

Interactive Access and Visualization of Large Scale Image Data

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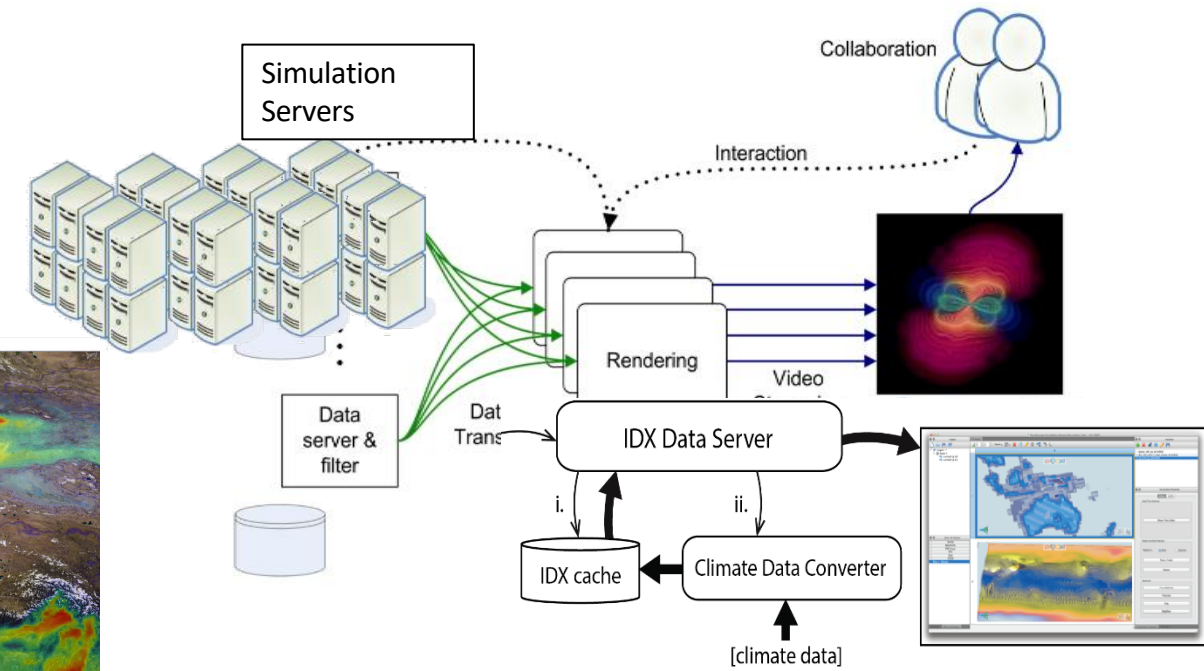
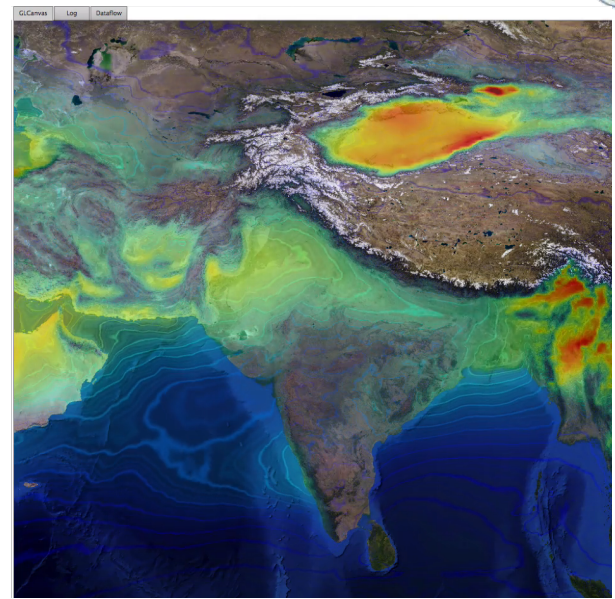
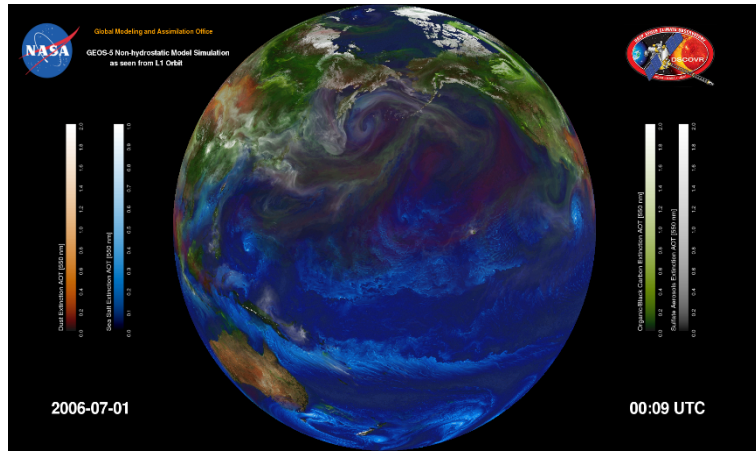
Managing massive image data

