Team

DAAC Manager:
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Project Lead:
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DAAC Scientist:
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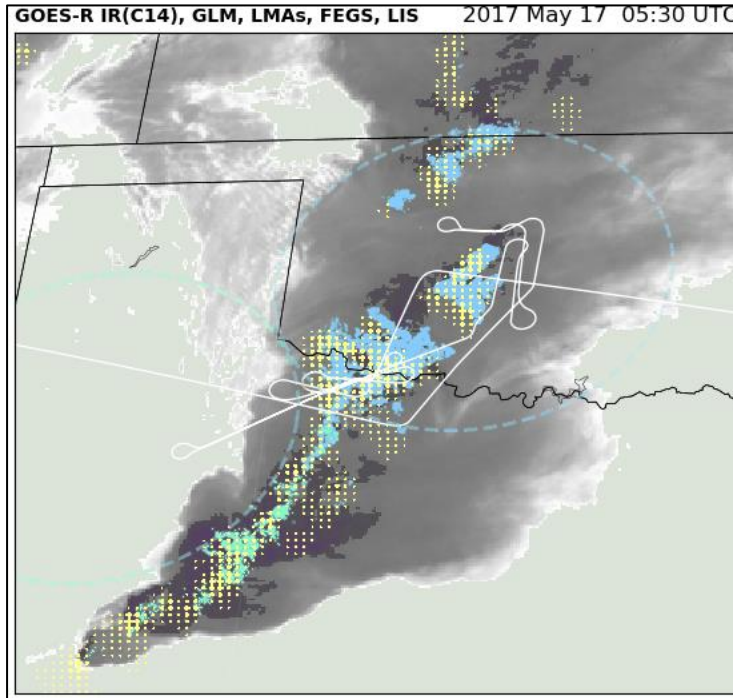**Lead Developer:**
Navaneeth Selvaraj

Student GRAs:
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Indhuja Sivasamy (New)
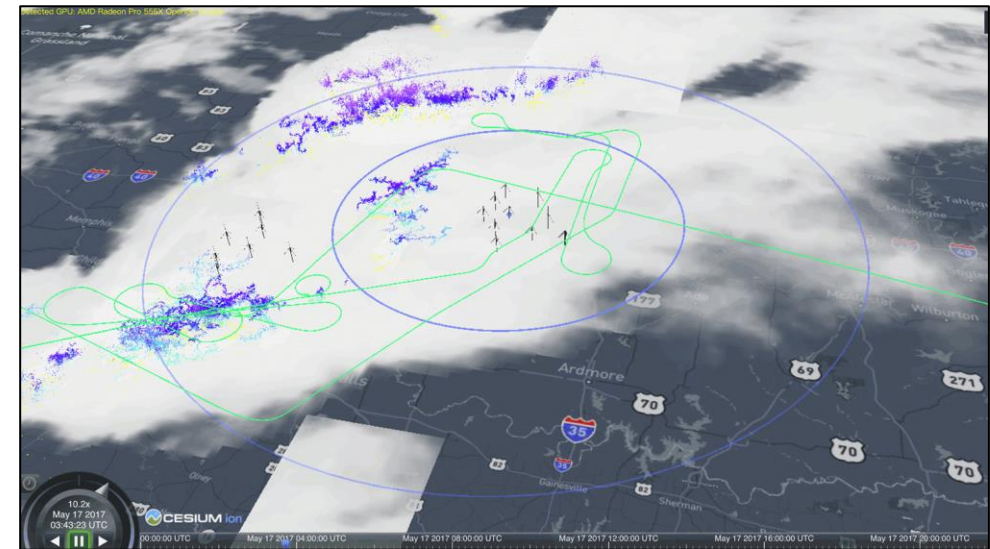
Field Campaign Explorer

