



## Prior Lake Database (PLD) description

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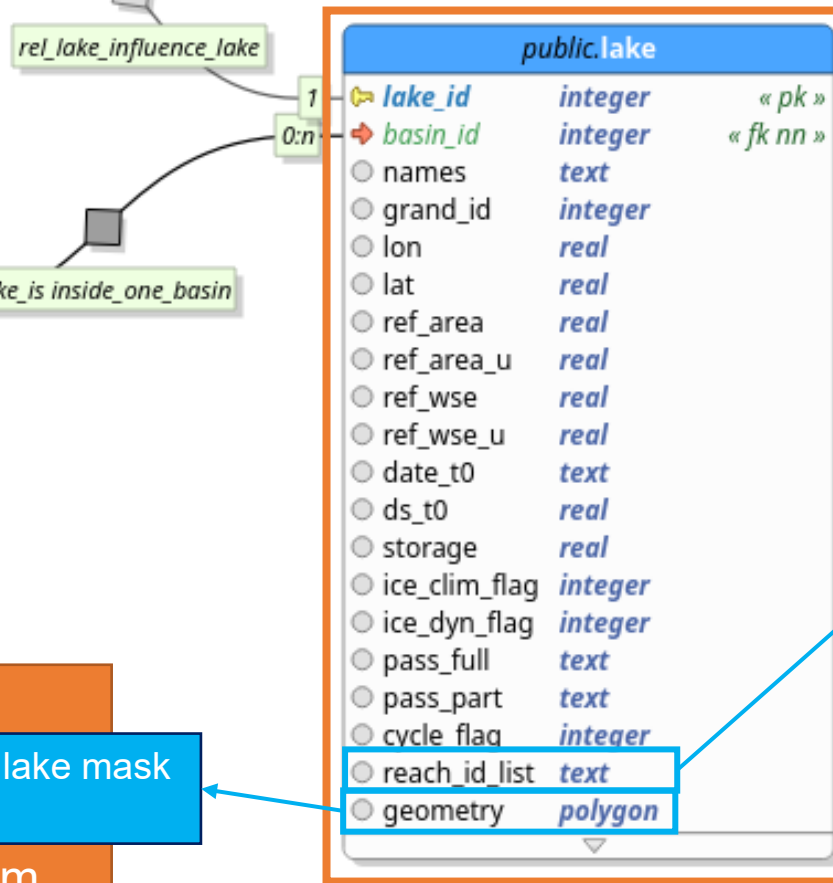
## Prior Lake Database (PLD) – What for?

- ❖ Link SWOT observations to water bodies known as lakes (> 1ha)
  - to be able to link each observation of water bodies and therefore monitor lakes => stored in LakeSP\_Obs and LakeSP\_Prior shapefiles of lake product
  - unidentified water bodies are stored in LakeSP\_Unassigned shapefile of lake product
- ❖ Get prior information necessary to compute storage change
- ❖ Get other prior information necessary to populate the product (basin, flags)
- ❖ Way to store data that ease lake processing

# PLD model

public.lake_influence		
lake_id	integer	« fk nn »
geometry	polygon	

The “lake\_influence” geometries delineate the area of influence of each of the prior lakes stored in the “lake” table. These polygons are used to accelerate the assignment of pixel cloud pixels to PLD lakes.



public.basin		
basin_id	integer	« pk »
name	text	
lon_min	real	
lon_max	real	
lat_min	real	
lat_max	real	
swot_obs	text	
geometry	polygon	

public.lake		
lake_id	integer	« pk »
basin_id	integer	« fk nn »
names	text	
grand_id	integer	
lon	real	
lat	real	
ref_area	real	
ref_area_u	real	
ref_wse	real	
ref_wse_u	real	
date_t0	text	
ds_t0	real	
storage	real	
ice_clim_flag	integer	
ice_dyn_flag	integer	
pass_full	text	
pass_part	text	
cycle_flag	integer	
reach_id_list	text	
geometry	polygon	

The “lake” table contains a polygon and a set of attributes for each prior lake. It is used to link observed polygons to prior lakes, by intersecting their geometries. It also contains parameters to compute the storage change and attributes to be directly used in the lake product.

The “reach\_id\_list” attributes reflects the intersection between the PLD and the PRD/SWORD, for lakes being over a prior river (so called “connected lakes”).

**Format = SpatiaLite (main info available in shapefile)**  
**Geometry geographical coordinates (WGS 84)**

The “basin” table delineates HydroBASINS & UCLA CIRCA-2015 lake mask. These are used to separate water features and separate them into continents. [Sheng et al.]

