METEOR SECTION OF THE ISRAELI ASTRONOMICAL ASSOCIATION

The IAA is a non-profit amateur and scientific organization dedicated to general astronomy. The Meteor Section's purpose is to observe and report meteoric activities to the International Meteor Organization (IMO) and to promote awareness of science, and of astronomy in particular, among the Israeli public. Our activities are published mainly in Hebrew.

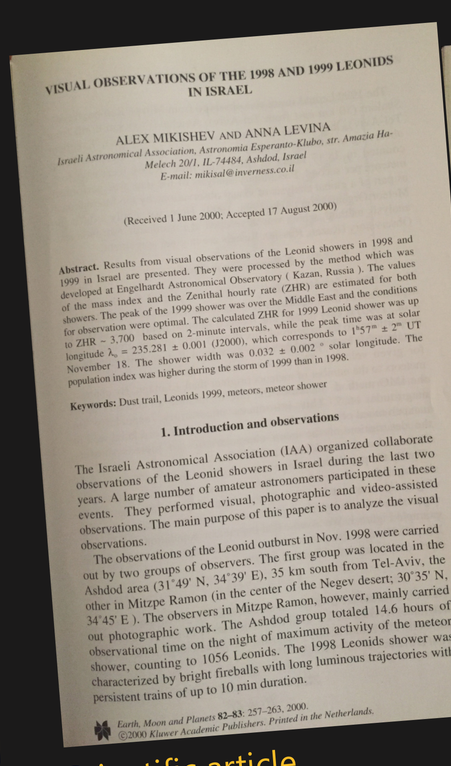
The Meteor Section is the most significant organization for meteor observation and documentation in Israel. It includes about ten observers, led since 1998 by Mrs. Anna Levin, who previously led the Meteor Observing Station for the Crimean Astronomical Association.

Our activities during the major northern meteor showers are considered large-scale, especially considering the relatively small population of our country. Most of our observations take place at the Km101 lodge in the Arava desert (between Eilat and the Dead Sea). In addition, we are currently renovating a Watec 902H video camera fitted with an all-sky fisheye lens to monitor automatically for fireballs and meteor showers in general.

Perseids Meteor Shower Arava Israel 2015

Perseids Meteor Shower
Be'er Menuha- August 2014

Perseids Meteor Shower Arava Israel 2015



VISUAL OBSERVATIONS OF THE 1998 AND 1999 LEONIDS IN ISRAEL

ALEX MIKISHEV AND ANNA LEVINA
Israeli Astronomical Association, Astronomia Esperanto-Klubo, str. Amazia Ha-Melech 20/1, IL-74484, Ashdod, Israel
E-mail: mikisal@inverness.co.il

(Received 1 June 2000; Accepted 17 August 2000)

Abstract. Results from visual observations of the Leonid showers in 1998 and 1999 in Israel are presented. They were processed by the method which was developed at Engelhardt Astronomical Observatory (Kazan, Russia). The values of the mass index and the Zenithal hourly rate (ZHR) are estimated for both showers. The peak of the 1999 shower was over the Middle East and the conditions for observation were optimal. The calculated ZHR for 1999 Leonid shower was up to ZHR ~ 3,700 based on 2-minute intervals, which corresponds to $1^h57^m \pm 2^m$ UT longitude $\lambda_\odot = 235.281 \pm 0.001$ (J2000), which corresponds to $1^h57^m \pm 2^m$ UT November 18. The shower width was 0.032 ± 0.002 ° solar longitude. The population index was higher during the storm of 1999 than in 1998.

