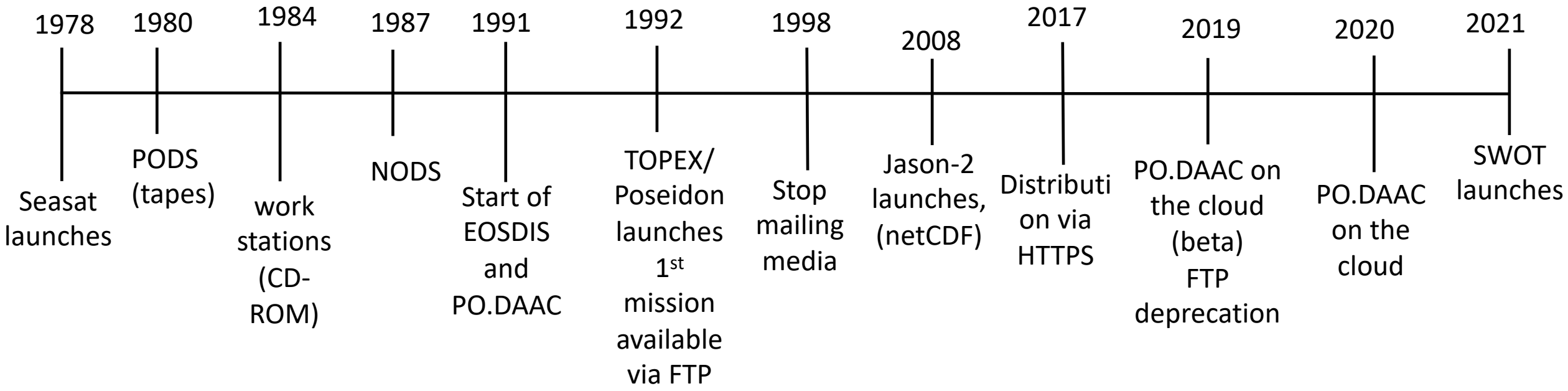
The Evolution of Data Accessibility at PO.DAAC: Seasat to SWOT

Jessica.K.Hausman@jpl.nasa.gov
Chris Finch
David Moroni
Colleen Schroeder
Michael Gangl
Jet Propulsion Laboratory/California Institute of Technology

