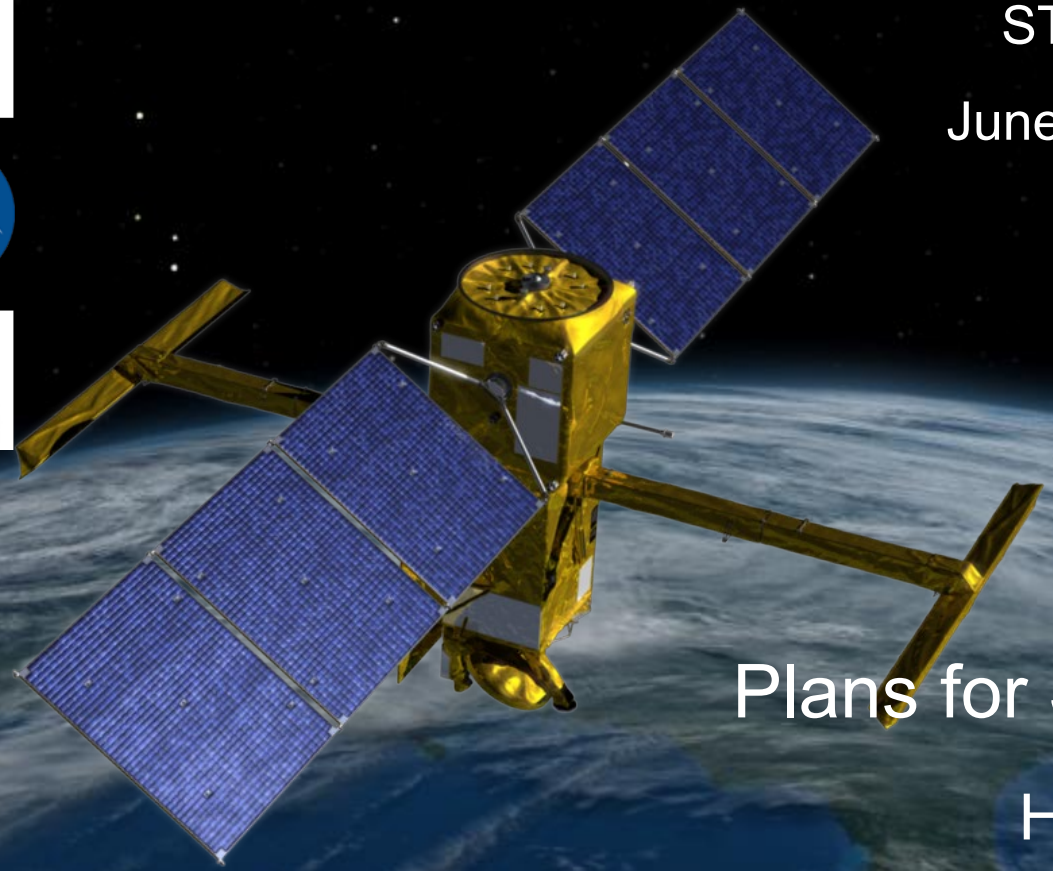
National Aeronautics and Space Administration

Jet Propulsion Laboratory
California Institute of Technology
Pasadena, California

Surface Water and Ocean Topography (SWOT) Mission

ST meeting

June 26th, 2017



Plans for SWOT data access

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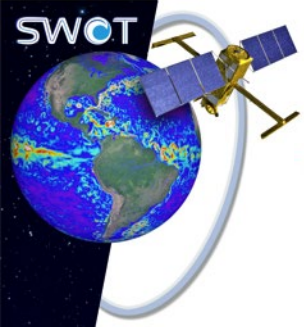


Standard Data Product (SDP) & distribution

Data Product	Product Type	SDP distribution	
ShortName		PO.DAAC	CNES
L1B_LR_INTF	SDP	Public	n/a
L2A_LR_SSH	SDP	Public	Public
L2B_LR_SSH	SDP	Public	Public
L1B_HR_SLC	SDP	Selected Access	Selected Access
L2_HR_PIXC	SDP	Public	Public
L2_HR_RIVER_SP	SDP	Public	Public
L2_HR_RIVER_AVG	SDP	Public	Public
L2_HR_LAKE_SP	SDP	Public	Public
L2_HR_PIXC_VEC	SDP	Public	Public
L2_HR_LAKE_AVG	SDP	Public	Public
L2_HR_RASTER	SDP / On-Demand	Public	Public
L2_RAD	SDP	Public	Public
L2_NALT_IGDR	SDP	Public	Public
L2_NALT_GDR	SDP	Public	Public
L1_DORIS_RINEX	SDP	Public	Public
L1_GPSP_RINEX	SDP	Public	Public
MOE	SDP	Public	Public
POE	SDP	Public	Public

