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Meteor astronomy in the Astronomical Society Labod (ADL)

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The Astronomical Society Labod (ADL) is a growing group of active young astronomy enthusiasts based in Ljubljana, Slovenia. An overview is given of its activities with regard to meteor astronomy.

1 Introduction

The Astronomical Society Labod (“Swan”), or ADL by its Slovene abbreviation unites active young astronomy enthusiasts based in Ljubljana. They are active in various fields of astronomy such as variable star photometry, high-resolution planetary imaging, local site characterization and seeing research, meteor astronomy, education, and public outreach. Meteor astronomy activities include

1. meteor shower observations: visual, photographic, video;
2. fireball observations and meteorite fall analysis and recovery;
3. popularization of meteor astronomy;
4. meteor youth research projects at SMART astronomy research camps;
5. expeditions for major meteor-related events; and
6. supporting meteor astronomy in schools.

2 Meteor shower observations (visual, photographic, video)

Members of the ADL participate in visual, photographic (e.g., Figure 1), and video observations of all major annual meteor showers, as well as minor showers and outbursts. Some of the observed outbursts include the 2006 October Camelopardalids, the 2010 June Bootids, the 2011 Draconids, and, most recently, the 2012 October Camelopardalids.

3 Fireball observations and meteorite fall analysis and recovery

The ADL participates in fireball observations and analyses and in meteorite recovery. Members have organized several major search campaigns on the Jesenice meteorite strewnfield (see Figures 2 and 3). Members of the ADL have also participated in analysis of Križevci meteorite fall (February 4, 2011) and the Javorje meteorite find and analysis of the large daytime bolide of July 25,

2007 over Slovenia and Croatia (Spurný et al., 2010; Šegon et al., 2011; Atanackov et al., 2009).



Figure 1 – Magnitude -12 Taurid fireball on November 17, 2011. Nikon D80, 18 mm $f/3.5$, ISO 1000, 60 s. Photo: Rok Pucer.



Figure 2 – Search efforts in the Jesenice strewnfield during July–September 2009 by members of the ADL and other astronomy clubs, students of astronomy and geology, and other enthusiasts. Photo: Matic Smrekar.

4 Popularization of meteor astronomy

The ADL actively contributes to the popularization of meteor astronomy among the general public. For every major annual meteor shower, it posts notifications and short articles on various astronomy forums and social networks, publishes short articles in newspapers, and contacts local, regional, and national radio and TV stations to make announcements for the upcoming me-



Figure 3 – Fragments of the largest (2.35 kg) Jesenince meteorite. Photo: Jure Atanackov.

teor shower. Short reports of meteor activity are also made on radio and TV after the peak. The ADL also had journalists “embedded” in observing groups for the Perseids as well as live TV feeds from its observing sites.

Members of the ADL also contribute to the monthly meteor column in our national astronomy magazine *Spika*.

5 Meteor research projects at SMART youth astronomy camps

Meteor astronomy has a dedicated group at the annual SMART astronomy youth research camp, one of the largest events of its kind in Europe. The meteor group includes up to 10 participants, who work on individual research projects with topics ranging from radiant determinations and ZHR and population index calculations to orbit calculations. All members of the group participate in visual observations.

All participants (50+) regardless of their groups observe meteors on the Perseid peak night. (See also Figures 4 and 5).



Figure 4 – Group photo of SMART 2012 participants. Photo: SMART.

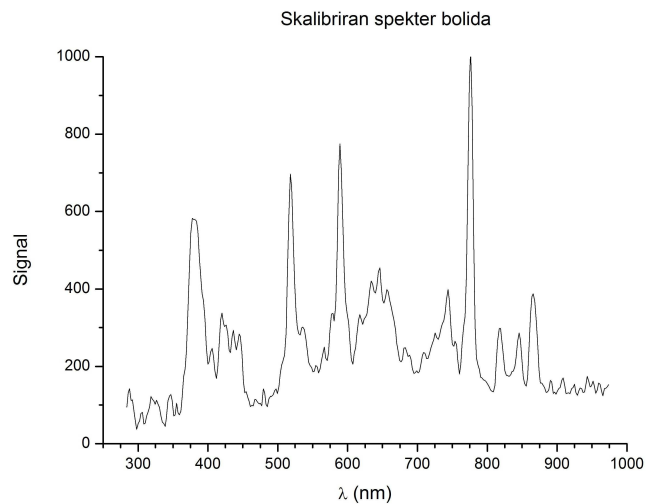


Figure 5 – A Perseid spectrum obtained during SMART 2011. Photo: SMART.

6 Expeditions for major meteor-related events

The ADL organizes expeditions for major meteor events, such as outbursts (e.g., the 2011 Draconids, see Figure 6). Observer groups searching for clear skies are also organized for all annual major shower peaks.



Figure 6 – A ten-member Draconid observing expedition bound for central Italy found clear skies not far from home in Brkini in Southwest Slovenia. The weather was very good for the duration of the outburst, but then deteriorated rapidly. Photo: Tilen Kavčič.

7 Supporting meteor astronomy in schools

The ADL supports meteor (and other) astronomy in schools. In June 2012, we donated and installed a new all-sky video camera at the Domžale primary school for their astronomy group (Figure 7).



Figure 7 – First light image from the new all-sky video camera at the Domžale primary school. Photo: Javor Kac.

The camera will also be part of the Slovenian Meteor Network.

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