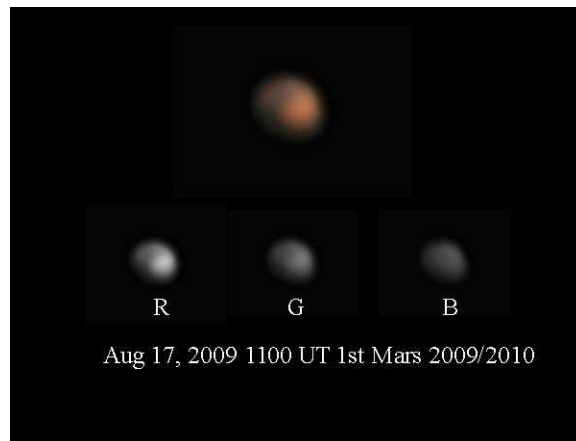




### Observing Mars 2009/2010

Observations of this apparition were accomplished with my recently acquired 12" f/5 dobsonian reflector at magnifications of 250X to 300X using Televue Mars A and B filters. Imaging was accomplished with a Celestron Neximage video cam using 2X and 4X Powermates.



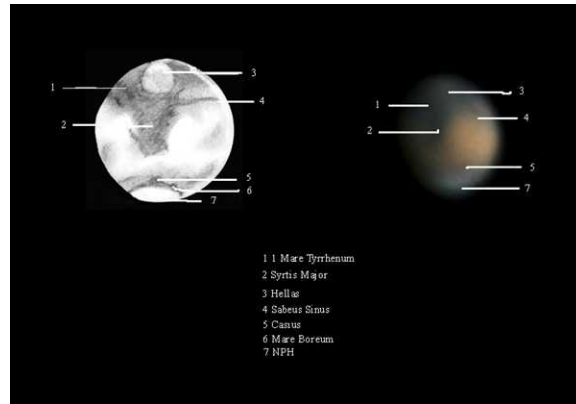
First of the apparition in rather poor seeing with the 12" reflector at 5.5" diameter.

Syrtis Major, Sabeus Sinus and Hellas are visible.

September brought better seeing and at 6 seconds the disk was large enough for drawing, the 12" reflector shows a very nice image at 250X - 300X and much fine detail not seen in previous apparitions is evident even at this small diameter.

October started with cool weather and better seeing and transparency yielding clear and sharp images at disk diameters of more than 6".

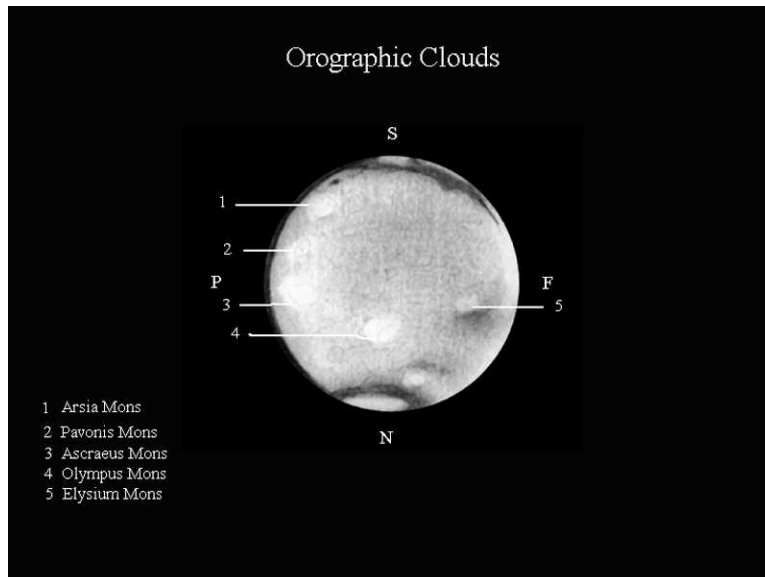
For 3 weeks I was unable to observe due to cloudy, foggy, snowy and rainy weather. Finally on the 25th morning a few hours of fairly clear skies with at least average seeing allowed my first view of a >7" disk. Sabeus Sinus, Margaritifer Sinus and Niliacus Lacus were dark and sharp, the North Polar Hood remained extensive, covering most of Mare Boreum and blending into the limb haze on the morning side.



November was been better weather wise for Mars observing, with a larger disk diameter, the albedo features have been stronger. Towards the middle of the month and past, increasing cloud activity was observed around and south of the North Polar region, extending into Tharsis over Arcadia/Cydonia with a subsequent muting of the local albedo features in the area.

