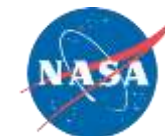


Field Campaign Explorer (FCX) Updates & Future Plans

Navaneeth R Selvaraj

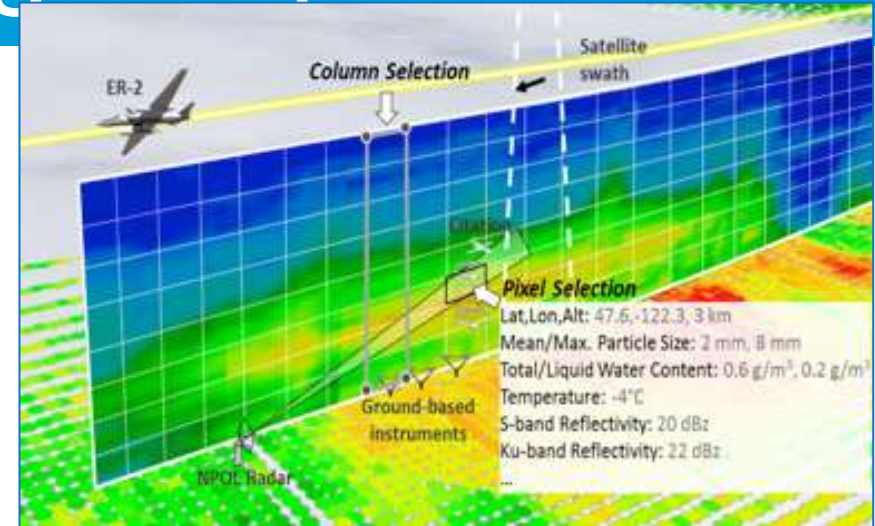


What is the Field Campaign Explorer?

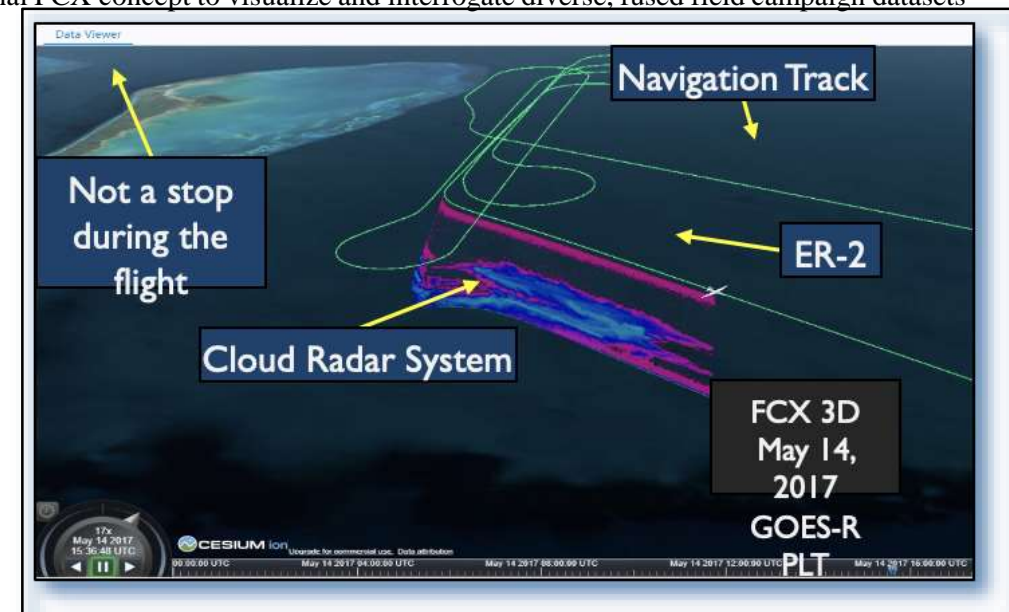


FCX is a 3D data exploration tool to provide visualization and analytic capabilities for diverse coincident datasets, with a focus **on airborne field campaigns**