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

- **Used CesiumJS and React for the frontend**
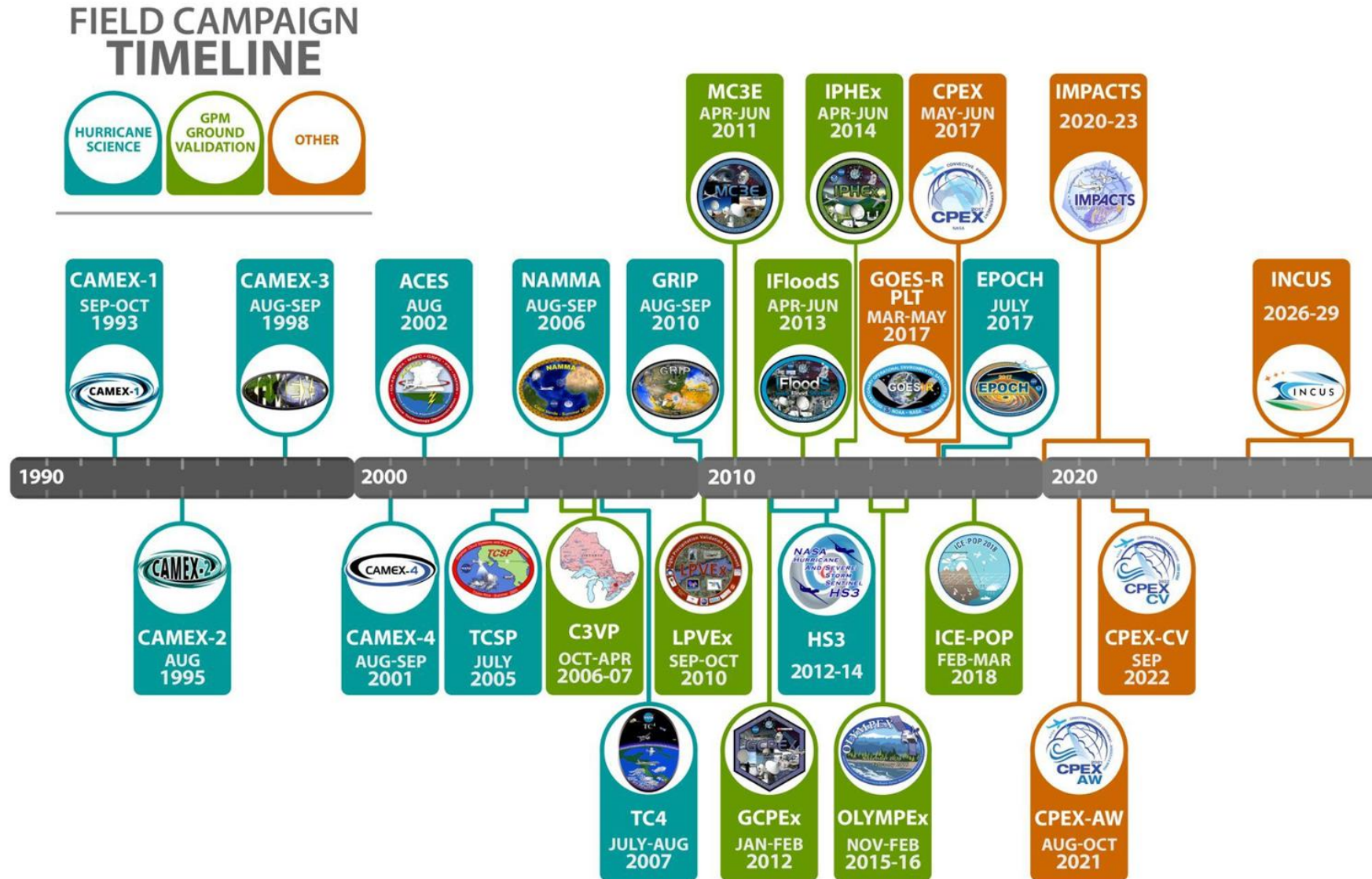
Field Campaign Explorer

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

Same 3D interactive animation/exploration from FCX (running in the cloud)

GHRC's Field Campaign Data Holdings

Celebrating Success: Highlights from Last Year

FY23 Highlights

- **New Field Campaigns**
  - Olympic Mountains Ground Validation Experiment (Olympex)
    - Flight track - ER2 and DC8
    - CRS
    - CPL
    - Hiwrap
    - Nexrad - KATX, KRTX, KLGX
    - NPOL
  - Convective Processes Experiment – Aerosols & Winds (CPEX-AW)
    - Flight track - DC8
    - dropsonde
  - Hurricane and Severe Storm Sentinel(HS3)
    - Flight track - Global Hawk
    - CPL
    - Hiwrap
  - Investigation of Microphysics and Precipitation for Atlantic Coast-Threatening Snowstorms (IMPACTS)
    - Additional dates

FY23 Highlights

- **New Features**
  - Histogram & Subsetting tools
    - Dockerized, as a service, APIs
    - Separate service (abstract) class for each flight instruments
    - Can be hosted in Lambda/ECR
    - Using WebSocket communication protocol which provides full-duplex communication (Bi directional)
    - Compatible with NGAP deployment architecture. (CloudFront Distribution)
    - Experimental, only available in Goes-R PLT. Supports other formats than nc and hdf
    - In future, planning to integrate it with the OPeNDAP services

FY23 Highlights

- **New Features**
  - FCX - Playground

  - A playground in the context of a software application typically refers to a safe and isolated environment where developers can experiment, prototype, and test code without affecting the production environment or the actual users.

  - Playgrounds are especially valuable for learning, debugging, and exploring new technologies.

  - https://ghrc.earthdata.nasa.gov/fcx-playground

  - Easier to collaborate and understand core structure

  - Collaborate with us
  - https://github.com/ghrcdaac/fcx-playground-frontend
  - https://github.com/ghrcdaac/fcx-playground-backend

FY23 Highlights

- ## Deployment

  - Bamboo CI/CD pipeline deployment
  - Extensive deployment
  - Deploys Backend (Core, Subsetting, Histogram)
  - Deploys the website to S3 and creates a backup of last deployment in S3 bucket.

Current and Future Activities

- **Packaging**
  - Published our code to Python Package Index (PyPI)
  - Part of open source and ease of distribution
  - Checkout GHRC pyPI at https://pypi.org/user/ghrc/

- **Collaboration with Openscapes**
  - Open Science, Cohort sessions, Coworking sessions on Earthdata science
  - 2I2C JupyterHub notebooks
  - FCX-Playground on 2I2C

Current and Future Activities

- **New Field Campaign**

  - The Tropical Cloud Systems and Processes (TCSP)
    - Flight Tracks, CRS, CPL

- **FCX-Playground**

  - More modules, new features

- **GraphQL Integration**

  - To serve FCX-metadata, filters, etc.
  - Also, can be integrated with JupyterHub Notebooks

Current and Future Activities

- **Take FCX into the Transformation Train**
  - A 3D visualization tool for NASA Dataset
  - How Field campaign 3D visualization evolves to 3D dataset viewer

Live Demo!

https://ghrc.earthdata.nasa.gov/fcx