

Lost in space - Coma Cluster

Telescope: **AS110** (Zeiss AS 110/1650 mm)

Eyepieces:

ATC40 - ATC K40, $f=40\text{mm}$, ($41\times$, $61'$)

ATC20 - ATC K20, $f=20\text{mm}$, ($83\times$, $30'$)

O-16 - Zeiss O-16, $f=16\text{mm}$, ($103\times$, $24'$)

BGO12.5 - Baader Genuine Ortho 12.5, $f=12.5\text{mm}$, ($132\times$, $19'$)

ATC20+ATC2x - ATC K20 + Barlow ATC 2x, $f=10\text{mm}$, ($165\times$, $15'$)

TMB7 - TMB Supermonocentric 7, $f=7\text{mm}$, ($236\times$, $7.8'$)

HC-6 - Kassai HC Ortho 6, $f=6\text{mm}$, ($275\times$, $9.2'$)

TMB7+ATC1.5x - TMB SMC 7 + Barlow ATC 1.5x, $f=4.67\text{mm}$, ($353\times$, $5.2'$)

HC-6+ATC1.5x - Kassai HC Ortho 6 + Barlow ATC 1.5x, $f=4\text{mm}$, ($413\times$, $6.1'$)

Time: 2013/05/08 19:30-23:30UT

Location: Ondřejov

Seeing: Good

Mount: Losmandy G8

Accessories: Baader zenith prism

Despite of bad weather forecast, the night turn out to be very nice. I decided to go to my dark-site sky observatory where I keep 110mm refractor Zeiss AS110.

I started already at twilight with a few doubles that I observed recently in my smaller telescopes. On the way to 49 Leo, I accidentally run on interesting bright orange star which I quickly identified using Uranometria 2000.0 as **DE Leo**, also known as 44 Leo. At home, I have learnt that it is semi-regular pulsing red giant of spectral type M2III. The star was followed by nice unequal pair (I estimated the difference in magnitude to be about 1-2 magnitudes). At $83\times$ (ATC K20), the bluish colour of main component was in nice contrast with orange colour of DE Leo. I could not find the double in Cambridge Atlas of Doubles later at home. But with the help of Cartes du Ciel, I finally identified it as Σ **1431** ($7.8+9.1$, $3.3''$, 73°).

Double **49 Leo** ($5.8+7.9$, $2.1''$, 157°) was lovely clearly separated pair at $236\times$ (TMB7). I could even glimpse the faint secondary already at $83\times$ (ATC20).

Next double was another unequal pair



25 CVn ($5.0+7.0$, $1.8''$, 98°). At $236\times$, the telescope had no problem to show clearly the faint secondary just beyond the first diffractive ring. I estimated the distance to be about $2''$.

I could not split the two tight components

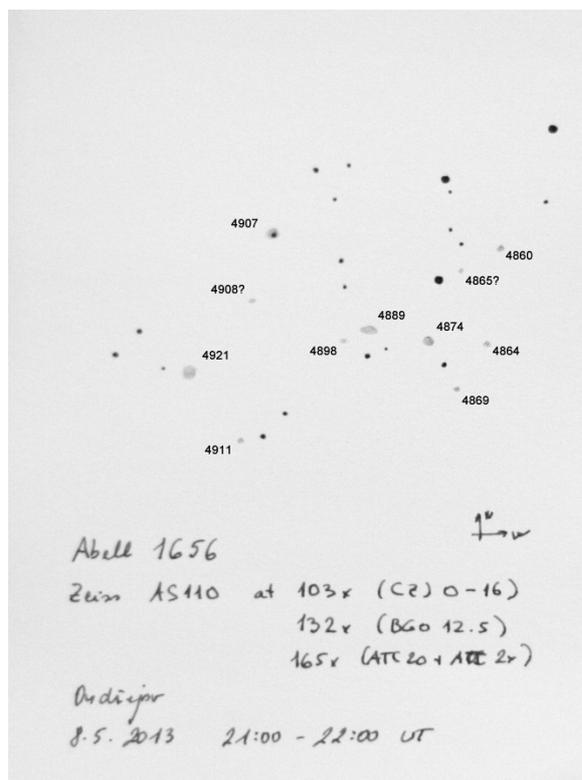
of triple **35 Com** ($5.2+7.1$, $1.2''$, 186°) even by pushing the magnification up to $353\times$ (TMB7+ATC1.5x).

Although it was not still completely dark, I checked nearby galaxy **NGC 4826 (M64)** ($8.4v$, $10.0' \times 5.4'$, $PA115^\circ$). In particular, I was trying to spy the famous black eye feature. All I could see was just stellar nucleus surrounded by mottled roughly circular brighter area. I had a feeling, from time to time, that the stellar nucleus splits into tiny double.

