

# EO 4 Ecosystem Accounting 2022



## From global to national freshwater ecosystem monitoring and reporting

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Preventing the ongoing loss and degradation of critical freshwater ecosystems globally is key to the resolution of three of the world's most urgent environmental priorities:

- Address **climate mitigation** and adaptation as wetlands lock carbon and functions to absorb floodwater and reduce storm impacts.
- Reduce **biodiversity** loss through protection and restoration of wetland habitats.
- Secure freshwater **services**: water retention, filtration, absorption capacities
- National inventories a critical instrument to ensure conservation and wise use of Freshwater Ecosystems



# Global data in support of SDG indicators



- The SDG661 indicator is designed to measure changes in the extent (and quality) of different types of freshwater ecosystems over time
- UNEP has the custodian responsibility for SDG 661
- The Freshwater Ecosystem Explorer was developed to fill a global data gap as many countries don't have this information available
  - Benchmark product\*: 30 m spatial resolution and monthly temporal resolution 1984-2020

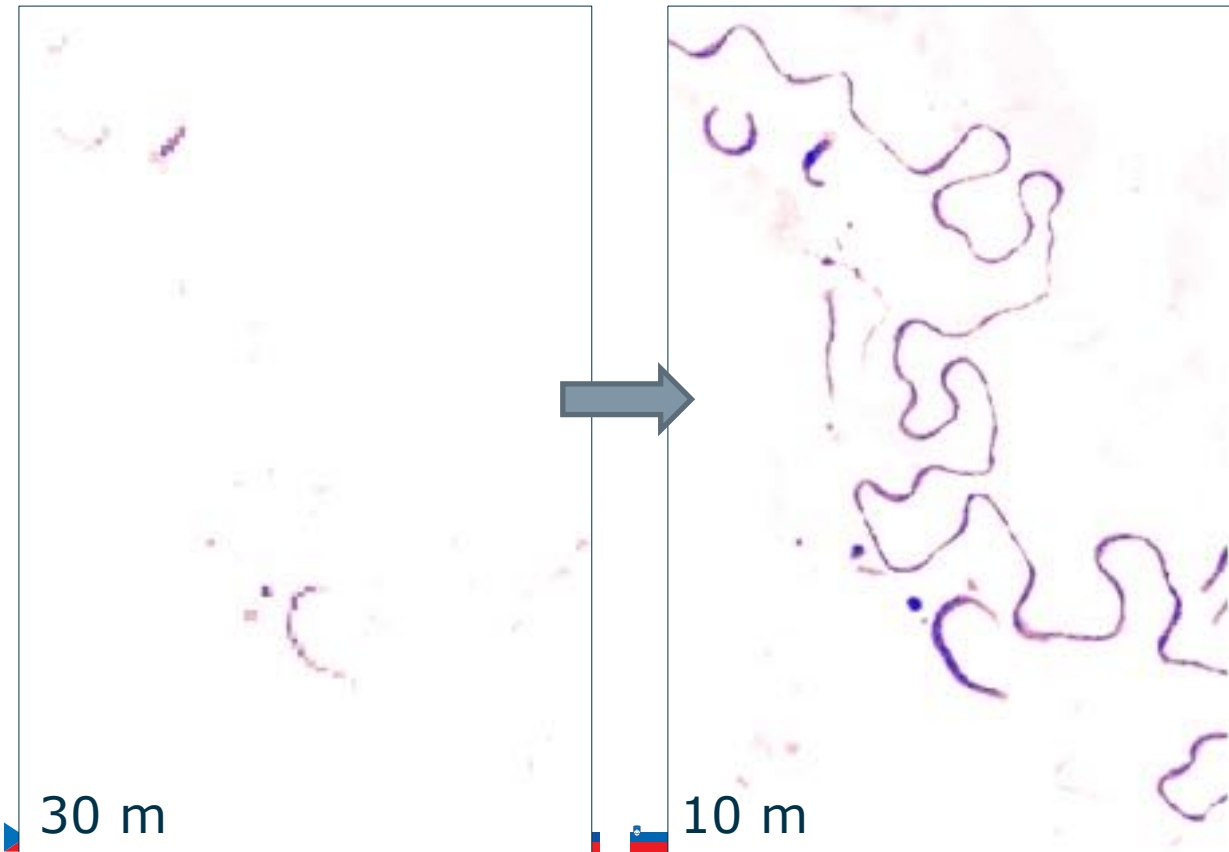
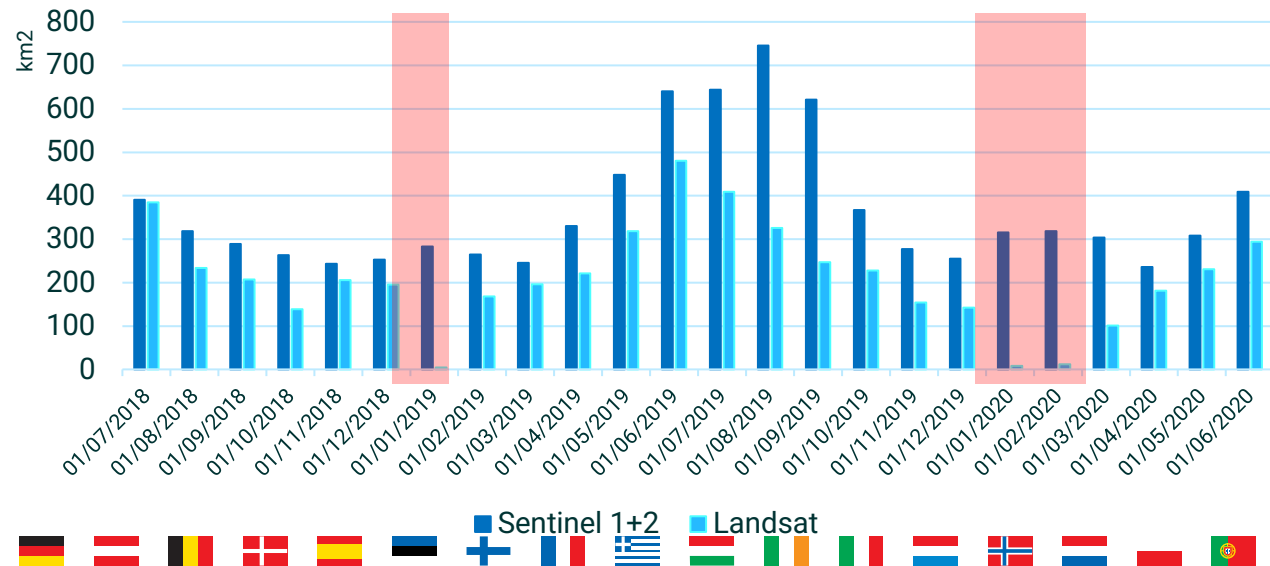
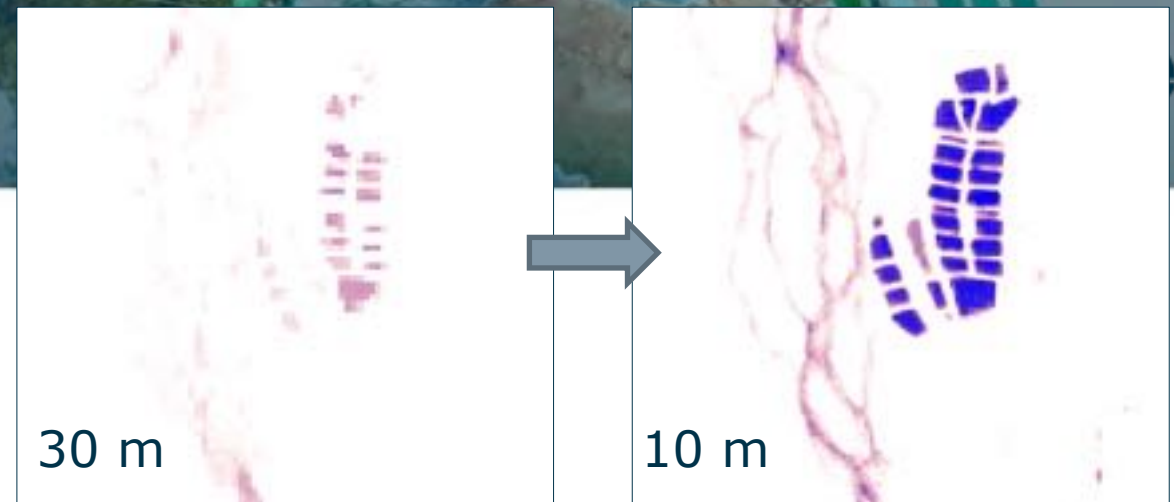