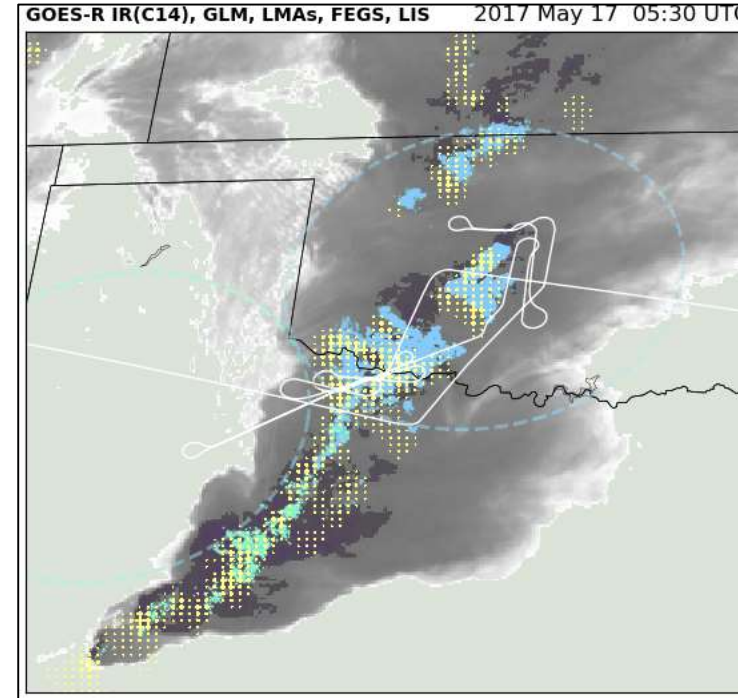
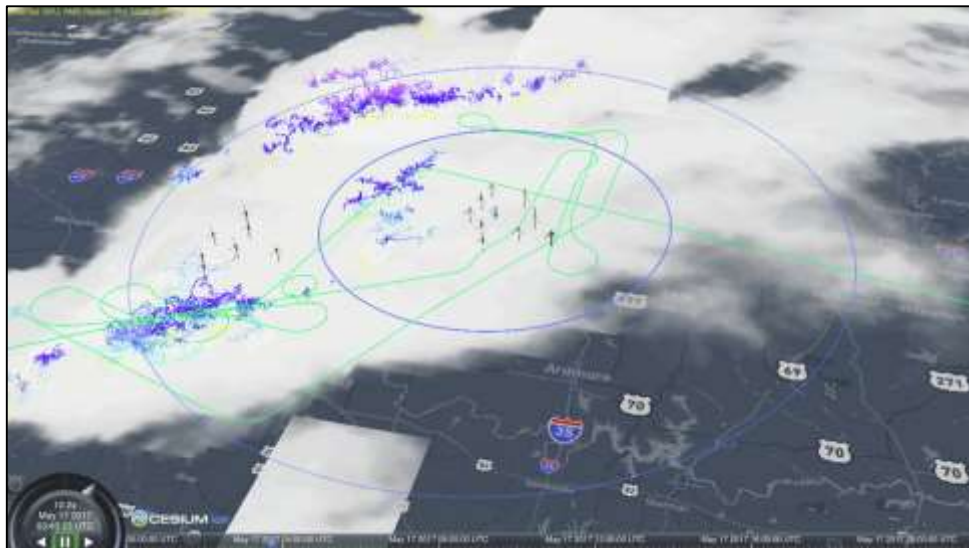
- Addresses challenges inherent with using field campaign data
 - Variety of variable fields, dimensions, measurement types (e.g., ground, airborne, and satellite) and data formats
- Originally built for the Hurricane and Severe Storm Sentinel (HS3) field campaign



Original FCX concept to visualize and interrogate diverse, fused field campaign datasets