## 4 planned versions

### ❖ V1

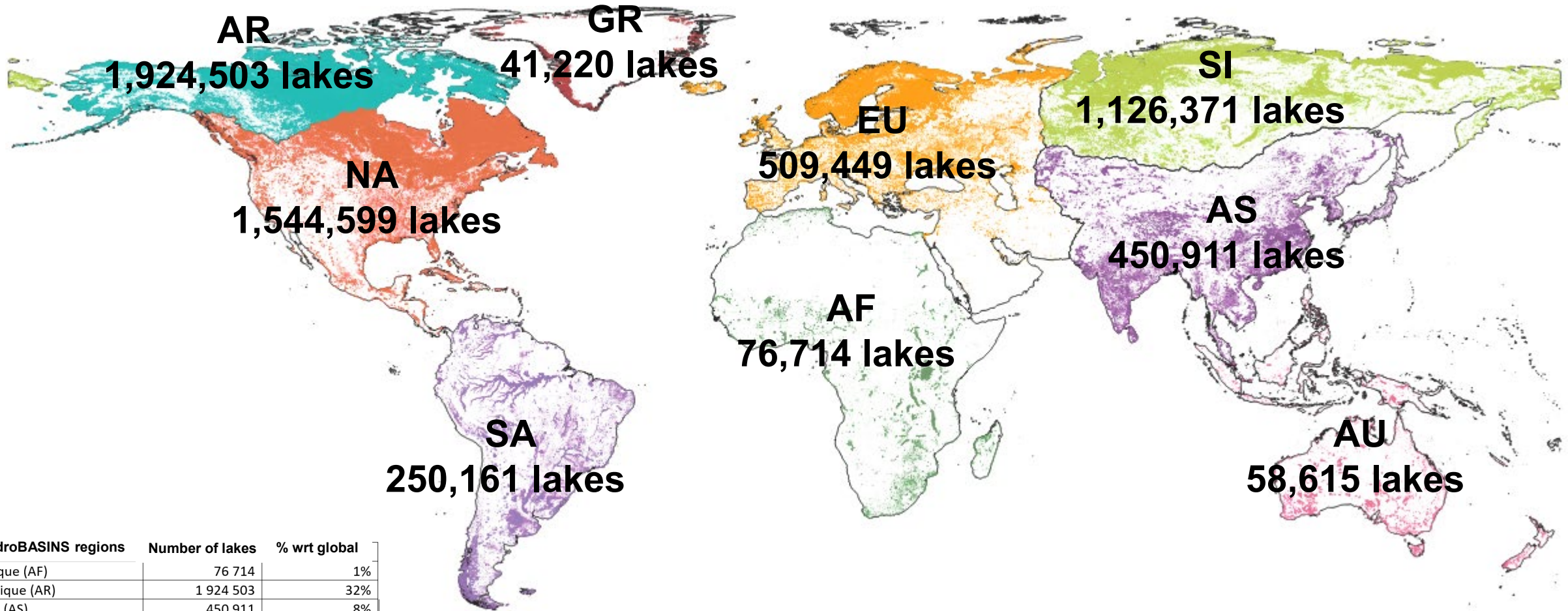
- V1.0: Basic version available  
PLD.table geometry from UCLA CIRCA-2015 lake mask [Sheng *et al.*] + PLD.lake\_influence computed from them  
PLD.lake\_reach: on-going work with each new version of SWORD river DB [Altenau, Pavelsky *et al.*]
- V1.n: On-going improvement until launch; emphasis over CalVal sites and other sites covered by CalVal orbit, and other specific sites => version available for SWOT launch
- → on-going brainstorming on the PLD update process
- V1.n+: temporary working versions available to experts in the Expertise center

❖ V2: T0+15m, before L2 products reprocessing

❖ V3: T0+27m, before L2 products reprocessing

❖ V4: At the end of the mission, before the global reprocessing

# PLD V1.0



HydroBASINS regions	Number of lakes	% wrt global
Afrique (AF)	76 714	1%
Arctique (AR)	1 924 503	32%
Asie (AS)	450 911	8%
Australie et Océanie (AU)	58 615	1%
Europe (EU)	509 499	9%
Groenland (GR)	41220	1%
Amérique du Nord (NA)	1 544 599	26%
Amérique du Sud (SA)	250 161	4%
Sibérie (SI)	1 126 371	19%
<b>TOTAL =</b>	<b>5 982 543</b>	