Creating platforms for visualizing and interacting with data

CEDAR 2020

Visualizing and interacting with data

Current examples

- Line plots
- movies

Some newer ideas
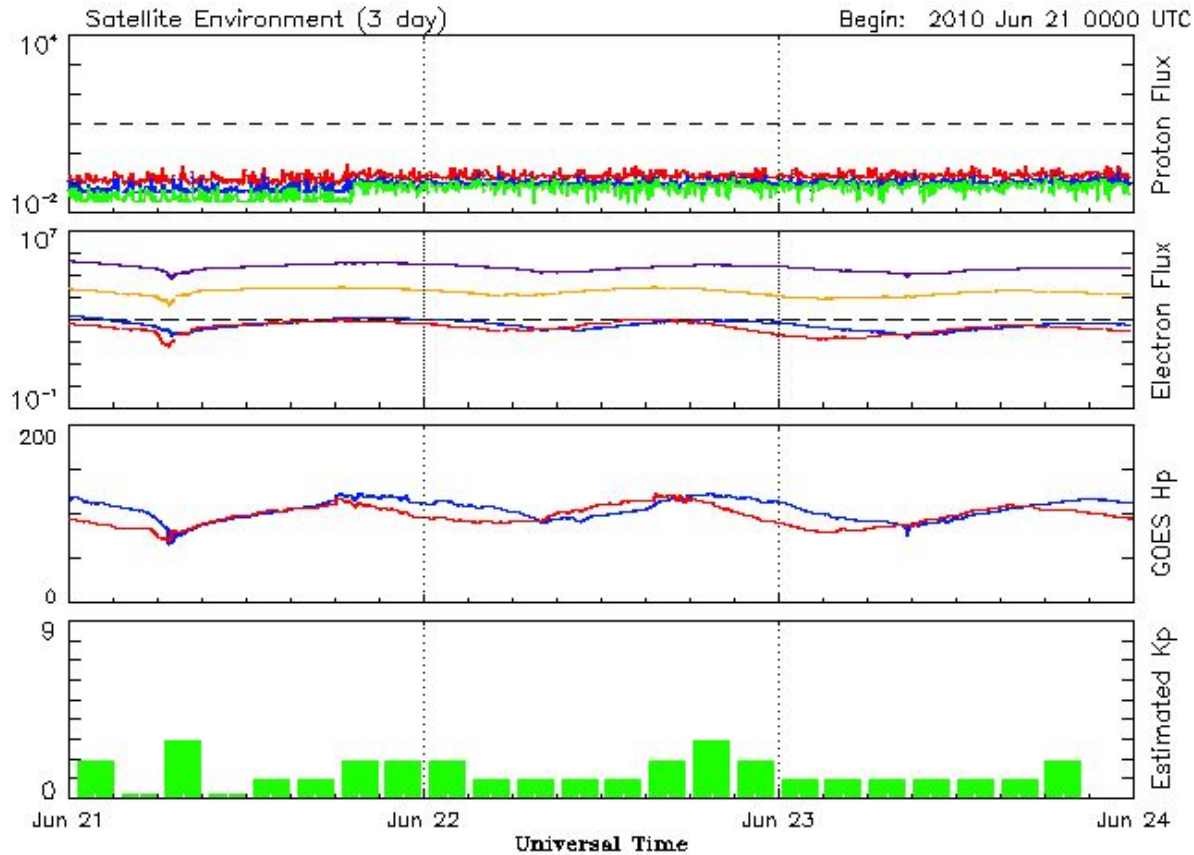
- User generated specific data
- User contributed data

What's next?

