

Intercalibration of Low Light Level Sources

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1 Abstract

During the 28th Annual Meeting on Atmospheric Studies by Optical Methods at Oulu University in Oulu in Finland an intercalibration of low level light sources was performed. The purpose of this calibration is to provide a comparable scale of intensities of auroral or airglow emissions. All sources which has been brought to the meeting were measured with the Lindau calibration photometer and compared to the FP standard source. Wilhelm Barke and Hans Lauch built the photometer in 1984. The FP standard source is on loan from Michael Gadsden, Aberdeen.

The calibration photometer and the FP standard source is normally stored at SSC, Esrange, and Ola Widell is assigned to carry on the intercalibrations since Hans Lauche retired end of year 2000.

2 Results

The intercalibration was done under two assumptions:

- 1 The brightness of the standard of reference source is stable and sufficiently well known, and
- 2 The calibration photometer is linear and stable during the calibration.

All sources were measured at 7 different wavelengths from 391.4 nm to 656.2 nm. The results of our measurements are given in the table below. Brightness is quoted in Rayleigh / Angstrom.

Filter (Å)	3914	4280	4866	5573	5882	6299	6562
Source							
IRF, UJO Y275	0.002	0.18	3.6	258	482	274	155
IRF, UJO L1614	0.1	1.1	38	27	7	1.2	10.2
IRF, UJO 920B	5.2	105	65	22	13	9.2	1.2
IRF, Tungsten Lamp	0.17	1.2	8	48	115	228	428
Sodankylä, Tungsten lamp	0.01	0.6	5	30	75	133	248
Sodankylä, Glow lamp	2.6	7.6	12	8.9	13	10	12
S.Chernouss, Glow lamp	13	143	66	84	374	392	59
S.Chernouss, Tungsten lamp	0.01	1.6	5.5	36	293	947	679
MPI-2	0.01	0.01	2.3	169	251	193	105
Esrange Tungsten lamp	0.53	1.5	11.6	82	122	233	171