ISSN 0917-7388

COMMUNICATIONS IN

CMO Since 1986

MARS

No.412

25 July 2013

OBSERVATIONS

No.38

Published by the International Society of the Mars Observers

At Most 5%

By

Masatsugu MINAMI

0° When the present writer (*Mn*) started on his Mars observation career in 1954, Tsuneo SAHEKI, the OAA Mars Section Director at that time, gave *Mn* several advices, among which SAHEKI wrote to him that it would be necessary to observe Mars for a longer term even if the observations are permitted to be carried scarcely or temperately: That is, SAHEKI was of the opinion that it would be better to continue the observations for a long span of periods even if the observations are made sporadically than to watch only for a temporal period even if they could be made done thickly.

And thus the present writer at present considers that any series of temporal observations cannot be said better even if each of them is made thickly during a short moment. Any idle observation system would easily miss an opportunity to catch some important phenomena. However the present writer became to consider, from around the 1980's, that an ideal Mars-observational system must be associated with observers who are resolved to make a continuous series of thickly covered observations extended over many apparitions.

Nevertheless we are always confronted with the fact that the rotation period of Mars is akin to that of the Earth, and also the serious fact of the weather we meet is not necessarily preferable. So even if we are very prepared we should say we are always worried with our rate of successful results in the Mars observations during one apparition as well as extended over our lives.

1° The present writer can recollect distinctly a few phrases of what a president of a Japanese big company said or wrote, though the time when it was delivered is obscure, but perhaps a few decades ago or more: The president was of a Japanese big multinational engineering and electronics conglomeratic company whose headquarter was in Tokyo. It was at that time when the so-called asset price bubble prevailed in Japan with an old constitution in any companies: That is, the

headquarter itself consisted of old-type community in which any social network did not work yet. Since then the company must have changed greatly, and the old fashioned president system has been replaced by a modern CEO system. The company must have so been reorganised, while it remains still big at present, and keeps more than thirty thousands of employees.

We don't know the details, but anyway every year in April, the company can be supposed to accommodate at least a few hundreds of newly employed young staff.

However at that time any president was considered to demonstrate the capacity for leadership and the president must have also behaved as a man of great ability. Furthermore he must have been supposed to be proud of the history of the company and acquainted with it.

Here the present writer wishes to quote an impressive phrase which was given by such an old fashioned president of the big organisation concerning the newly coming company staff who passed successfully the employment examination. He said or wrote, as previously noticed, it was perhaps more than a few decades ago, that, among the new young employees, those who can contribute new ideas and precious energy towards further development of the company, namely those who make full use of their real ability to develop and expand the company in future, must occupy no more than 5% of the whole new members who just passed the employment examination. It implied conversely that the remaining staff of 95% would be nurtured or, as it were, be fed by the precedent 5% part.

The present writer does not think any CEO nowadays would never make such a statement from an elevated and cold position. However, any can feel that from the long history of the company, the statistics of 5% has remained to be held true long in the headquarter. Perhaps in the long history of the enterprise the theorems of the presidential side must have appeared that the 5% part has continued to lay several useful ideas and plans for the company.

Let us assume the population of new comers is 100. Then only 5 younger persons can contribute in future to a rising management of the company by laying several new front plans. Any enterprise may have several departments: some are engaged in projects, blue plans, designs, manufacturing, selling and so on. Each department must be subject to the 5% empiricism.

If any department is destined to have no more than 5% effective employees, that is, only 50 effective employees if the original population is 1,000, one may speculate that it will surely be very economical to make a good choice of the 50 new employees from the outset. However the previous empirical rule is such that if one may choose the above-characterised 5% as the new employees, then, according to the major statistical premise, the new 5% of the original 5% must be the result. That is, if one accepts the selected 50 new employees as the mother population, the empirical law requires that just 2.5 persons out of 50 must be useful.

As a matter of fact, it is impossible to distinguish the final 50 out of 1,000: That is, it is impossible to ascertain 50 and 950. Furthermore, since there is a time dimension, it

is absurd to make such an allotment from the outset. Any employee will change every day, and some new comers may turn to be dull if they first appeared to be up-and-coming, and on the contrary, some may begin to demonstrate rapidly his secret ability as if he suddenly finds himself to be in his element. That is, it is meaningless to find from the first the final 5 out of 100. Some human beings are to improve themselves through friendly rivalry in the community, and thus it needs to take account of the time axis. It may be said that we surely need 95 of the remnants in order to get the five gems.

Nowadays there decreased the persons who swear their loyalty to their employers, and some may try to find some other different ways. We are now in the period of mobile, and the philosophies of companies must have been greatly changed. Hence there may occur some exceptions and the allotment must have been also a bit changed.

Nevertheless the present writer is still of the opinion that more or less the 5% empirical law must get the heart of the matters.

2° Ever since then, in various ways the empirical law of the effective 5% has been on the present writer's mind just like a myth or an axiom. Even personally in private business or enterprise one may conceive many ambitious plans and have high prospects, but it will turn out that out of the plans and prospects no more than their 5% will be successful, even if several of them must have looked to be all successful at the outset.

