

Physics of the atmosphere: program

Introduction : The atmosphere continuum, atmospheric composition and phenomena, scale analysis, vertical structure of the atmosphere. Governing equations.

Thermodynamics (dry and moist): Kinetic theory, First and Second principle of Thermodynamics, Enthalpy, Hydrostatic balance, Buoyancy, Moisture variables, Introduction to Convection.

Radiation and climate change: Elements of Thermal Balance, Solar and terrestrial radiation, Earth's budget, Radiative equilibrium, Climate Change.

Atmospheric waves and atmospheric convection: Atmospheric equations of motion on spherical cords., Synoptic scale motions, Mesoscale motions: numerical modeling of convective clouds.

Numerical Modeling laboratory: numerical simulations of Navier-Stokes equations in real cases