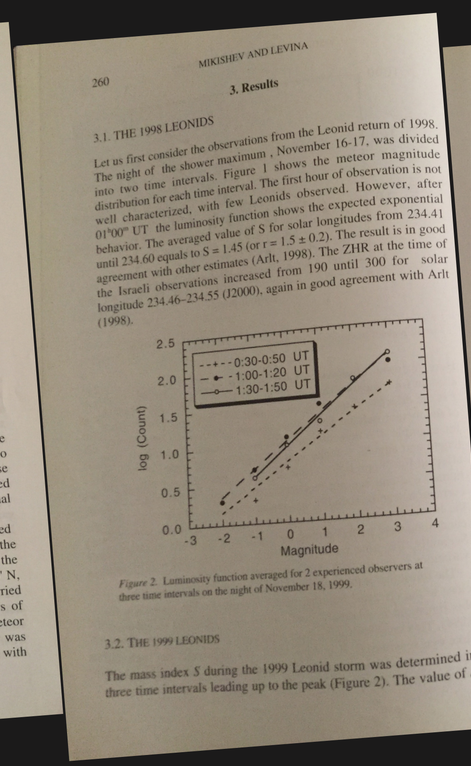
Keywords: Dust trail, Leonids 1999, meteors, meteor shower

1. Introduction and observations

The Israeli Astronomical Association (IAA) organized collaborate observations of the Leonid showers in Israel during the last two years. A large number of amateur astronomers participated in these events. They performed visual, photographic and video-assisted observations. The main purpose of this paper is to analyze the visual observations.

The observations of the Leonid outburst in Nov. 1998 were carried out by two groups of observers. The first group was located in the Ashdod area (31°49' N, 34°39' E), 35 km south from Tel-Aviv, the other in Mitzpe Ramon (in the center of the Negev desert; 30°35' N, 34°45' E). The observers in Mitzpe Ramon, however, mainly carried out photographic work. The Ashdod group totaled 14.6 hours of observational time on the night of maximum activity of the meteor shower, counting to 1056 Leonids. The 1998 Leonids shower was characterized by bright fireballs with long luminous trajectories with persistent trains of up to 10 min duration.

Earth, Moon and Planets **82–83**: 257–263, 2000.
©2000 *Kluwer Academic Publishers. Printed in the Netherlands.*



3. Results

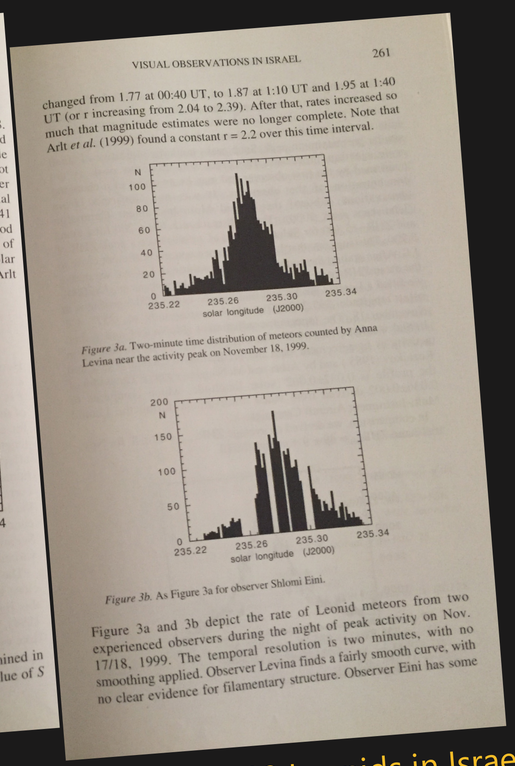
3.1. THE 1998 LEONIDS

Let us first consider the observations from the Leonid return of 1998. The night of the shower maximum , November 16-17, was divided into two time intervals. Figure 1 shows the meteor magnitude distribution for each time interval. The first hour of observation is not well characterized, with few Leonids observed. However, after 01^h00^m UT the luminosity function shows the expected exponential behavior. The averaged value of S for solar longitudes from 234.41 until 234.60 equals to S = 1.45 (or r = 1.5 ± 0.2). The result is in good agreement with other estimates (Arlt, 1998). The ZHR at the time of the Israeli observations increased from 190 until 300 for solar longitude 234.46–234.55 (J2000), again in good agreement with Arlt (1998).

Figure 2. Luminosity function averaged for 2 experienced observers at three time intervals on the night of November 18, 1999.