- A big challenge in different domains:
 - Simulations
 - High resolution acquisition devices (light sources, microscopes)
 - Drones/airborne/satellites
- Usability is often limited by network bandwidth and memory availability
- A possible solution:
 - Use multiresolution data layouts to access data more efficiently
 - Use streaming technologies to enhance the usability and flexibility of the visualization and analysis workflows

Scalable Deployment: Exploration of 3.5TB of Weather/Climate Data in Real Time

Workflow

- *Data creation*
 - *Data Management*
- Processing
 - Analysis
 - Visualization

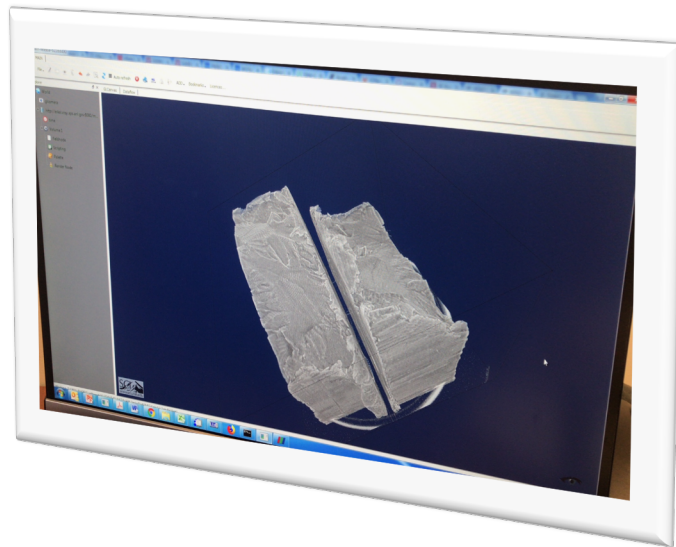


Distributed Resources

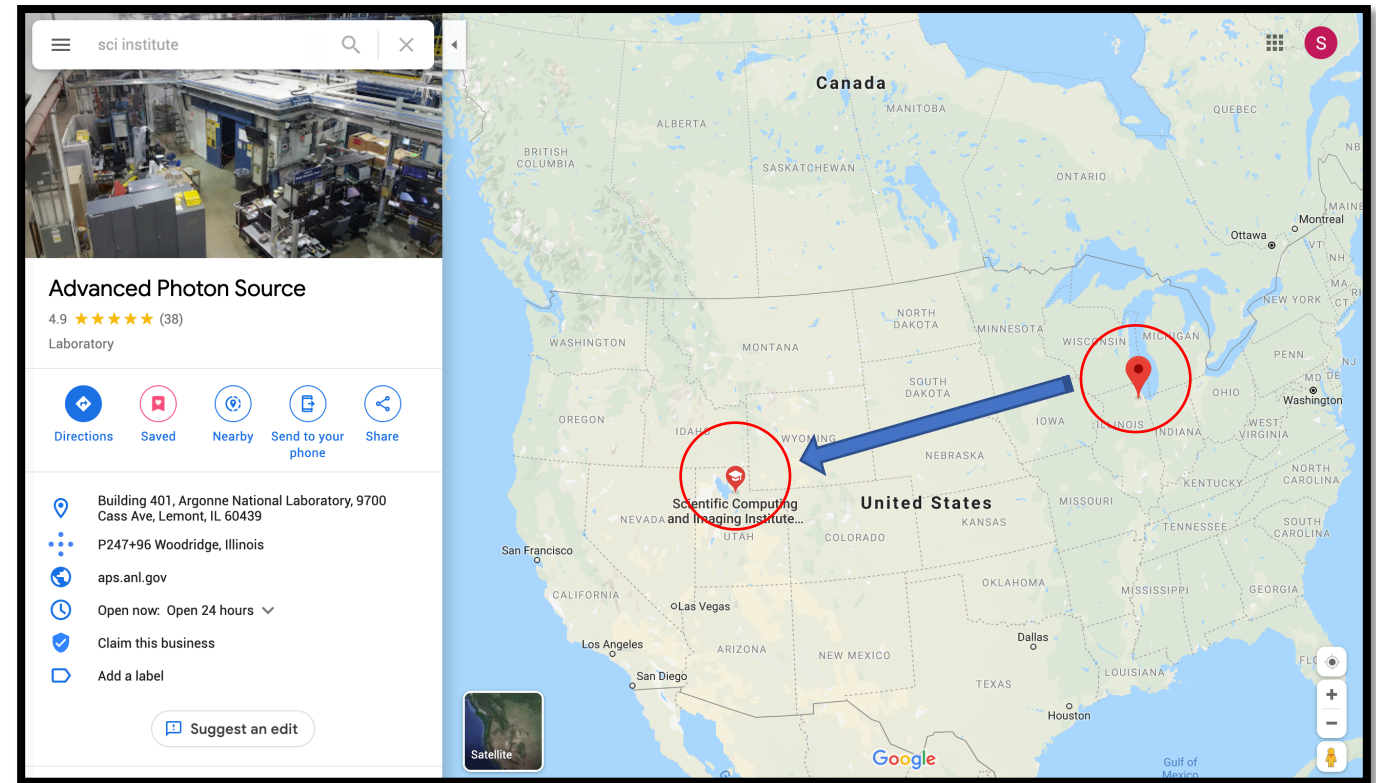
- 7km GEOS-5 “Nature Run”
- 1 dataset, 3.5 PB
- theoretically: openly accessible
- practically: precomputed pics