Furthermore if one succeeds once by one particular strategy in battle or contest or enterprise, he becomes to show a tendency to repeat the same strategy on the next occasion, but the next try would prove to be unsuccessful with a higher probability. Any person of ability will never follow the preceding trial.

The present writer, when he was in active service in the area of mathematical quantum field theory, used to write any scientific paper after stocking several ideas to make a breakthrough, but many of the ideas proved to fail during the study.

By the time he retired (in 2002), he could not have written so many papers partly because he spent much time in the Mars observations: He just published about 50 refereed articles. It is so dubious if there were issued some better articles more than 2.5 pieces. To tell the truth, there is just one article which he clearly remembers: The one that was smoothly written up by the use of the mysterious properties of the zeta functions and the results were well satisfactory to him. It was published in *Progress of Theoretical Physics*, **59** (1978) 1709 with the title: Functional Evaluation of the Dual Partition Functions ---*How Do We "Hear the Shape of a Drum" in Dual Models*---- and can be still read at

http://ptp.oxfordjournals.org/content/59/5/1709.full.pdf+html

During he was writing the article, he met a difficulty, but it was miraculously solved: When he was in the library of the Institute, he found by chance on a bookshelf of magazines a Journal where found was a new paper written by Stephen William HAWKING (1942~) in *Comm. Math. Phys.* **55** (1977) 133 where HAWKING used a fascinating mathematical technique which turned to stimulate the present writer's brain although

HAWKING's treatment belonged to very different branch. Mark KAC (Polish mathematician, 1914~1984)'s famous title "Can One Hear the Shape of a Drum?" influenced the subtitle.

Otherwise, there might be found some papers of which the present writer was proud, but he cannot precisely pin down because they were written about forty years ago. Maybe the following are candidates: *Prog. Theor. Phys.* **52** (1974) 1031

http://ptp.oxfordjournals.org/content/52/3/1031.full.pdf+html

or *Prog. Theor. Phys.* **50** (1973) 2027

http://ptp.oxfordjournals.org/content/50/6/2027.full.pdf+html

We next see some cases of distinguished scholars. First of all we pick out the case of Dr Hideki YUKAWA (1907～1981, Nobel prize winner for physics in 1949): The collected work was published in 1979 just before his death, and so we can look through his whole papers. He wrote a total of 53 refereed papers, and hence if we apply the 5% availability, the excellent papers must be around 3 pieces. However his first paper entitled "On the Interaction of Elementary Particles. I" published in 1935 outstandingly stands from other papers. The prediction of the π meson (pion) was carried out by this first paper, and led YUKAWA to the 1949 winner of the Nobel prize after the discovery of the pion by Cecil Frank POWELL (1903~1969) in 1947.

Among YUKAWA's papers, the present writer feels that the one entitled "Quantum Theory of Non-Local Fields, Part I. Free Fields" in 1950 was very charming, but it was never successful. It was really talked then the following story: Wolfgang Ernst PAULI (called "conscience of physics," Nobel prize laureate in 1945, 1900~1958) cynically said to YUKAWA that Part II of his could never appear. YUKAWA so daringly rushed to write Part II, but unfortunately afterward he confessed that there had been something reckless within II.

YUKAWA engrossed in the non-local field theory after the war, because the usual quantum field theory has a serious defect in the sense it contains the dilemma of the infinity divergence. However YUKAWA cannot be successful every time. It was hence rumoured that YUKAWA first hit a *homerun*, but since then he repeated *three-strikes*. So at present the rate is quite under 5%. However it is not also possible to exclude some possibilities that the non-local assumption may see the light in the future. If it will happen, the yield rate will largely change.

Anyway in the case of the very important persons, it is difficult to evaluate their work. For example, Louis Victor De BROGLIE, prince, puis duc de Broglie (French physicist, Nobel prize winner in 1929, 1892~1987) long lived, but his prominent work with the matter-wave hypothesis was written short, and he perhaps had no other influential papers on physics. (The present writer, otherwise, knows De BLOGLIE's memorial writing about Bernard LYOT (French astronomer, 1897~1952)).

In the case of Kiyoshi OKA (Japanese eminent mathematician, 1901~1978), there were published a set of his whole papers (also in the net) under the title *Sur les fonctions analytiques de plusieurs variables*. OKA wrote about *ten* papers, but each of them has been regarded important, and some other new ideas stemmed from his formalism.

He first solved some unsolved problems which Heinrich BEHNKE and Peter THULLEN issued in their book: *Theorie der Funktionen mehrerer komplexer Veränderlicher*, Springer, 1934. Especially the role of holomorphically convex hull of a domain in the several complex variables is important also in the field of mathematical physics, and so even the present writer used it a few times.

