

Assignment 3: Visualization

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TASK A:

- The below visualizations show how the temperature around the world has changed between two year ranges (1950-1980 and 1981-2010)
- Tmax-2 dataset was imported and 2 subsets of the dataset containing rows belonging to year ranges 1950-1980 and 1981-2010 was taken.
- The average temperature for every station in an year range was taken and two maps were plotted to show the temperature change between these year ranges.
- From the maps we can observe that the average temperature of few stations above the equator has dropped significantly between two year ranges.

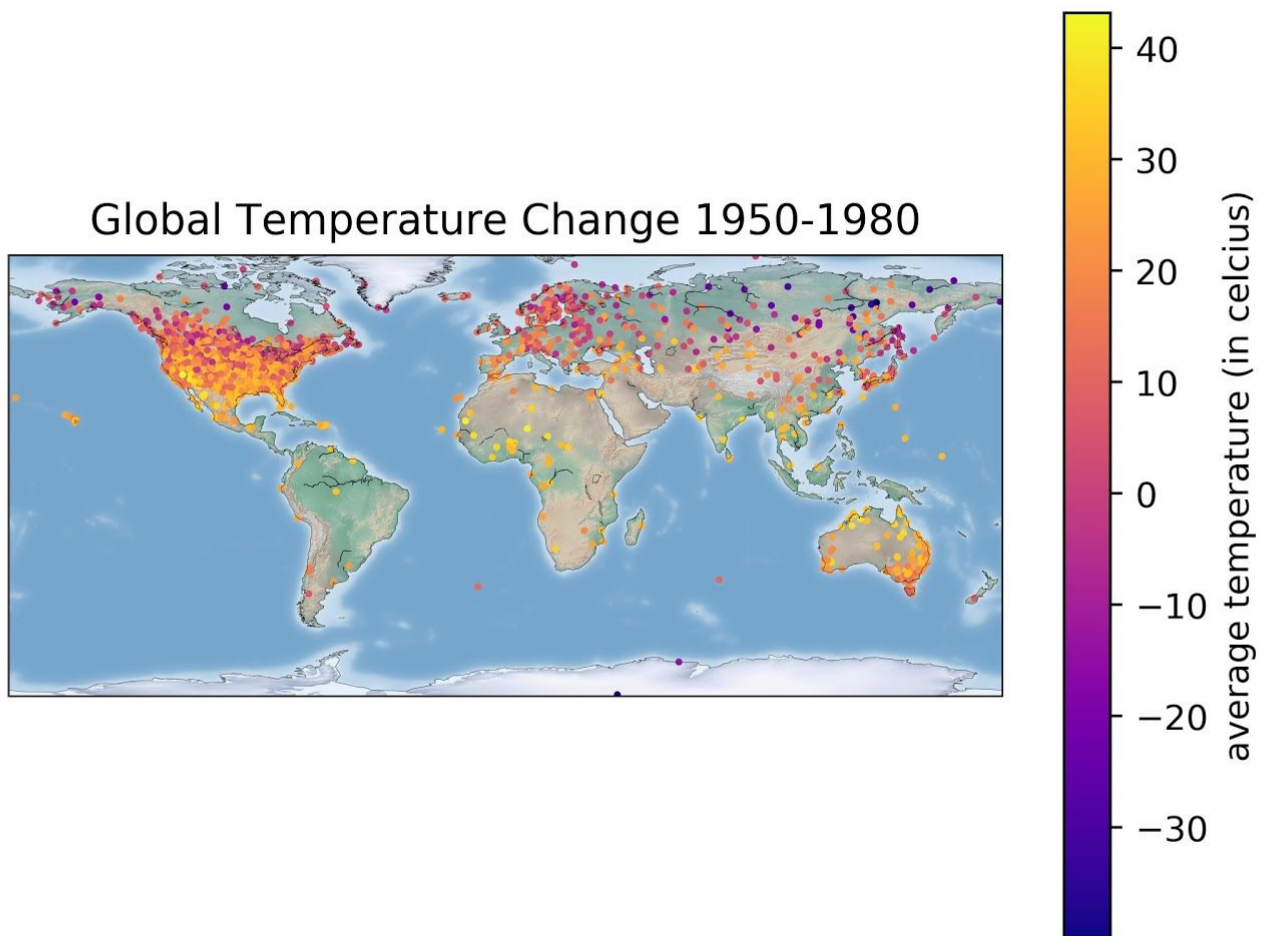


