

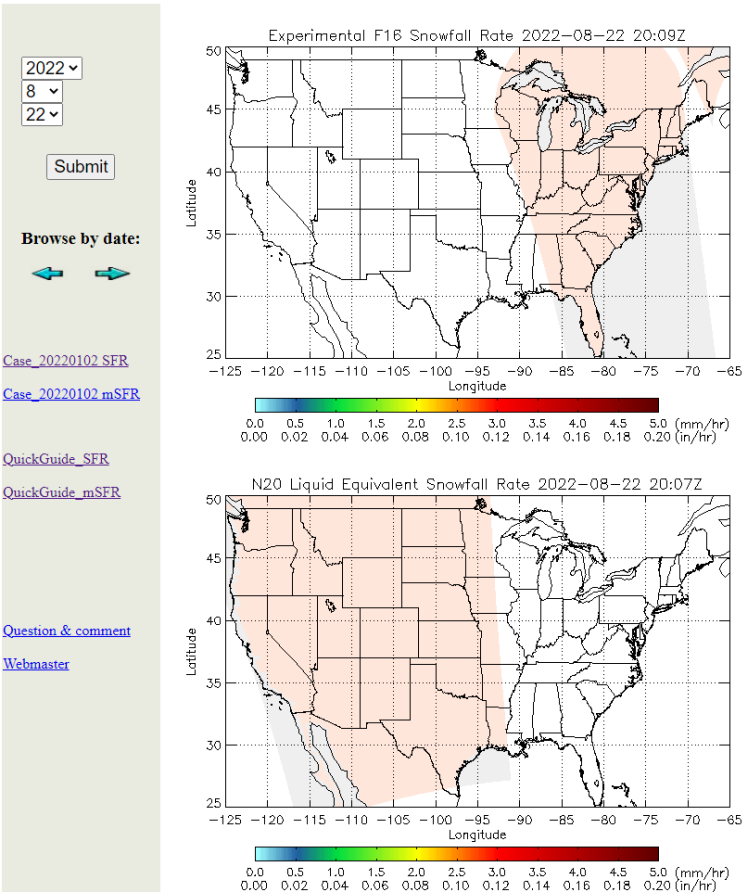
Snowfall Rate Product Interactive Website and Using Machine Learning Algorithms to Process Snowfall Rate

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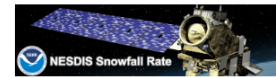
Old Website

- Select Date with dropdown or arrow buttons
- Shows all images
 - Ordered by time
- Includes some extra links



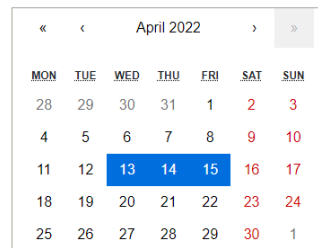
New Website

- Added Navigation Bar
- Select a date range
- Select different satellites
 - Grouped by sensor
- Select Different Regions
- Swath information on map
- Image looping and image controls
- Opacity slider
- Box selection
- Color bar on bottom left



Home Product Data Algorithms Documents Publications About

Select Date Range

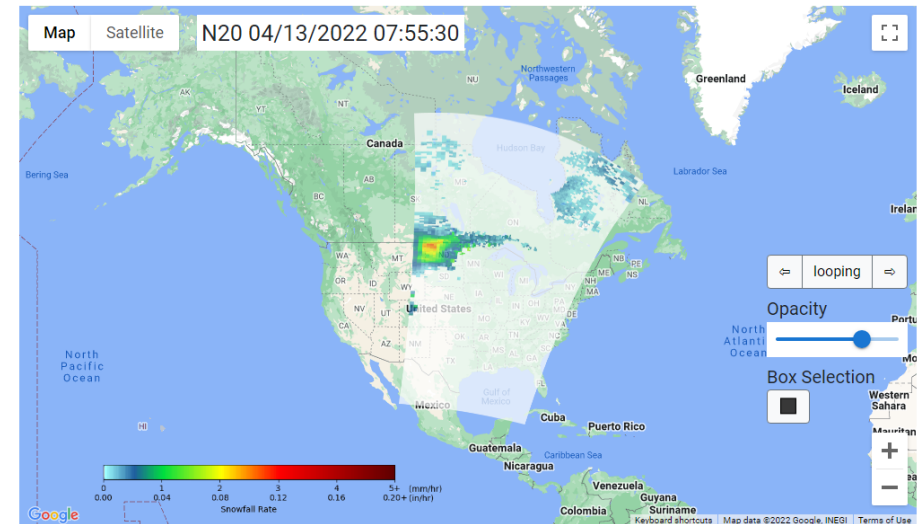


Satellites

- S-NPP NOAA-20
- NOAA-19 Metop-B Metop-C
- GPM F16 F17 F18

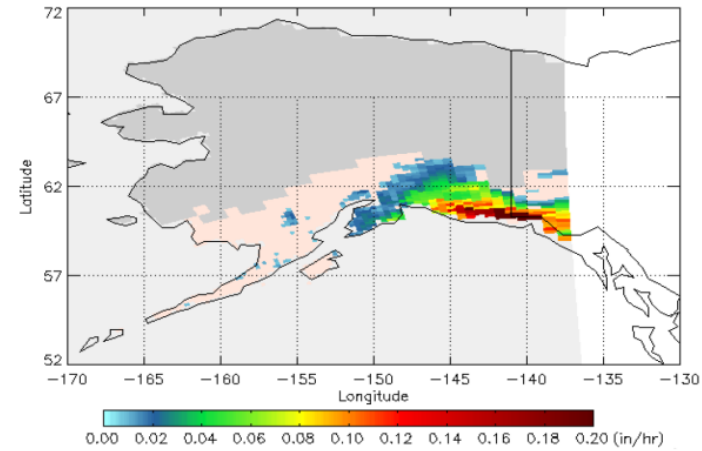
Region

- CONUS Alaska Global



Previous Model

- Logistic Regression
- Performance degrades when 2m air temperature < -6°C
- Non-applicable when 2m air temperature < -15°C
 - Would almost always predict snow
- Leaves large parts of the world without usable predictions



New Models

- Trained 3 models: Deep Neural Net, Random Forest, and eXtreme Gradient Boosting (XGB)
- XGB performs the best especially at 2m air temperature < -15°C
- Looking at case study, the new XGB model does well in 2m air temperature < -15°C environments and gets the general area correct
- Potential Improvements
 - High False alarm rate (predicts snow when there is none) especially below -15°C

