

Physikalisches Kolloquium

Martin Riese, FZ Jülich

»New perspectives to understand important climate feedbacks«

Einführung: M. Höpfner

Climate sensitivity is one of the most important unknowns in climate research. It is defined by the global warming obtained from doubling the CO₂ concentration in the Earth's atmosphere. Exclusively considering the radiation effect of doubling CO₂ results in a global warming of about 1.2°C. This value is, however, amplified by radiative feedbacks of water vapor, ice clouds, and albedo. The most probable value of the resulting climate sensitivity is around 3°C. However, the uncertainty range from about 1.5 to 4.5°C is rather large. To reduce this uncertainty, ESA recently selected the Far-infrared Outgoing Radiation Understanding and Monitoring (FORUM) satellite (to be launched in 2026). FORUM will measure, for the first time, the spectrally-resolved outgoing longwave radiation (OLR) in the far-infrared region, which accounts for about half of Earth's radiative cooling and about half of the greenhouse effect. In addition, the observed spectral region contains important fingerprints of radiative feedbacks by water vapor and ice clouds. The talk will give an overview on the scientific rationale for the FORUM mission and a brief description of the technical and observational concepts.

Freitag, 10.01.2020, 15:45 Uhr,

**KIT, Campus Süd,
Otto-Lehmann-Hörsaal, Physik-Flachbau (Geb. 30.22).
Anschließend Nachsitzung.**