Corso di Laurea in Fisica
A.A. 2006-2007
Fisica dell'atmosfera
Titolare: Prof. Steve Shore e Prof. Patrice Poinsotte

Programma.

Introduction to Atmospheres and Meteorology

0. Outline of the historical development of our picture of the atmosphere

1. Basic atmospheric structure, from local phenomena to large scale

2. Fluid mechanics on a rotating planet

3. Thermodynamics and the equation of state

4. Radiative balance and thermal structure: this will be essential for understanding the cause (and cure?) of climate change.

5. Convection and thermal instabilities

6. Dynamical instabilities (i.e. Rayleigh-Taylor, Taylor, Kelvin-Helmholtz, Rossby)

7. Cyclogenesis, frontogenesis

8. Baroclinic instabilities

9. Topographic effects

10. Synoptic weather patterns and prediction

11. Planetary problems and other planets

Laboratory exercises: use of meteorological data to predict weather patterns on intermediate and large scale, limits of predictions, etc.

NB: Prof. Patrice Poinsotte