Fig 1: Average Temperature for stations during 1950 - 1980

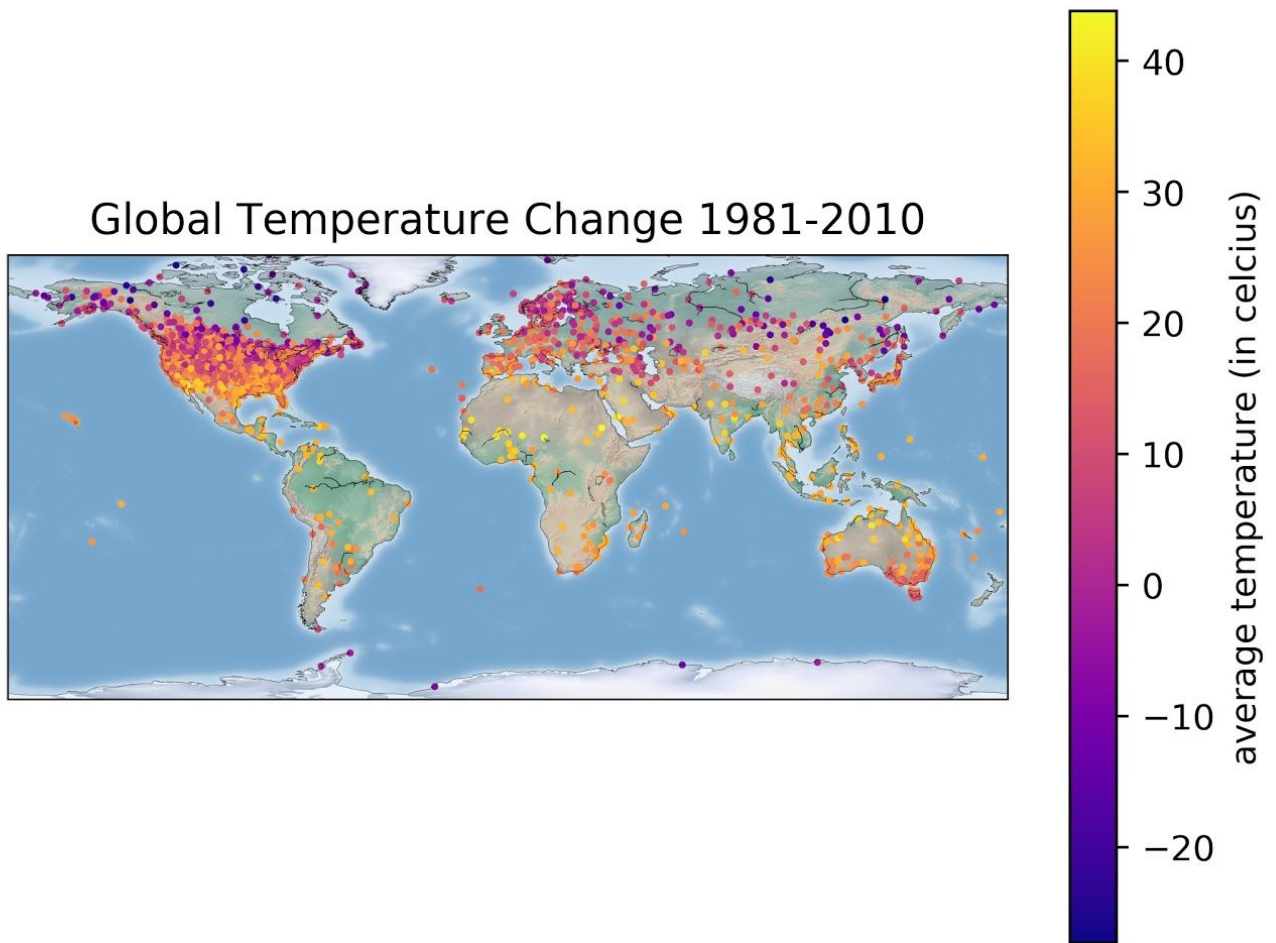


Fig 2: Average Temperature for stations during 1981 - 2010

TASK B1:

- Example usage of `elevation_grid.py` was used to obtain elevation values of all altitude and longitude positions which was used to generate a dataframe.
- 09th August 2019 was chosen as the date for which the temperature predictions were made.
- Weather-model was trained using `tmax-2` dataset, with latitude, longitude, elevation and `day_of_year` values as features and `tmax` value as label.
- Predictions were made for all latitude-longitude positions in the created dataset and the map was plotted using robinson projection.

