



STSM Scientific Report Template

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Visited scientist and host institution : Jan RYBAK & Julius KOZA, Astronomical Institute, Slovak Academy of Sciences, Tatranská Lomnica, SLOVAK Republic

Dates of STSM : 2013-07-08 to 2013-07-12

Explain briefly below how your STSM matched one of these key-points :

1. strengthen current collaborative projects
2. establish new collaborations
3. obtain necessary knowledge for the application of new techniques
4. use host infrastructures that are not available at the home institute.

The purpose of the STSM was to establish a collaboration on the technical side (C. Le Men) and scientific side (A. Lopez Ariste) concerning the proposed project of coronal magnetometry at Pic du Midi (France) and the ongoing project of coronal magnetometry with COMP-S at Lomnický štít (Slovakia). These are two out of the just four working ground coronagraphs in the world. The technical discussions proved the interest of both sides and initiated successfully the intended collaboration. As a bonus two other activities were proposed as a plus to this collaboration: the polarimetry of prominences with COMP-S, including a diagnostic on magnetometry possibilities and the simultaneous use of COMP-S and THEMIS on prominences.

The prominence observations done with the coronagraph suggested a non foreseen near-future collaboration on prominence magnetometry. A collaboration was drafted with two complementary sides: First polarimetric observations of the He D3 line in prominences using the coronagraph at Lomnický štít were to be done at the earliest convenience, while a simulation was to be run at THEMIS by A. López Ariste on the possibility of extracting magnetic field information from COMP observations, in particular under the restrictive large spectral bandwidth of the instrument (300 mÅ). Second, an observing run was planned at THEMIS by the Slovak team for 2014 on prominence attempting to simultaneously run the COMP-S instrument in Slovakia with the purpose of comparison. A preliminary visit of the Slovak team to THEMIS will happen in October 2013 to fix the details of this collaborative observation.

Describe below the activities carried out during the STSM and the main results obtained.

The STSM was organized around two main events: The visit to the coronagraph at Lomincky Stit Observatory and a meeting at the Astronomical Institute in Tatranska Lomnica.

The first day was dedicated to the trip, Tenerife-Viena via Barcelona and then by car to Tatranska Lomnica (Slovak Republic).

The second and third days were dedicated to the visit to the Lomincky Stit Observatory. The difficulties in the access to the observatory (two cable cars, one of them limited to 5 persons per trip) suggested an overnight stay at the peak so that the visit to the coronagraph actually took two days. We were accompanied and guided in this trip by J. Koza, and guided in the visit and stay by J. Rybak. Before anything else, I want to stress and thank warmly, the warm, dedicated and professional welcome that was given to us.

J. Rybak fully described both the double coronagraph and the COMP-S instrument which was unmounted for direct inspection. Although I already knew the principle of it, it was the first time that I saw such a coronagraph in person.

A very informative discussion continued on the difficulties of open domes at high mountain conditions in particular related to atmospheric scattering (relevant to coronagraphy) and to the use of electronics in cold mountain temperatures. These are informations relevant for our project of coronal magnetometry at Pic du Midi, the purpose of this starting collaboration. Observations were performed in the early morning with the coronagraph, what allowed me to see the actual instrument COMP-S working, although without polarimetry. A demonstration was made on the tunability of the instrument. The sky brightness however forbid observation of the corona and the observations were limited to prominences.

The fourth day was dedicated to a meeting at the Astronomical Institute. As stressed in the "small" resume, and after an interesting and extensive technical and scientific discussion, a collaboration was planned on two subjects:

- First, polarimetric observations of the He D3 line in prominences using the coronagraph at Lomincky Stit were to be done at the earliest convenience, while a simulation was to be run at THEMIS by A. López Ariste on the possibility of extracting magnetic field information from COMP observations.

- Second, an observing run was planned at THEMIS by the Slovak team for 2014 on prominence attempting to simultaneously run the COMP-S instrument in Slovakia with the purpose of comparison. A preliminary visit of the Slovak team to THEMIS will happen in October to 2013 to fix the details of this collaborative observation.

The fifth day was dedicated to the trip back to Tenerife (with sorrow, I'm afraid). I take advantage of this report to thank the COST committee for selecting my proposal and Dr Ales Kucera for inviting me so kindly to Tatranska Lomnica.

C. Le Men , 25th July 2013