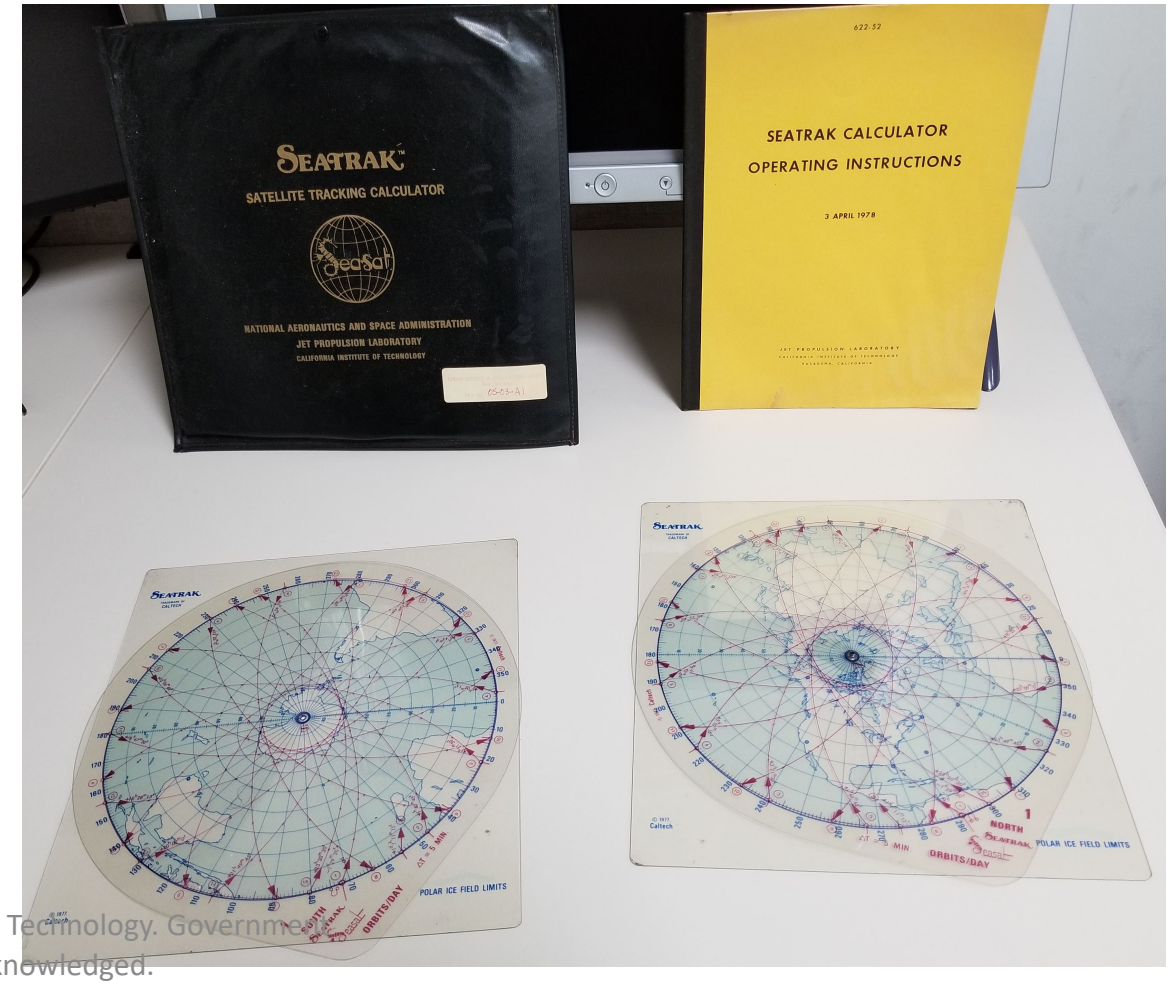
Timeline



Seasat and PODS

- Seasat was the first dedicated oceanographic satellite mission
- Launched 1978 and operated ~100 days
- Very data dense for that time ~17GB
- The data needed to have a centralized archive and distribution
- Pilot Ocean Data System (PODS) started in 1980

- Tapes were mailed to users for distribution (9 track tape = 180 MB)
- Subsetting was done on demand, by a person at PODS receiving a request and writing the tape
- Users could figure out what passes they wanted using Seatrak



Mid 1980s

- Workstations connected to central repository makes processing data and viewing images much faster, but restricted to being in the same building as the repository
- CD-ROM available, but most users at that time do not have drives to read them

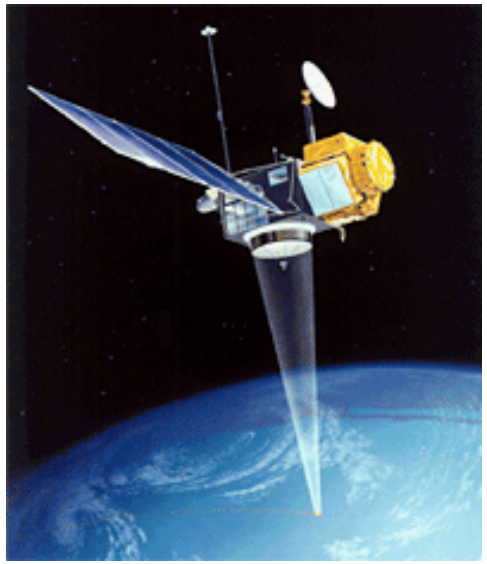
NODS, PO.DAAC & EOSDIS

- More ocean observing satellites launched and PIs begin providing datasets so needed a more robust system
- PODS evolved to NASA Ocean Data System (NODS) in 1987
- 1991 NASA creates EOSDIS a central system to coordinate the various Earth science data centers it funds
- Under EOSDIS all the data centers become DAACs, thus PO.DAAC

