

GEOPHYSICAL FLUID DYNAMICS

- Introduction to fluid and geophysical fluid dynamics: Basic concepts and primitive equations
- Kinematics (flow Lines, fluid Acceleration, and Galilean Transformation, Strain and Rotation Rates)
- Conservation Laws
- Ideal flow
- Similarity, dimensional analysis
- Geophysical fluid scaling and approximations.
- Quasi-geostrophic dynamics
- Vorticity conservation in geophysical flows
- Rossby waves - Barotropic and baroclinic instability
- Turbulence in geophysical flows
- Boundary layers
- The boundary layer dynamics