Wikipedia writes on the sheaf (or faisceau) theory as: ・*1950 The "second edition" sheaf theory from the CARTAN seminar: the sheaf space (espace étalé) definition is used, with stalkwise structure. Supports are introduced, and cohomology with supports. Continuous mappings give rise to spectral sequences. At the same time Kiyoshi OKA introduces an idea (adjacent to that) of a sheaf of ideals, in several complex variables.* ・*1951 The Cartan seminar proves the Theorems A and B based on OKA's work, and so on.*

However several are beyond our understanding. The present writer just reports that he once saw a photograph in which Kiyoshi OKA and Jean-Pierre SERRE (1926~) were shot together in a framework. Perhaps it was when J.-P. SERRE, well known leading French mathematician after Henri CARTAN, visited OKA at Nara.

Thus we cannot judge how OKA's several excellent theorems correspond to his about 10 papers. And hence it is meaningless to broach here the 5% law.

3° We close by considering the case of the Mars Observations. In the season, usually we set out to observe the planet Mars if the sky looks preferable. However, the present writer is always resolved before any observation that, including the seeing condition, the conditions will be subject to the 5% availability. In order to obtain the good observations, how much time we should waste? Before setting out to observe, the probability to encounter with the good seeing and observe the planet as much as we like must be around 5%. Furthermore it is more difficult for us to encounter any wonderful phenomenon on the planet.

In these cases, it is supposed that the problem of superiority or inferiority of the instruments is beside the point since the telescopic observation is more or less never flawless. The problem of the instrument is quite static: The problem of the sky is more dynamical. The static condition has nothing to do with the opportunity of encountering with a rare phenomenon.

The following is an episode which the present writer once heard from a student of astrophysics: A senior amateur astronomer whose name was known seemed to employ the following method to take a picture of Mars. He needed the moment of quite a still seeing condition, and so he used to wait patiently the moment to press a shutter even for 5 minutes or ten minutes. It readily sounded absurd to the present writer, while the student looked to admire the astronomer of patience. Is it necessary to observe Mars in such a serious way? As far as the present writer remembers, he has never seen any Mars image taken by the patient astronomer. Even if the patience could have brought a success, one or two images could never have shown any value. Already the method of stacking many images must have been widely known, and hence we instead suppose a set of several images taken within 5 minutes

must have given rise to a preferable image by stacking.

In order for one observation to be meaningful, it must be able to stand any comparison. The meaningful observations will so be produced within the 5% probability. Only one shot image is thus almost meaningless from this view-point.

Eventually any observer in one season will not be able to produce any interesting observations more than 5%. If anyone produces a total of 500 observations, the preferable observations can be yielded no more than 25 observations. As well, in his lifelong observations, the good results will be limited within 5%.

The important point here is that to gain 25 meaningful results, any must practically repeat the observations 500 times. It is statistically impossible to select only the 25 good results even if he is very patient.

Incidentally it should be remarked that the observations every 40 minutes, though originally this was devised to make easy the comparisons, bring a lot opportunities to watch repeatedly the surface of the planet.

The present writer is of the opinion that an excessive adoption of big hardware is useless. To continue the observations for years, the telescope must meet the observer's physical strength. In the case of the present writer, a 20cm or a 15cm refractor seems to be fit for him. He once used a 25cm *F*15 refractor in Taipei in 1986 and 1988, but it was quite exhaustive for him to treat the longer refractor for longer term observations.

In 2005, the present writer was allowed to use the big 90cm refractor at the Lick Observatory. Its big hulking tube was to be always helped by someone, and it was not suited for a personal long term observations. The object lens was clear because it had been re-polished and cleaned perhaps in the 1980's. Even though, it was being used after it was stopped down to 50cm aperture. The present writer observed Mars for about three weeks at Lick by the use of the big barrel, but he did not meet any brink of astonishing image of the Martian surfaces.

In 2003, the present writer stayed several months in Okinawa, and had several successful results. Telescopes used were, thanks to Tetsuo WAKUGAWA and Isao MIYAZAKI, a 25cm Newtonian or the famous 40cm Newtonian both of which were well manipulated. Some are dubious about the WAKUGAWA mirror, but to the present writer the images gained by the 25cm speculum were always satisfactory. The present writer was allowed to use also several times MIYAZAKI's famous 40cm machine through the nights, and found some superiority for instance when one tried to check Martian satellites, but on the occasions of usual routine survey of the Martian surface he did not feel so much difference. Since the present writer does not so adhere to the fine structures, there was not raised so much difference in particular for the usual observations.

The present writer thus does not think from his secular experiences that the yield rate is decisively influenced by the difference of hardware.

Rather, as some of dynamical elements, the conditions of the physical strength and of the sky atmosphere must be decisive elements first to be taken into account. □

ISMO 11/12 Mars Note (15)

A Pre-Polar Spiral Cloud at Early Northern Summer

Christophe PELLIER

At the end of May 2012 when the planet was getting farther from the Earth, a few observers imaged an interesting white patch above Mare Boreum. It attracted the attention of the present writer as he knew that this was early northern summer, the season when the HST imaged a now celeb white spiral cloud in 1999 around the same place.

