

Name of research institute or organization:

Physikalisches Institut, Universität Bern

Title of project:

SONTEL - Solar Neutron Telescope for the identification and the study of high-energy neutrons produced in energetic eruptions at the Sun

Project leader and team:

Dr. Rolf Bütikofer

Project description:

The solar neutron telescope (SONTEL) at Gornergrat, Switzerland, has been in continuous operation since 1998 as the European cornerstone of a worldwide network for the study of high-energy neutrons produced in energetic processes at the Sun. The network consists of seven solar neutron telescopes that are located at high altitudes and at low to mid latitudes (short path through atmosphere) as well as at different longitudes.

SONTEL Gornergrat was in continuous operation during 2016, with only some short data gaps caused by electrical power outages. No energetic solar cosmic ray event had the magnitude to be observed by ground level detectors in 2016.

The radioactivity measurement with a GammaTracer device inside the detector housing of SONTEL was continued.

In 2016, first clarifications were made about the termination of the SONTEL project at Gornergrat. When starting the operation of SONTEL at Gornergrat in the late 1990s we got the permission by the Burgergemeinde Zermatt to operate the SONTEL detector for about 10 years on the Belvedere terrace at Gornergrat. Figure 1 shows the transport of detector material from Zermatt to Gornergrat by helicopter in January 1998.

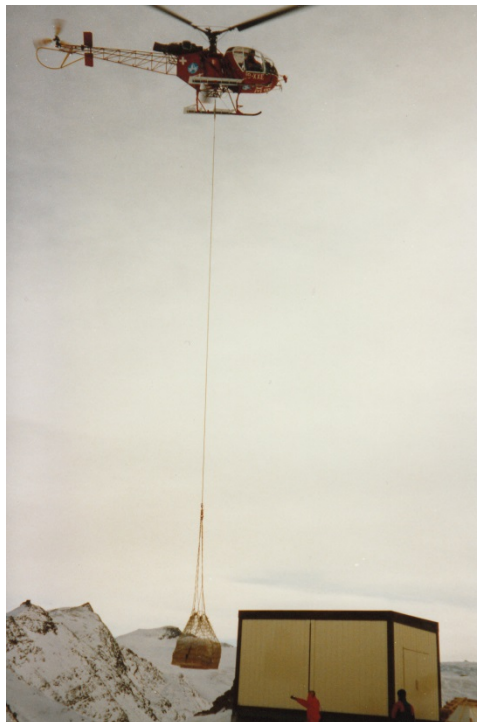


Figure 1. Flying transit of detector material from Zermatt to Gornergrat in 1998.

In 2015 the Burgergemeinde Zermatt asked to move the detector away from the Belvedere terrace to a new location close to the valley station of the former Hohtälli aerial railway. As the retirement of the project leader will be in less than 10 years and as there is nobody in Switzerland working in the field, we asked our colleagues in Japan to look for a new location in Europe or Africa, i.e. at about the same geographic longitude as Gornergrat. The Japanese group has decided to not move the Gornergrat SONTEL to a new location. Therefore we will remove the detector, its housing as well as the fundament of the housing in spring 2017.

Key words:

Astrophysics, cosmic rays, solar neutrons

Internet data bases:

<http://cosray.unibe.ch>

<http://www.stelab.nagoya-u.ac.jp/ste-www1/div3/CR/Neutron/index.html>

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