Perseids 2002 event in Romania

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1 PERSEIDE 2002, the 10th edition

The 10th edition of the traditional manifestation PERSEIDE 2002 (Perseids 2002), was organized by SARM in the period July 26 - August 14 in two parts.

In the first part, in Corbasca-Bacau, between July 26 - August 7 took place:

- The National Astronomical Camp for Youth, including
  - Summer Astronomical School with theoretical and practical classes for meteors, general astronomy, variable stars, astronomical photography, astronomical instruments and meteorology. At the end, every participant passed a graduation test;
  - The National Astronomical Contest with prizes, sponsorized by SARM members and contributors living abroad;
  - International Showroom of Astronomical Publications and Photos and a library room, with contributions from famous astronomical publishers and publishing houses in the world;
  - Photographic and video projections;
  - Astronomical and meteor observations;
  - Trips and program with the public;
- Astronomical Instruments Fair
- Gala of Cosmopoetry Festival, astropoetry contests
- "Astropoetry on the Peaks", the Romanian contribution at "Poetry on the Peaks", the project of the United Nations's Writers Society

Over 65 people from all the country attended PERSEIDE 2002 camp, most of them young people with ages between 15-29 years, individuals of representing over 20 secondary schools, astronomical clubs and youth and cultural associations. Also, some people from astronomical observatories and planetariums were present. In this period the weather was very capricious: a lot of rain in the first part, spectacular clouds and lightenings, rainbow, 4 clear sky nights with some nice meteor sessions. Nice time with the young people, many of them at the first contact with the meteor astronomy. Meteor observations were affected by the Moon, rising soon after the midnight. Visual and photographical observations were made. This event was very well reflected by Romanian mass-media: 5 national TV, 2 local and national radio and 3 news papers delegations were present in the camp.

In the second part, around the Perseids maximum, we organized a National Observational Perseids Network, with 8 active teams covering the whole country. Unfortunately, bad weather conditions were present in some places (see figure 1). Only one place had clear sky all 3 nights around the maximum: Pauleasca, situated in the southern part of Romania. Valentin Grigore's observational team was in Maneciu before the maximum, but after three nights with covered sky they suddenly decided to travel to Pauleasca, where another active SARM team was present. And we were lucky, because after an atmospheric cloudy front with big storms has passed, we had 2 nights with very clear sky (a limiting magnitude over 6.8). Many weak meteors were seen, and only few not so big fireballs. Also, photographic observations were made, but the capture was poor.

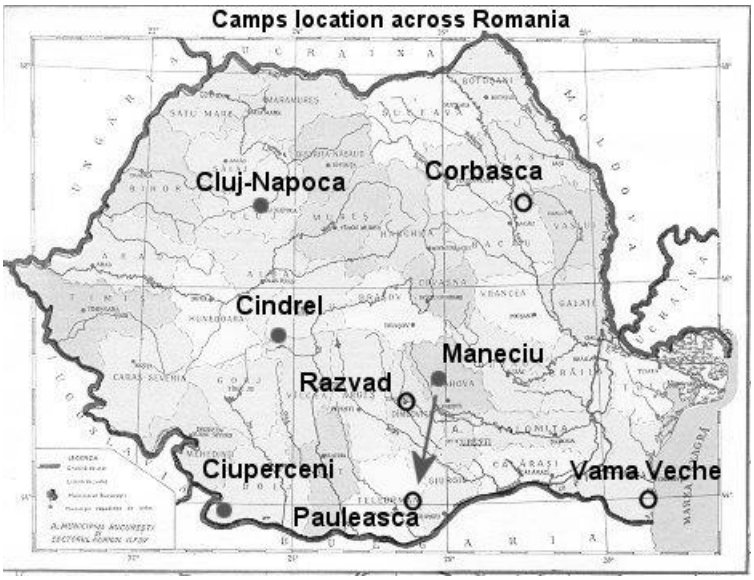

Figure 1: *Camps location across Romania - with bad weather (filled circles) and with good weather (open circles).*

2 Results of the Romanian observational campaign

This year the Romanian summer meteor observations have been successfully carried out from four observational camps across Romania with clear sky:

(1) Corbasca - Bacău (27.3 E, 46.3 N),
(2) Păuleasca - Teleorman (25.5 E, 43.8 N),
(3) Vama Veche - near Black Sea (28.3 E, 43.5 N),
(4) Răzvad - Dâmboviţa (25.5 E, 45.0 N)

We must notice that several other camps have been set up during the maximum of Perseids shower, as previously noted, but no reports have been recorded due to bad weather conditions.

Several observers contributed with data, and this analysis includes those of the following ones: Valentin Grigore (GRIVA), Alexandru Conu (CONAL), Adriana Nicolae (NICAD),

Cristina Ţintă (TINCR), Diana Ogescu (OGEDI), Adrian Popa (POPAD) and Eliza Trandafir (TRAEL).

The total observing time of these observers is about 72 hours, divided on two observing periods: 31 July-4 August and 11-14 August. On figure 2, each shaded box denotes the cumulative number of observing time per night. The maximum of Perseids meteor shower is covered by these observations, corresponding to the highest observing peak.

