A New Stream for Holidays?

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Abstract

We report a discovery of a new possible stream radiating from Ursa Minor during the first part of August.

The first part of each August is the time of the Perseid shower. Many observers work under clear sky at that time. Usually, the Perseids' rates are high, and, therefore, almost all observers observe using the counting method rather than plot the meteors on gnomonic maps. This phenomenon explains why we do not have a good picture of minor stream activity in the first half of August.

On the night August 9-10, 1997, one of us (Maciej Kwinta) was observing the Perseids. Among the sporadic meteors, we detected three very slow meteors, which seemed to radiate from one point placed near Kochab (β UMi). A few other members of this possible shower were observed during subsequent nights.

We decided to pay more attention to these slow meteors in 1998. Between August 2 and 12, 1998, we totaled 19 hours of observing time plotting 17 slow and very slow meteors radiating from the vicinity of β UMi. In addition, we recorded 126 sporadic meteors.

We processed this sample using the RADIANT software. We obtained the best picture of the radiant with the following parameters: atmospheric velocity $V_\infty = 14$ km/s, angular velocity between 0 and 17°/sec, maximum distance from the radiant 85°, daily radiant drift $\Delta\lambda = 1.0°$, time of maximum $\lambda_\odot = 136°$, radiant equatorial coordinates during the night of the maximum $\alpha = 223°$ and $\delta = +73°$. The output picture returned by the RADIANT software with above parameters is shown in Figure 1.

The magnitude distributions for suspected β-Ursa Minorids and for sporadics are presented in Table 1. From these distributions, we computed the values of the population index r. It is equal to 2.8 ± 0.4 for β-Ursa Minorids and 3.6 ± 0.3 for the sporadics.

Magitude distribution of the suspected β-Ursa Minorids and the sporadics.

Knowing the values of the population index r and the coordinates of the radiant, we computed the ZHR profile of the β-Ursa Minorids. It is presented in Fig. 2. The maximum was noted around $\lambda_\odot = 134°$ with ZHR $= 5.1 \pm 1.5$, but the accuracy of our

Table 1: Magitude distribution of the suspected β-Ursa Minorids and the sporadics.

Stream	-1^-	0	1	2	3	4	5	6	Tot
β-UMi	0	0	1	1	6	8	1	0	17
Spor.	1	3.5	7.5	19	41	44	9.5	0.5	126

points is low and it is possible that the real maximum occurred between $\lambda_\odot = 134°$ and $\lambda_\odot = 137°$.

It is clearly visible that we need to know more about this stream. We would like to encourage all *IMO* observers to pay more attention to the slow meteors radiating from Ursa Minor during the first half of August.

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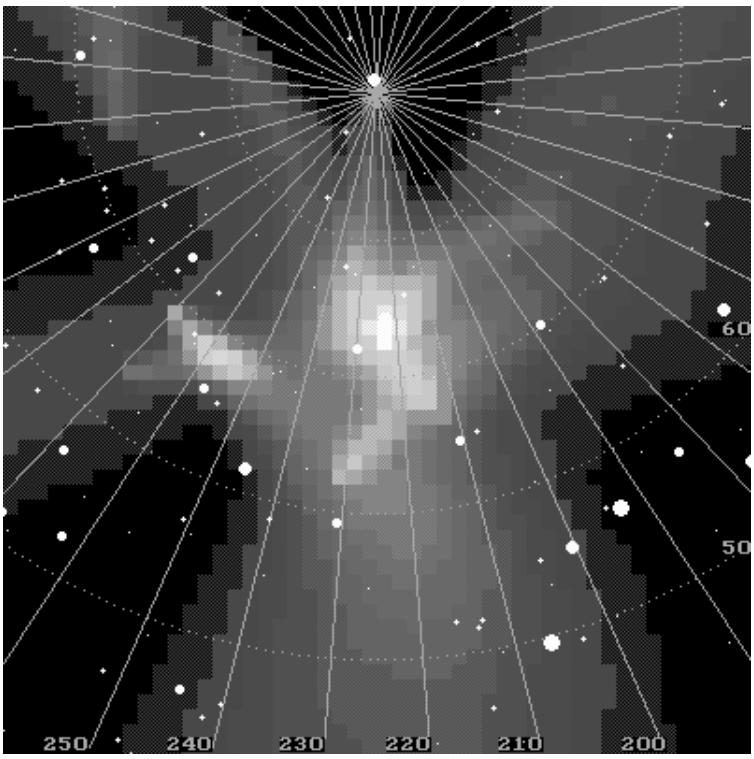

Figure 1: Output of the RADIANT software showing the suspected β-Ursa Minorid radiant.

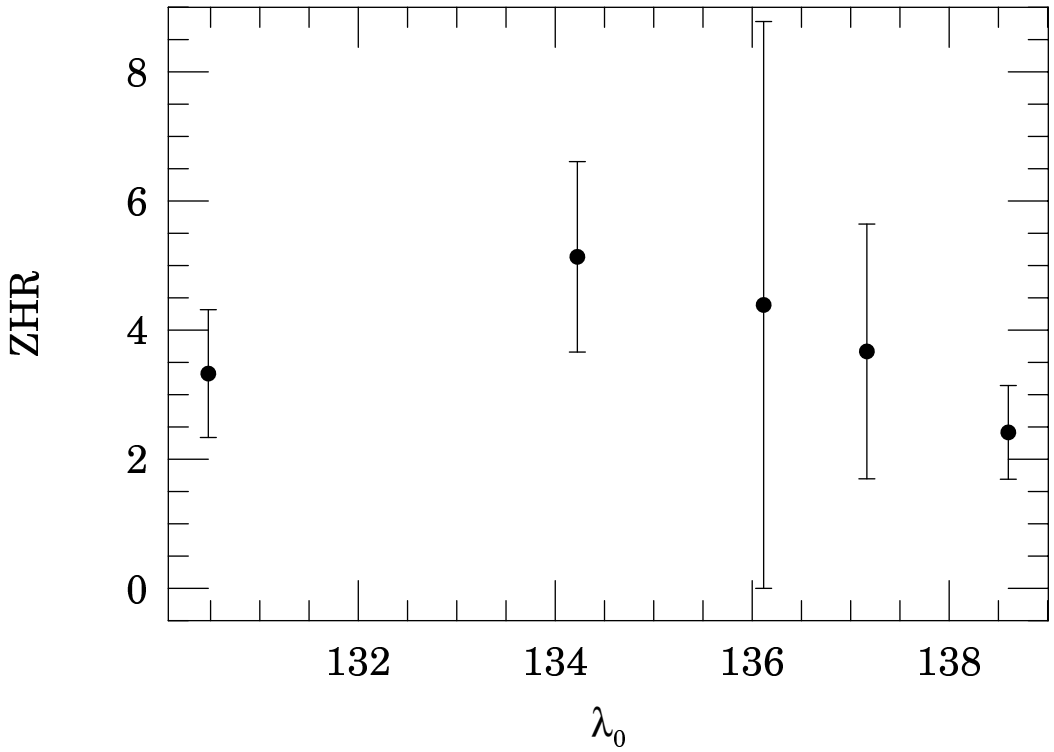

Figure 2: ZHR profile of the suspected β-Ursa Minorids.