<https://map.sdg661.app/#>

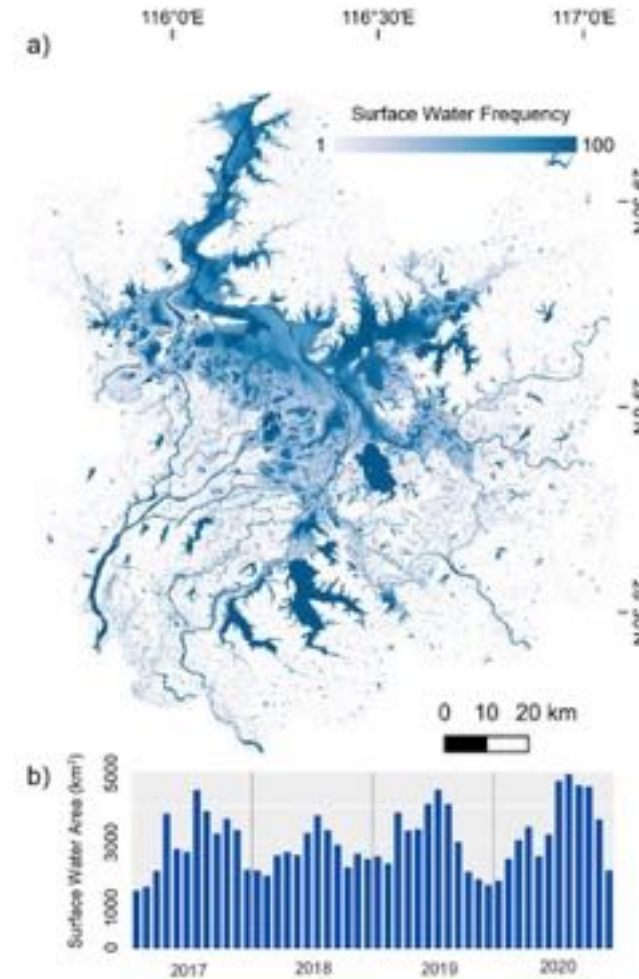
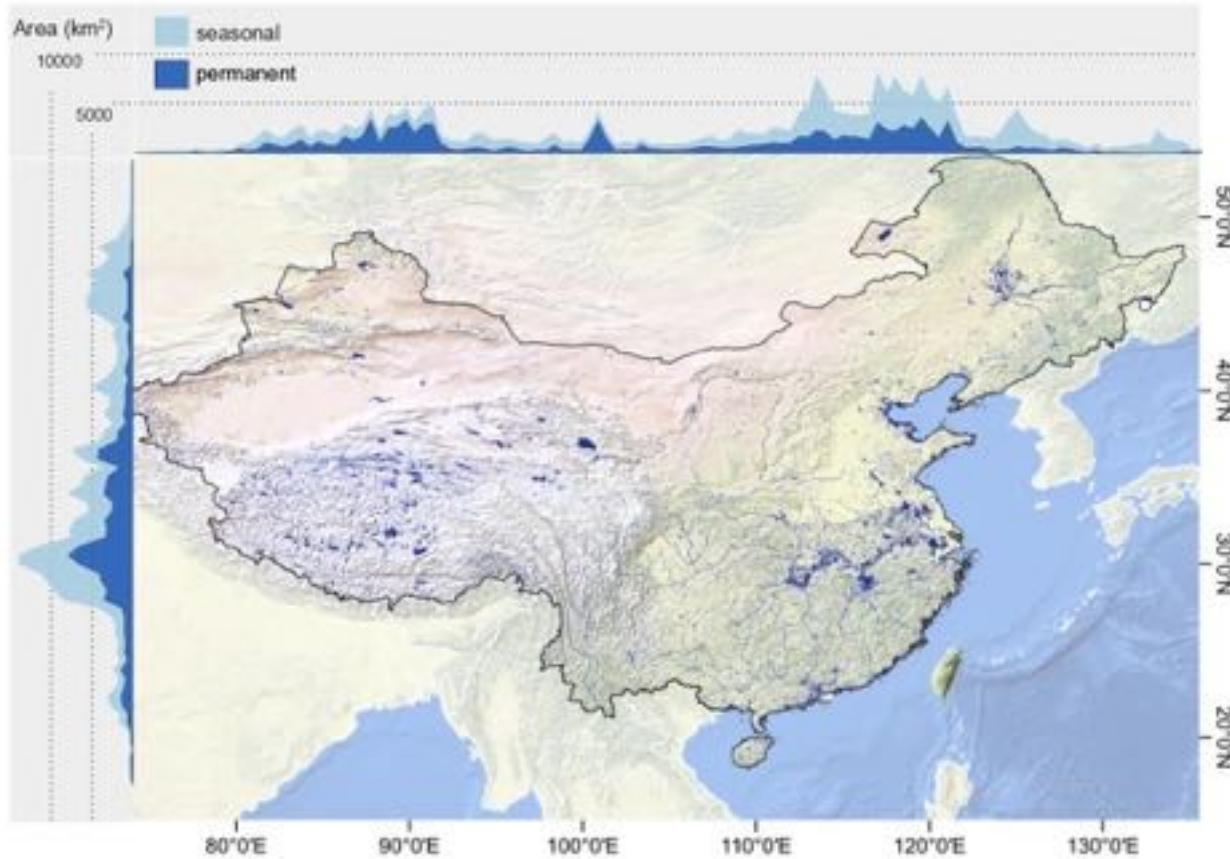
\* Jean-Francois Pekel, Andrew Cottam, Noel Gorelick, Alan S. Belward, High-resolution mapping of global surface water and its long-term changes. *Nature* 540, 418-422 (2016). ([doi:10.1038/nature20584](https://doi.org/10.1038/nature20584))

