

ATOC 1050 Section 001 Spring 2011
Final Exam Review Sheet

1. Chapter 16—Mountain Snowstorms
 - a. Why/where do they matter/have impact? (Influence of topography)
 - b. Orographic lifting (where does precipitation occur on each Western US range and why, as snow or rain, relatively how much, orographic versus frontal lifting)
 - c. Upslope storms on Front Range (how occur, weather patterns, what causes variable snow amounts)
 - d. Snow water equivalents (typical, range, low or high density snow)
2. Chapter 17— Mountain Winds
 - a. Names of various mountain winds (warm/cold, where occur)
 - b. Lee Waves (conditions to occur, types of clouds, where form)
 - c. Severe winds (hydraulic jump, conditions for,
 - d. Cold vs warm downslope winds (3 factors that impact)
 - e. Weather features of Chinook and Santa Ana winds (& when occur)
3. Chapter 18— Thunderstorms
 - a. Criteria for a storm to be severe
 - b. 3 elements needed to form thunderstorm (4th one if severe storm)
 - c. 4 types of thunderstorms (for each know the typical lifetime/size, triggering mechanism, stages, key features, vertical cross section of features):
 - i. Air mass storm (entrainment, how does downdraft form?)
 - ii. MCS (cold pool, bow echo, radar fine line/gust front, shelf cloud, bright band)
 - iii. Frontal squall line (what part of comma, how form?)
 - iv. Supercell (definition, updraft strength, CAPE, mesocyclone, BWER, wall cloud, FFD, RFD, hook echo, where is updraft?)
4. Chapter 19— Tornadoes
 - a. Typical size, wind speeds, what storms can they form in?
 - b. Mesocyclone (source of rotation/tilting process, typical size)
 - c. Tornadogenesis (concept of stretching, mesocyclone occlusion, know names of 3 theories)
 - d. Tornado dissipation (cause, time tornadoes may be on ground)
 - e. Non-supercell tornadoes (types, where form)
 - f. Where do tornadoes form in US? In the world? When do they occur?
 - g. Tornado intensity scale (name, number of categories, basis of rating)
 - h. Tornado detection (how detected? Radar features to help detect)
 - i. Severe weather watches vs warnings (who issues, criteria for each)
5. Chapter 21—Lightning
 - a. Lightning types, where does it occur (globally, US)
 - b. Fair weather electric field (sign of atmosphere vs ground, strength)
 - c. Charging mechanisms (how each works, how they are different)
 - d. Typical charge structure (sign of charge at top of storm vs lower part, what particles involved, strength of electric field for lightning)
 - e. Stages of CG lightning stroke
 - f. Thunder (what causes, how use to tell distance to lightning)
 - g. Other related phenomena (names, what are they)
6. Chapter 24— Tropical Cyclones
 - a. 4 stages and criteria for each, naming vs numbering for each stage
 - b. Hurricane intensity scale (name, number of categories, basis of rating)
 - c. Features of a hurricane (from satellite or radar, vertical cross section, how meteorological measurements change across storm)
 - d. Tropical cyclone development (ITCZ, easterly wave, formation environment, spin up)
 - e. Lifecycle and causes for weakening
 - f. Destructive forces (storm surge, winds, rain)