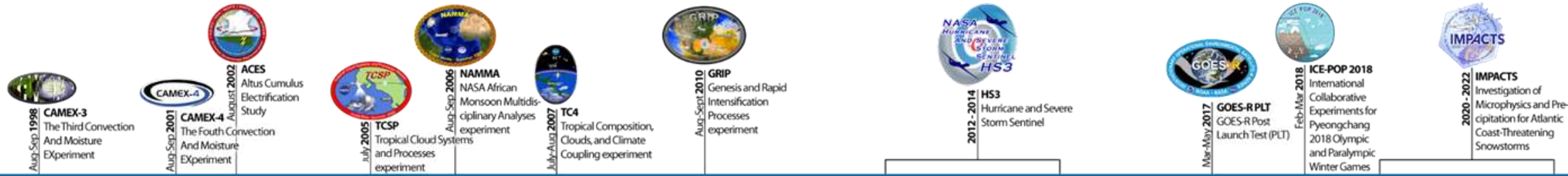
1. Answer Science Questions tied to Field Campaign's Objectives and Observed Events
2. Provide 3D interactive data visualization, interrogation, subsetting and downloading functionality for Field Campaign datasets
3. Reduce time to do "Science in Cloud"



2D non-interactive animation of lightning observed from various coinciding measurements

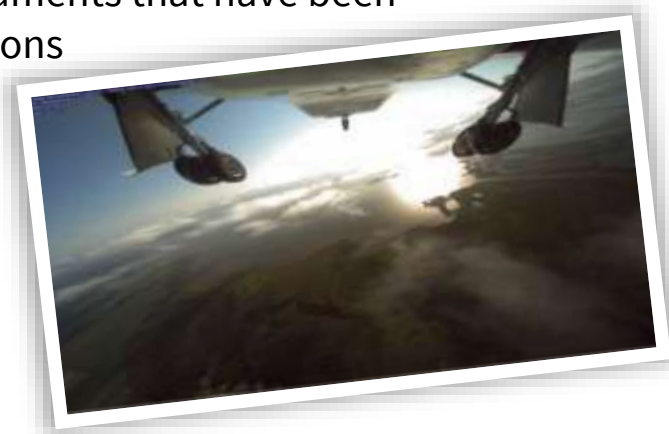
Same 3D interactive animation/exploration from FCX (running in the cloud, can be done within minutes)