# Global data tend to have bias

- 10-15% of global water is mixed with land at a 30 m resolution
- Next generation mapping
  - Capture more details
  - More consistent seasonal variations



# Improved monitoring at national level

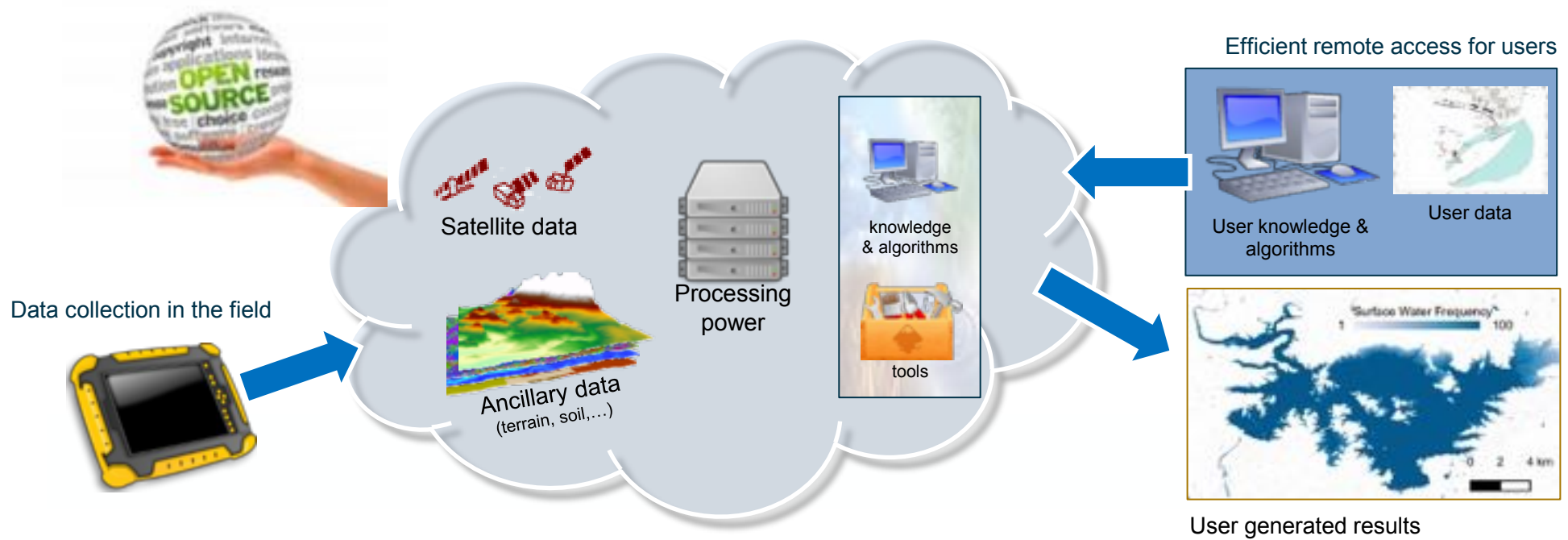


Druce, D., Tong, X., Lei, X., Guo, T., Kittel, C.M., Grogan, K. and Tottrup, C., 2021. An optical and SAR based fusion approach for mapping surface water dynamics over Mainland China. *Remote Sensing*, 13(9), p.1663.

# Enabling EO based national monitoring



The power of the Cloud  
"Bringing the users to the data"



# Ecosystem extent at the core of main global agreements

SDG 6.6 - Protect and restore water-related ecosystems



Cross-walk classification system needed (e.g. IUCN Global Ecosystem Typology)

Ramsar - Conservation and wise use of all wetlands through local and national actions and international cooperation



## Freshwater ecosystem extent



International standard on Ecosystem Accounting that regulates the production of statistical accounts on ecosystem extent, condition and services



At least 30% of global land and sea areas conserved through effective, equitably managed, ecologically representative and well-connected systems of protected areas (and other effective conservation measures)