

**Chapters 6, 7, 8 and 10 – Exam 10 am April 2<sup>nd</sup> until April 3<sup>rd</sup> at 5 pm.**

**Vocabulary Words for True and False, and Multiple Choice**

You are responsible for the following words:

| <b>Chapter 6</b>        | <b>Chapter 7</b>     | <b>Chapter 8</b>                | <b>Chapter 10</b> |
|-------------------------|----------------------|---------------------------------|-------------------|
| Sea-Level Pressure      | Microscale           | Air mass                        | Air Mass          |
| Isobar                  | Mesoscale            | Source region (for air masses)  | Thunderstorms     |
| Anticyclone             | Macroscale           | Continental Polar (air mass)    | Cumulus Stage     |
| Pressure Gradient Force | Jet Stream           | Continental Arctic (air mass)   | Mature Stage      |
| Coriolis Force          | Sea Breeze           | Maritime Polar (air mass)       | Dissipating Stage |
| Geostrophic Wind        | Land Breeze          | Maritime Tropical (air mass)    | Multi-cell        |
| Gradient Wind           | Valley Breeze        | Continental Tropical (air mass) | Thunderstorm      |
| Prevailing Wind         | Mountain Breeze      | Front                           | Overshooting Top  |
| Wind Rose               | Katabatic Wind       | Stationary Front                | Gust Front        |
| Wind Vane               | Chinook Wind         | Cold Front                      | Supercell         |
| Anemometer              | Foehn Wine           | Warm Front                      | Mesocyclone       |
| Aerovane                | Santa Ana Wind       | Occluded Front (occlusion)      | Wall Cloud        |
| Wind Profiler           | Haboob               | Overrunning                     | Lightning         |
|                         | Dust Devils          | Polar Front Theory              | Thunder           |
|                         | Hadley Cells         | Cyclogenesis                    | Stepped Leader    |
|                         | Trade Winds          | Nor'Easter                      | Return Stroke     |
|                         | Westerlies           | Alberta Clipper                 | Dart leader       |
|                         | Doldrums             | Panhandle Hook                  | Heat Lightning    |
|                         | Horse Latitudes      | Kona Low                        | Tornado           |
|                         | Monsoon Wind System  |                                 | Funnel Cloud      |
|                         | Teleconnections      |                                 | Suction Vortices  |
|                         | El Niño              |                                 | Fujita Scale      |
|                         | La Niña              |                                 | Enhanced Fujita   |
|                         | Southern Oscillation |                                 | Scale             |
|                         | Intertropical        |                                 |                   |
|                         | Convergence Zone     |                                 |                   |

**TOPICS YOU NEED TO KNOW – Chapter 6**

- 1) Be able to explain how horizontal pressure differences are related to differences in air density.
- 2) Identify what type of air (i.e. warm, cold, dense or not) is associated with High pressures and Low pressures.
- 3) Know the value of standard atmospheric pressure at sea level in mb and in. Hg.
- 4) Know what isobars are and how to draw them on a map.
- 5) Be able to identify the three forces that influence the wind.
- 6) Be able to DRAW how each of the three or a combination of these forces effect wind direction.
- 7) Know where on Earth the Coriolis force is strongest and where it is weakest.
- 8) Identify what TWO things can affect the magnitude of the Coriolis force.
- 9) Be able to explain the difference between geostrophic wind and gradient wind.
- 10) Know which direction cyclones and anticyclones rotate in the Northern and Southern Hemispheres.
- 11) Explain the difference between convergence and divergence and how they relate to vertical air motion.
- 12) Be able to differentiate between different types of wind measuring instruments.

## **TOPICS YOU NEED TO KNOW – Chapter 7**

- 1) Be able to give the time scale, length scale and an example of microscale, mesoscale and macroscale winds.
- 2) Be able to describe and recognize diagrams of sea, land, valley and mountain breezes.
- 3) Explain the formation of Country Breezes and how they are related to the Urban Heat Island effect.
- 4) Know the differences and similarities between Chinook, Foehn, Katabatic and Santa Ana winds.
- 5) Be able to explain what a monsoon is and identify parts of the Asian Monsoon in a diagram.
- 6) Be able to describe a Haboob and a dust devil.
- 7) Be able to explain the difference between the “single-cell” and “three-cell” model of Earth’s winds.
- 8) Be able to describe the wind direction, wind name and latitude boundaries for the Hadley Cell.
- 9) Be able to describe the wind direction, wind name and latitude boundaries for the Ferrell Cell.
- 10) Be able to describe the wind direction, wind name and latitude boundaries for the Polar Cell.
- 11) Explain the importance of the trade winds and the westerlies.
- 12) For the doldrums and horse latitudes, know their latitudes and why they are special.
- 13) Be able to explain how jet streams are formed.
- 14) Be able to explain the role that jet streams play in determining weather in the US.
- 15) Explain what an El Niño event is and what the climate impacts are in Australia, South America and the US.
- 16) Explain what a La Niña event is and how it is related to El Niño.
- 17) Define Teleconnection and how this term relates to El Niño, La Niña and the Southern Oscillation.

## **TOPICS YOU NEED TO KNOW – Chapter 8**

- 1) Be able to describe the moisture and temperature characteristics for mT, mP, cT and cP air masses.
- 2) Be able to describe and sketch a warm front, know the speed, changes in wind direction and slope.
- 3) Be able to describe the type of weather associated with a warm front.
- 4) Be able to describe and sketch a cold front, know the speed, changes in wind direction and slope.
- 5) Be able to describe the type of weather associated with a cold front.
- 6) Be able to explain how stationary, warm, cold and occluded fronts are related to Cyclones.
- 7) Be able to describe the typical life cycle of a Mid-Latitude Cyclone.
- 8) Be able to list the main regions for cyclogenesis and the names associated with each type.
- 9) Be able to describe and sketch a dry line and know why it is important for weather in the southwest.

## **TOPICS YOU NEED TO KNOW – Chapter 10**

- 1) Be able to list the main “ingredients” needed to make a thunderstorm.
- 2) Be able to describe the three different life-cycle stages of ordinary air mass thunderstorms.
- 3) Describe Supercell storms and identify how they are different than an air mass thunderstorms.
- 4) Know the criteria for a storm to be classified as severe.
- 5) Be able to describe the different parts of a Supercell Thunderstorm.
- 6) Be able to describe the process that causes lightning and thunder.
- 7) Be able to calculate how far away a storm is based on the timing of thunder and lightning flash.
- 8) Be able to identify the different types of lightning.
- 9) Be able to describe how a tornado forms and the role of the mesocyclone.
- 10) Be able to identify the three different types of tornadoes (weak, strong, violent).
- 11) Be able to identify the Fujita Scale rating for an event based the observed destruction.