Then I jumped south, because it is hard to access that part of the sky from city. I checked globular **NGC 4590 (M68)** ($7.3v$, $12'$) which I have observed so far only once. At $41\times$ (ATC40), it was just a rounded clearly visible disc with no central condensation. The best view was at $83\times$, I could already see from time to time several stars, about 10 of them, scattered across the cluster. Larger magnification of $132\times$ (BGO12.5) showed one star in the outer halo quite clearly, others were still hard to spot but they were there. It is definitely a nice cluster.

Next stop was galaxy **NGC 5236 (M83)** ($7.8v$, $15' \times 13'$, $PA45^\circ$) which I observed for the first time. Pictures show very dramatic system. However, all I was able to see that low on horizon was just a faint rounded misty spot with a star (nucleus?).

After that I switched to Coma cluster **Abell 1656**. I have been investigating this 320 Mly distant group recently from my backyard in 63mm and 130mm refractors. In particular, I wanted to find out how much I could see from the darker place. There was definitely more to be seen, it was time consuming, but I clearly noticed the following galaxies: *NGC 4874* ($12.2v$, $1.9'$), *NGC 4889* ($11.5v$, $2.9' \times 1.9'$, $PA80^\circ$), *NGC 4860* ($13.1v$, $1.4' \times 1.2'$), *NGC 4864* ($14.3v$, $0.6' \times 0.3'$), *NGC 4869* ($13.8v$, $0.7'$), *NGC 4898* ($13.6v$, $0.4'$), *NGC 4907* ($13.7v$, $1.1' \times 1.0'$) (in this case, there was suspicious, misty 13th magnitude star), *NGC 4908* ($13.5v$, $1.1' \times 1.0'$, $PA49^\circ$), *NGC 4911* ($13.0v$, $1.4' \times 1.3'$) (quite difficult, as I was already feeling tired; one of the last galax-



ies from the cluster, that I identified) and *NGC 4921* ($12.3v$, $2.5' \times 2.2'$, $PA165^\circ$). The two most obvious galaxies were *NGC 4874* and *NGC 4889* - this one was the easiest, it was already visible at $41\times$ (ATC40) as elongated ellipse. In addition, I probably glimpsed *NGC 4865* ($13.8v$, $0.9' \times 0.5'$).

Most of the time I used magnification of $103\times$ (O-16), but some times I had to increase it a little bit. Interestingly, most of the small galaxies (like *NGC 4864*, *NGC 4869*, *NGC 4898*, and *NGC 4860*) were visible as hazy stars. Almost stellar but definitely not stellar. I could not see most of these faint companions in 130mm refractor last time from my backyard. I also observed *NGC 4921*, which is even brighter than *NGC 4889*, but it has a low surface brightness and I could not glimpse it in 130mm. Under dark skies, it was difficult to notice it, but it was clearly there as relatively large very faint circular glow.

There was probably much more to be seen but after about one hour of intensive observation I was exhausted. I switched to **Saturn** which was just culminating. I did not see Saturn through AS110 yet and I was not prepared to what I saw. See-

ing was not perfect, I found the best view only at $132\times$ (BGO12.5). But what sight it was! Last year I observed and sketched this planet quite a lot in my 100mm ED refractor. It is hard to judge just from memory, but the view in AS110 was yet in another higher level. I do not remember so nice and vivid colours and very subtle changes in coloration of northern belts. Cassini division was also very nice and traceable for a long distance. Also ring C was providing nice tiny grayish rim in place where the rings were passing above planet. This was definitely highlight of the evening. Unfortunately, I was already too tired to try to sketch what I saw.

Next, I checked tiny planetary **NGC 6210** (8.8v, 48/8"). Even at $353\times$ (TMB7+ATC1.5x) and $413\times$ (HC-6+ATC 1.5x) I could not glimpse the central star. All I could see was slightly elongated mottled disc with slightly darker centre. There were some small brightenings visible on the disc but I did not bother with the sketch again.

Then I jumped to **NGC 6205 (M13)** (5.8v, 17'). At $236\times$ (TMB7) it was another highlight of the evening. This cluster was wonderful, I do not know if it was a darker place or just 1cm larger diameter, but the view was so much better to the view in ED100 (which is already very nice). The cluster was peppered with hundreds of stars across its entire surface. They were easy to see. On top of that there were numerous chains of fainter stars running out of the central region. I counted at least 7 easy ones. The cluster looked like a head of Medusa.

At the end, I just recheck difficult cluster **NGC 5053** (9.0v, 11'). It was clearly there at $41\times$ (ATC40) as a faint rounded hazy disc. There was a star popping in and out with averted vision. The cluster almost disappeared at $83\times$, but there were more faint stars visible in the area in higher magnification.

And finally, I checked two doubles: ζ **Her** (3.0+5.4, 0.9", 229°) turn out to be too difficult, but λ **Oph** (4.2+6.2, 1.6", 34°) was

lovely nice slightly yellowish pair of almost touching bright discs.

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