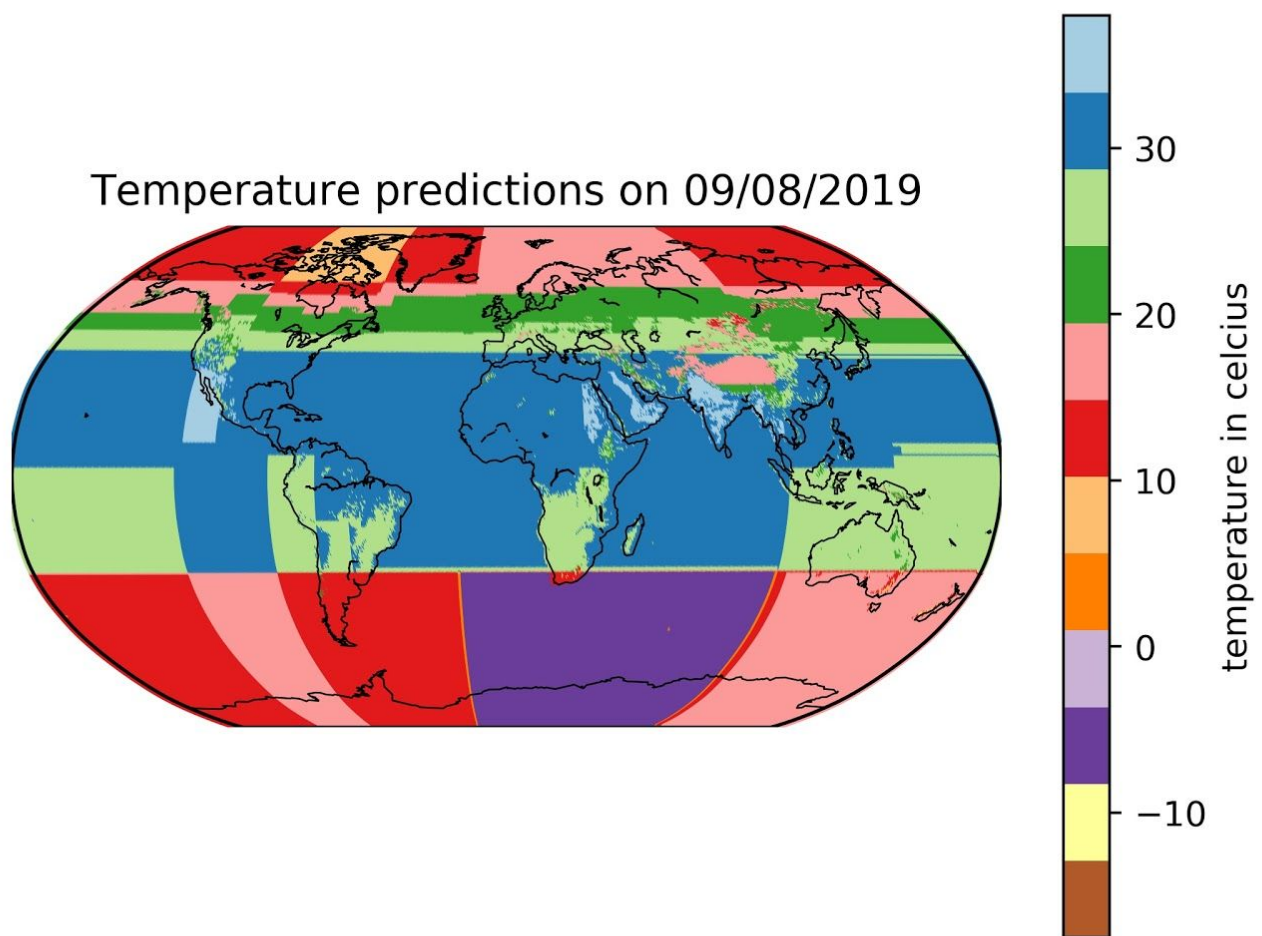


Fig 3: tmax predictions for 9th August 2019

TASK B2:

- To solve the task of visualizing the error in predictions, tmax-test dataset was used. The predictions were made using weather-model and the error was calculated as $|\text{prediction} - \text{tmax}|$.

