GHRC Development

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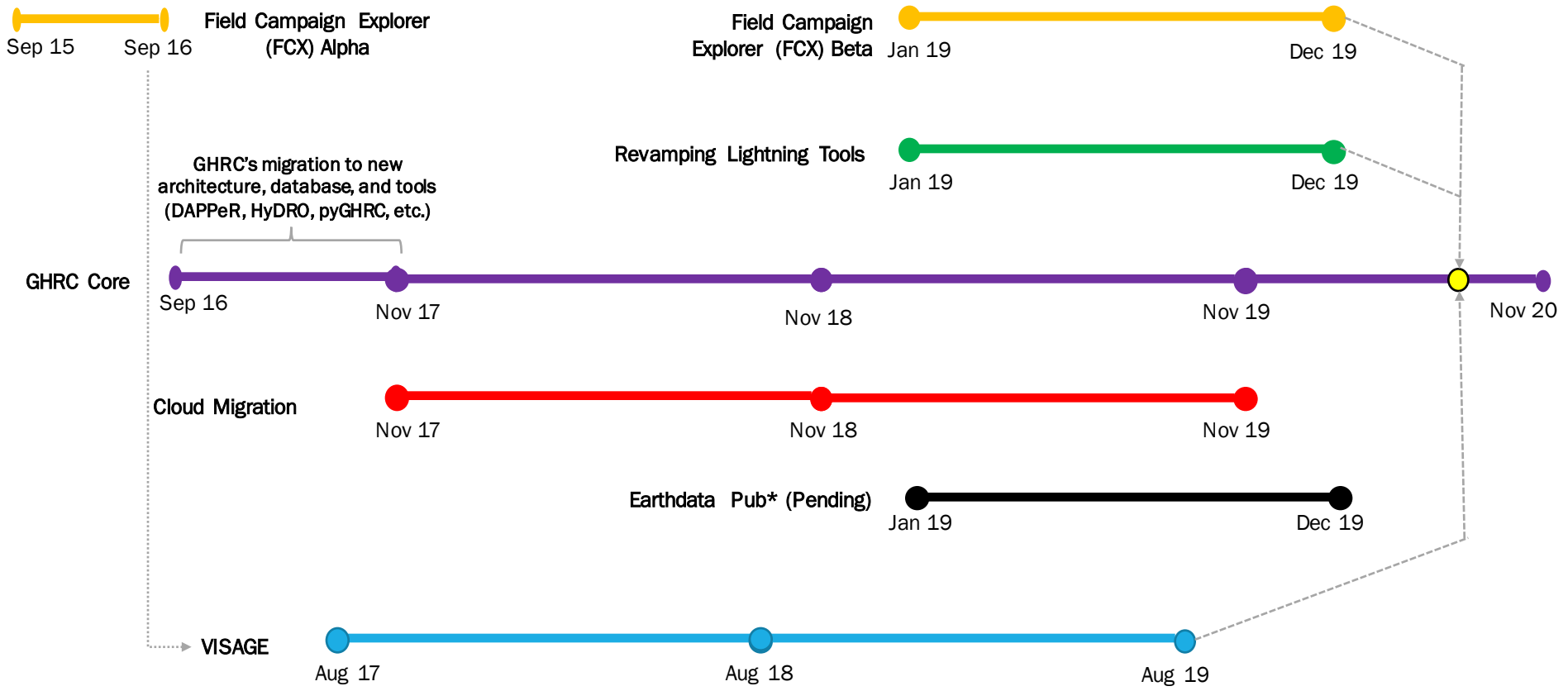
Introduction

- Overview of Major Development Projects and Timeline
- Improvements to Existing GHRC Tools (in FY18)
- Planned Work in FY19
  - Field Campaign Explorer (beta release)
  - Earthdata Pub (proposed)
  - Planned Lightning Tool Upgrades

* Pending approval

Major Development Projects & Timeline



Improvements to Existing GHRC tools in FY18

- **DAPPeR Improvements**
  - Cumulus integration (basic)
  - Several bug fixes and security patches
  - Email alerts
  - Working towards open sourcing DAPPeR code and design
- **pyGHRC Improvements**
  - Internal improvements to pyCMR, pyHyDRO, pyGHRCCatalog
  - Use of Python's multiprocessing to do parallel ingest to CMR
  - Human readable logs
  - More validation tests before sending CMR
  - Provide a time estimate for CMR ingest
- **HyDRO 2.0 Improvements**
  - Support filtering by format
  - Enhancements to download script – use of wget instead bash script
  - Improvements to keep headers and footers in sync with other GHRC templates
  - Evaluating Earthdata Search as a replacement