- 3.5 PB of *data store in NASA*
- *Primary ViSUS server in LLNL*
- *Secondary ViSUS server in Utah*
- *Clients connect remotely*
- *Work without additional HPC resources*

High Performance Data Movements for Real-Time Access to Large Scale Experimental Data (Dockerized server)

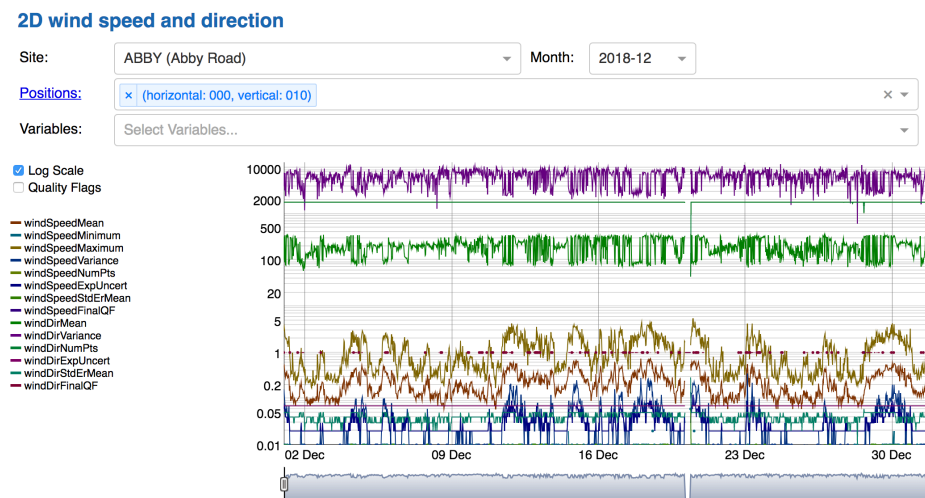


- Using a desktop client (or a webviewer)
Prof. Ashley Spears was able to see the data being acquired at APS from her office at the University of Utah



NEON AOP data

- NEON has a large amount of data that is shared with the community through their **data portal**
- There exist **APIs** to download those data in bulk (per site, per year, per data product, now also by area)
- For some data, such as sensor measurements, the portal provides an **interactive** navigation system
- For others, like **Airborne Observation Platforms data**, there is a long list of image files...
- There is a need to present all AOP data interactively, where the users can preview, navigate, and select/access/download the data they need

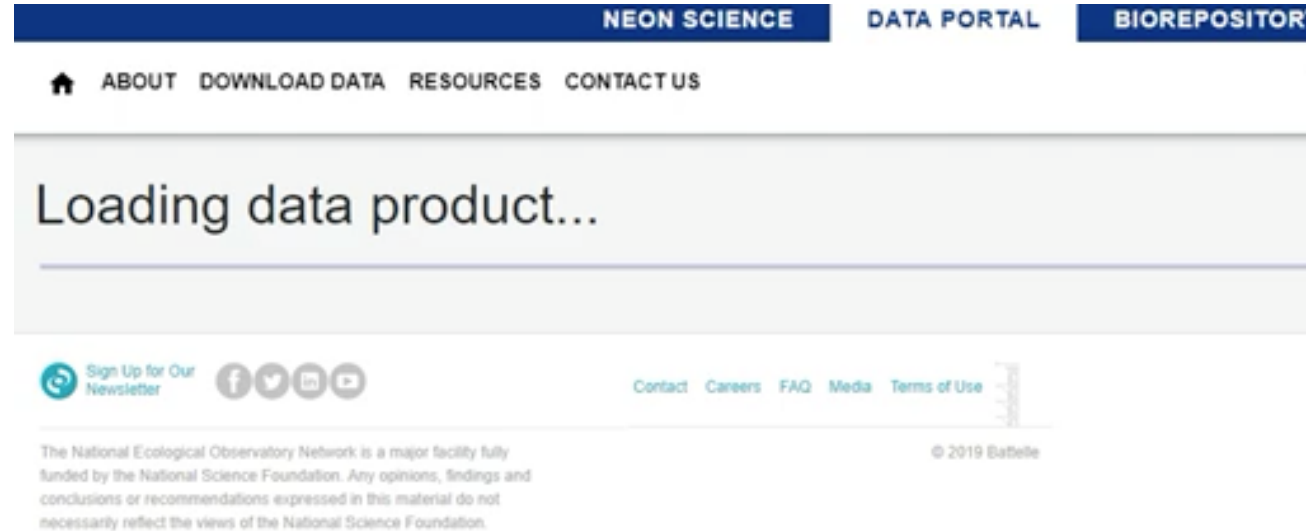


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Showing 1 to 100 of 20,850 entries

AOP data

Integration with NEON data portal



<https://www.youtube.com/watch?v=09DWwEhUIWc>