OFFER

We offer our experience, knowledge and advanced modeling techniques to suggest solutions to current problems in environmental physics focusing especially on atmospheric phenomena. In particular:

- Atmospheric thermodynamics, hydrodynamics, general fluid dynamics and circulation.
- Synoptic meteorology, weather forecasting and numerical weather prediction.
- Air quality, atmospheric chemistry, dispersion and transformation of air-pollution, modeling of air-pollution transport.
- Climate system, modeling of climate, climate changes and evaluation of future development.
- Middle atmospheric dynamics, ozone chemistry, gravity and planetary waves analysis.
- Deterministic chaos and nonlinear processes in the atmosphere.
- Atmospheric optics, acoustics, electricity, radiative processes, and cloud and precipitation physics.

EXPERTISE

- Atmospheric thermodynamics, hydrodynamics, general fluid dynamics and circulation.
- Synoptic meteorology, weather forecasting and numerical weather prediction.
- Air quality, atmospheric chemistry, dispersion and transformation of air-pollution, modeling of air-pollution transport.
- Climate system, modeling of climate, climate changes and evaluation of future development.
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RESEARCH AREAS & EXCELLENCE

Systematic development of scholarship and science in the field of atmospheric physics and meteorology. As the only university department in the Czech Republic, we provide complex study of the atmosphere in correspondence with the World Meteorological Organization requirements.

We are oriented on topics of high societal impact. Our lectures and research interconnect students with specialized scientific subjects such as numerical modeling of physical and chemical processes in the atmosphere, weather prediction, climate change, fluid dynamics, air quality or turbulence.

KEY RESEARCH EQUIPMENT

High performance computer cluster with 12 nodes, 24CPU units each – upgrade to a more powerful facility is underway.

PARTNERS & COLLABORATIONS

ACADEMIC PARTNERS

- Center National de Recherches Meteorologiques (CNRM), Meteo France, Toulouse: impact of aviation emissions on global climate and atmospheric chemistry.
- Leipzig Institute for Meteorology, University of Leipzig: study of gravity waves localized forcing, numerical experiments with Middle and Upper Atmosphere model.
- Laboratoire Atmosphères, Milieux, Observations Spatiales (LATMOS) in l’Institut Pierre Simon Laplace (IPSL): analysis of satellite observation of pollutants (O3, CO, CH2O) and comparison with model simulations.
- Institute for Geophysics, Astrophysics and Meteorology (IGAM) of the University of Graz: analysis and usage of the GPS RO data, gravity waves study.
- Institute for Atmospheric and Climate Science, ETH Zurich: climate modeling, solar cycle forcing.
- Czech Technical University in Prague: numerical modeling, turbulent flow modeling.
- Czech Hydrometeorological Institute: meteorology, air quality, weather prediction, numerical modeling, meteorological satellites.

INDUSTRY PARTNERS

- DIAMO, state enterprise, Czech Republic
- ČEZ, a. s., Czech Republic
- InMeteo s.r.o., Czech Republic.

MAIN RECENT PROJECTS

- Project URBI PRAGENSI „Urbanization of weather forecast, air quality prediction and climate scenarios for Prague.

SEE OUR WEBPAGE

http://kfa.mff.cuni.cz