare, flipp and rotate it "flipped.jpg". Now you can see the effect extreamly good. cs

Silvia KOWOLLIK (シルウ、ィア・コウ、ォッリクLudwigsburg徳)

···· Date: Sun, 31 Aug 2008 12:21:51 +0900 Subject: 木星画像 8月308日 2008

こんにちは、C14CPを借り、木星観測が可能と なりました。調整は完全でないですが、そこそこ



の画像が出るようです。C14の相性はCPにはあま り関係ないようですね。

NEBにはリフト多い。SEBはその後も複雑です。 NTBがくっきりしたベルトで色も鮮やかオレンジ 色です。またよろしく願います

阿久津 富夫(Tomio AKUTSU セブThe Philippines)

• · · · · · · Date: Sun, 31 Aug 2008 18:55:16 -0400 Subject: Labor Day Bonfire

Greetings all, Nice of the sun to host a BBQ on a day off from work!

http://www.avertedimagination.com/img_pages/labor_day_bbq.html

This large prominence was very active, showing much change over a half hour of observing. I hope to make a small animation... in between the hot dogs...

Captured with Little Big Man (my AP 92mm F5 Stowaway refractor with 90mm Coronado Solarmax H-Alpha filter.) Best wishes for a happy Labor Day,

O · · · · · · Date: Mon, 1 Sept 2008 15:56:02 -0400 Subject: Re: 2008 Sept 01 solar limb collage

Excellent sketches Erika! I waited out the poor seeing

for an hour... had one moment of relative stability that allowed one picture:

http://www.avertedimagination.com/img_pages/maythecirclebeunbroken.html Recorded a couple of hours after your drawings, but they agree closely, I think. cheers,

O···· Date: Wed, 3 Sept 2008 22:40:09 -0400 Subject: Re: todays prom

Nice shot Dave... there was very little change by late morning EST, this the only activity on an otherwise placid sun:

http://www.avertedimagination.com/img_pages/calmbeforethestorm.html storms to arrive here tomorrow - just in time for Black Forest Star Party... ugh!

O····· Date: Mon, 15 Sept 2008 09:09:45 -0400 Subject: Re: Solar Images 14th Sept

Hi Dave, Nice work! I haven't had much success capturing photosphere granulation, but I would think the foreshortening at the limb would cause a change in resolution as shown in your image.

We had a bit of clearing here before the arrival of the remnants of hurricane Ike (50 mph winds after the storm had traveled more than a thousand miles over land!) The prominences were small, but a couple showed character nonetheless:

 $\label{lem:http://www.avertedimagination.com/img_pages/harvest_sun.html $$ $$ http://www.avertedimagination.com/img_pages/harvest_sun_proms2and3.html $$ best wishes,$

Alan FRIEDMAN (アラン・フリート マン Buffalo NY美)

• · · · · · · Date: Mon, 1 Sept 2008 00:58:20 +0200 Subject: Jupiter Aug 28/29

FYI. See attached.

Jim PHILLIPS (ジム・フィッリプス SC 美)

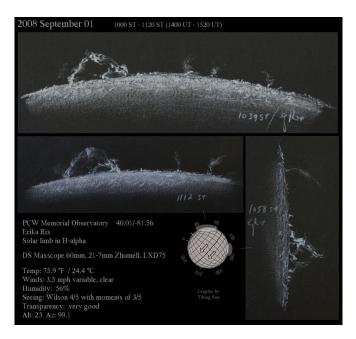
• · · · · · · Date: Mon, 01 Sept 2008 15:45:59 -0400 Subject: 2008 Sept 01 solar limb collage

It was a good day. I shared some solar views and was repaid with lunch!

After having walked the dogs up the road and through some fields first thing this morning, the skies were clear and I was looking forward to observing. I dragged the LXD mount outside in front of the observatory to see if the seeing improved. I didn't set it back up inside to compare with, but I was a lot cooler, which in turn made an improved comfort level temperature wise. The downside was moving all my gear outside, putting up with a little wind, and observing on a slope. The views were worth it.

Half way through the session, my neighbor honked when she drove up the road to her house, so when I was finished with my sketches, I called her to see if she'd like to come down and have her first look at the sun through a telescope. Paul came down to join us and we had a really enjoyable time. He just came back from imaging the Sun with the Maxscope so I'm looking forward to comparing our views. His session was a few hours behind me, so I reckon there will be a few changes.

Being the thoughtful person that she is, our neighbor came back from her solar session with lunch for Paul and



me.

O····· Date: Mon, 01 Sept 2008 16:43:41 -0400 Subject: Re: 2008 Sept 01 solar limb collage

Alan, that's a wonderful image! Thanks for sending it and for a chance to compare my sketches against it.

All the best.