The first 2 weeks of December allowed no observing due to weather, clouds, snow and extreme cold. Observations were made on the 18th and 27th of December allowing sharp visual views of the so-called 'blank' side of the planet. This portion of Mars is the most active for clouds especially around the large Tharsis volcanoes. These were seen distinctly on the 27th as discreet bright areas in the correct locations. Thin high cloud prevented good imaging but was perfect for visual observing.

Allowing for the variable weather of November and December, this apparition has provided some insight into the northern part of the planet and it's weather. Scant short lived dust activity was noted early in the northern spring. I look forward to close approach and opposition in January 2010.



#### Mars January 2010

January 2010, close approach and opposition; Weather is a complete turnaround from the last 2 months with many observing opportunities. Also putting the scope on wheels has made for faster and easier setup and tear down. Many clouds have been

seen, mostly orographic over the major volcanoes.

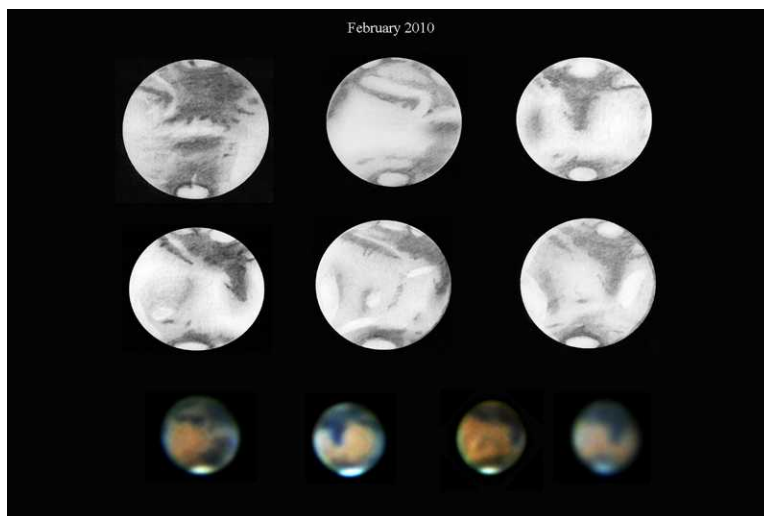
Features well seen this time: Hyblaeus Extension, Gomer Sinus, Mare Tyrrhenum, Mare Cimmerium, Elysium Mons and surrounding area.



View at 300X with TeleVue Mars 'A' filter.

Close approach on January 27th highlighted orographic clouds over the Tharsis region, as well as cloud over Mare Boreum and Mare Sirenum.

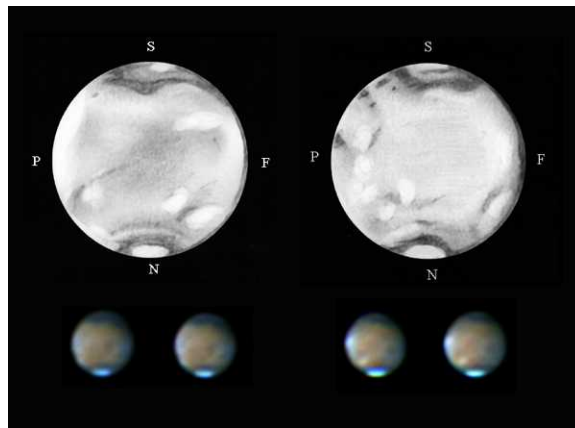
February started with the nasty January weather and then moderated to warmer, clearer nights allowing some detailed observations and imaging to be done. Some cloud activity has been noted over Mare Acidalium and along the border of the North polar cap which is much larger than shown by the simulators. The South polar region has remained shrouded in cloud or frost.



From the middle of the month towards the end, better weather enabled more quality observations. Martian weather has been most interesting with more cloud activity over the Northern hemisphere in the observed regions. As well, dust activity was noted around and onto the North Polar Cap. Mars' favorable evening position allowed more sessions although high cloud and fog continued to affect transparency.

