

EPSC 2401 Atmospheric Science – Review Sheet for Exam #2

Chp. 4 – Heat, Temp., & Atmospheric Circulation

Definitions:

Radiation	Conduction	Convection
Latent Heat of Fusion	Latent Heat of Vaporization	Emission
Absorption	Sensible Heat Flux	Bowen Ratio
Diurnal Temperature Range	Latent Heat Flux	Thermal Lag
Evaporation	Condensation	

Concepts:

What are the three temperature scales?

What are the three methods that can be used to measure temperature?

What is heat? In which direction is it always transferred?

What are the four ways in which heat can be transferred between materials?

What is latent heat and how is it associated with the changes of state in water?

How does the Bowen ratio vary between ocean and land surfaces?

What is the nature of radiation imbalances between the low and high latitudes?

What are the main processes that transfer heat from the low to high latitudes?

How does temperature change over the course of a day or season?

Be able to discuss the thermal lag in high temperatures notes at both daily and monthly timescales.

How does cloudy cover influence the diurnal temperature range?

How does soil moisture influence daily maximum temperatures?

Compare diurnal temperature range between continental and maritime settings.

Why do urban heat islands exist?

Chp. 5 – Atmospheric Pressure

Definitions:

Air Pressure	Standard Atmospheric Pressure	millibar
Barometer	Surface Divergence	in of Hg
Upper Air Convergence	Surface Convergence	Upper Air Divergence

Concepts:

How is air pressure measured?

Why is it that it is not the absolute pressure that is as important as the trend in pressure?

What are all of the characteristics associated with high and low pressure systems?

How does pressure change with increasing altitude in the atmosphere?

Why is it important to adjust all pressure measurements so that they were made at sea level?

How does changing temperature influence air pressure?
How does changing humidity influence air pressure?
What is the pressure associated with a cold, dry airmass?
What is the pressure associated with a warm, humid airmass?

Chp. 6 – Atmospheric Moisture

Definitions:

Reservoir	Flux	Water Vapor Content
Water Vapor Capacity	Relative Humidity	Dew Point
Precipitable Water	Mid-Latitude Cyclone	Adiabatic Process
Atmospheric Stability	Stuve Diagram	Latent Heat
Convection	Orographic Lifting	Convergence
Frontal Wedging		

Concepts:

What is the abundance of water in the different reservoirs that make up the hydrologic cycle on earth?
What happens to surface water in Laredo? (Remember equation)
What is the maximum amount of water vapor that can be present in the atmosphere?
How does water vapor capacity change with temperature? (Remember Fig. 6.7)
Without air mass advection how does relative humidity change over the course of a normal fair weather day? (Fig. 6.9)
How does dew point vary in association with a mid-latitude cyclone?
How is atmospheric moisture measured?
What is the difference between the dry and moist adiabatic lapse rates in the troposphere?
What is the relationship between the actual lapse rate and the dry and moist adiabatic lapse rates in the context of atmospheric stability? (Remember conditions A to E on Fig. 6.20)