KaRIn LR products

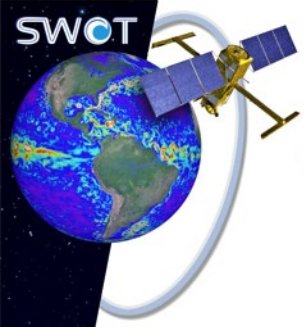
KaRIn HR products

Radiometer product

Nadir altimeter products

Orbital products

- L1B_HR_SLC: a) selected access (e.g. distribution after specific user registration, limited bandwidth…) b) distributed at CNES for a limited time window after production, available at PO.DAAC at all times
- L2_HR_FP_DEM: deferred, out of scope today, will be a Change Request to the SDSes



PO.DAAC and CNES distribution

- Both distribution centers will distribute identical products available to science/public community
- PO.DAAC and CNES distribution server Design and Implementation are independent
- Distribution capabilities will be verified/tested during System Tests (June 2020)

Distribution strategy by phase

- Pre-beta L1-L2 products during science Calibration and start of the Science Phase (until Dec 2021)
- Beta L1-L2 products until the version approved at Science Calibration meeting (June 2022)
- Validated products after that version (since June 2022)
  - Except for discharge attribute which remains in **beta** version
    - Discharge attribute **validated** in May 2023 (ADT/SDS Delivery n°7)

Policy for distribution

Pre-beta version: Release to Project approved users only

Beta version, public release

Validated version, public release

Distribution hypotheses (CNES)

- Hypotheses
  - No L0 distribution
  - No L1B_LR_INTF distribution
  - L1B_HR_SLC: Eurasia, to selected users and during a limited time window after production, *ratio 0,001*
  - L2_HR_PIXC: Global, *ratio 1*
  - All L2 Lake and River products: Global, *ratio 10*
  - L2A(B)_LR_SSH: Global, *ratio 3*

"ratio": average number of times a product is downloaded

End user distribution main functions (CNES)

– GUI
  - Geographical coverage visualization (corners of the product) above map / images
  - Features extend visualization (for individual lakes / river)
  - Selection criteria on geographical coverage or individual feature /time or any metadata field
  - Possibility to ask for a partial product (even in LR), geographically
  - Possibility to ask for a partial product (part of its attributes)
  - Homogeneous GUI for all SWOT products

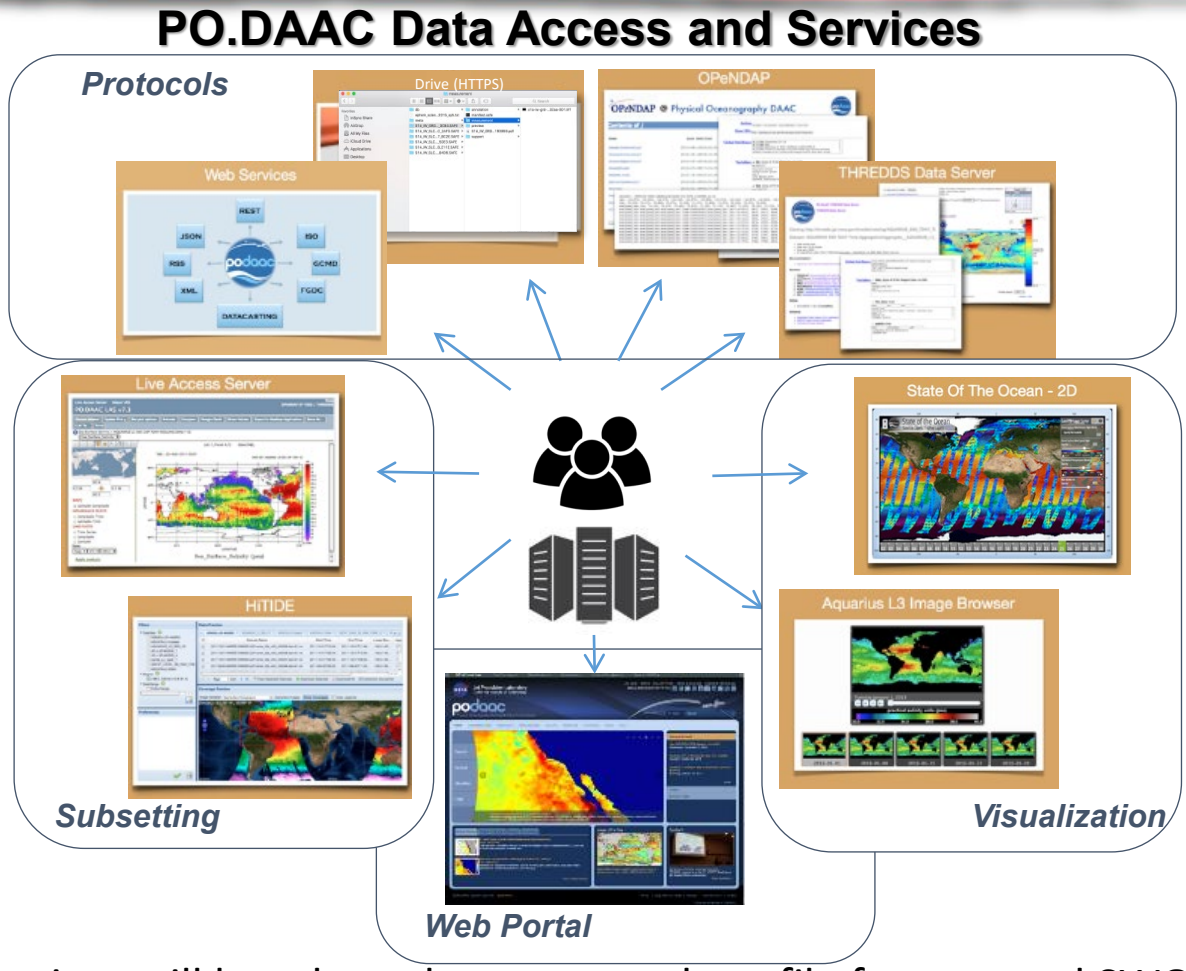
– SDP (Standard Data Product) Download
  - A link will be provided with the URL of the file(s) to download