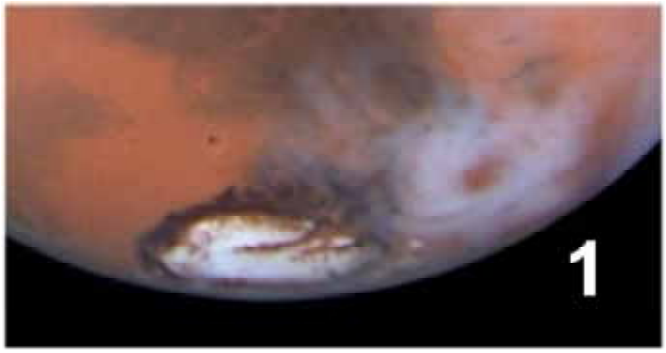

Figure 1: The famous "polar cyclone" observed by the HST on 27th April 1999 (λ =130°Ls)

I - Amateur observation's of the clouds

The cloud has been first clearly imaged by Tomio AKUTSU on 26th May 2012 (λ=116°Ls) and then by Damian PEACH on the 27th, 28th and 30th, Marc DELCROIX also on the 28th. In the succession of images the cloud does not seem to really move; although this does not prove that it is the same day after day.

Each image does not present any specific shape. It can either be because resolution is too low or because the absence of a visible spiral shape is real. The examples of well drawn polar vortices on Mars look to have been observed at least from λ=120°Ls to 130°Ls, almost at mid-summer, and the 2012 season was not well situated to see this. ↙

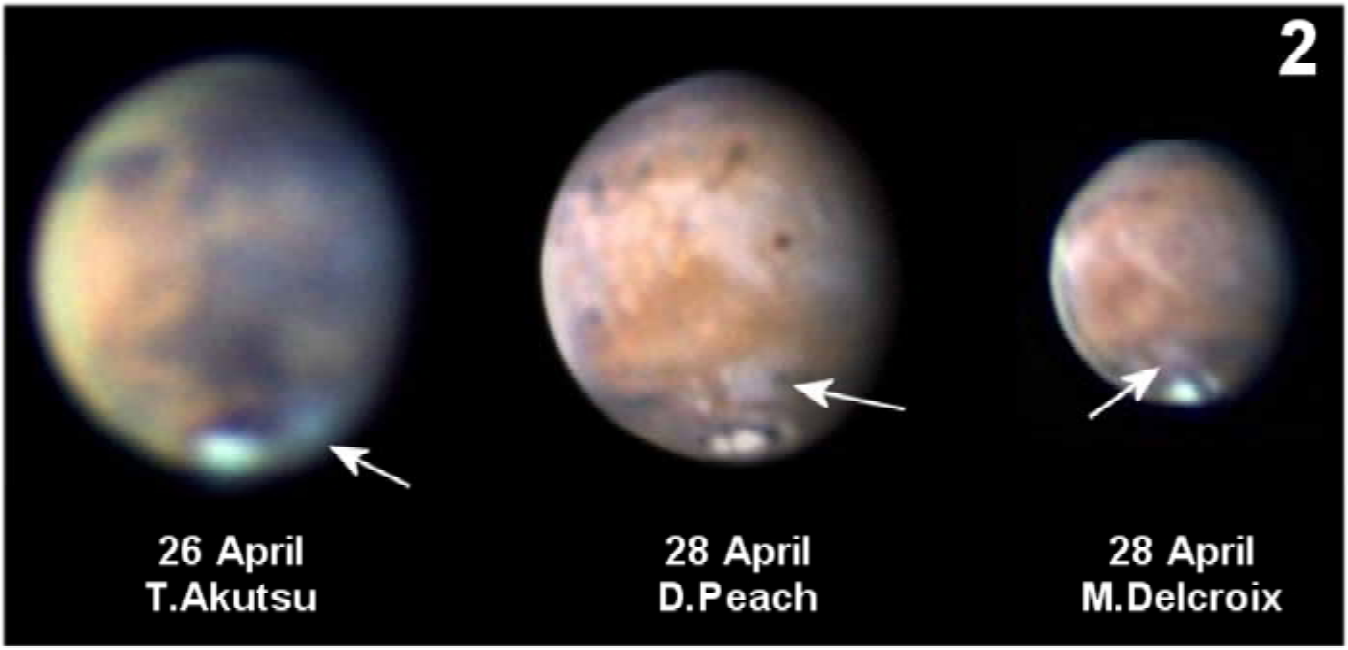

Figure 2: The 2012 polar cloud observed in early northern summer by terrestrial observers.

By reviewing the Ashima Mars Climate Center website (http://marsclimatecenter.com/moc_data.php) though, it seems that polar clouds are forming first around λ=110°Ls~120°Ls while they only weakly reach a vortex shape. The clouds observed in late May 2012 by amateurs surely belong to this category. Maybe the vorticity only becomes strong enough around λ=130°Ls to shape the clouds in a typical cyclonic aspect.

II - "Polar Cyclones"?

