GNR 639 (Disaster Management) ASSIGNMENT 0

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1) **What is the difference between a prediction and a forecast?**

   A weather prediction is simply fitting the model of the weather of a given area to predict weather. The model has a lot of parameters, for example: Temperature, Air Pressure, Humidity, etc.

   A weather forecast uses data from previous events combined with recent trends to predict a future weather outcome. This model uses Bayesian statistics and time series analysis whereas a prediction does not involve a temporal (time) dimension.

   For example, if it is raining right now in a place and it has low humidity, a weather prediction would predict that rain will not be likely at the next instant. But a weather forecast takes into account past events (if it had rained in a similar situation for a long time in the past), and would predict that it would still rain.

2) **Give an example of a natural feedback process.**

   Negative feedback: Clouds and Evaporation rate form a negative feedback cycle in nature. When there are less clouds, more heat reaches the oceans and hence, more water evaporates to form more clouds. When clouds accumulate more, they block more heat from the sun and less heat reaches the ocean water and hence, less water evaporates forming lesser clouds.

   Positive feedback: Ice Albedo and Temperature form a positive feedback cycle. This cycle is very unstable and can drive climate change. Ice has a very high albedo and it reflects most of the heat it receives from the Sun. But, increasing temperatures lead to increased melting of ice which in turn results in less heat being reflected by ice from the sun (and hence more heat absorbed) which further increases temperature.

3) **What are the main natural hazards in the region where you currently live or where you grew up? (Bangalore)**

   Heatwaves in summer, Droughts and heavy rainfall cyclones.

4) **What is kind of disasters are frequently occurring globally. What are the causes of these events**

   The important disasters that frequently occur are **Cyclones/Hurricanes**, **Volcano eruptions**, **Earthquakes**, **Tsunamis** and **Heatwaves**.

   - Cyclones/Hurricanes are caused by rotation of earth, gravity, solar energy
   - Volcano eruptions and earthquakes are caused by earth's internal energy reservoirs (plate tectonics)
   - Tsunamis are a result of earthquakes and volcano eruptions
   - Heatwaves are caused by solar energy