

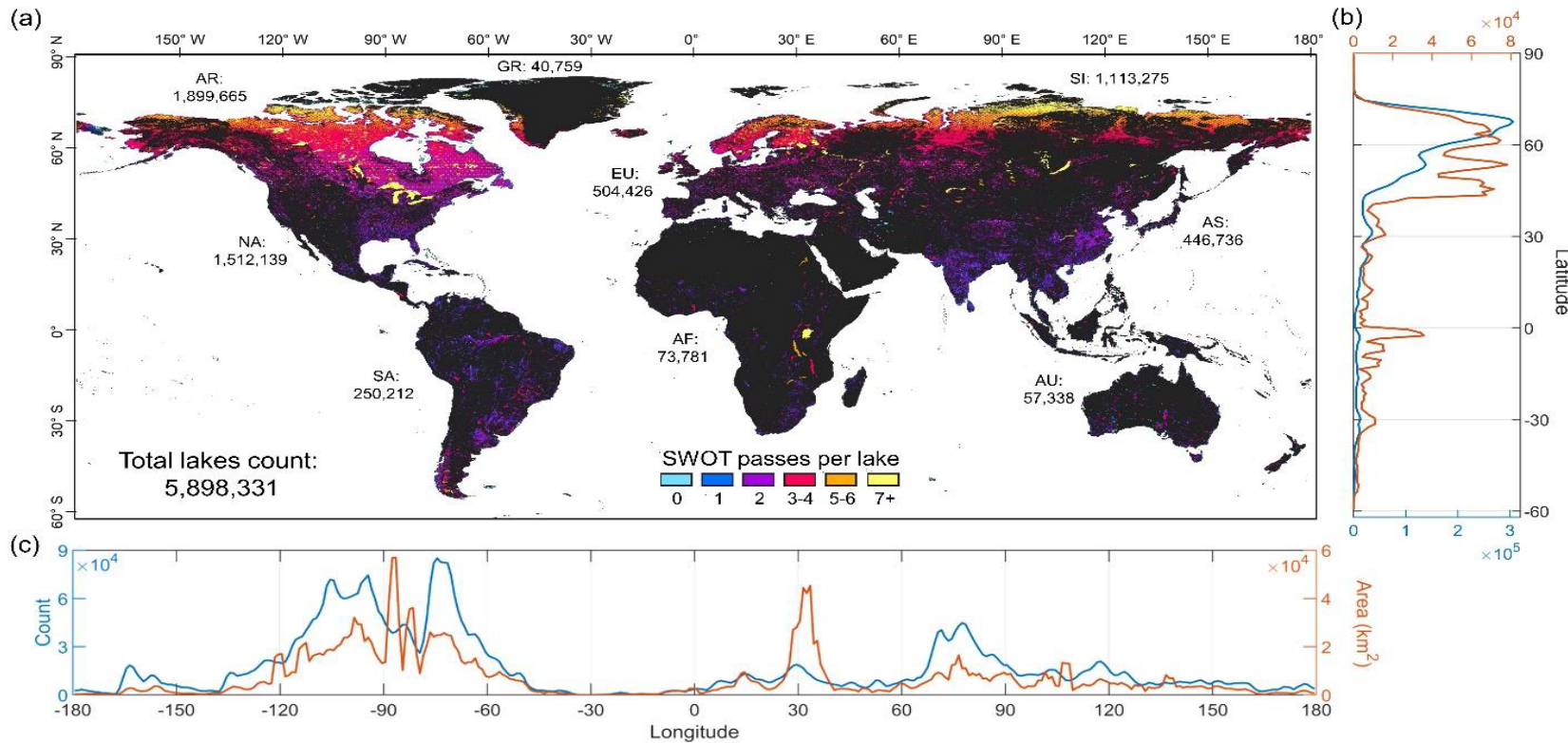
SWOT HR

PRIOR LAKE DATABASE UPDATES AND ON-GOING WORK

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on behalf of the HR Algorithm Development Team

SWOT SCIENCE TEAM MEETING, ARCACHON, FRANCE
15 OCTOBER 2025

PRIOR LAKE DATABASE (PLD)



Role

- Link SWOT observations between them
- Store data needed for lake processing

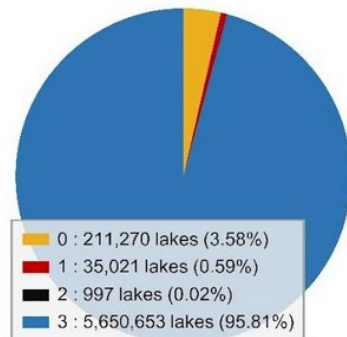
Water mask from:

- Circa-2015 dataset [Sheng *et al.* 2016; Wang *et al.*, 2025]
- Recently built reservoirs [Sikder *et al.*, 2023]
- Specific inputs for scientists

