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Outreach Seminar on BSSI-ISON cooperation

Swiss Statement

Vienna, 11 June 2012

Thank you Mister Chair,

Thank you for giving the Swiss delegation the opportunity to give an account of the successful collaboration of the Astronomical Institute of the University of Berne (AIUB) together with the International Scientific Optical Network (ISON). Professor Thomas Schildknecht, Director of Zimmerwald Observatory at AIUB, could unfortunately not be here today although he was here last week. As an expert on space debris, Prof. Schildknecht supports the Swiss delegation and contributes to the works of Expert Group B on the Long-term Sustainability of Space Activities. Please allow me to deliver his statement.

Ladies and Gentlemen,

For almost twenty years the Astronomical Institute of the University of Berne (AIUB), Switzerland, has been performing optical surveys for small-size space debris in high-altitude orbits. These surveys originally aimed at improving the understanding of the space debris population in the GEO and the GTO regions by acquiring statistical information concerning the number of objects, their sizes and their orbital parameters. However, it soon became obvious that in the long term a catalogue of small-size space debris would be necessary in order to improve the safety of active spacecrafts by allowing them to perform collision avoidance ma-

neuvers, if necessary. The conducted surveys were highly successful. They led to the detection of a large number of debris in GEO, in GTO, and in a wide range of high-altitude orbits. Moreover, a class of space debris with extremely high area-to-mass ratios was discovered. In order to investigate the physical properties of these objects, it is mandatory to maintain their orbits over long time spans, which in turn calls for a cooperative network of optical sensors.

As early as in the year 2004, AIUB started sharing observation data with the Keldysh Institute of Applied Mathematics of the Russian Academy of Sciences (KIAM) in the framework of a scientific collaboration. KIAM tasked a small network of optical sensors to help maintain the orbits of objects discovered by the Astronomical Institute over longer time spans. The small network has grown to what is today known as the International Scientific Optical Network ISON and the collaboration of AIUB with ISON became a success story. Today we collectively maintain orbits of hundreds of large and small-size space debris objects at high altitudes. This orbit catalogue is a prerequisite to investigate the physical characteristics of the objects, in particular their sizes, shapes, attitude states, and material type. Such characterization in turn will hopefully allow identifying the nature and the sources of this debris.

Ladies and Gentlemen,

The Astronomical Institute of the University of Berne is proud to be partner of the International Scientific Optical Network – a network which may serve as a brilliant example of what can be achieved by gradually building confidence based on scientific exchange of data and ideas. We are convinced that this collaboration will substantially contribute to the scientific rationale to devise efficient mitigation and remediation measures enabling sustainable outer space activities.

The Swiss delegation would like to congratulate the Keldish Institute of Applied Mathematics for the successful ISON initiative. We are very happy to see now ISON working together with BSSI and hope that this new collaboration will allow new doors to open, in the sense of what Dr Mazlan Othman stated in her introductory words, that is, to help many Mazlans around the World and allow them to participate to the network for the benefit of all.