The expression "polar cyclone" has been used sometimes to describe the spiral cloud observed by the HST in 1999. It should be understood

as the generic term - in meteorology, a cyclone can cover all kind of existing low-pressure systems, but the word is also commonly used, alone, to designate the specific *tropical cyclones (or hurricanes)*. In the case of Mars however what we are observing certainly do not compare with those strongest storms on the Earth, despite the visible presence of an "eye", for the lack of some keys elements like thunderstorm activity (the eye must not be encircled by the typical "wall" of giant cumulonimbus). And, there is no ocean on Mars: the warm and humid tropical maritime air that plays a big role in terrestrial tropical cyclogenesis is not known. So perhaps the expression "spiral cloud" may be more neutral if we want to clearly speak.

The hunt for polar white spiral clouds like in 1999 will be a highlight of the coming 2014 aphelic apparition. The next opposition will cover the period quite nicely, with the λ=130°Ls season reached on 12th May 2014, while the disk diameter will be at 13.7", almost the biggest 2012 diameter. During the corresponding aphelic apparition of the last 15 years cycle (28th April 1999), such clouds have been imaged both by António CIDADÃO and the Alma-Ata Observatory in Kazakhstan, but the resolution of the time did not show neither the shape nor the eye of the cloud system. In 2014, some of us will achieve this goal. □

Letters to the Editor

●・・・・・・*Subject: request for information: L. E. Lopez*
Received; 2 June 2013 at 01:39 JST

Dear colleagues, I received the following communication from Dr. Brad Smith, Chairman of the Mars Task Force of the IAU Working Group for the Planetary System Nomenclature. His note is self-explanatory. Do you have any information about Lopez? I have seen a copy of *El Planeta Marte* and it's really quite a remarkable piece of work, but I don't know anything about him.

Let me know if you can help. Best,

Subject: L. Elpidio Lopez

Dear Dr. Sheehan, This is a long shot, but I thought I'd give it a try. Many years ago the late Charles "Chick" Capen suggested Elpidio L. Lopez as a name for a crater on Mars. I have never been able to find published biographical information about Lopez, a requirement for our IAU database. He seems best known for his book "*El Planeta Marte: 1907-1956*" published in 1963 by Imprenta Aldina, Mexico, D.F. However, that is all I have found about him.

Might you know of any biographical information about him? Chick Capen was a close friend of mine (an excellent visual observer of Mars himself) and apparently thought very highly of Lopez.

Many thanks for any help you might be able to provide.

Brad SMITH
Chair, Mars Tsak Group
IAU Working Group for Planetary System Nomenclature.

○・・・・・・*Subject: Re: Pickering for CMO/ISMO*
Received; 29 June 2013 at 04:16 JST

Dear Masatsugu, I would certainly like to write something like that, however, I can't promise; I've just quit my position at the Child and Adolescent Unit (basically, after 3 1/2 years of running an inpatient unit, I got rather bored--perhaps burned out is the term--with it), and am working just now with an air of desperation trying to hammer out the final chapters of a book on Galaxies. (I just finished Hubble.)

John Westfall is expecting me to bend my efforts to finishing revisions on the transit of 2012 (including the international Venus Twilight Experiment in which I participated with Paolo Tanga) and so will be pretty much "written out" by July 15. Could I have a postponement to a later issue? Pickering is a rather large subject, and it will take time to pull something together.

Sorry to hear about the macular degeneration of your eyes. This is of course the most tragic outcome for an observer. You are much in my thoughts. Best wishes,

○・・・・・・*Subject:* ***Mars Classics***
Received: 2 July 2013 at 04:02JST

Dear Masatsugu, I have been asked by U of Arizona Press to put in a proposal for a revised edition of *The Planet Mars*, my 1996 book. Of course, a lot

has happened since then, and it's a bit intimidating to think of doing this; but I probably shall try to do it.

I wonder if you could round up classic articles you have published over the years that I could digest and summarize in the new edition of my Mars.

I realize sadly your health is no longer something we can count on, and would like to make sure your great work is not lost. This would be more useful than my writing up something on Pickering. Could you begin to publish in CMO for our sake a *ten best* or *twenty best* articles of MM, which we can put into booklet form and draw on for the ages?

Much obliged, Ever,

Bill SHEEHAN (Willmar, MN)

●・・・・・・・*Subject: Re: Re: Re: ISMO 2012*
Received; 13 June 2013 at 21:57 JST

Dear Masatsugu, No problem. The article is almost ready as I had written it first for CMO 410. I will send it tomorrow.

This is a bad news, for your eye: the left one is still safe ?? We have experimentated the coldest spring since 1987 in France (May was especially fresh); June is a bit better but not that much... rain rain and rain again. Best wishes,

PS: Reiichi, Reiko and I will visit the optical workshop of the SAF at La Sorbonne. I don't think you saw it when you came in 2009 for the IWCMO ?

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Message du : 13 juin 2013 à 11:35
Sujet : Re: Re: ISMO 2012

Dear Christophe, I heard from Rei-ichi just before he departed to Paris that he and his better-half were going to meet you on 15 June at St-Michel somewhere. I hope you will enjoy a nice rendezvous with them. I suppose they at present are spending their times in visiting many splendid Art Museums in Paris. Especially I hear his wife is fond of arts.