(a) Global composition of each cycle flag

SWOT cycle flag for prior lakes

- 0 : Never observed
- 1 : Partially observed
- 2 : Fully observed after aggregating passes
- 3 : Fully observed by at least one pass

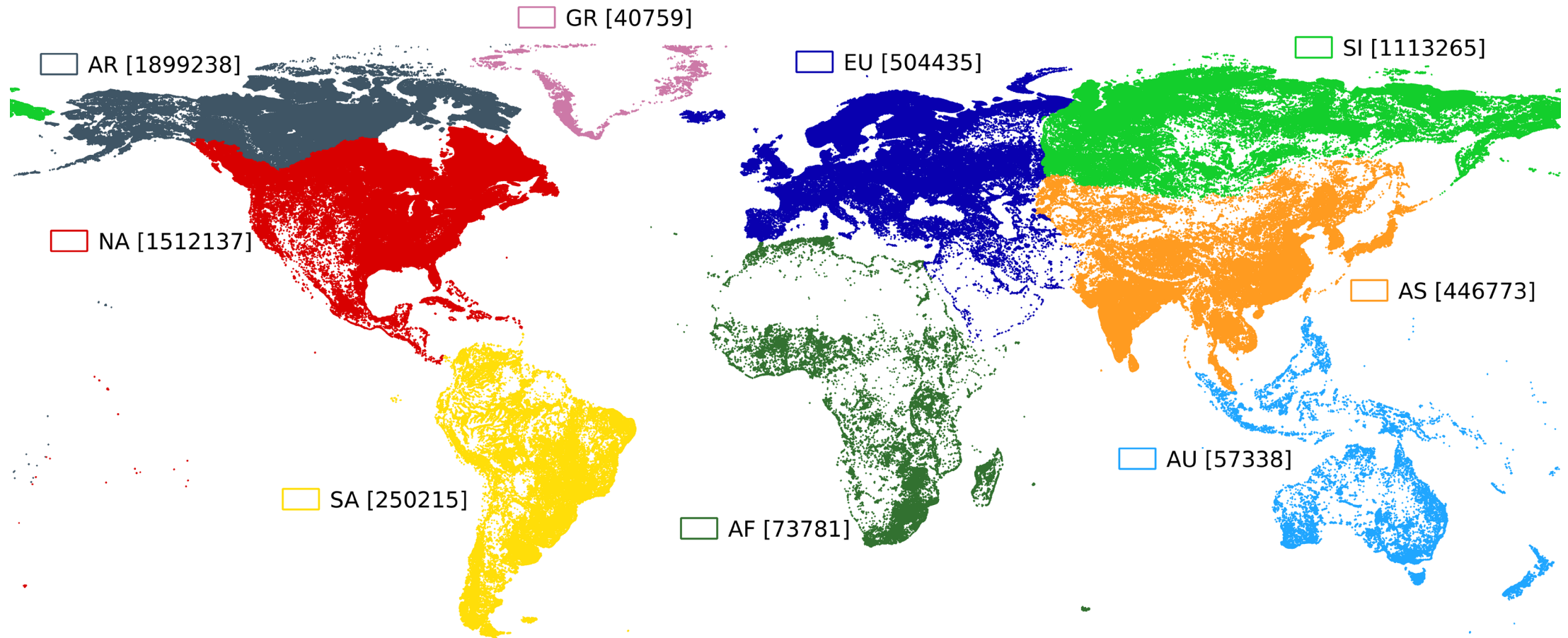


Wang, J., Pottier, C., Cazals, C., Battude, M., Sheng, Y., Song, C., *et al.* (2025). The Surface Water and Ocean Topography mission (SWOT) Prior Lake Database (PLD): Lake mask and operational auxiliaries. *Water Resources Research*, 61, e2023WR036896. <https://doi.org/10.1029/2023WR036896>

CURRENT VERSION = 2.02

→ in LakeSP products version D0

5,897,941 lakes



MAJOR CHANGES WRT PLD V1.06 (which was used in LakeSP products version C2)

- SWORD v15 to v17b:
 - Harmonisation between Prior Lake Database and SWORD
 - 1306 lake_id modified:
 - last digit from 3 (“lake connected to a SWORD river”) to 2 (“disconnected lake”): 420 lakes
 - or vice-versa : 886 lakes
 - update of reach_id_list (= list of SWORD reach_id intersecting PLD lake) for 597 PLD lakes
- Addition of **reference values** ref_wse, date_t0 and ds_t0
→ computation of storage change for ~5.3 millions of PLD lakes
- Lake **geometry updates and creation** based on scientist requests
- **Removal** of Caspian Sea and other fake objects in the sea
- Minor updates and corrections

