AS212 August 3:0

Introduction to Atmospheric Dynamics

Instructor

Jai Sukhatme
Email: jai@iisc.ac.in

Teaching Assistant

Email:

Department: CAOS

Course Time: MWF 12-1

Lecture venue: CAOS

Detailed Course Page:

Announcements

Brief description of the course

An introduction to the dynamics of the Earth's atmosphere. Meant for fresh graduate students joining CAOS from diverse backgrounds. We derive the basic equations that govern the motion of a fluid on a rotating planet, and present examples of synoptic tropical, extratropical and polar phenomena that can be understood to first order by simple balances that arise from these equations.

Prerequisites

Calculus and some knowledge of differential equations. A basic fluid dynamics course is also useful.

Syllabus

Equations of motion for a fluid on a rotating planet. Coordinate transforms. Tropical cyclones, extratropical cyclones, polar lows. Large scale circulation of the atmosphere.

Course outcomes

The basic equations in atmospheric dynamics. Fundamental balances on a rotating planet. Vorticity and its evolution. Common synoptic systems on Earth. The general circulation of the Earth's atmosphere.

Grading policy

50% for in term exams. 50% for final.

Assignments

Resources