

# Finnish Ultraviolet International Research Center (FUVIRC)

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*Finnish Meteorological Institute – Arctic Research Centre (FMI-ARC) maintains research fields of the Finnish Ultraviolet International Research Center (FUVIRC) at Sodankylä. FUVIRC serves ecosystem and atmospheric research by providing UV monitoring data and guidance (i.e. calibration of instruments, maintenance of field sites), research facilities (laboratories and accommodation), instruments and equipment.*

*FUVIRC research fields are located at Sodankylä in northern Finland (67.37 °N, 26.63 °E) about 100 km north of the Arctic Circle. Two modulated UV-B enhancement field sites have been built in the near surroundings of the FMI-ARC sounding station. The forest and peat land sites were constructed in 2002 and 2003, respectively.*



Fig 2

There are 24 experimental plots at the forest site (Fig 1) and 30 at the peat land site (Fig 2).



The sensors measure UV-B and UV-A radiation continuously under the frames to maintain the irradiation at a constant level.

## FUVIRC UV-B irradiation field site in Sodankylä

- ❖ **Forest site:** 24 experimental squares, 7 for enhanced UV-B and UV-A radiation control and 10 for ambient control.
- ❖ **Peat land site:** 10 experimental squares for enhanced UV-B, UV-A control and ambient control.
- ❖ The forest and peat land experiments have been designed to study particularly mosses, red cottongrass and dwarf shrubs (Lingonberries, etc.).
- ❖ UV-B exposure at a constant level of 46% increase in UV-BBE, corresponding to an ozone loss of about 20%
- ❖ Modulated system with Philips TL40W/12RS lamps filtered with either cellulose acetate (UV-B treatment) or polyester (UV-A control). The ambient controls have no lamps, only wooden frames to give similar shading to the UV-B and UV-A treatments.
- ❖ Erythemally weighted (CIE) radiation are measured with Solar Light PMA 1102 (UV-B radiation) and PMA 1111 (UV-A radiation)
- ❖ UV radiation and photosynthetically active radiation (PAR) are measured continuously at the forest field site with NILU-UV (one-minute average) and another NILU-UV is located on the roof of the Sounding station, being representative of the peat land site.
- ❖ Temperature measurements (TinyTalk TK-0040 temperature loggers) on each experimental plot every 15 minutes.

**The Quality assurance** is based on comparisons with the reference instruments of FMI-ARC.

### FMI-ARC also provides :

- Other solar and ancillary data consisting of the global radiation UV-B spectrum (290-325nm), global, diffuse and reflected radiation measured with a pyranometer (CM-11) and CIE-dose rates measured with a broadband radiometer (SL501A).
- Total ozone (Brewer and SAOZ) and ozone profiles (ozone sondes).
- Synoptical weather data.

Data available at <http://litdb.fmi.fi>

Research groups are welcome to use the FUVIRC sites; new species can be introduced to the experimental plots. The FMI-ARC is one of the Lapland Biosphere-Atmosphere Facility (LAPBIAT) stations, where the EU can fund visiting research groups. The grants for selected users will cover travel and subsistence cost for visits of up to three months.

[www.sgo.fi/lapbiat/](http://www.sgo.fi/lapbiat/)

### Contact information

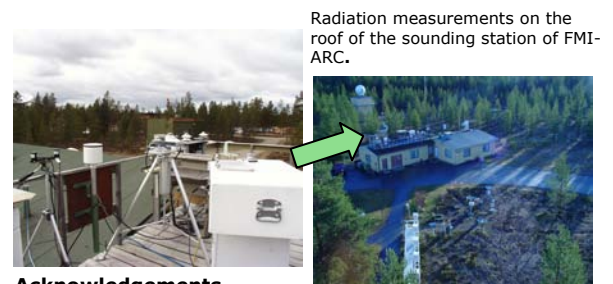
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[fmiarc.fmi.fi/fuvirc/fuvirc\\_hs.html](http://fmiarc.fmi.fi/fuvirc/fuvirc_hs.html)



Fig 1



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