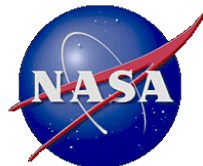


The logo for the Satellite With Ocean Topography (SWOT) mission. The letters "SWOT" are in a blue, outlined font. The letter "O" is replaced by a circular icon containing two white curved arrows forming a clockwise loop.

LAKE DATA PRODUCTS STATUS

C. POTTIER (CNES)

**SWOT Science Team Meeting
Toulouse – June 27th 2017**



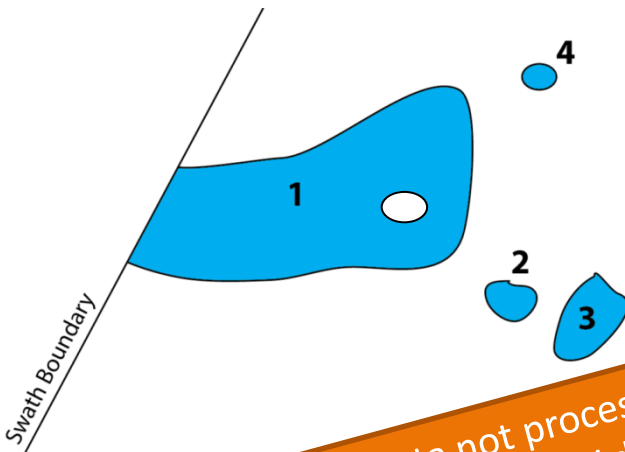
UNC
COLLEGE OF
ARTS & SCIENCES

SINGLE-PASS PRODUCT (1/4)

Format

OGRPolygon shapefile (WGS_84)

- 1 object = part of a lake or reservoir observed by SWOT
- polygons:
 - lake boundary
 - inner islands boundary



All HR data not processed as a river, i.e.:
Lakes in the *a priori* database + new objects
+ shorelines/estuaries + ocean parts in HR

Coverage

- Intersection pole-to-pole pass & continent
- Both swaths



SINGLE-PASS PRODUCT (2/4)

IDENTIFIERS

SPACE-TIME INFO

Parameter name	Definition	Type
id	Identification of an inundated region observed by SWOT	INT (*)
prior_id	List of the IDs of lake(s) of the <i>a priori</i> database which intersect this inundated region	STRING
obs_time	Averaged time of overflight	STRING
ct_dist	Cross-track distance with regard to the lake center	FLOAT

(*) For example: [cycle_number_3digits][pass_number_3digits][continent_id][tile_id][number]



SINGLE-PASS PRODUCT (3/4)

HYDRO VAR AND UNCERTAINTIES

Parameter name	Definition	Type
height	Lake-averaged height [m] ; values are calculated with respects to the geoid	FLOAT
h_unc	Height uncertainty [m]	FLOAT
area	Total water area, defined as the total observed area for the SWOT-observed region (including layover) [m ²]	FLOAT
a_unc	Area uncertainty [m ²]	FLOAT
a_nolay	No-layover water area [m ²]	FLOAT
anol_unc	No-layover water area uncertainty [m ²]	FLOAT
area_est	Estimated water area, computed from rating curves [m ²]	FLOAT
delta_s	Storage change [m ³]	FLOAT
ds_unc	Storage change uncertainty [m ³]	FLOAT

SINGLE-PASS PRODUCT (4/4)

FLAGS

Parameter name	Definition	Type
nb_pixc	Number of pixels of the L2_HR_PIXC that contribute to the lake	INT
nb_ice	Total area of all pixels of L2_HR_PIXC that are impacted by ice	INT
nb_lay	Total area of all pixels of L2_HR_PIXC that are impacted by layover	INT
nb_dark	Total area of all pixels of L2_HR_PIXC that are impacted by dark water, rain, ...	INT
partial	Indicates whether the SWOT-observed region falls entirely within the swath or not	FLOAT
fquality	Global quality flag	INT

AVERAGED PRODUCT (1/3)

Format

OGRPolygon shapefile (WGS_84)

- 1 object = lake or reservoir observed by SWOT during cycle
- polygons:
 - lake boundary
 - inner islands boundary

Extent for polygons:

- Status = max extent during cycle (idem for islands)

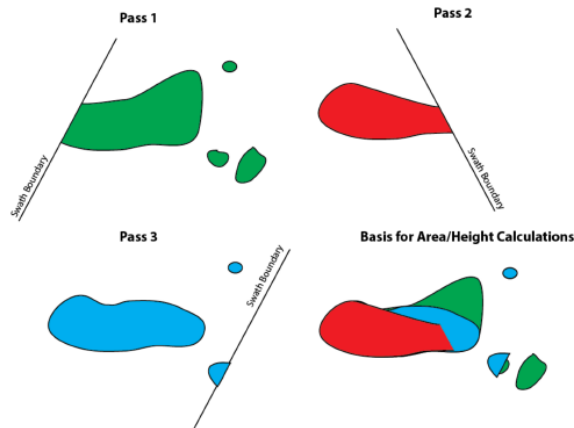
Coverage

Time aspect

- Cycle average

Geographic aspect:

- Stored per river basin



Only for lakes in the a priori database

AVERAGED PRODUCT (2/3)

	Parameter name	Definition	Type
IDENTIFIER	prior_id	ID of the lake of the <i>a priori</i> database	INT
	obs_time	List of pass-based “obs_time” attribute for the lake during the cycle	STRING
SPACE-TIME INFO	l_pass	Overpasses during the cycle, as list of pass numbers	STRING
	ct_dist	List of cross-track distances with regard to the lake center, corresponding to each overpass	STRING
HYDRO VAR AND UNCERTAINTIES	h_min	Min height over the cycle [m]	FLOAT
	h_max	Max height over the cycle [m]	FLOAT
	height	Cycle-averaged height [m]	FLOAT
	h_unc	Height uncertainty [m]	FLOAT
	area	Maximum water area observed during the cycle [m ²]	FLOAT
	a_unc	Area uncertainty [m ²]	FLOAT

AVERAGED PRODUCT (3/3)

HYDRO VAR AND UNCERTAINTIES

FLAGS

Parameter name	Definition	Type
area_est	Estimated water area, computed from rating curves [m ²]	FLOAT
delta_s	Storage change [m ³]	FLOAT
ds_unc	Storage change uncertainty [m ³]	FLOAT
fquality	List of pass-based “fquality” attribute for the reach during the cycle	STRING

CONCLUSION

Pass-based product:

- Polygon shapefile for:
 - ◆ lakes that are in the *a priori* database,
 - ◆ unknown or not referenced lakes or rivers,
 - ◆ shorelines and estuaries,
 - ◆ ocean parts covered in HR mode
- Coverage: continent / both swaths

Cycle-based product:

- Polygon shapefile only for lakes in the *a priori* database
- Coverage: major river basin

Status:

- Baseline defined: SDS Product Description document in March 2017
- Exact content: still under work