**Documenting newer evidence(s) of local climate change**

- Farjana (Cyclone), Grace (Heat wave), Navin (Forest fire), Salma (Rainfall)

Global warming and extreme weather conditions unfortunately are becoming much more evident in the recent years and is having a devastating impact on populations globally.

We were moved by a data visualisation that was published in the NYTimes recently that demonstrated using machine learning and predictive analytics on how monsoon in south Asia is becoming more extreme and in which specific region it is likely to get even worse.

This sparked our interest and led to us wanting to identify and demonstrate extreme weather changes with regards to the following use cases, analysing four different weather matrices. (a) increased rainfall and floods (b) heat waves (c) cyclone activities (d) forest fire

We will also be discussing whether a specific geographic location is experiencing an extreme weather condition due to a specific reason that pertains to the activities surrounding the area (such as increased manufacturing, deforestation or other modern developmental activities) or due to a domino effect of the global warming in general.

We will employ public weather data repositories and API to complete the project - (1) Gather datasets specific for the weather matrices

(2) Merge datasets

(3) Analyse data and find insights

(4) Create visualisation(s)

(5) Perform statistical analysis

(6) Create presentation to demonstrate own branch of work

Sources of dataset-

Heatwave:

(1) <https://cds.climate.copernicus.eu/cdsapp#!/dataset/sis-heat-and-cold-spells?tab=form>

(2) <https://www.kaggle.com/code/sevgisarac/climate-change/data>

Rainfall:

(1) <https://www.metoffice.gov.uk/research/climate/maps-and-data/data/haduk-grid/datasets>

(2) <https://www.kaggle.com/datasets/aryakrishnanar/average-rainfall-and-temperature-in-uk20102019/metadata>

Cyclone activities: (1) <https://catalogue.ceda.ac.uk/uuid/b0e740cdd68b13f6462f6d5d1a68092e>

(2) <https://www.kaggle.com/datasets/noaa/hurricane-database>

Forest fire:

(1) <https://www.kaggle.com/datasets/sumitm004/forest-fire-area>

(2) <https://www.kaggle.com/datasets/elikplim/forest-fires-data-set>

Based on how much each member is able to contribute to their research questions, they can either decide to use databases from Met office agencies provide above as (1) or prepared Kaggle datasets (provided as 2) to conduct their research.

References: (1) <https://www.nytimes.com/interactive/2022/10/04/climate/south-asia-monsoon-climate-change.html>