GEE CODING PROJECT
POSTER

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Introduction

We use statistical analysis on Environmental data to interpret the increasing flood of vast data from environmental areas, which are often of heterogeneous nature and show high variability. We analyze the data collected for many years to notice the significant effects on the environment. Many important results and statements concerning our environment are based on statistical investigations, such as changes of the ozone layer, climate changes etc.

Objectives

* To analyze variations in NDVI and EVI over the span of 20 years (2000 - 2020)
* To forecast NDVI and EVI in upcoming year for Bangalore, Chennai, Delhi, Mumbai.
* To answer the question “Is Climate change a myth?” based inferences made.

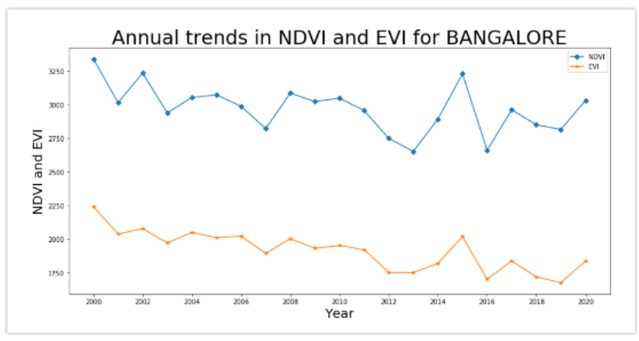
Tools

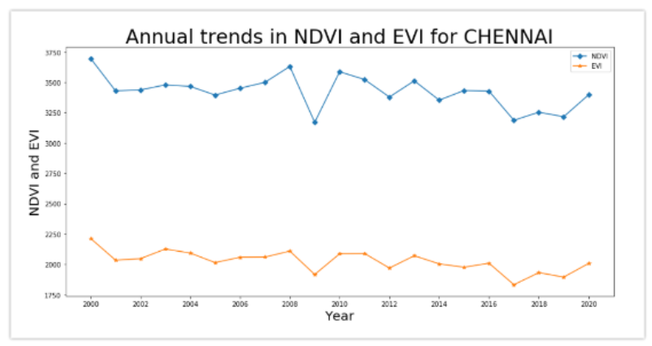
* IDE – Jupyter Notebook, Google Code Editor
* Python, JavaScript
* Libraries – pandas, sklearn, tensorflow
* EDA – matplotlib, seaborn, geopandas
* ML models - Regression, SVM, ANN, Decision Tree, Random Forest, XGBoost, CatBoost

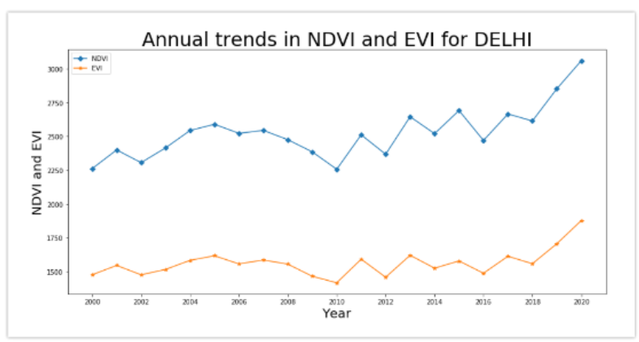
Dataset

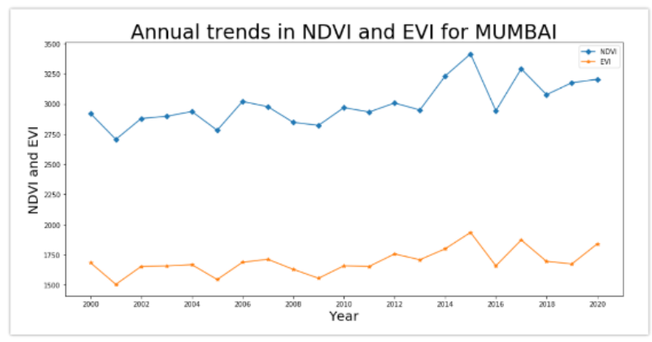
* MOD13A2.006 Terra Vegetation Indices 16-Day Global 1km
* Variables: NDVI, EVI
* The MOD13A2 V6 product provides two Vegetation Indices (VI): the Normalized Difference Vegetation Index (NDVI) and the Enhanced Vegetation Index (EVI). The NDVI is referred to as the continuity index to the existing National Oceanic and Atmospheric Administration-Advanced Very High Resolution Radiometer (NOAA-AVHRR) derived NDVI. The EVI has improved sensitivity over high biomass regions.