Erika RIX (エリカ・リックス Zanesville OH 美)

• · · · · · · Date: Tue, 2 Sept 2008 23:40:15 +0200 Subject: Re: CMO#349

Dear Masami, It has been a pleasure to contribute in your project. I will be ready for next Mars apparition although our distance to War God will be quite higher than in 2007. I will gladly continue sending my pictures to CMO. Thanks for your efforts and continue that way. Best Regards,

Pepe GÓMEZ (ペペ・ゴメス Sevilla 西)

• · · · · · · Date: Fri, 05 Sept 2008 09:44:29 -0400 Subject: non-title

Dear Masatsugu, How are you? Your CMO is doing well, and I thank you for continuing to send it to me. I read the CMO and enjoy seeing some real international cooperation.

As I perhaps mentioned earlier, I have been slowed down considerably by Parkinson's disease. That is a neurological ailment that a long time ago was called "shaking palsy." The condition was diagnosed a year ago, but I had some symptoms for a long time before that. In spite of tremors and slowness and clumsiness, I have managed to continue to work for five years after retirement. Co-workers, who I love like family, have been very helpful and understanding. New, stronger medicine has largely controlled the symptoms, giving a respite, a sort of "Indian summer" that is very welcome. The long term prognosis, unless there are medical breakthroughs, is not good. ...

David graduated from college last spring, Summa cum Laude, and now works for the government. He still loves everything Japanese. Tyler is back in school and doing well. Grandson Max is talking, a lot.

Perhaps the next time we pass near Mars, if I cannot observe, I will introduce you to more good observers like Tatum and Dickenson and so be good friend of the CMO. Best wishes,

Sam WHITBY (サミュエル・ホイットヒ、イHopewell VA美)

••••• Date: Sun, 7 Sept 2008 20:09:40 +0200 Subject: Jupiter, 26 august 2008

Hi all, Just a set under mediocre seeing, there have been two relatively good nights that week but I did miss them. http://www.astrosurf.com/pellier/J080826-CPE

O····· Date: Sun, 14 Sept 2008 16:33:07 +0200 Subject: Uranus 12-13 september 2008

Hi all, here are some Uranus images. Seeing was fairly good.

http://www.astrosurf.com/pellier/U080912 13-CPE

Although the disk is obviously not circular, nothing especial is to be noted. The IR image may record a small brightening of the SPR (bottom right), in coherence with the many observations made those past years, but so faint that I prefer abandon any further comment! Best wishes,

Christophe PELLIER (ク リストフ・ペ リェ nr Paris 法)

• · · · · · · Date: Sun, 14 Sept 2008 12:31:19 EDT Subject: Re: Uranus 12-13 september 2008

Excellent Chris! We are still viewing Uranus nearly edge-on. Therefore, both polar regions are still difficult to see since they are at extreme position along the edge of the disk. So far, the NPR is tilting slightly toward us by 3 degrees.

I have posted my images of Uranus on Sept. 1st and Sept. 11th, 2008 under average seeing. Note that North is at top and west at right to avoid confusion.

http://hometown.aol.com/frankj12/uranusindex.html More later...

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

• · · · · · · Date: Sun, 14 Sept 2008 20:18:33 +0100 Subject: Jupiter images

Hi, here is the result of my Jupiter campaign this year. http://www.astrosurf.com/pcasquinha/jupiter2008.htm

My best regards to you all

Paulo CASQUINHA (パウロ・カスキニャ Portugal 葡)



ときどき歳時記

秋の名月(九月十四日)は横 浜ではまだ明るい空の薄 雲の切れ間から顔を覗か

(4) ◆後の月◆今年の中

せた「あかあかや月」であった。最近では中秋の名月は満月前のことが多く、陽が沈んでから「月白」に始まる盆のような月がぬっと出てくる様はなかなか見られずにいる。では同じ早出の月ならば十三夜という「後の月」は如何であろうか。今年は十月十一日土曜日である。

松尾芭蕉は貞亨五年(1688年)八月十一日四十五歳にして、更科の姨(姥)捨山で中秋の名月を見ようと旅に出ている。「・・・ことし姨捨の月見むこと頻りなりければ、八月十一日美濃の國を立ち、道遠く日數すくなければ、夜に出て暮に草枕す。思ふに違はず、その夜更科の里に至る。・・・只哀れふかき山の姿なり。「慰めかねし」と云いはむも理り知られて、そべろに悲しきに、何故にか老いたる人を捨てたらむと思ふに、いと、涙落ち添ひければ、

[『更科紀行』では「俤や・・・」。「慰めかねし」 は古今集「わが心なぐさめかねつ更科や姨捨山 に照る月を見て」(讀人知らず)による。] 芭蕉の執念も見事だが、どれほど美しい月であったか、十六夜まで去りがたいほどの心情が溢れている。

