

Fossil night

Telescope: **Telementor** (Zeiss C63/840 mm)

Eyepieces:

H-40 - CZJ H-40, $f=40\text{mm}$, ($21\times$, 2°)

O-25 - CZJ O-25, $f=25\text{mm}$, ($34\times$, $74'$)

O-16 - CZJ O-16, $f=16\text{mm}$, ($53\times$, $47'$)

O-12.5 - CZJ O-12.5, $f=12.5\text{mm}$, ($67\times$, $37'$)

O-10 - CZJ O-10, $f=10\text{mm}$, ($84\times$, $30'$)

Time: 2013/08/29 19:00-20:10UT

Location: Říčany

Weather: Clear sky with haze and after rain moisture. Excellent seeing.

Accessories: 4+1 Zeiss mirror turret

This was an ordinary session with Telementor. Nothing special. On the contrary, the conditions were less than optimal for viewing deep sky objects due to a strong moisture in the air. The whole session was just slightly longer than one hour.

The night is memorable not because of the visual impressions during the session. After all, the list of visited objects was rather short - mostly doubles, and only two faint galaxies. One galaxy turned out to be quite an interesting object from the astrophysical point of view as I discovered at home later on. I had some good time digging up all the information about the galaxy and I would like to share my findings with you.

I started the evening still in the twilight. As was my regular habit at that time, I estimated the brightness of Nova Delphini 2013. Comparing the nova with $V=6.54$ and $V=6.88$ stars, I estimated that the nova's brightness was $V = 6.68$.

Waiting for darker skies, I visited three double stars. All were wider pairs as the shortest eyepiece in the turret was 10mm ortho providing only power of $84\times$. I was not in the mood to hassle with the equipment.

The first stop was beautiful bright and wide pair γ Del ($4.4 + 5.0$, $9.1''$, 266°). I could see at $34\times$ a slight color contrast be-

tween the components. The primary was slightly orange while the secondary was a little bit more bluish.

The second stop was nice triple system ϑ Sge (AB: $6.6 + 8.9$, $12''$, 330°) and (AC: $6.6 + 7.5$, $89''$, 22°). I could see all three stars already at $34\times$. The colors were best defined at $53\times$. The primary was golden, the second brightest star, component C, had strange lilac-red color and the faintest star, component B, was nicely bluish.

The last pair of the night was interesting double star **95 Her** ($4.9 + 5.2$, $6.4''$, 257°). I have read about its peculiar story in Burnham's Celestial Handbook. Various observers from the past were reporting very different and wild colours of the component. This led some of them to believe that the colours of the components were variable in time.

I could separate the stars already at power of $34\times$. Both stars were white. With more magnification, $53\times$ and $84\times$, I could discern slight colour contrast. The primary was a little bit more bluish while the secondary was slightly reddish. Definitely no wild colours.

Meanwhile the sky got darker and it was time to hunt for some galaxies. My eye was caught in *Pocket Sky Atlas* by **NGC 6482** ($V=11.3$, $2.3' \times 2.0'$, $PA70^\circ$) placed nearby 95 Her. There are only two galaxies in Her-

cules plotted in this atlas. The first one is quite know NGC 6207 near globular cluster M13. The second one is NGC 6482. I was bound to run on it sooner or later. In fact, I already gave it a try a year ago. I saw nothing in 80mm and 100mm refractors.

This night, I got more lucky. The galaxy was invisible at 34× and 84×. With time, I could see something strange at 53× and 67×. Most of the time, there was just very faint star popping in and out with averted vision. However, for short moments, especially, when I slightly tapped the tube, I could see very faint fuzzy spot elongated at position angle of about 70°. Just to be sure, I quickly plotted the position of the object with respect to the nearby stars for later identification and confirmation of the observation.

Later at home, I was trying to exclude the possibility of observing supernova. Finding a good image without overexposed galaxy body was quite hard job. Finally, I have found out one in a paper of Alamo-Martínez and his colleagues¹. The paper's title, *Globular cluster systems in fossil groups: NGC6482, NGC1132 and ESO306-017*, caught my curiosity immediately. I have never herd of fossil galaxy groups before!

Of course, I started looking for more information about fossil groups. The term was introduced by Ponman and his colleagues in 1994. No wander, these were not mentioned in the astronomy books that I have read as a boy. The term describes final evolutionary state of galaxy group. In this stadium, all brighter galaxies from the cluster merged into one luminous central galaxy. At the distance of 182 million light years, NGC 6482 is the closest example of such fossil group. If you want to learn more about fossil group, a very good starting point is the Lieder's dissertation². It contains numerous citations to the original papers.

Concerning the star, my observation was correct. No, it was not the supernova. The

image revealed that NGC 6482 is hiding in a glare of $B = 12.8$ magnitude star. The star is located only 6'' west from the galaxy center. Couple of nights later, I was exploring the galaxy under darker sky and in larger 110mm refractor. Pumping the power to 258×, I could indeed clearly discern the galaxy's nucleus from the preceding star.

Fascinating, isn't it? And I have learnt all this just thanks to a humble 63mm refractor used in a humble backyard session.

The last stop of the session was galaxy **NGC 7332** ($V=11.2$, $4.1' \times 1.1'$, $PA155^\circ$) in Pegas. It was a difficult sight. I could see at 34× for short moments fuzzy spot elongated at position angle of about 0°. It was located north of a faint star.

As the conditions were not clearly the best, I decided to call it a night and went home.

Alexander Kupčo

¹Available at [arXiv:1208.4060](https://arxiv.org/abs/1208.4060)

²S. Lieder, [Fossil Groups in the Course of Galaxy Evolution](#), University of Heidelberg, 2014