Internal FY18 Development Activities

- **Earthdata Bulk Downloader Chrome Extension Prototype**
  - 30 sec demo: https://youtu.be/eNyowFTpXfk, developed by *Abdelhak Marouane*
  - *Investigation of alternative choices to bulk data download solution*
  - *May become part of ESDIS enterprise solution for bulk data download*

- Developed Internal Metadata Deadlinks Checker Tool

- GHRC Metrics Dashboard Maintenance

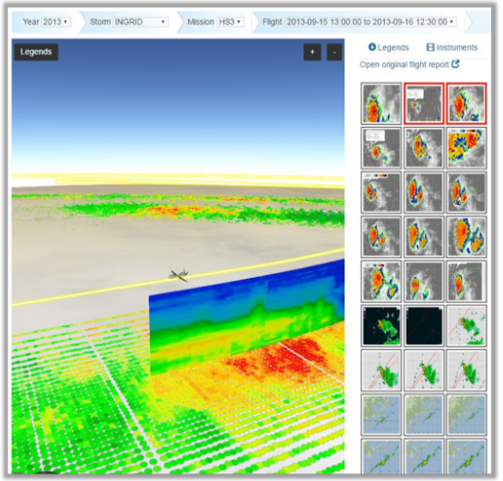
- Migrating to Google Analytics 360

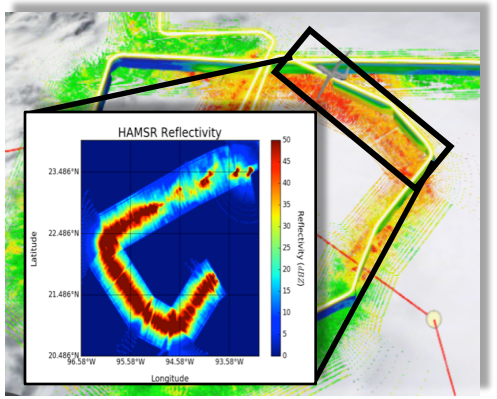
- Setup local Bamboo Continuous Integration (CI) server

- Security review/patches based on yearly NASA Hailstorm web security scans

Field Campaign Explorer (FCX)

- FCX is a data visualization tool for exploring a variety of field campaign data
- Developed around the Hurricane and Severe Storm Sentinel (HS3) Earth Venture mission
- FCX Beta is scheduled to be released in FY19
- FCX Beta required architecture improvements which were completed last year
- FCX Beta release will address feedback from science community and prioritize key functionalities
- FCX Alpha Demo: https://www.youtube.com/watch?v=curPf8XgFhk
- FCX Alpha Webinar: https://www.youtube.com/watch?v=P4T-jJ767qE

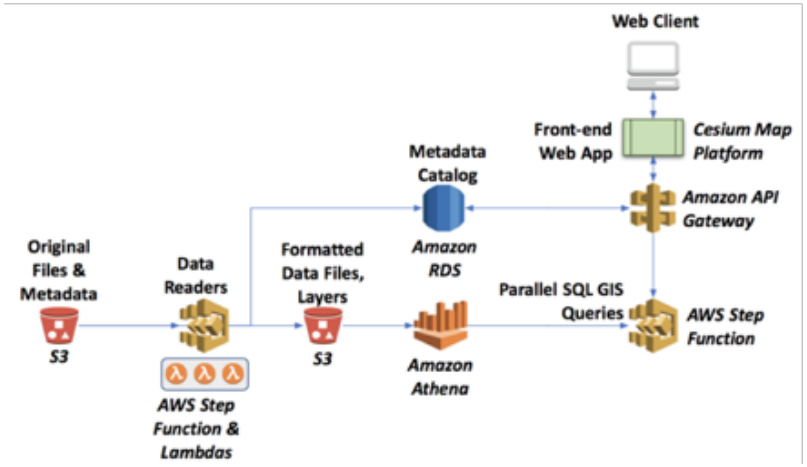




Field Campaign Explorer (FCX) Architecture

- FCX will be rearchitected to use AWS cloud native services

- Several reasons to use AWS cloud native services
  - Data
    - Closer to data stored in the cloud
    - Lower cost and faster processing speed
  - Scalability
    - Ability to auto scale easily to growing user traffic
    - Ability to auto scale parallel query executions
  - Choice of Services
    - More than 100+ preconfigured services with centralized dashboard, Console and API interfaces
  - Cost Savings
    - Serverless on-demand pricing model
    - Less maintenance and configuration time for services