GHRC's *Field Campaign Data Holdings*



Hurricane Science

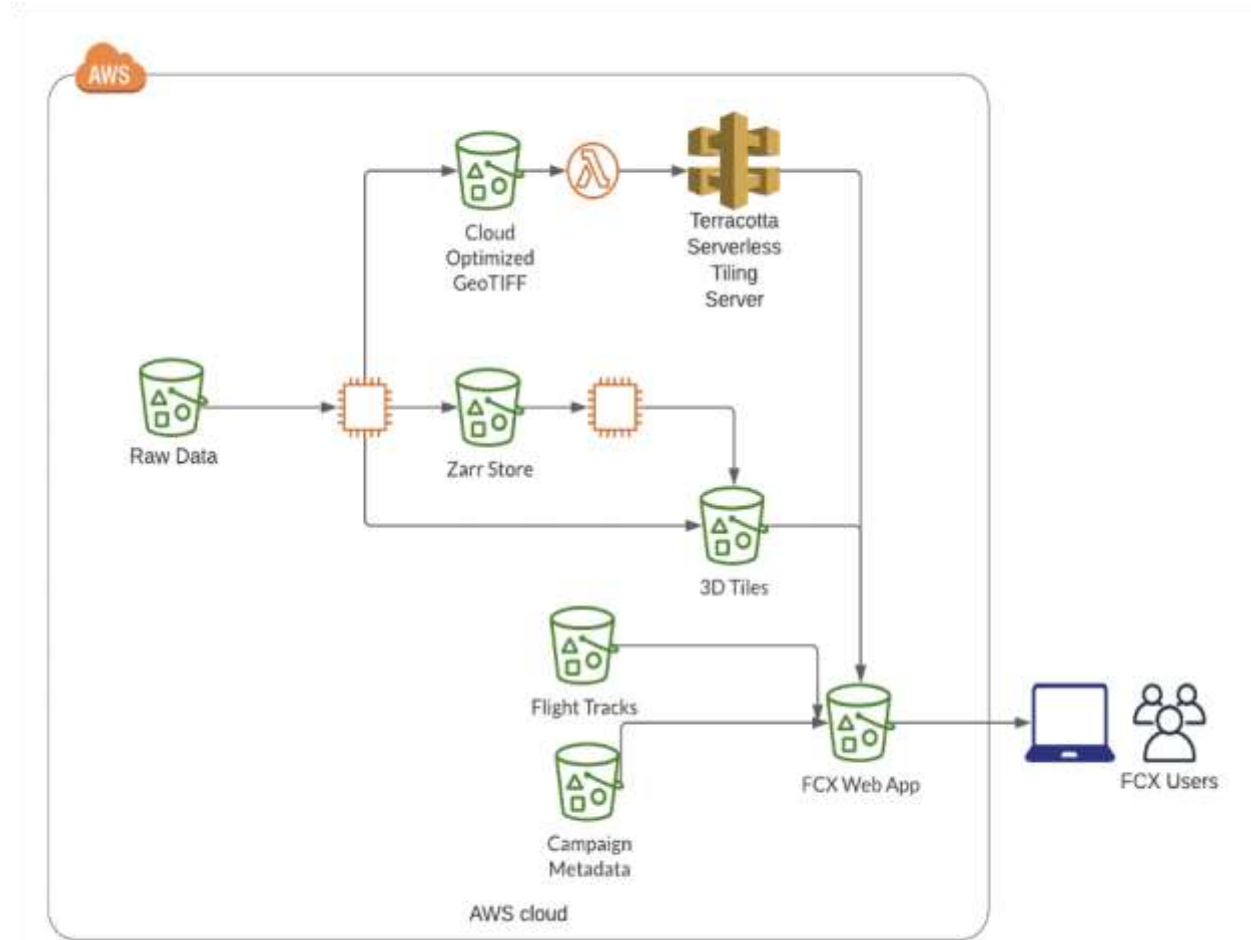
Data from successive field campaigns since 1990 are tied together through common procedures, consistent metadata, and discovery and archival systems making it easy to access data from instruments that have been employed across several missions



Global Precipitation Measurement Mission (GPM) Ground Validation (GV)

Ground and airborne precipitation datasets supporting physical validation of satellite-based precipitation retrieval algorithms