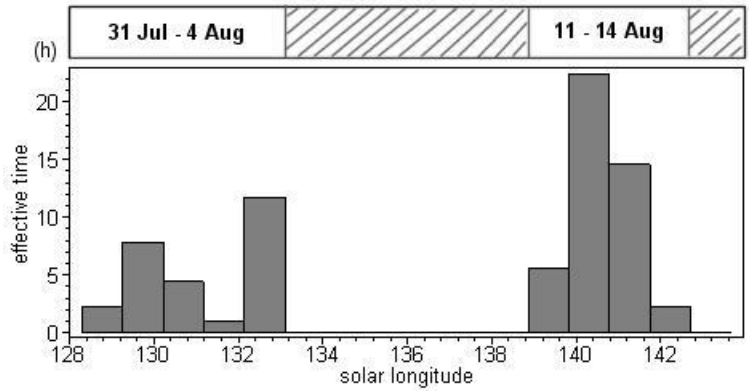

Figure 2: *Daily cumulative observing time.*

The summer meteor showers covered by our campaign are depicted on figure 3, where a decimal logarithmic histogram shows the number of observed meteors from the following showers: Perseids (PER), α-Capricornids (CAP), Southern δ-Aquarids (SDA), Northern δ-Aquarids (NDA), κ-Cygnids (KCG) and the sporadics background (SPO). Totally, the number of counted meteors is about 2800, almost two thousands of them being Perseids.

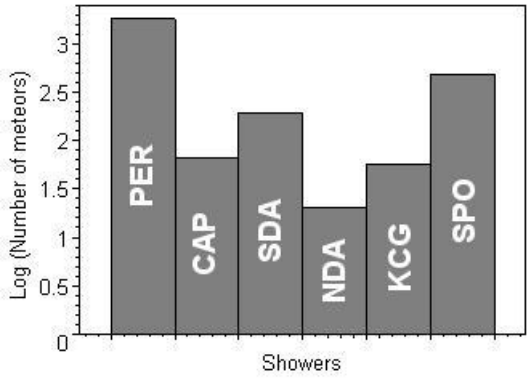

Figure 3: *Number of meteors from meteor showers.*

The number of observational data at our disposal allows us to generate a consistent analysis for the Perseids meteor shower. Figure 4 presents the ZHR variation during two observing periods previously mentioned. The individual ZHRs (marked with crosses) are computed with the standard IMO technique (Rendtel et al., 1995) and some rejection criteria, like the restriction for the radiant's elevation not bellow 10 degrees above the horizon, were later used to kill some eratic results. Anyway, very few observational data have been rejected.

Next, the individual ZHRs are daily averaged into smoother values (marked with black squares). Our results are than superimposed over the IMO averaged ZHRs (marked with open circles) as they were reported at "News and Forthcoming events" web page on IMO site (www.imo.net). Our individual ZHRs are quite scattered, but the averaged ZHR mimics pretty well the IMO's results. We have used in our analysis a population index $r = 2.0$.

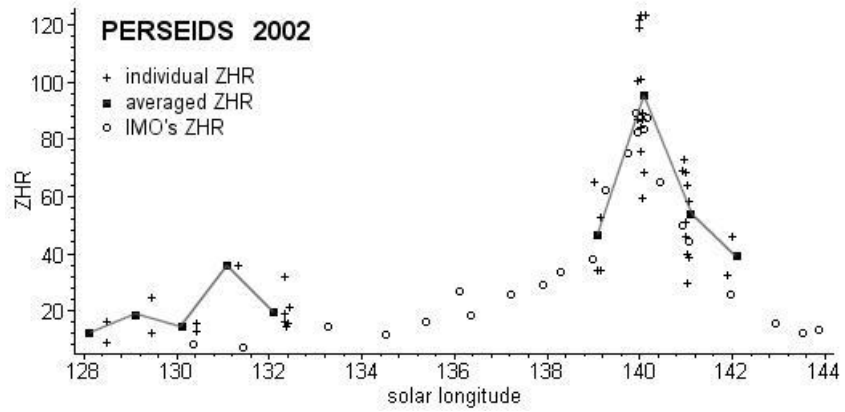

Figure 4: *Recorded Perseids activity.*

Despite of bad weather conditions over eastern Europe at that time, some of us were lucky to catch the Perseids maximum this year. In fact, 4.5 hours have been covered by us with observations around the predicted maximum time, i.e. the true solar longitude 140.0 (Mc.Beath and Arlt, 2001). In figure 5 we present a detailed analysis of this peak, by computing the same quantities as in the previous figure. Here, the averaged ZHR is computed in increments of about 0.05 degrees in solar longitude, which is about 1.2 hours in time. Our data confirm that a plateau in the peak exists with almost constant activity (somewhere below 100 meteors per hour).

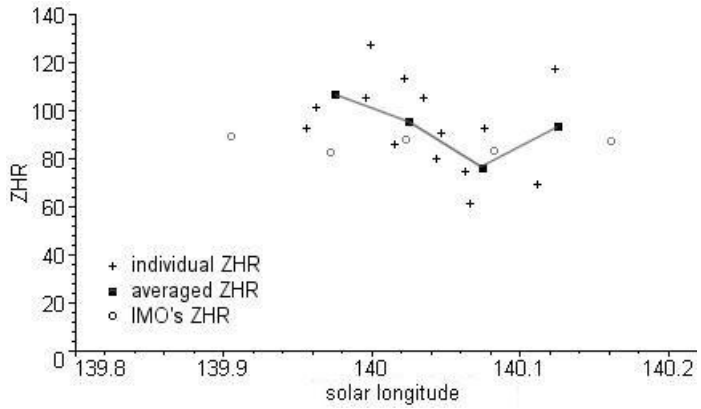

Figure 5: *Perseids peak detail.*

3 Acknowledgements

Finally, we want to thank to all contributors cited previously for their valuable observational material.

References

Mc.Beath A. and Arlt R. (2001): 2002 Meteor Shower Calendar. *International Meteor Organization*

Rendtel J., Arlt R., McBeath A. (1995): Handbook for visual meteor observers. *International Meteor Organization, Potsdam*