

Mars and Messiers II

Telescope: **FOA-60** (60/530mm doublet)

Eyepieces:

ATC40 - ATC Kellner, $f=40\text{mm}$, ($13\times$, 3.1°)

XF12 - Pentax, $f=12\text{mm}$ ($44\times$, 1.4°)

XF8.5 - Pentax, $f=8.5\text{mm}$ ($62\times$, $57'$)

XO5 - Pentax, $f=5.1\text{mm}$ ($104\times$, $25'$)

O-4 - CZJ ortho, $f=4\text{mm}$ ($133\times$, $19'$)

Time: 2018/09/08 19:20-21:12UT

Location: Ríčany

Weather: Very good transparency.

Seeing: Near horizon good, Ant. III.

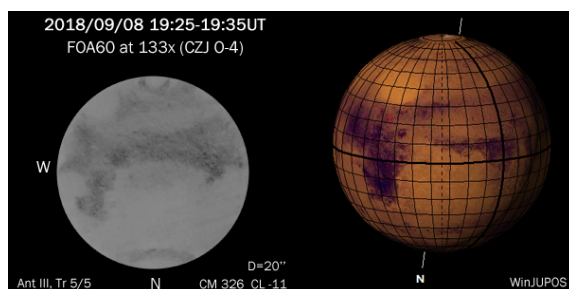
Mount: Zeiss T1

Accessories: Baader 1.25" zenith prism



Mars atmosphere is getting clear and it has still a respectable $20''$ diameter. If seeing cooperates, a rare event from $N50^\circ$ latitude for such low laying targets as Mars, the view is full of detail even in humble 60mm aperture. September 8 was such a night. On top of it, transparency was very good as well, at least in the beginning of night. This is even more rare combination and it was calling for extensive DSO session.

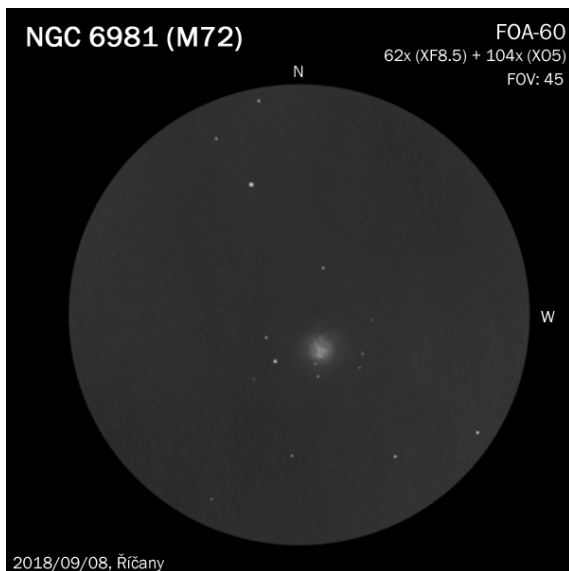
I started observing Mars at power of $104\times$. The view was so sharp that I overcame my laziness and went home for 4mm eyepiece to pump the power to $133\times$. It is much more relaxing to observe under steady atmosphere and the sketch went rather quickly as it was much easier to locate observed features. Now the challenge was not to observe and recognize the major albedo features, which would be my typical Mars session, but to try to put on the paper the fine texture teasing my left eye as it was popping in and out on these darker areas.



As the sky was really good, I decided to try something crazy - look for Barnard's galaxy **NGC 6822** ($9.9v$, $16' \times 14'$, $PA5^\circ$). I never saw it from our backyard and this night was not an exception. At least, I paid a short visit to nearby planetary nebula **NGC 6818** ($9.3v$, $22'' \times 15''$). I could recognize it already at $13\times$ due to its slightly green-bluish color. Power of $133\times$ revealed slightly irregular disc with a hint of central darkening.

Next targets on the list were two Messier objects in Aquarius, M72 and M73. I started my search in beautiful star field that I never miss to visit with my wide field telescopes on any occasion. I could fit both wide pairs, α_{12} and β_{12} Cap into one field of view. And what a view it was. Bright stars were showing vivid colors, in particular β Cap was beautiful pair of orange and blue stars.

Globular cluster **NGC 6981 (M72)** ($9.2v$, $5.9'$) proved to be a difficult target for 60mm refractor. I was scanning the field at $13\times$ for 5 minutes before I noticed this faint cluster. At this power it was nothing than very hard to notice small nebular patch. Cluster was much easier target at higher magnifications. I spent about half an hour at $62\times$ and $104\times$ trying to spot as many details as I could. I saw some irregularities in the bright core which seemed to be triangular. Few very faint stars could be spotted near the cluster in the halo. All of them were of magnitude brighter than 13.0, definitely not cluster members as these are of magnitude 14.1 and fainter.



I paid a short visit to small star group **NGC 6994 (M73)**. There were several misty pairs in the area at $13\times$. I had to turn to $44\times$ to figure out which one is M73. Higher magnifications were showing three stars on slightly misty background.

As the conditions were definitely better than 4 nights ago, when I sketched Great Galaxy in Andromeda **NGC 224 (M31)** ($3.6v$, $191' \times 62'$, $PA35^\circ$), I decided to continue with the study. This night I could easily see at $13\times$ the two satellites **NGC 221 (M32)** ($8.3v$, $8.7' \times 6.5'$, $PA170^\circ$) and **NGC 205 (M110)** ($8.2v$, $22' \times 11'$, $PA170^\circ$), while 4 nights ago I could hardly locate them at this power. This was promising.

M31 had very bright stellar core surrounded by bright circular halo with strong central concentration. Galaxy body was very long, almost entire field of view. Instead of elliptic shape the body was more like a thick line gradually fading at both ends. There was some mottling in it.

This is how the galaxy looked like 4 nights ago. I was able to glimpse few more interesting details under better sky. Southern end of central bright bulk had quite sharp edge. The impression was similar to the view of Sombrero galaxy M104 in small telescopes, where the prominent dark line feature appears like a sharp edge as well. A quick search on internet of published M31 sketches showed that this feature was not seen by many. I found only one sketch with it.

A little bit further away there was a slightly brighter line parallel with the main body. Again, I could not find this feature in published sketches except in one, O'Meara's sketch in his book *Deep Sky Companion: The Messier Objects*.

On the contrary, I was not able to see dark lines at northern edge so prominent on many sketches. I hope to come back to M31 under really dark sky. I'm sure this nearby galaxy has more secrets that could be revealed through 60mm telescope.

Alexander Kupčo

