

# ATM 5 - Fall 2018 - Assignment 7

Due Wednesday, December 5th

**Directions:** Answer all questions clearly and in your own words. All submitted responses must be typed and submitted via Canvas. For question 1 please either (a) scan in your figure and submit to drop box or (b) submit a copy of your figure in-class to Prof. Paul Ullrich on Wednesday, December 5th.

## Homework Question 7.1

[See note under “Directions above” for how to submit this question] The three-cell model of the atmosphere captures many of the most important features of the atmospheric general circulation. For this question you will be asked to draw the major features of the global general circulation on the figure on page 3. (1) First, indicate hot / cold regions and wet / dry regions. (2) Indicate the dominant mean zonal (along lines of constant latitude) surface wind velocity between the equator and 30° and between 30° and 60° (in both hemispheres). (3) Along the right edge of the globe draw the following global circulation features:

1. Hadley cells (indicate the circulation direction)
2. Ferrel cells (indicate the circulation direction)
3. Polar cells (indicate the circulation direction)
4. Intertropical Convergence Zone (ITCZ)
5. Midlatitudinal jets
6. Polar jets

## Homework Question 7.2

Choose one of the following large-scale weather phenomena. Give a concise description of your chosen phenomenon. Explain how your phenomenon is connected to local or global climate. Describe a famous example of your chosen phenomenon and explain its impacts.

Phenomena	Some Famous Examples
Extratropical Cyclones ie Alberta Clippers ie Nor'Easters	Snowpocalypse (2009) Snowmageddon (2010) Snowmageddon 2: Snoverkill (2010) 2011 North American blizzard
Atmospheric Rivers aka Pineapple Express	ARkStorm (hypothetical) Great Flood of 1862 Storms
Atmospheric blocks	The Ridiculously Resilient Ridge
Heat waves	2003 European heat wave 1936 North American heat wave
Tropical Cyclones	Too many to list...

## Homework Question 7.3

Choose one of the following technologies that aim to mitigate the impacts of climate change. In 300 words or less, describe this technology and its potential impact on climate change. Is this technology scalable to meet the problem of climate change?

- (a) Carbon removal and sequestration
- (b) Afforestation and reforestation
- (c) Ocean fertilization

## Citation Style

Please use the following format for citations:

**Journal articles:** Backsoon, I. B. 1999. El Niño or El Nosense? *Journal of Cosmetology* 1:115-119.

**Books:** Backsoon, I. B. 1999. *The facts behind clichés*. 2nd ed. Bemidji State University Press, Bemidji, MN.

**Newspaper or magazine articles:** Backsoon, I. B., Verisi, X. O., and Enopi, L. M. 1999. Heat or humidity? *Sacramento Bee*. 2 January, p. A-8.

**Web:** <http://atm.ucdavis.edu>

