The Nightlight Document

The following steps are needed as of now:
- Cross Validate the VIIRS data, as in view it in image formats to see that the data is true to the earthdata image counterpart and see what best fits as "NightLight" (In h5 in Downloads/NewNightlight corresponds to this
- The above is for annual; for daily data, try smoothening the daily time series and aggregating to remove noise. While aggregating daily, study and if relevant aggregate for only weekdays, etc.
- Get the correlation of the Production Factor with the ratio of water released (columns 107 & 119)
- Get the correlation of the Production Factor with the ratio of Nightlight
- Aggregate EPA dataset on (lat, long) for future activities.
- Determine factory area by maximizing variance from weekends and weekdays. (or maybe even do it manually for some factories)
- Apart from PCC try Chatterjee's correlation.

Currently, the goal is to maximize the correlation between nightlight and waste produced, maybe something like that. Then, we can use GitHub which has quarterly earnings to judge production patterns.

So, we hypothesize that the nightlight trends of a factory have changed similarly to those of its productions over the years. We validate this hypothesis and conclude that the same goes for the quarters. Hence, we study the quarterly patterns of night-light and validate them using the quarterly production report and search for anomalies.

Current findings:
Each 10-degree latitude × 10-degree longitude granule we use has 2400 × 2400 partitions, making the smallest data available over a block of approximately 465m × 465m, which leaves a lot of scope for noise.