Results

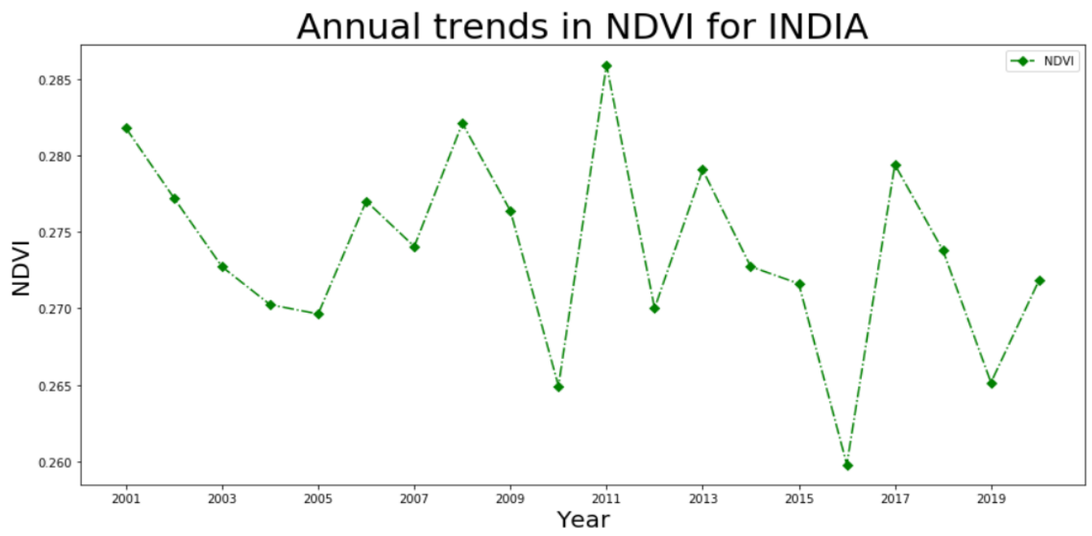




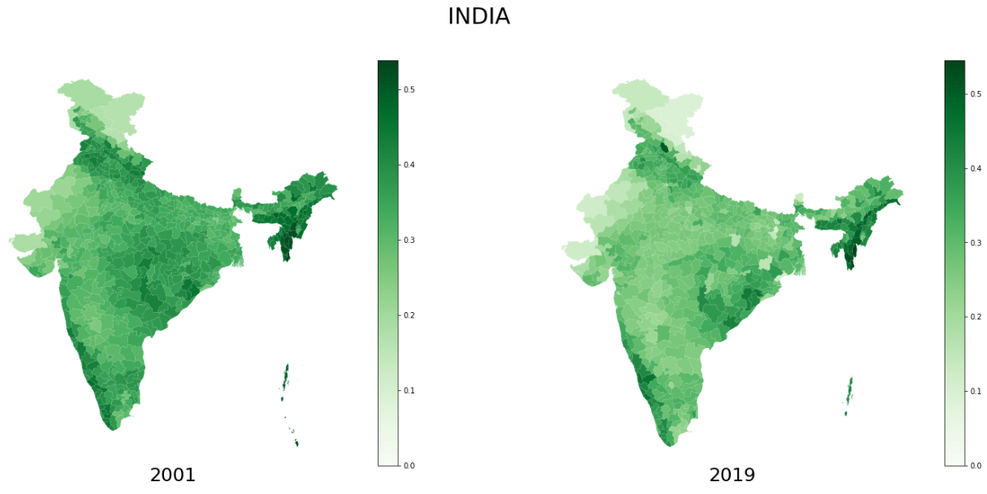




Annual trends for NDVI and EVI for Bangalore, Chennai, Delhi, Mumbai



From ANNUAL NDVI graph for INDIA, from the decreased values of NDVI, it is clearly evident that Vegetation of INDIA has taken a worse hit



Greenery in India has decreased significantly since 2001

Conclusions

* We can clearly see the decrease in vegetation from above choropleth map of India.
* We can also infer that there is a dip in NDVI and EVI values from graphical analysis of each city.
* We have studied how climate change effects green vegetation and with decrease in vegetation we can conclude that Climate change is for real.

Climate change is not a myth!!!!!

References

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* https://eos.com/blog/6-spectral-indexes-on-top-of-ndvi-to-make-your-vegetation-analysis-complete/
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