

ATMOSPHERIC PHYSICS AND CHEMISTRY

- Composition of the atmosphere: Sulfur-containing compounds. Nitrogen-containing compounds. Carbon-containing compounds. Atmospheric ozone.
- Chemical Kinetics – Atmospheric Photochemistry.
- Chemistry of the troposphere: Cycle of NO_2 , NO and O_3 . Cycle of NO_x , VOCs and O_3 . Ozone production.
- Atmospheric aerosols (Introduction): Properties of the atmospheric aerosols. Chemical composition. Distribution.
- Atmospheric aerosols: Thermodynamics and Dynamics of aerosols. Nucleation.
- Atmospheric aerosols: Optical properties. Aerosols and climate.
- Atmospheric diffusion: Eulerian approach. Lagrangian approach. Instantaneous and continuous sources. Statistical theory of diffusion. Analytical solutions for atmospheric diffusion.
- Atmospheric chemical transport models (Introduction): 1-Dimensional models. Statistical models.
- Atmospheric chemical transport models: Three-Dimensional models. Initial and boundary conditions. Anthropogenic and natural emission sources. Chemical mechanisms. Model simulations.