DISTRIBUTION

<https://hydroweb.next.theia-land.fr/> 

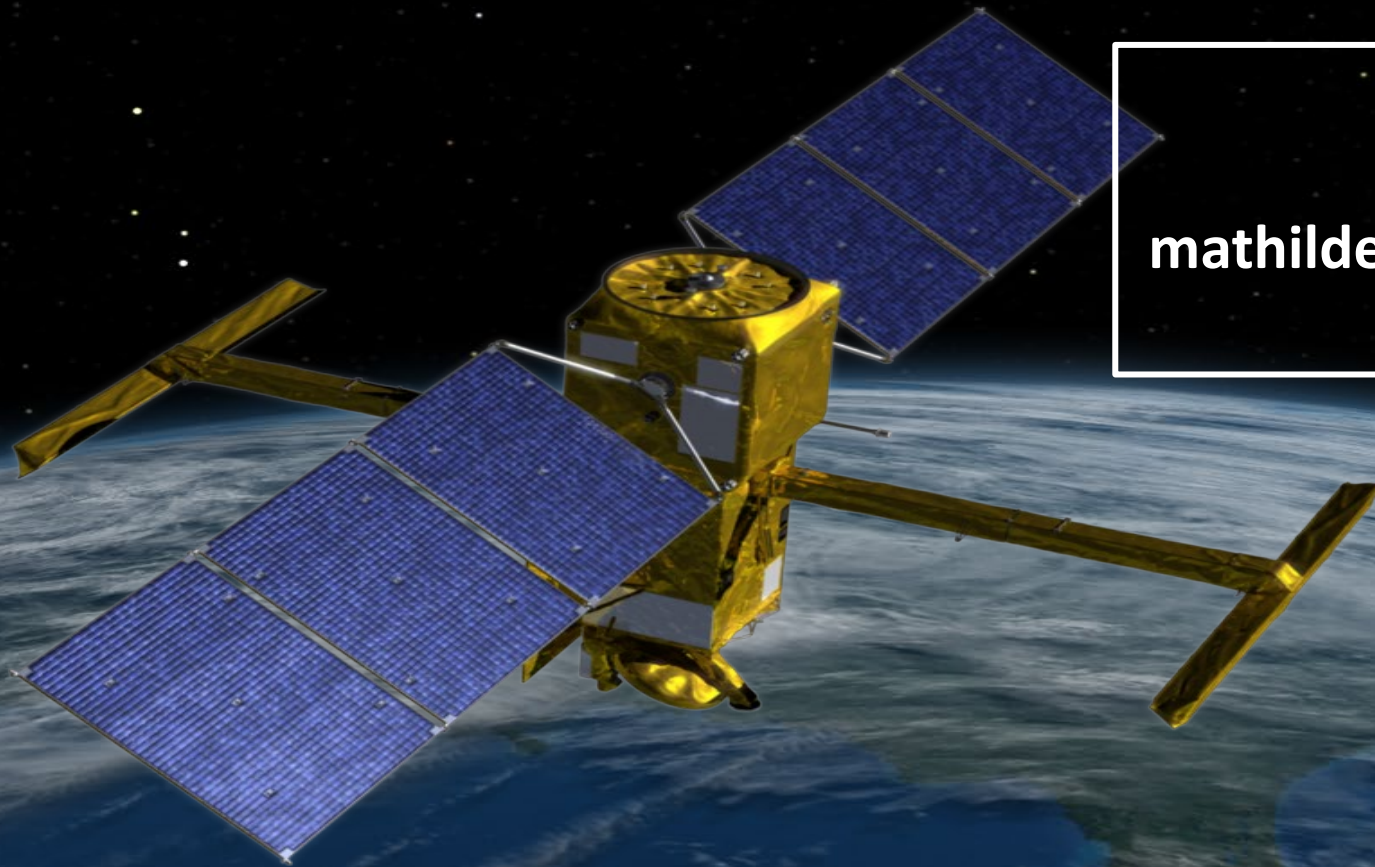
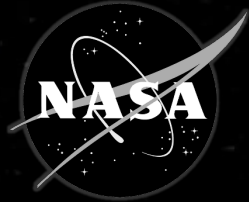
- Current distribution of “operational” PLD and “scientific” version in SQLite format
- Requests from users to access to *smaller/simpler* datasets:
➔ 3 new datasets in **GPKG** format

Filename	Content	Volume
PLD_light[...]	Single file containing lake_id and geometries at global scale	6.4 GB
	Single file containing the PLD « lake » table	10.5 GB
PLD_<continent_code>	PLD « lake » table for each continent	66.3 MB to 3.1 GB

Soon available on hydroweb.next

ON-GOING WORK

- Improve reference values by computing them with version D data, over a longer period
- Add other parameters needed to improve the lake product / processing
- Keep adding/correcting **YOUR** lake information



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Thank you for your attention!