

ASTRO-CLIMATE: ASTRONOMICAL STATION VIDOJEVICA

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Abstract. The Astronomical Station Vidojevica is located on Mt. Vidojevica near Prokuplje, Serbia. It is selected as the site of the robotic telescope Milanković. The equipment for measuring astro-climate conditions was installed in November 2010. Some preliminary results obtained using the instruments are presented. The results presented here are the part of our long-term monitoring campaign of astro-climate characteristics for this site, which will be useful in planning observations with the future robotic telescope.

1. INTRODUCTION

Astronomical Station Vidojevica, the observing facility of the Astronomical Observatory Belgrade, is located on Mt. Vidojevica near Prokuplje, ($\varphi = 43^{\circ}08'25''$, $\lambda = 21^{\circ}33'20''$), at an elevation of 1150 m. The equipment for systematic measuring campaign aimed to quantify the astro-climate conditions was installed during the winter of 2010/2011. These are Weather station, All-sky camera and Seeing monitor. A detailed characteristics of equipment can be found in papers (Martinović et al. 2013), (Jovanović et al. 2012).

In this poster we present wind speed and direction data (Figure 1) from Weather Station, which is a DAVIS Wireless Vantage Pro 2 with 24-Hour Fan Aspirated Radiation Shield. The weather station is battery and solar-panel powered, therefore it is capable for autonomous measurements and data storage. It proved to be the most stable of all the instruments. Also, we performed preliminary analysis of all-sky camera monitoring in November 2010 and compared estimated cloud coverage (Figure 2) with data from meteorological station Niš ($\varphi = 43^{\circ}20'$, $\lambda = 21^{\circ}54'$) at an elevation of 204 m. The camera that we use is SBIG All-Sky 340.

2. RESULTS

We compared our estimate of cloud coverage with data from nearest meteorological station with daily data available, in this case meteorological station Niš. For month of November 2010 we found these data sets agreed within 15%. We are developing an algorithm for automated measurement of the cloud coverage from all sky images.

Important parameters measured with weather station are wind direction and speed. The so-called Wind Rose (Figure 1) is representing those two parameters graphically. The preferred wind direction has strong seasonal character. We continue to collect wind speed and direction data set for a longer period of time to better verify this finding.

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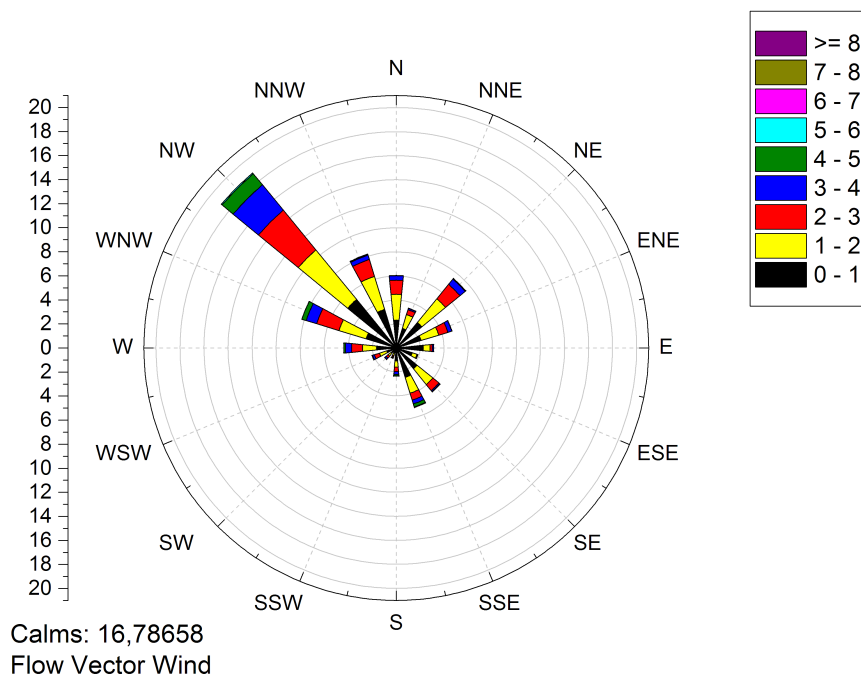


Figure 1: Wind rose for Autumn 2011. The bar on the left hand side shows the percentage of recorded data for period of one season. The box on the right hand side shows the wind speed in m/s.

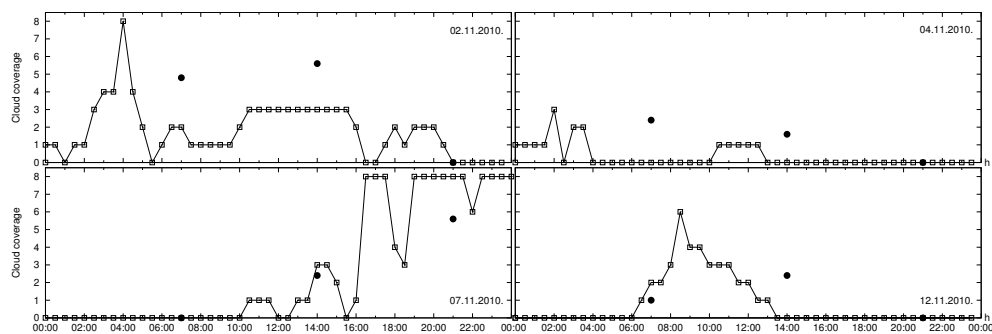


Figure 2: Cloud coverage over the Astronomical Station Vidojevica (squares) and Meteorological Station Niš (full circles)

ble Matter in Nearby Galaxies: Theory and Observations” and No 176011 ”Dynamics and kinematics of celestial bodies and systems”).

References

- Martinović N., Jurković M., Stojanović M., Vince O., Bogosavljević M.: 2013, *Proceedings of the Second Workshop on Robotic Autonomous Observatories, Malaga, Spain, June 5-10, 2011, in press*
- M. Jovanović, M. Stojanović, N. Martinović, M. Bogosavljević, I. Smolić and B. Acković: 2012, *Proceedings of the XVI National Conference of Astronomers of Serbia, 10-12 October 2011, Belgrade, Serbia, Publ. Astron. Obs. Belgrade, No. 91, pp.83-88*

