



Hydrology Session Summary

Co-Chairs: Karina Nielsen and Jérôme Benveniste

- The role of CryoSat-2 for Inland Water science and applications
 - The dense track coverage allows to map more targets
 - Maps the river elevation profile, deriving river discharge
 - Monitoring more lakes, deriving storage variations
- CryoSat-2 feeding inland water databases
 - Adds more targets and increasing the temporal resolution of short repeat missions
 - In combination with satellite imagery lake volume variations can be derived, albeit its sparse temporal resolution
- The beauty of the CryoSat-2 SARIn mode: Exploiting the off-pointing
 - Adds even more measurements of river levels (+40%)
 - Well tied to the nadir measurements: accurate to 99%. (3 more cm of RMSE)
- CryoSat-2 monitoring rivers, deriving river discharge
 - Several methods to derive water level time series has been developed
 - There is still room for improvement using additional information

- CryoSat-2 monitoring climatic lakes
 - Monitoring new lake formation (CryoSat-2 observed a high number of lakes)
 - Monitoring water storage (8 warmest years on record since 2010)
 - 70% of all Tibetan lakes observed a drop in 2015/2016 (El Niño)
 - Rugged topography in the Tibetan Plateau -> tough on-board tracking
- Importance of FF-SAR for inland water
 - Allows to map smaller targets
 - Available in the GPOD/SARvatore Altimetry Virtual Lab
- Further improvements ahead (HYDROCOASTAL)
 - Sea to land and land to sea processes understanding improvement thanks to CryoSat-2, with further algorithm development
- All the above R&D is food for CRYO-Tempo!