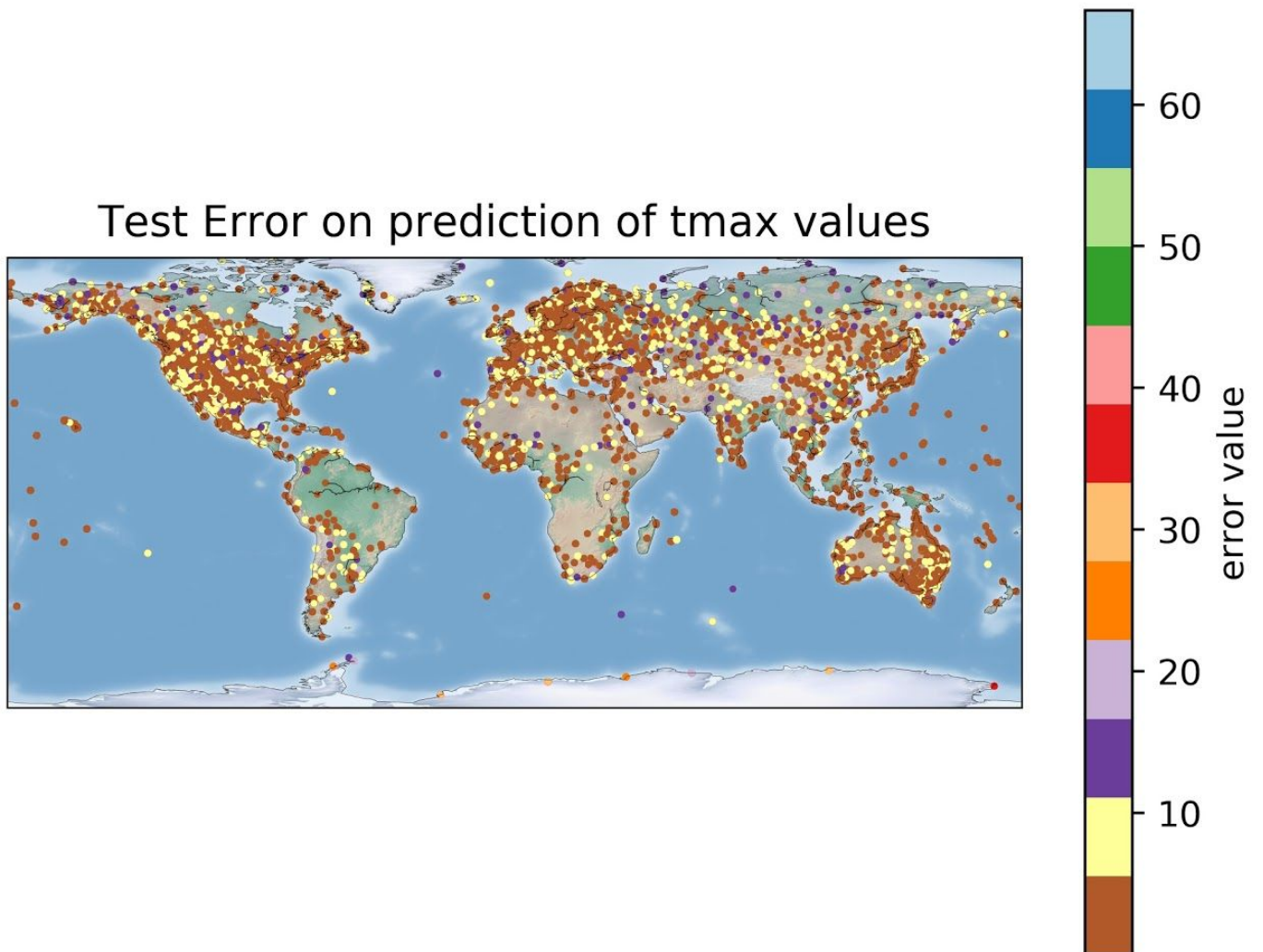


Fig 4: Test error for predictions using weather-model