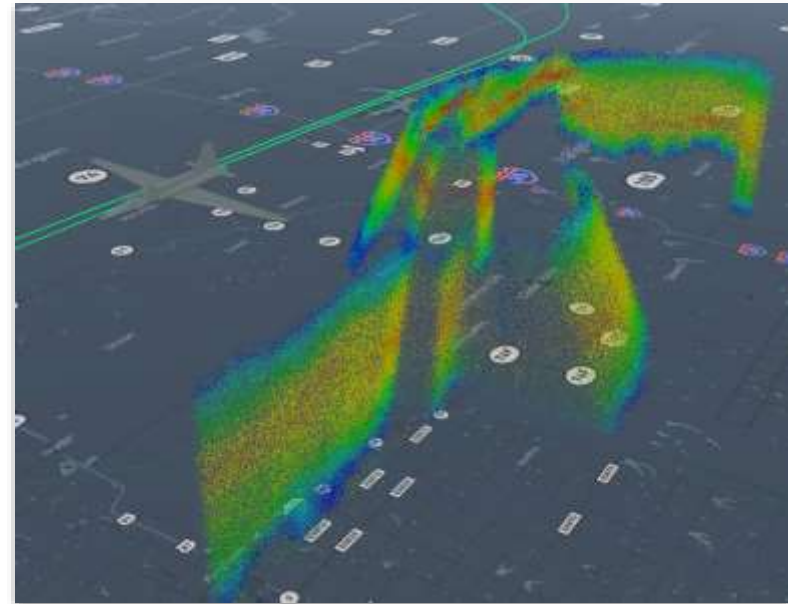
FCX Architecture



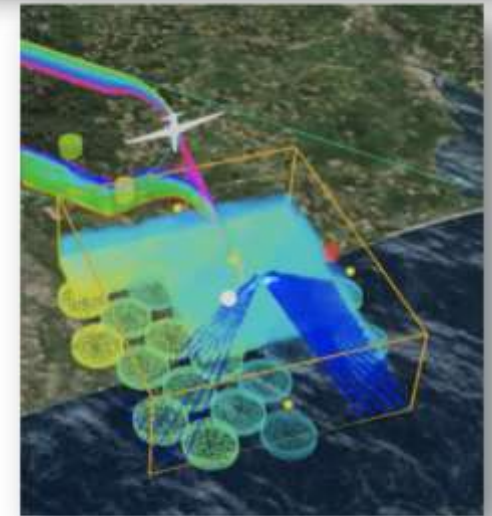
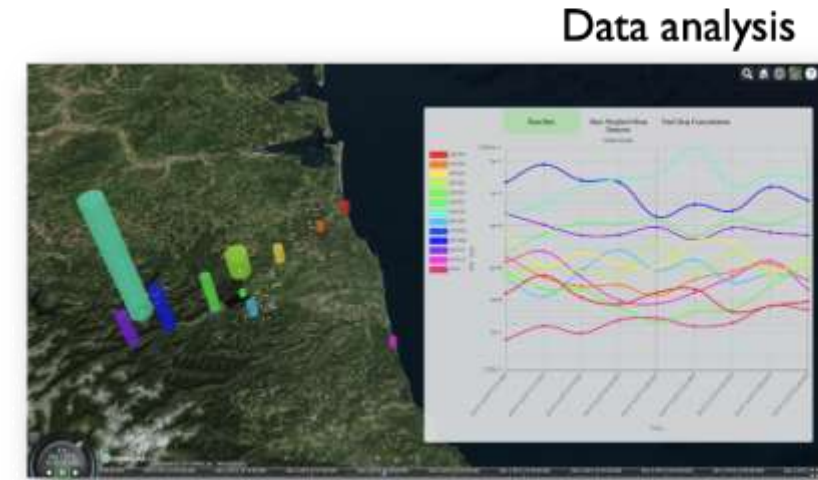
- Updated new visualizations for flight instruments
 - Loading high quality visualization image
- Improved memory usage and overall performance on low-end systems
 - A subroutine to change the resolution based on graphics available
- Created pipeline to integrate SNYK vulnerability tests
- Addressed/fixed bugs and issues identified by SNYK
- Added unit tests for front-end components to speed testing

- In final stages of open source
- Updated UI to be Section 508 Compliant
 - Verified using Sortsite checker
- Started work on 3D subsetting tool
 - Using different methods for choosing spatial or temporal methods
- Began UI work to accommodate new field campaigns
- Onboarding and Training for new members

Cloud Radar System



- Develop data analysis and plotting functionality
- Add new visualization techniques
 - To improve memory utilization, Fast rendering.
- Integrate new field campaign/dataset
 - HS3, GPM-OLYMPEX, and IMPACTS
- Integrate subsetting feature



3D subsetting

Screenshots (1/2)