3.2. THE 1999 LEONIDS

The mass index *S* during the 1999 Leonid storm was determined in three time intervals leading up to the peak (Figure 2). The value of *S*



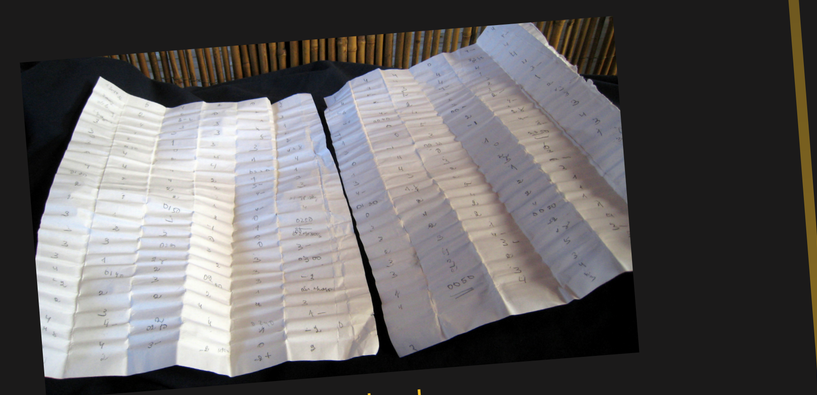
changed from 1.77 at 00:40 UT, to 1.87 at 1:10 UT and 1.95 at 1:40 UT (or r increasing from 2.04 to 2.39). After that, rates increased so much that magnitude estimates were no longer complete. Note that Arlt *et al.* (1999) found a constant r = 2.2 over this time interval.

Figure 3a. Two-minute time distribution of meteors counted by Anna Levina near the activity peak on November 18, 1999.

Figure 3b. As Figure 3a for observer Shlomi Eini.

Figure 3a and 3b depict the rate of Leonid meteors from two experienced observers during the night of peak activity on Nov. 17/18, 1999. The temporal resolution is two minutes, with no smoothing applied. Observer Levina finds a fairly smooth curve, with no clear evidence for filamentary structure. Observer Eini has some

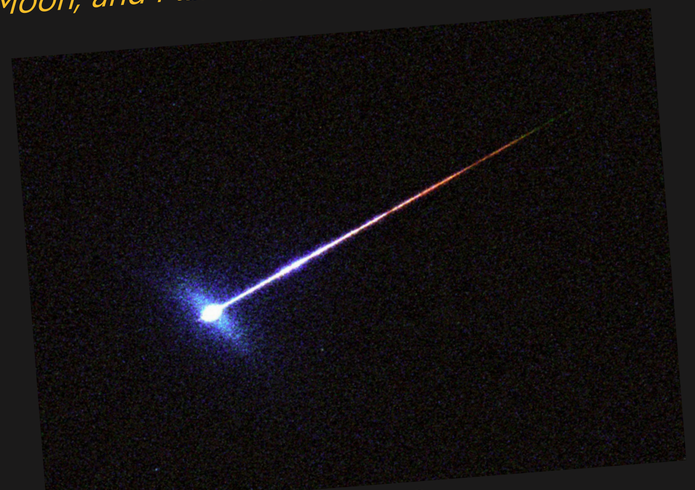
Scientific article
on 1998-9 Leonid observations:
Alex Mikishev and Anna Levin, "Visual observations of the 1998 and 1999 Leonids in Israel".
In: Earth, Moon, and Planets, 82/83, 257-263 (1998)



Anna's accordion method

Successful night
of observations during
the 2007 Geminid Shower

Leonids Ramat Gan 1998



Perseids Arava Israel 2008

Perseids Arava Israel 2008

Perseids Arava Israel 2008

Perseids Jerusalem Israel 2009

Perseids Arava Israel 2015

POSTER DESIGNED BY: ANAT IDELSON IDELSON7@GMAIL.COM | PHOTOS BY YARON EINI WWW.YARONEINI.COM

האגודה הישראלית לאסטרונומיה
Israeli Astronomical Association