IFC Bangladesh: Gridded Historical Weather Data

skymetweather

Problem statement:

IFC has partnered with Bangladesh meteorological department and Bangladesh Government to implement weather index based insurance for agricultural risks. The metrological observations are quite sparse in both space and time. The unavailability of continuous observations put limitations and leads to hurdles in developing risk assessment and mitigation products.

Approach (SWIMS):

- Skymet has developed a process that can be used to generate high resolution gridded data products of meteorological parameters provided the base data set is available.
- Use Q-Q mapping technique to top-up the interpolated data. The smoothed data sets might not be useful for building insurance products. Therefore, Skymet has tackled this issue by developing a technique based on quantile mapping of interpolated data with the help of last 30 years of dataset in the neighbourhood of the target point. This quantile mapping is then converted into regression equation which imposes extreme values to the interpolated values.
- Used advanced statistical interpolation technique of Kriging to interpolate the existing data.
- It only considers measurements within some neighborhood (i.e. doesn ’ t consider all the points)
- Helps to compensate for the effects of data clustering, assigning individual points within a cluster less-weight than isolated data
- Assigns weights according to data driven weighting function, rather than an arbitrary function. Uses variogram for this purpose.
- Predictions at known observed points yield exactly the same values again

Benefits to Client

This product helped IFC & Green Delta Insurance Company to design weather based index product

This product is also helping them for settling insurance claims without installing any AWS

YoY the number of farmers enrollment is on the increasing trend. Last year more than 2000 farmers benefitted by claims.