- Lots of room for improvement

Examples

10 Years ago

…

- Completely static line plots

Examples

Today

Improvements:
- Interactive: Cursor movement gives the data values
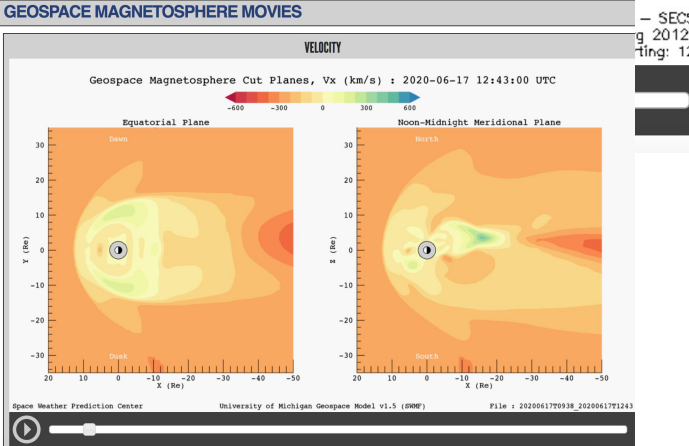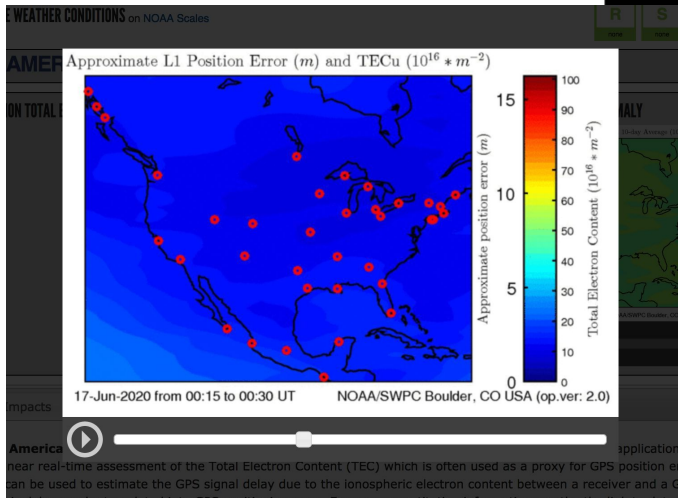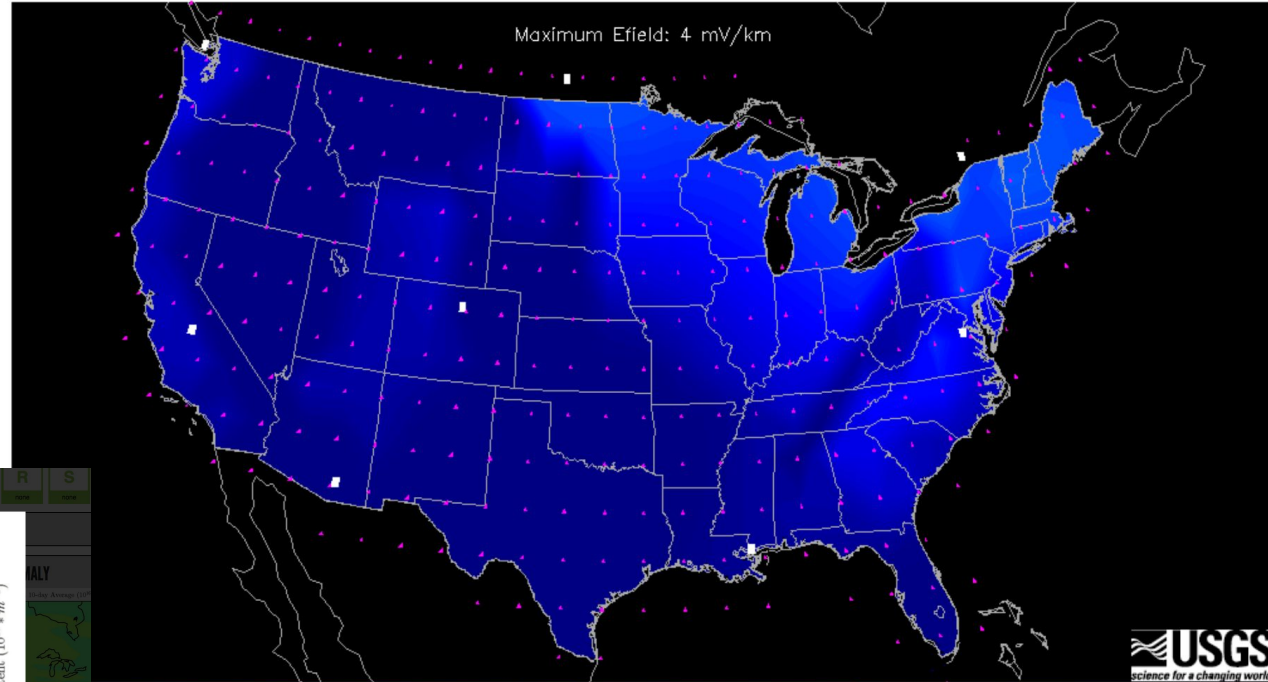- Some allow time window changes, i.e. 3 days, 7 days etc.