– On demand processing
  - Raster product, with specified resolution and over a user chosen area
  - Extendable to other processing in the future

Distribution hypotheses (JPL)

- L0 distribution by special request only
- L1B_LR_INTF Global and L1B_HR_SLC non-Eurasia ~60 days rolling store,
  - L1B_HR_SLC Eurasia will be made available after data are received from CNES, thus a shorter rolling store window
  - all L1B (Global) past the rolling store window will be distributed via special request
- L2_HR_PIXC: Global
- All L2 Lake and River products: Global
- L2A(B)_LR_SSH: Global

End user distribution main functions (JPL)



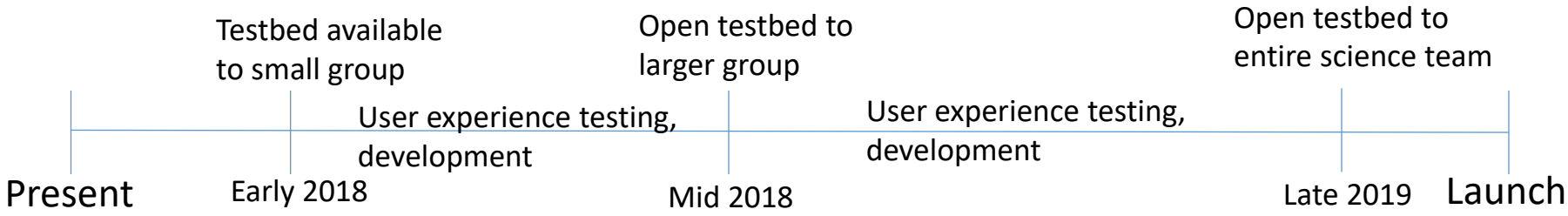
- All current services will be adapted to support shapefile formats and SWOT volumes
- Data can be downloaded over https, slowly

  1 PB at 100 Mbps → 2.5 years

BUT…

End user distribution main functions (JPL)

- Data will be stored in the cloud
- Cloud allows for scalability and flexibility of data storage and provides users a way of not being bogged down by large data volumes
- PO.DAAC tools and services will be adapted to be cloud based
  - Raster transformation, subsetting, access PO.DAAC data
- Users can ”login and analyze” instead of downloading data
- Will have a testbed environment and training to transition users to the cloud



Backups

PO.DAAC Components/User Services

Data Services

HiTIDE L2SS W10N
SOTO NEXUS Portal
LAS

Processing

AMI Containers
NEXUS W10N Portal
THREDDS OpenDAP

Fusion

Accountability/Prioritization

PDR PAN PDR-D
SQS SNS

Access/Distribution

THREDDS OpenDAP
Drive W10N
Cumulus

Ingest

DMAS
Cumulus

Storage (incl. DR)

NAS/SAN Blu-ray Libraries
WOS

Cloud-aware Element