



International Kristian Birkeland Medal for space weather and space climate

relates to outstanding scientific or technological results. This year, the International Medal Committee decided to award

Dr Werner Schmutz

Dr Werner Schmutz is a widely accepted authority in the area of space weather and space climate studies. As director of the Physikalisch-Meteorologisches Observatorium Davos and World Radiation Center (PMOD/WRC), he is conducting PMOD to be more and more deeply involved in SWSC research. His contribution to the theoretical and technological aspects of the influence of solar irradiance on Earth's atmosphere played a decisive role in the fast progress of SWCS development during recent decade.

The active role of Werner Schmutz regarding the development and exploitation of several space experiments measuring the Total Solar Irradiance (TSI) and Solar Spectral Irradiance (SSI) has been critical for broadening observational data sets. Such resulting databases are necessary for addressing SWSC issues regarding the solar irradiance from short term to long term variability.

Werner Schmutz is Co-I of the LYRA radiometer, onboard the ESA PROBA-2 satellite, Co-I of the Solar Variability and Irradiance Monitoring (SOVIM), PI of the Precision Monitoring of Solar Variability (PREMOS) instrument onboard the PICARD satellite. Through these experiments, Werner Schmutz confirmed the new solar TSI values of 1361 W.m^{-2} and helped to understand the climate response to space weather phenomena. He was leader in characterizing the solar photospheric radius. He also contributed to the understanding of the uncertainties in the observed and modelled spectral solar irradiance behaviour during the last decade using both theoretical considerations and long-term data. Werner Schmutz is also deeply involved in the development of future TSI instruments, with CLARA (Compact Lightweight Absolute Radiometer) as PI of this Swiss space experiment on the Norwegian mission NORSAT-1, and also PI of SuMo (Sun Monitor), a space experiment on the planned ESA technology mission PROBA 3.

Werner Schmutz coordinated the European Framework Program project SOLID (First European Comprehensive SOLar Irradiance Data Exploitation), an essential project for assessing the solar irradiance variability at any time scales. He is also leading the development of solar irradiance modeling, with the widely used code for solar irradiance. Werner Schmutz also coordinated the research project FUPSOL (Future and Past Solar Influence on the Terrestrial Climate), a project aimed at the quantification of the solar activity contribution to the past and future changes of the ozone layer and climate. The long-term solar irradiance changes estimated with the COSI model were applied to drive atmosphere-ocean chemistry climate model also developed in the framework of the Werner's projects. The results of these experiments revealed that the solar activity influence on ozone layer might compete with anthropogenic influence, although only 20-30% of the future warming caused by greenhouse gas emissions can be compensated.

For all these reasons, the Committee decided to award Werner Schmutz with the 2015 Kristian Birkeland Space Weather and Space Climate medal.