

These are the important topics for the first exam. They are not in any particular order.

Chapter 1

The important topics in chapter 1 are:

Definitions

- Weather
- Climate
- Meteorology

Types of Maps

- Vertical Cross Sections
- Horizontal Maps: Contour, Station

Atmospheric Composition

- Main permanent gases
- Main variable gases/particles

Vertical Structure of the Atmosphere

- Troposphere thru Thermosphere
- How to identify level/layers
- Temperature characteristics in each layer (e.g. warming with height)

Chapter 2

The important topics of chapter 2 are:

Description of Radiation

- What are waves, wavelengths, frequencies
- What are the types of radiation, characteristics

Radiation Laws

- Reflected vs Emitted
- Blackbody characteristics

Solar Radiation

- Solar Altitude
- Earth's Orbit
- Tilt of the Earth
- Albedo
- Scattering
- Absorption
- Solar Radiation Budget

Greenhouse Effect

- What is the effect of the atmosphere?
- What wavelength of radiation is involved?
- What gases are important?

Chapter 3

The important topics of chapter 3 are:

Definitions

- Kinetic Energy
- Temperature
- Heat

Transport of Heat

- Radiation, Convection, Conduction
- Heat Capacity

Windchill and Heat Index

Latent Heating

- Melting, freezing

- Evaporating condensing

Global Heat Balance

- Atmospheric heat budget
- Surface heat budget

Heat Imbalances

- Latitudinal radiational imbalance
- Warmest time of the day

Warm and Cold air advection