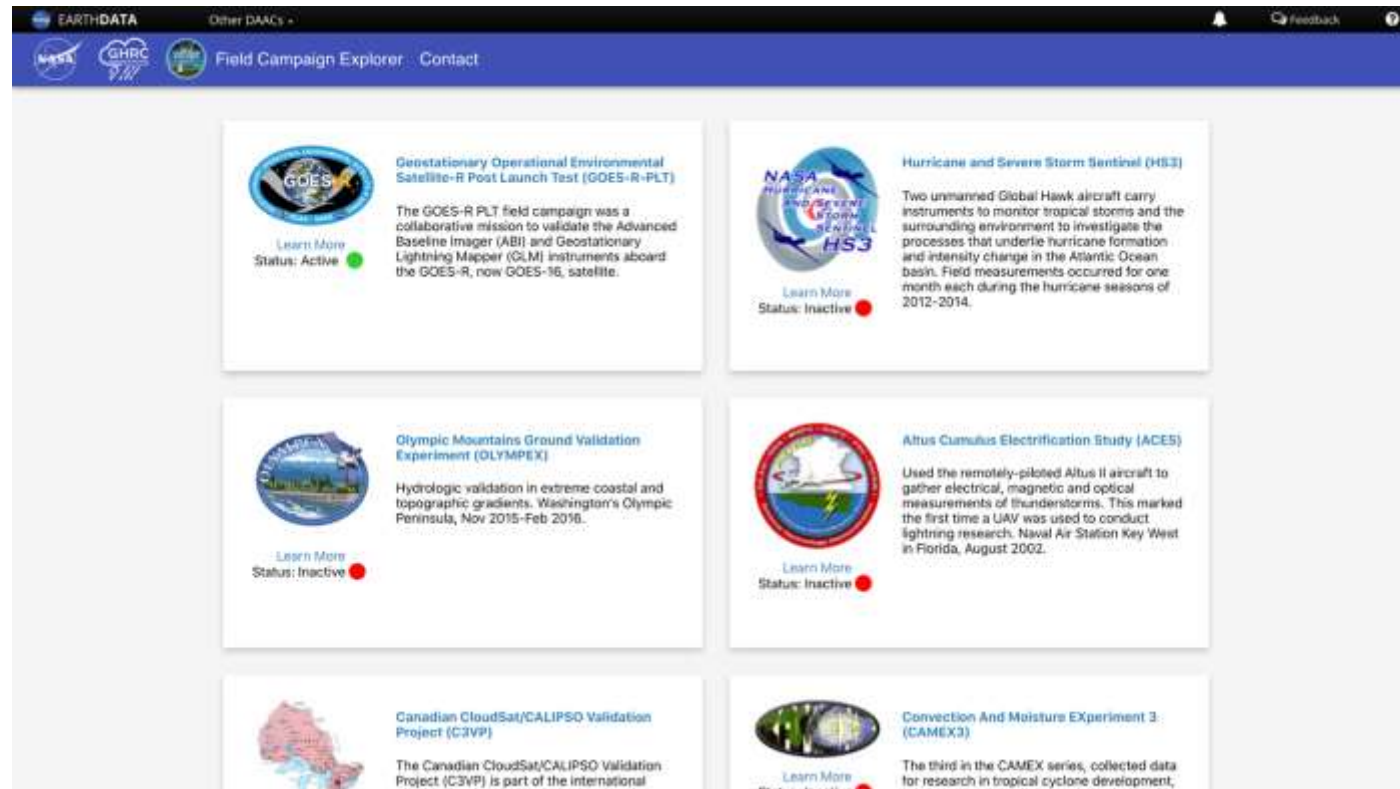


Fig 1.

Fig 1. Field Campaign Selector, to choose different field campaigns from GHRC holdings.

Screenshots (2/2)



Fig 2.