FCX Cloud Native Architecture

Earthdata Pub (proposed)

- Earthdata Pub is a joint effort of multiple DAACs to build a next generation of reusable, cross-platform data publication framework

- Technology basis is SAuS (ORNL), DAPPeR (GHRC) and other similar frameworks

- It has two major goals -
  - **Goal #1:** Educate data providers about the data publication process from an EOSDIS perspective
  - **Goal #2:** Build a reusable, cross-platform framework that provides a consistent cross-DAAC experience for data providers

- Earthdata Pub will provide streamlined interfaces for operators to work with on-prem as well as Cumulus cloud based data publication workflows

- Earthdata Pub Minimal Viable Product (MVP) will be released in FY19

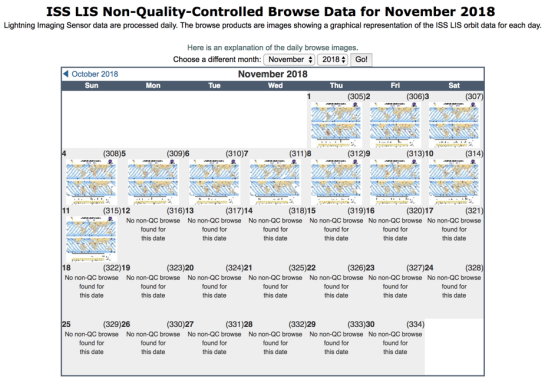
Earthdata Pub (proposed)

- The framework will have a common set of shared modules between each implementation
- The shared modules will be able to interface with a DAAC's existing data and metadata management system, if a DAAC chooses not to use the full Earthdata Pub framework
- Following DAACs are actively participating in development of Earthdata Pub: ASDC, GHRC, GES DISC, ORNL DAAC, NSIDC, and PO.DAAC
- Earthdata Pub has used DAAC/EOSDIS Tools and Services Evolution Process https://wiki.earthdata.nasa.gov/display/ETSP/Forms
- Please contact us to see "Earthdata Pub Project Plan" for more details

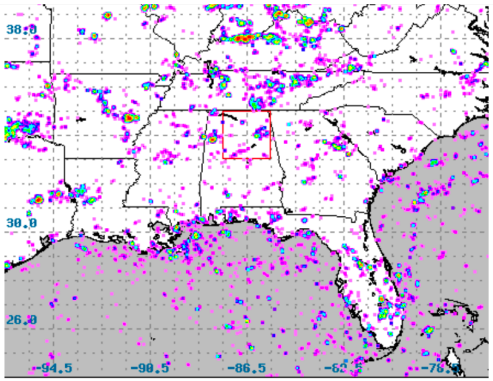
Planned Lightning Tool Upgrades

- Calendar Tools Revamp
- Space-Time Search/Interactive Browse Revamp
- Upgrades to Lightning Mapping Array (LMA) Software

- Reasons for upgrades
  - Twenty year old tools
  - Update to modern look and feel
  - Update to modern technology stack



Calendar Tool



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Number of flashes detected in the area of interest (red rectangle):	101
Total number of flashes in the image:	11790

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Click a file name for detailed information about that orbit.
Click a flash count to show the flashes for just that orbit on this map.

File name		Start time (UTC)	End time (UTC)	Flashes
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ISS_LIS_SC_P0.2_20170705_NQC_02885.hdf	[Jul 05]	2017-186T16:01:43Z	2017-186T17:34:18Z	28
ISS_LIS_SC_P0.2_20170707_NQC_02911.hdf	[Jul 07]	2017-188T08:09:11Z	2017-188T09:41:46Z	3
ISS_LIS_SC_P0.2_20180702_NQC_08513.hdf	[Jul 02]	2018-183T16:21:03Z	2018-183T17:53:39Z	1
ISS_LIS_SC_P0.2_20180731_NQC_08967.hdf	[Jul 31]	2018-212T21:03:50Z	2018-212T22:36:27Z	66

View flash data | Start a new search

Space-Time Search/Interactive Browse Tool

THANK YOU!

Discussion

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