NPTEL Video Course - Atmospheric Science - Introduction to Atmospheric Science

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Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Atmosphere-A brief survey (Pressure, Temperature and Chemical composition)
Lecture 3 - Atmosphere-A brief survey (Continued...) (Vertical structure of the atmosphere)
Lecture 4 - Vertical structure of atmosphere (Continued...) and The Earth system - Oceans
Lecture 5 - The Earth system - Oceans (Continued...) and Marine biosphere
Lecture 6 - The Earth system - Hydrological cycle
Lecture 7 - The Earth system - Hydrological cycle (Continued...) and Carbon cycle
Lecture 8 - The Earth system - Carbon cycle (Continued...), and Carbon in the oceans Earth's crust
Lecture 9 - The Earth system - Carbon in the oceans Earth's crust
Lecture 10 - Atmospheric Thermodynamics- Introduction
Lecture 11 - The hydrostatic equation
Lecture 12 - Hypsometric equation and pressure at sea level
Lecture 13 - Basic Thermodynamics
Lecture 14 - Concept of air parcel and dry adiabatic lapse rate
Lecture 15 - Potential temperature
Lecture 16 - Skew-T ln-P chart
Lecture 17 - Problems using Skew-T ln-P chart
Lecture 18 - Problems using Skew-T ln-P chart (Continued...)
Lecture 19 - Problems using Skew-T ln-P chart (Continued...)
Lecture 20 - Lifting Condensation Level (LCL)
Lecture 21 - Lifting Condensation Level (LCL) (Continued...)
Lecture 22 - Saturated Adiabatic and Psuedo-adiabatic processes
Lecture 23 - Equivalent potential temperature and wet bulb potential temperature
Lecture 24 - Normand's rule - Chinook winds
Lecture 25 - Problems on Chinook wind and static stability
Lecture 26 - Static stability-Brunt-Visala frequency
Lecture 27 - Conditional and convective instability
Lecture 28 - Static stability - Problems using radiosonde data and skew T ln P chart
Lecture 29 - The second law of thermodynamics â Clausius Clapeyron relation

Lecture 30 - Clausius Clapeyron relation (Continued...)
Lecture 31 - Atmospheric radiation â Radiation laws
Lecture 32 - Planck's distribution and Inverse square law
Lecture 33 - Physics of scattering, emmision and absorption
Lecture 34 - Physics of scattering, emmision and absorption (Continued...)
Lecture 35 - Radiative Transfer Equation â Derivation
Lecture 36 - Radiative Transfer Equation (Continued...)
Lecture 37 - Radiative heating profiles of the atmosphere
Lecture 38 - Climate Dynamics â Introduction
Lecture 39 - Climate sensitivity and feedback
Lecture 40 - Climate change
Lecture 41 - Atmospheric dynamics