その後江戸に戻った芭蕉は、「十三夜の月(陰暦 九月十三日の月)」を芭蕉庵で迎える。

「仲秋の月は、更科の里、姨捨山に慰めかねて、猶哀れさの目にも離れずながら、長月十三夜になりぬ。今宵は、宇多の帝のはじめて 韶 を以て、世に名月と見はやし、後の月、あるは二夜の月など言ふめる。」

この時詠んだ句が

木曾の痩せもまだなほらぬに後の月 芭蕉

である。長旅の疲れもまだ癒えぬというのに、 まだかの月を懐かしんでいるのである。

「後の月」の起源は宮中の儀式としては村上天皇(926-967)の頃という説もあるが、芭蕉も書くとおり、宇多天皇(867-931)の代からと言われるのが一般的である。[『中右記』(中御門右大臣藤原宗忠の十一世紀から十二世紀にかけての日記)に「是寛平(宇多)法皇、今夜名月無雙之由被=仰出-云々、仍我朝以=九月十三日夜-、爲=名月之夜-也」とあるのによる。]

このときの芭蕉庵の「後の月見」は更科の「旅寝も忘れ難うて、人びとを招き、瓢を叩き、峯の 世栗を白鴉と誇」ったりする。客人の中には越 人やお隣りの山口素堂も含まれた。[白鴉谷口の栗というのは杜甫の詩に見られる。]

中国由来の中秋節が満月であるのに対して、 後の月が少し満たない十三夜というのは日本人 の嗜好なのだろうか。素堂もそのことを誇る。

遠く南に離れた八重山民謡の一節にも十三夜 月を詠った『月ぬ美しや』という詩がある。

スペー かい 月 ぬ美 しや十 日 三 日 みやらび 女 竜 美 しや 十 七 つ

中秋は「芋名月」(芋は里芋のこと)、後の月は「栗名月・豆名月」とされる。栗は上に見たように芭蕉も言及しているから、当時から知られたことであろう。芭蕉はまた栗名月の際に

えル 靏二虫は月下の栗を穿ツ

という俳諧味のある句も残している(三十七歳『東 日記』)。

豆名月については「和俗また、こよひを豆名 月と稱して、これを菓とする。させる據も知れ ず」(『滑稽雜談』)と所以はよくわからないよう である。芋・栗・豆などは宮中行事とは異なる 農事に基づく民間の習俗との結合ではないかと 思われる。この「豆」は莢豆の中身(大豆)が充実 するころ(「豆引く」「大豆干す」という秋の季語がある)であるが、「枝豆(大豆の若いもの)」にも「月見豆」という別名があって、十五夜に枝豆を供することもある。

「後の月」は地域的に「女名月」「姥月」などと呼ばれるところもあるらしい。

なお、中秋の名月と後の月をあわせて、芭蕉も言うように「二夜の月」といい、どちらか片方しか見ないのは「片見月」または「片月見」といって忌み嫌う。しかも同じ場所で見なければならぬようである。つまるところ芭蕉も片見月だったことになる。

姨捨山は「冠着山(かむりきやま)、旧くは「小 初瀬山(おはつせやま)」が正式名称であり、かつ ては更埴市、いまは千曲市に属している(更埴JCT にその名前はまだ残っている)。田毎の月でも有 名な姨捨の棚田に映る名月は是非見に行きたい ものである。そう考える俳句同好の士はたくさ んいるようで、思わぬ著名俳人や津々浦々の吟 行集団と鉢合わせしてしまうかもしれない。

ドライブで長野自動車道姨捨SAもよいが、JR 篠ノ井線姨捨駅(無人駅)で芭蕉句碑を眺めるのも 一興であろう。 常盤 優 (常間地ひとみTs)

- シー・エム・オー・フクイ -

一中島 孝 Ni ■

★お知らせ:ながらくCMO編集部でお世話頂いた常間地ひとみさんが今号をもって編集部を退任されることになりました。代わって次号から浅田正氏が編集部に復帰されます。常間地さんは#242号(25_April_2001号)から編集部に在籍され、随想やLtE編集、カットなどでたいへんご活躍されました。編集部を代表してお礼を申し上げます。今後ともLtEやご寄稿など期待いたします。なお、常間地さんからはご退任にあたり、CMOにご寄付(413)を頂戴しました。重ねて有難うございました。不一



Edited by: Masatsugu MINAMI, Masami MURAKAMI, Takashi NAKAJIMA,
Akinori NISHITA and Hitomi TSUNEMACHI

発行 Published by/for: 東亞天文学会 OAA 火星課 Mars Section ☆ Any e-mail to CMO is acknowledged if addressed 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