By the way, I hope you are preparing an opening essay for #411 about the pro/ama collaboration in planetary observations. Officially its dead line is within 15 June. I expect we will receive your interesting essay with some photographs soon. I have just begun to make a layout of #411.

Here in Japan it has become warmer. I disliked the cold situation especially this winter, and so it is better for me. However I have a trouble on my right-eye; maybe I am losing it.

Thank you very much for your kind collaboration concerning the CMO. With best wishes

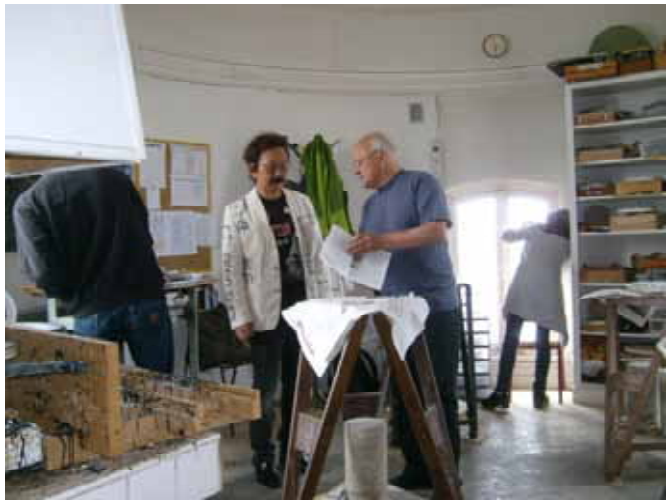
Masatsugu

○·····*Subject: Re: Got home*
Received; 19 June 2013 at 07:36 JST

Dear Reiichi, I'm happy to learn that you safely reached home! It has been a pleasant day with you and Reiko. I have enjoyed as well the visit to the Sorbonne Observatory; the site is really splendid.

I have attached a few photos.

I had not good weather to test the eyepieces you



offered to me, but this week-end I'm going to visit my parents to give them their present :)

Best wishes,

○・・・・・・***Subject: Next note for ISMO***
Received: 28 June 2013 at 04:01

Dear Masatsugu, I will be able to write a note for a coming issue of CMO (#412, or later if there are things scheduled already). It will talk about the white patch observed south of the NCP at the end

of 2012 May (see *DPc* images). I believe, although the article should not be able to conclude, that they are precursory patches of the famous polar cyclones.

It will be however my last note - I'm short of ideas, and I will need time to prepare the EPSC of September and other astronomical projects... although I will keep on thinking of course.

Best wishes,

Christophe PELLIER (Nantes, FRANCE)

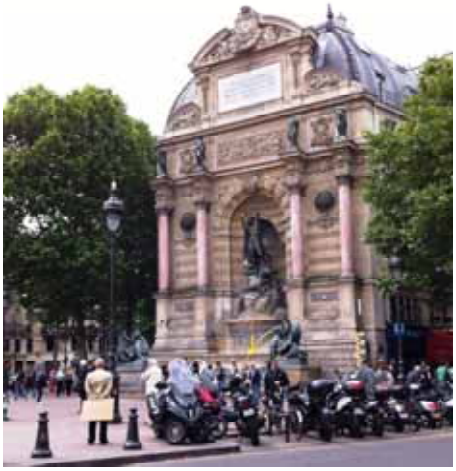
●·····*Subject: Got home*
Received; 18 June 2013 at 22:58 JST

Dear Christophe, After 10 hours of comfortable flight from Paris to Tokyo, followed by 80 minutes Bullet Train trip, then 40 minutes driving, we have just reached home now.

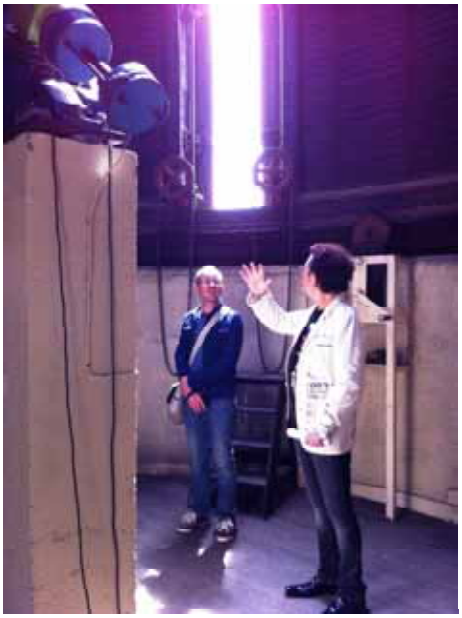
It was a great pleasure for us to finally meet you in person in Paris! And we can never thank you enough for giving us a privilege of visiting the Sorbonne Observatory, the beautiful 15cm refractor dome, and the optical workshop of the SAF which must not usually be opened to the public.

