

Project Assignment 4 – Severe Weather and Risks in your Island/Country

Total 25 points – Due Thursday 11/19/15

Instructions to turn in:

- 1) These assignments must be TYPED
- 2) Student information: Name, student ID, MET 102 Fall 2015, Date all on their own line - in the upper Right Hand Corner
- 3) Title as described in the assignment (replace “your Island/Country” with the actual name of your Island/Country).
- 4) Times New Roman
- 5) 12 pt font
- 6) 1 inch margin
- 7) Page numbers in the lower Right hand Corner

1. (5 points) Thunderstorms and Lightning

- a) (1 pt) Google “Global Lightning” and/or “Global Lightning Map” to find a map/figure showing where lightning typically occurs on earth. Include this map with your assignment. You can visit <http://wwlln.net/new/map/> to see real time lightning data over the whole globe.
- b) (1 pt) Based on the map above, does your country have low, moderate, or high occurrences of lightning? How does the amount of lightning compare to Florida in the US (more, less, about the same)?
- c) (1 pt) Based on the map above, estimate the average number of lightning strikes per year per km². Ask for help if you need it, or if you’re unsure how to go about getting this number.
- d) (1 pt) Visit <http://www.blitzortung.org/Webpages/index.php> and click on Oceania on the left hand side. This will zoom in the map to our general region. Take a screen shot (“PrtSc”) or save the image and include one with your assignment. Provide the date and time of your snapshot for context.
- e) (1 pts) What time of year (e.g. season and/or months) do you think lightning would be most likely to occur in your country? Why?

2. (10 points) Tropical Cyclones

- a) (3 pts) Describe the three main requirements for hurricane formation discussed in class. Does your country’s location satisfy these three requirements? Why or why not?
- b) (1 pt) When is the official hurricane season for the South & Southwest Pacific?
- c) (1 pt) Use the class notes or Google to find a map/figure/diagram that shows where on earth we find tropical cyclones. Include this map/figure/diagram with your assignment.
- d) (1 pt) Depending on the region of formation a tropical cyclone can be called three other names. For your country, what is the name given to tropical cyclones? (*Hint: It’s the most obvious*).

e) (1 pt) Based on your map in part b) and your understanding of global wind patterns, what is the normal track (direction) that tropical cyclones take in the Southwest Pacific? In the Northwest Pacific? How does this direction relate to your country's location in the Pacific Basin?

f) (1 pt) What is the average number of tropical cyclones to hit your country each year? Visit <http://www.ghatlas.com.au/content/tropical-cyclones> for some ideas on the average number of cyclones. Use any sources you can to try to find the best estimate. Explain how you determine your estimated number.

g) (1 pt) How does your estimated number of cyclones per year relate to the number of hurricanes that hit the Eastern Coast of the US each year (e.g. making landfall)? (*Hint: You'll need to Google what the average number is for the US*).

h) (1 pt) Speculate what type of damage would occur on your island or in your country if it were hit with a Tropical Cyclone of moderate strength (Category 3). (*Hint: feel free to google about actual tropical cyclones that may have hit your island/country*).

3. (3 points) Tornadoes

a) (1 pt) Google to find a global map showing tornado occurrence. Include this map with your assignment.

b) (2 pts) Based on the map in part a), is your island/country located in a "hot spot" for tornadoes? Speculate why your island/country does or does not have tornadoes.

4. (7 points) Climate Change Impact on Small Islands

Download the accompanying pdf document "Small_Islands_Climate_Change.pdf" from the class website. This is a chapter from the Intergovernmental Panel on Climate Change's 2014 report.

a) (3 pts) What are the observed impacts (section 29.3 in the reading) of climate change on small islands according to the IPCC report?

b) (2 pts) Of the observed impacts you described in part a), which one do you think poses the most serious threat to your particular island/country? Why? (*Hint: You need to justify your choice, it can't be just a single word response*).

c) (2 pts) What are some examples of adaptation and risk management for small islands suggested in the reading? What are the main barriers to effectively enacting these adaptation and risk managements strategies for most of the small island countries?