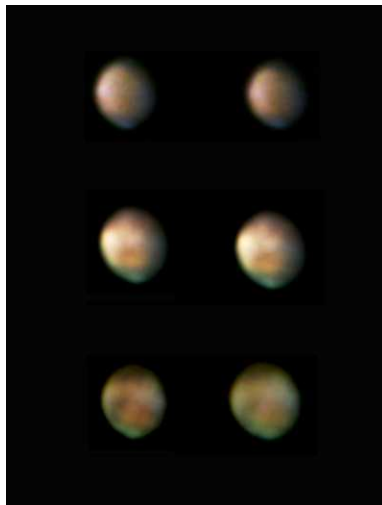
Some clearer skies in March allowed some very interesting images and drawings to be made. Some evidence appears to support circulation of Mar's atmosphere around the North Polar Cap with suspended dust and cloud streaks around the border of the cap in both images and drawings. Orographics over the Tharsis volcanoes were evident on all observations of this area.

Further to dust around the cap, observations on March 13th reveal an interesting streak at about the location of Chasma Boreale that had a reddish tinge. Subsequent observation indicates not just the location of this feature but that it may be acting as a channel for dust to deposit on the cap with the circular polar winds.



April has seen the red planet diminishing in size rapidly as we draw away along our orbit. The atmosphere of Mars has become much more cloudy with the melting of the North Polar Cap which is reduced in size almost to the permanent ice cap of summer. Clouds were particularly noted in the volcanic province of Tharsis, around the slopes of the mounts and extending over Lunae Lacus and the northern portion of Mare Acidalium

It has become very difficult to visually observe the planet as the diameter below 8.5" requires high magnification that is not usually supported by the seeing associated with our spring weather.



This apparition, we were monitoring Mars for the following:

- 1 Changes in shape and size of the polar cap(s)
- 2 White clouds and frosts
- 3 Changes in both shape and intensity of albedo features from previous apparitions
- 4 Orographic clouds over the large volcanoes.
- 5 Dust storm activity

How did we do?

- 1 The North polar cap was observed to shrink with the progress of the Martian northern spring. More of Mare Boreum and adjoining regions were revealed with the demise of the North Polar Hood and visualization of the edge of the actual polar cap. Almost at the end of the observing season, Chasma (Rima) Boreale was seen along with some dust activity south of and in the canyon.
- 2 White clouds and frosts in the vicinity of the NPC, along the following limb as morning phenomena, also in the south polar region. Confirmation of this was difficult due to the foreshortening of this region as it is tilted away from our line of sight.
- 3 Changes in both shape and intensity of albedo features from previous apparitions was not observed, features remained almost the same as observed in the 2007/2008 apparition. This is probably due to the fact that although there were some localized dust events, there were no major storms that engulfed major albedo features. The Hyblaeus Extension and smaller areas in the Tharsis/Solis Lacus regions were well defined. The region between Margaritifer Sinus and Aurorae Sinus was seen clearly on a number of occasions and the Indus bridge between Margaritifer Sinus and Niliacus Lacus was also apparent. Changes in the Solis Lacus region were difficult to assess again due to foreshortening. Syrtis Major, Mare Tyrrhenum, Sabeus Sinus, and Sinus Meridiani were quite dark and though foreshortened, Mare Serpentis, Syrtis minor, Huygens and Edom were easy. Hellas and Argyre remained as limb features throughout the apparition.
- 4 Orographic clouds over the large volcanoes were observed over Arsia Mons, Pavonis Mons, Ascraeus Mons, and to a lesser extent, over Olympus Mons. These were bright, discrete from one another and obvious from the beginning of February on.
- 5 Dust storm activity some minor localized activity was noted over Elysium Mons and surrounding territory as well as continuing dust activity skirting the edge of the NPC and on one occasion, intruding onto the cap. No Major storms were either observed or expected.

Conclusions:

In summing up, this was not the most favorable apparition of the Red Planet for recent years, however much was seen due to the high declination of the planet. Weather patterns are beginning to be understood by this observer and the progression through the Northern Spring was especially apparent. The most detail seen was of course in the Northern regions as the majority of the most familiar albedo features were tilted away from our line of sight and thus appeared very foreshortened compared to previous apparitions.

The Instrumentation used for this observing campaign was of much larger aperture than I have previously used and proved the adage that "aperture wins". Subtle features and colors of various clouds as well as variations in the desert areas were observed in far more detail than was previously possible with smaller telescopes, many time some of the larger impact structures hovered on edge of visibility in good seeing. This was something I had not experienced before. This was a very much a learning experience for myself, much more than at closer approaches of Mars. Even with less than ideal weather, it was an enjoyable and educational experience.

Further details of observations, equipment used, drawing and imaging methods can be read on my website at <http://www.spacealberta.com>

Clear Skies!  
Denis Fell