When I was home, I found your opening essay for CMO #411 has already reached me. I'll be starting on a translation of it soon. Thanks again, with Best Wishes,

Reiichi and Reiko KONNAï (Fukushima, JAPAN)



15 June 2013 Recognizing Christophe PELLIER at 100m distance, at Place Saint-Michel



15 June 2013 Christophe PELLIER and Reiichi KONNAÏ talking about the 15cm refractor at the Sorbonne Observatory

☆ ☆ ☆

Ten Years Ago (219)

----***CMO #274 (10 July 2003), #275 (25 July 2003)*** ----
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn3/cmo274/index.htm
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn3/cmo275/index.htm

From July 2003 for a while, the CMO was published twice a month. CMO #274 (10 July 2003 issue) contains the 9th CMO 2003 Great Mars Report which dealt with the fortnight period from 16 June 2003 (λ=204°Ls) to 30 June 2003 (λ=213°Ls). Within this period on 23 June, one of us (*Mn*) moved to Okinawa where the rainy season just ended, and *Mn* constructed an observation site with a help of ISHADOH (*Id*) and WAKUGAWA (*Wk*) on the rooftop of a 9 storied building at Ameku, Naha City. Though a

bit windy, the sky of the place continued to be fine. During the period the planet moved inside Aqr, and it was possible to catch Mars after midnight. The season proceeded from λ=204°Ls to λ=213°Ls, and the apparent diameter increased from δ=14.4" to δ=16.5". The tilt was staying near at φ=21°S. The phase angle was ι=41° to ι=37°: the defect of illumination a bit shrank.

As the angular diameter increased, the number of our observers increased. During the fortnight 31 observers joined with 189 observations: Domestically 8 observers joined with 81 observations, from Europe 7 members with 30 observations, from America 11 observers with 60 observations, and from Asia and Oceania we received from 5 observers with 18 observations. In order of the observation number, *Mn* (with 50 drawings), Tomio AKUTSU (*Ak*), Jeff BEISH (*JBs*), Silvia KOWOLLIK (*SKw*), Eric NG (*ENg*), Don PARKER (*DPk*), Christophe PELLIER (*CPl*) and so on.

The report picked out several phenomena and reviewed. Especially described was the dust hazy disturbance which occurred on 21 June (λ=207°Ls) at the eastern coast of Syrtis Mj and especially at Isidis Planitia. Otherwise detailed were the morning and evening mists as well as yellowish mist, the evening haze at Aeria, haze at Iapygia, the inside of Hellas, the area around Solis L, the clear and broad appearance of Orestes, the white cloud at Arsia, the shadowy markings and the perimeter of the spc, the nph and so on.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn3/274OAA/index.htm

LtE consists of the emails received from 37 persons during the period 25 June~9 July 2003. Domestically we received from Tomio AKUTSU (Tochigi), Tadashi ASADA (Fukuoka), Hiroshi ISHADOH (Okinawa). Tohru IWASAKI (KitaKyushu), Teruaki KUMAMORI (Osaka), Isao MIYAZAKI (Okinawa), Yukio MORITA (Hiroshima), Mitsuru SOMA (NAO, Tokyo), Miyuki UMEDA (Fukui City Museum of Natural History), Tetsuo WAKUGAWA (Okinawa), Yasuo YABU (General Secretary of the OAA, Shiga). From abroad we heard from Don BATES (TX, the USA), Jeff BEISH (FL, the USA), Bob BUNGE (MD, the USA), Brian COLVILLE (Canada), Tom DOBBINS (OH, the USA), Martin GASKELL (NE, the USA), Ed GRAFTON (TX, the USA), David GRAHAM (the UK), Carlos HERNANDEZ (FL, the USA), Silvia KOWOLLIK (Germany), Paolo LAZZAROTTI (Italy), Richard McKIM (the UK), Frank MELILLO (NY, the USA), Dave MOORE (AZ, the USA), Eric NG (呉 偉堅, Hon Kong), Don PARKER (FL, the USA), K C PAU (鮑 國全, Hon Kong), Christophe PELLIER (France), John ROGERS (the UK), Richard SCHMUDE, Jr (GA, the USA), Bill SHEEHAN (MN, the USA), Clay SHERROD (AR, the USA), Maurice VALIMBERTI (Australia), Erwin Van Der VELDEN†(Australia), Sam WHITBY (VA, the USA), and Ferruccio ZANOTTI (Italy).

Next, in CMO #275 (25 July 2003), the 10th CMO 2003 Great Mars Report treated the fortnight period from 1 July (λ=213°Ls) to 15 July 2003 (λ=222°Ls).

In Okinawa, *Mn* was endowed with a fine sky every night and he obtained a total of 105 drawings during the fortnight. Furthermore a prominent dust cloud occurred during the period. The planet was still in Aqr, and it came up to the meridian at dawn.

The Martian season proceeded from λ=213°Ls to λ=222°Ls, and the angular diameter augmented from δ=16.7" to δ=19.2", which already implied the season was at its height. The tilt still kept φ=21°S, and the phase angle was from ι=37° to ι=32°. The spc became smaller with the snow line at around 60°S ~70°S. The opportunity where δ is over 19" looks rare: with cases in 2001, 2003 and 2005, and then we must wait until the 2018 apparition.