EOSDIS
NASA'S EARTH OBSERVING SYSTEM
DATA & INFORMATION SYSTEM

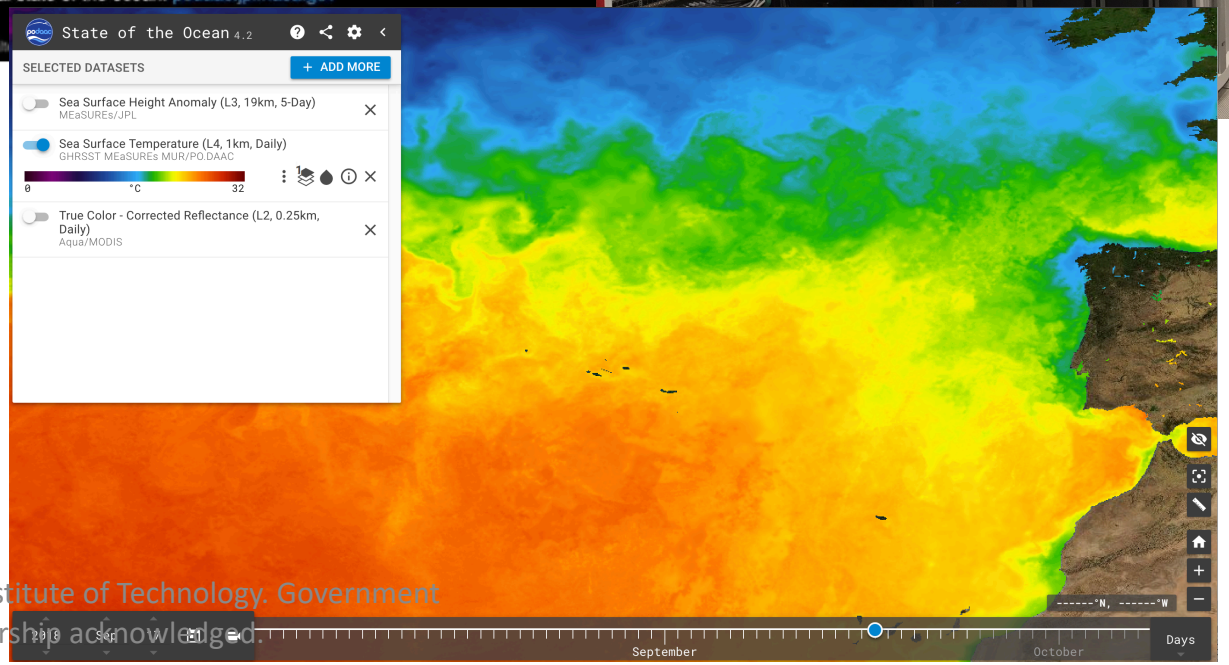
TOPEX/Poseidon and FTP

- 1992 TOPEX/Poseidon was one of the first missions distributed via FTP at PO.DAAC
- MGDR product mostly distributed as CDs
- By 1998 most users are retrieving data via FTP so data are no longer being mailed



PO.DAAC Today

- All data are available online and stored in servers
- Advent of self-describing file formats (HDF, netDCF) and metadata standards make data more interoperable and discoverable
- Various tools and services are available to access data (SOTO, web services, HiTIDE, HTTPS/Drive, etc.)



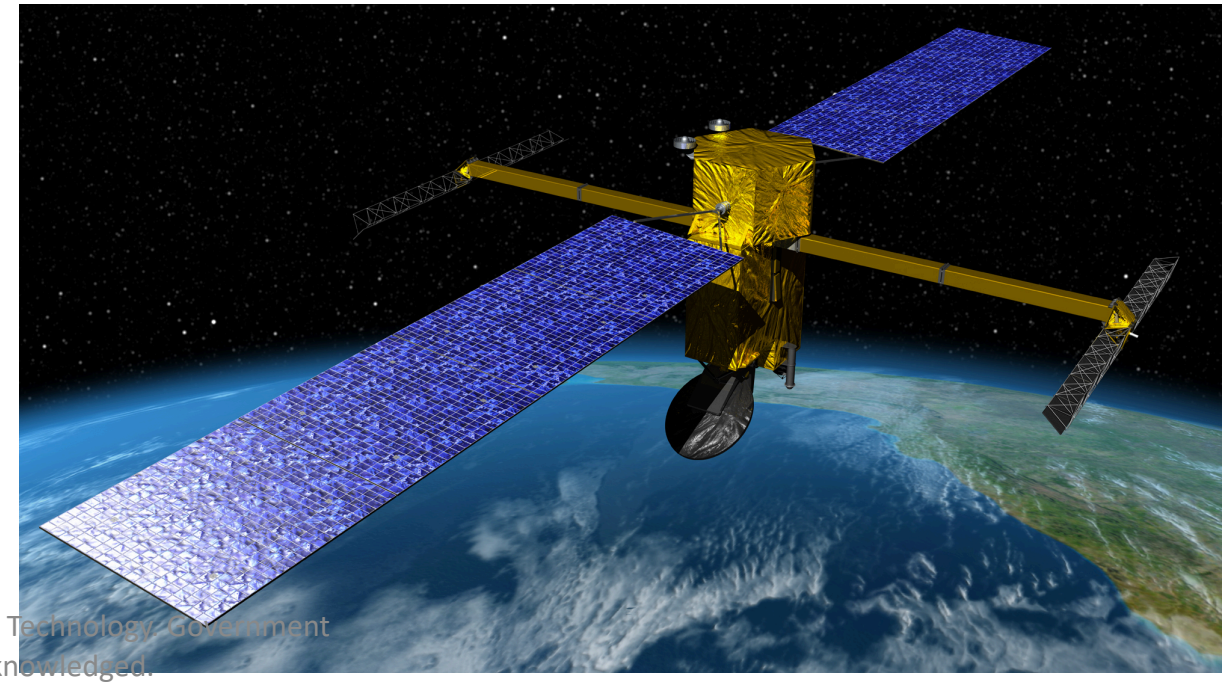
HTTPS/Drive

https://podaac-tools.jpl.nasa.gov/drive
https://podaac.jpl.nasa.gov/drive_forum
https://podaac.jpl.nasa.gov/drive_recipes

- Data at PO.DAAC are now available via Drive
- Drive allows similar look and feel as FTP via HTTPS
- Requires user registration
- Lets user mount Drive onto their machine so it acts like a local drive
- Replaces FTP, which will be deprecated June 2019

SWOT and Cloud

- SWOT launches 2021 and will produce ~20TB of data per day
- Poses challenges for data storage, access and processing
- First mission for PO.DAAC and EOSDIS to be stored and accessed on the cloud



PO.DAAC today

Data Access

HTTPS/Drive

OPeNDAP

Web Services

THREDDS Data Server

Web Portal

State Of The Ocean (SOTO)

Web Portal

Visualization

HiTIDE

Subsetting

User

PO.DAAC on the cloud

Data Access

Drive

Web Services

Subsetting

Visualization

User

Web Portal

User

Questions

- Web Portal
  - https://podaac.jpl.nasa.gov
- Forum
  - https://podaac.jpl.nasa.gov/forum/
- Drive
  - https://podaac-tools.jpl.nasa.gov/drive