Report from the intercalibration workshops 2011-2013

U. Brändström[1], F. Sigernes[2], D. Whiter[3], C.-F. Enell[4], and S. Mäkinen[3]

[1]*Swedish Institute of Space Physics, Box 812, SE-981 28 Kiruna, Sweden.*
[2]*The Kjell Henriksen Observatory, UNIS, P.O. Box 156, N-9171 Longyearbyen, Norway.*
[3]*Finnish Meteorological Institute, P.O. BOX 503, FI-00101 Helsinki, Finland.*
[5]*EISCAT Scientific Association, PO Box 812, SE-981 28 Kiruna, Sweden.*

e-mail: urban.brandstrom@irf.se

The first absolute calibration of an optical instrument for measurements of the night-airglow was described by Rayleigh in 1930. European optical intercalibration efforts began around the time of the International Geophysical Year in 1957. Documentation of intercalibration workshops exists since about 1980. Since 1985, the Lindau Calibration Photometer (LCP) has been the main intercalibration instrument. Several radioactive phosphor light-standards used since the 1960s are still in use and provide a long time-series connecting the intercalibration efforts over the years. By convention, the so-called ``Fritz Peak" (SID1) source has been used as an international standard for the Rayleigh unit. This paper reports work starting in August 2013 when the SID1 and several other sources was compared to a calibrated spectrograph brought by F. Sigernes. The SID1 source then appeared about 20% brighter as compared to earlier calibrations. The other radioactive sources appeared some 40% brighter in the spectrograph as compared to the LCP intercalibration procedure. These deviations appear to be related and of a systematic nature. On the other hand Tungsten lamp sources appeared less intense in the spectrograph as compared to the LCP intercalibration. Furthermore, work starting in Sodankylä 2013 indicate issues related to the procedures for calibrating auroral imagers. Experiments was carried out regarding the distance between the source and the front lens of the imager as well as the effects caused when the source-area is not fully covering the entire field-of-view of the imager. Next intercalibration workshop is at MISU in Stockholm on Friday 22 August 2014 and it is our hope that as many participants as possible will bring their light sources for intercalibration.