The observers increased to 44 persons (with 361 observations): Domestically 10 observers joined with 153 observations, from Europe we received from 14 observers with 81 observations, from the US 15 observers joined with 92 observations and from Asia-Oceania 5 persons submitted 35 observations. From *Mn*, *JBs*, *SKw*, KUMAMORI (*Km*), *ENg*, *DPk*, *CPl*, Clay SHERROD (*CSr*), and WAKUGAWA (*Wk*), we received observations of two figures. At the main islands of Japan, the rainy season still continued.

Report started from the description of a distinguished Noachis dust cloud which occurred on 4 July (λ=215°Ls). On the day, the hazy germ at Iapygia was claimed to be expanding to southern west as observed in the US. Several hours later it was clearly observed by ISHADOH (*Id*), MINAMI (*Mn*) and MIYAZAKI (*My*) at Okinawa that a furious dust cloud had been formed at Deucalionis R and clearly curved down to cut the dark pipe of S Sabaeus into two, and the root of the dust was at the area of M Serpentis. One point to be especially remarked is the fact S Sabaeus on 4 July was clearly brownish, implying that the clear brownish part is under a high pressure part and the dust on the surface had been blown up to the location of the dust cloud (low-pressure part).

The dust expansion in Noachis was chased for several days and it was observed how the dust rose, deformed and weakened from Japan. It was observed that these variations are not continuous, but a latent dusty element must be renewed every Martian morning.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn3/Mn_July03Cloud.jpg

As afore-mentioned, some precursory hazy cases were observed since 21 June (λ=207°Ls) at the eastern part of Syrtis Mj and at Iapygia. In July, from the oriental side, it was checked that Achillis Pons showed a yellow streak, and at the east of Nilokeras there was a dust disturbance: These observations were reported in the Façade of our Web Site as Director's Note (DN) (click the URL below).

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmohk/2003ds/dr1.html

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomk/DN1.html

From 5 July, the dust located to the east of Iapygia was still blurred. By 7 July it nearly went out but might have a relation with the Noachis cloud. The Noachis cloud became a large cloud sea and looked to have expanded to Hellas inside which Hellespontus varied strangely every day. On 8 July the dust cloud looked to have lost the power to re-organise. However, afterward the surface including S Sabaeus became slightly dirty.

Report further describes about several characteristic points: The extension of M Serpentis, Rima Australis inside the spc, Novus Mons, Argenteus Mons, Parva

Depressio, an interesting ejection on 4 July from the perimeter of the spc, the white cloud at Arsia Mons, the shadowy rim of Olympus Mons (being a dark spot), the area around Solis L, Argyre, the area of M Cimmerium, the area of M Sirenum, Elysium with the a fine structure in the area, the dark Trivium Charontis and so on.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn3/275OAA/index.htm

In LtE the emails are recorded from the following 44 persons during the period from 10 July to 24 July: Domestically from T AKUTSU, T ASADA, H ISHADOH, T IWASAKI, T KUMAMORI, Y MORITA, Kunihiko OKANO (Tokyo) and T WAKUGAWA we heard. From abroad, we received from Barry ADCOCK (Australia), Paolo BALDONI (Italy), Don BATES, Jeff BEISH, Nicolas BIVER (France), Bob BUNGE, Jamie COOPER (the UK), Daniel CRUSSAIRE (France), Tom DOBBINS, Mario FRASSATI (Italy), Camilo FUMEGA (Spain), Ed GRAFTON, Alan HEATH (the UK), Carlos HERNANDEZ, Harold HILL†(the UK), Silvia KOWOLLIK, Paolo LAZZAROTTI, Frank MELILLO, David MOORE, Eric NG, Don PARKER, Damian PEACH (the UK), Christophe PELLIER, Eric ROEL (Mexico), John ROGERS, Jesús SANCHEZ (Spain), Stefan SEIP (Germany), Bill SHEEHAN, Clay SHERROD, Elisabeth SIEGEL (Denmark), TAN Wei-Leong (陳 韋龍, Singapore), Maurice VALIMBERTI, Erwin Van Der VELDEN†, Johan WARELL (LPL, AZ, the USA), Sam WHITBY, and Ferruccio ZANOTTI.

TYA #95 was written by Toshiaki HIKI (*Hk*) about CMO #135 (25 July 1993) published 20 years ago. The Martian season already passed and the Report was just concerned with *Mn*'s last observation on 11 June 1993 (λ=091°Ls) and Y MORITA (*Mo*)'s final report. In this season *Mn* secured a total of 838 drawings. *Mo* took 128 numbers of colour images, and 133 B&W images. The LtE of this issue consists of letters from *Mo*, *Mk*, Tohru IWASAKI (*Iw*) and W.-Y. LAI (Taiwan). In an essay, *Mn* wrote about the nursing in hospital at night of his mother who had a heavy stroke of brain infarction in 1991 (and died in 2007). **Masami MURAKAMI & Masatsugu MINAMI**

International Society of the Mars Observers (ISMO)

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CMO #412/ ISMO #38 (25 July 2013)

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