

Infos zu Schumann, Ulrich [Ed.] (2012):

Atmospheric physics: background, methods, trends

Inhaltsangabe:

On the occasion of the 50th anniversary of the Institute of Atmospheric Physics of the German Aerospace Center (DLR), this book presents more than 50 chapters highlighting results of the institute's research.

The book provides an up-to-date, in-depth survey across the entire field of atmospheric science, including atmospheric dynamics, radiation, cloud physics, chemistry, climate, numerical simulation, remote sensing, instruments and measurements, as well as atmospheric acoustics.

The authors have provided a readily comprehensible and self-contained presentation of the complex field of atmospheric science. The topics are of direct relevance for aerospace science and technology. Future research challenges are identified.

Zusammenfassung

In honor of the 50th anniversary of the Institute of Atmospheric Physics of the German Aerospace Center, this book presents outstanding results of the Institute. It covers the entire area of atmospheric science, from fluid dynamics to atmosphere acoustics.

Inhaltsverzeichnis

- The Atmosphere.-
- The Atmosphere - from the surface to the stratosphere.
- Chemical composition of the atmosphere.- Atmospheric.
- The Earth's radiation budget - the driver for weather and climate
- Greenhouse effect, radiative forcing and climate sensitivity.
- Methods.
- Measurements of nitrogen oxides and related trace gases
- Chemical ionization mass spectrometric measurements of atmospheric trace.
- In-situ measurement methods for atmospheric aerosol particles.
- Dropsondes.
- Lightning detection.
- Research trends.
- Probabilistic weather forecasting.
- Recent and future evolution of the stratospheric ozone.
- Aircraft emissions at cruise: In-situ measurements, uncertainties and trends.
- Climate impact of transport.
- Methane modeling - from process-oriented models to global climate models.
- Mitigating the impact of adverse weather on aviation.