Fig 2. ABI Cloud images along with flight path May 17, 2017

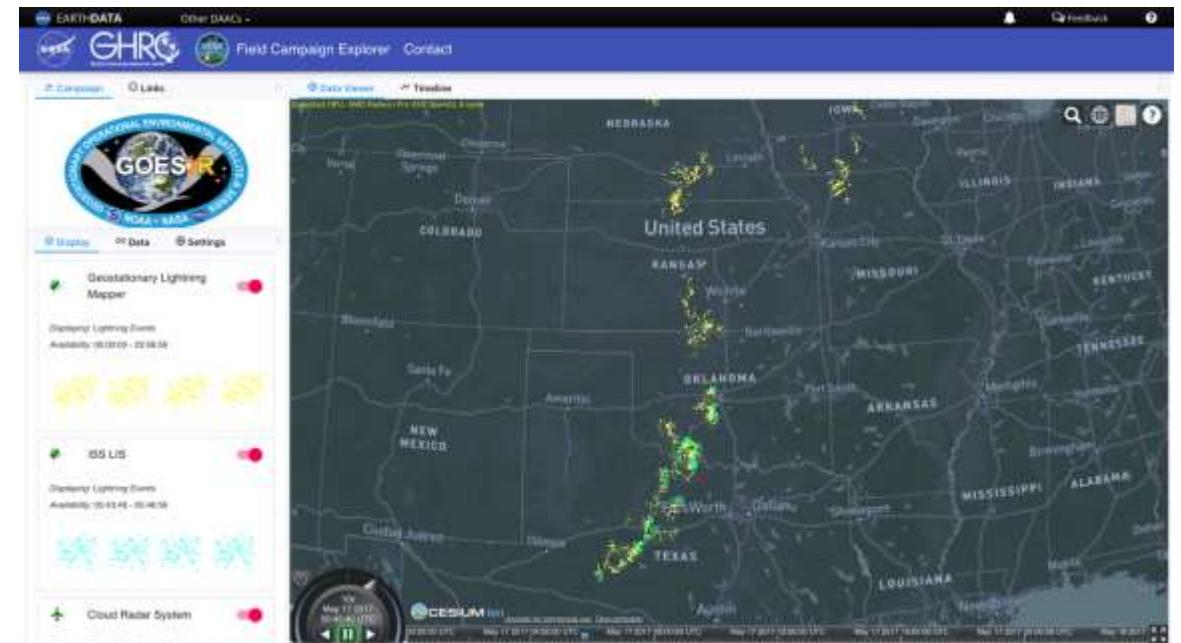
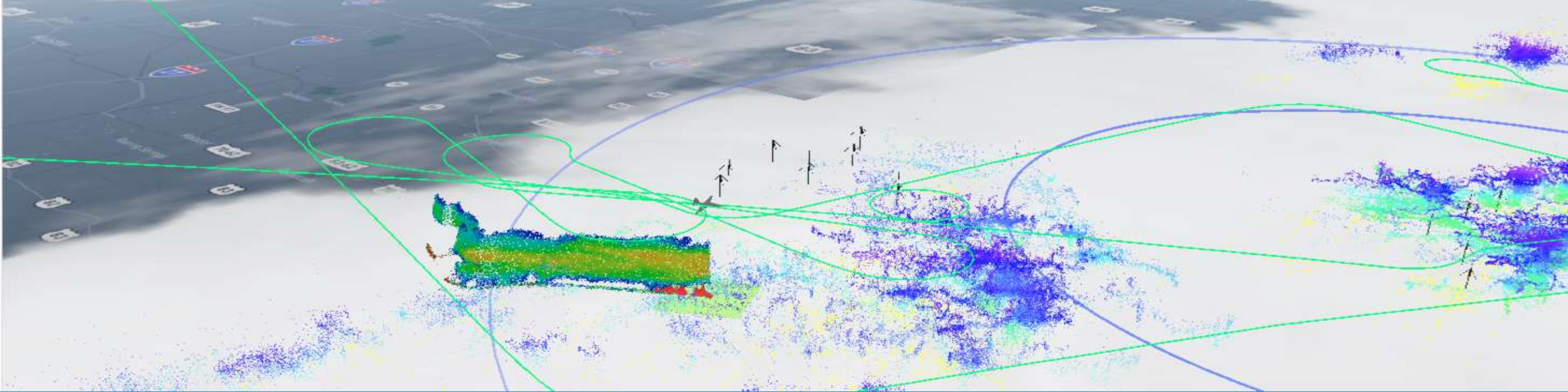


Fig 3.

Fig 3. GLM and ISS LIS overlap May 17, 2017



THANK YOU!

QUESTIONS?

Live: <https://ghrc.earthdata.nasa.gov/fcx/index.html>