Challenges:
- Not user specific
- No impacts

Examples

Today

Challenges:
- Not user specific

User generated data

- Specific effects for each user updated in real time

VERB data assimilation model
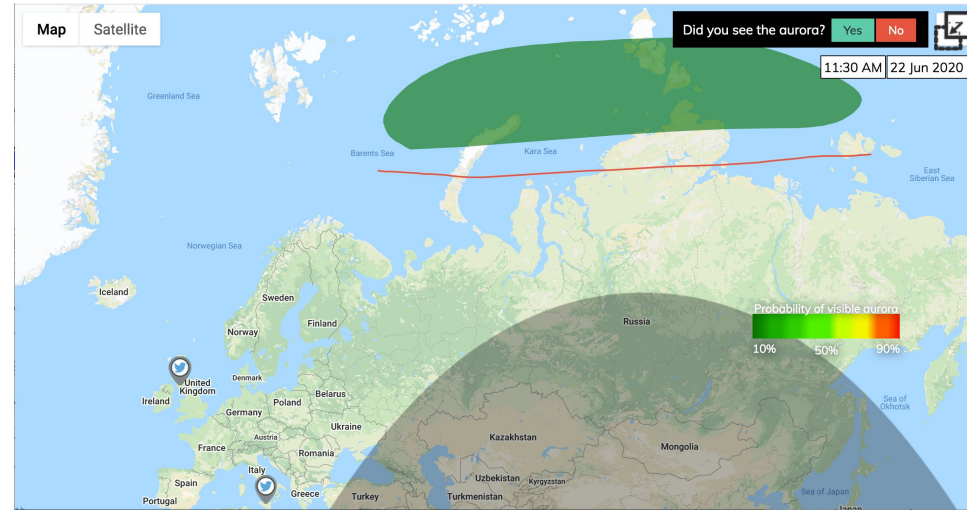
Image Credit NASA
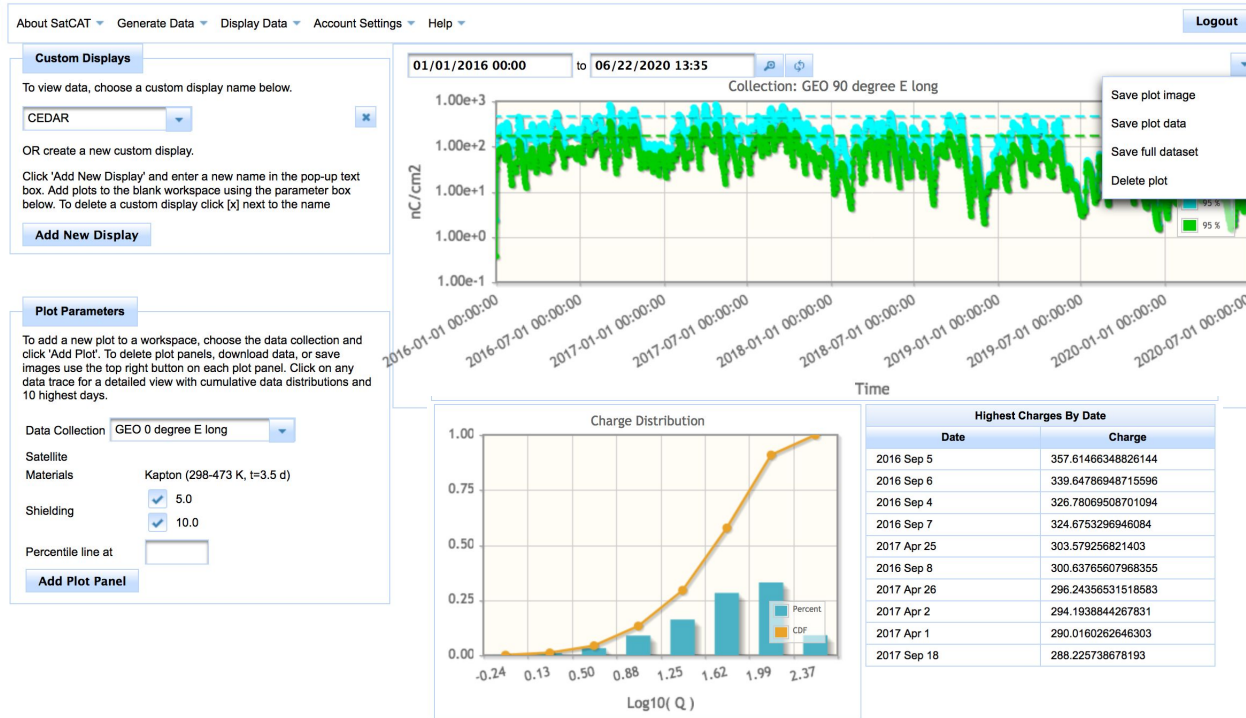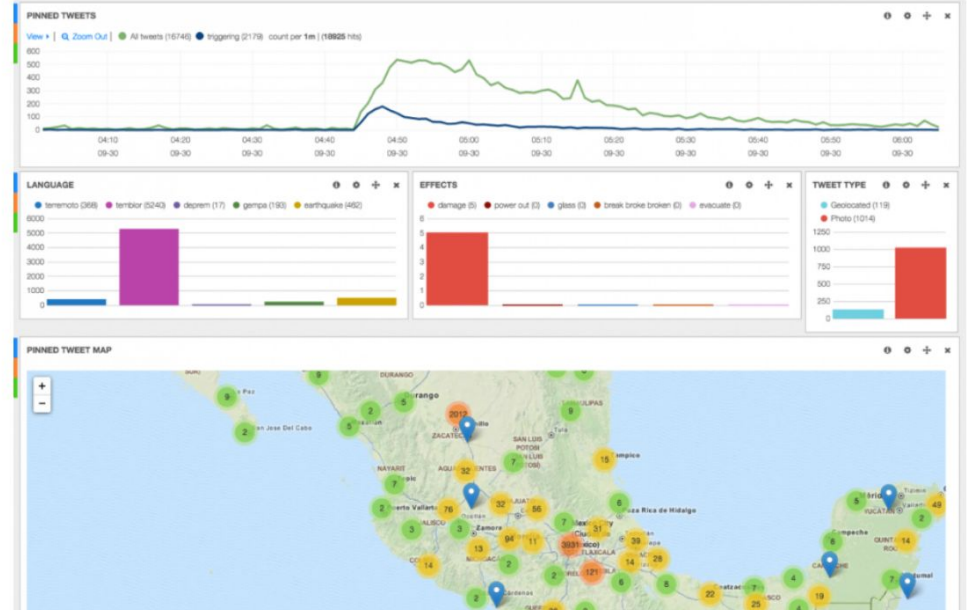
User contributed data

- Aurorasaurus
  - Combines auroral model with tweets of aurora

- USGS Earthquake monitoring
  - Uses tweets to locate earthquakes
  - Sometimes faster than seismic networks especially in poorly instrumented regions

User contributed data

- Satellite anomaly database
  - Was initially part of the SWAP
  - Vision for combining models of the radiation environment with AI/statistical models of expected satellite anomalies, and locations of actually observed anomalies
  - Sometimes difficult to get users to contribute

- Satellite conjunction analysis
  - Space Data Association and AGI have come together to create the Space Data Center
  - Ingests flight dynamics information from member companies and other sources to provide conjunction assessment and warning services

Data ⟷ Users

Photo courtesy of Shutterstock

What's next?