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## Seminar über Microwave Physics and Atmospheric Physics

**Referent/in:** Dr. Maximilian Maahn, Institute for Meteorology, Leipzig University

**Titel:** What Every Atmospheric Scientist Should Know About Inverse Modelling

Remote sensing instruments are heavily used to provide observations for both the operational and research communities. These sensors do not provide direct observations of the desired atmospheric variables, but instead, retrieval algorithms are necessary to convert the indirect observations into the variable of interest. It is critical to be aware of the underlying assumptions made by many retrieval algorithms, including that the retrieval problem is often ill-posed and that there are various sources of uncertainty that need to be treated properly. The problem is often complicated by imperfect forward models, imperfect prior knowledge, and by the existence of nonunique solutions. Here, I present an introduction into inverse methods is given using the Optimal Estimation (OE) technique as an example. OE is a widely used physical retrieval method that combines measurements, prior information, and the corresponding uncertainties based on Bayes' theorem to find an optimal solution for the atmospheric state.

**Zeit:** Freitag, 12. November 2021, 10:15 Uhr

**Ort:** <https://unibe-ch.zoom.us/j/97081325603?pwd=d0ozME5xOS9pQVNxallLem81VHQyZz09>  
Meeting ID: 970 8132 5603  
Passcode: iapmw