

FRAPPART Frédéric – CNAP SCOA / OMP (UMR GET et LEGOS)

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Dr Frappart Frédéric is a geophysicist specialized in the use of remote sensing for the characterization of land surface properties and in the monitoring of the hydrological cycle. He is currently working at Observatoire Midi-Pyrénées (OMP) Toulouse, France at UMR Géosciences Environnement Toulouse (GET) for his research activities and at Laboratoire d'Etudes en Géophysique et Océanographie Spatiales (LEGOS) for his observation duty. His research interest focus on monitoring land surface processes using data from Earth Observing satellite mostly in the tropics. He develops new methodologies for processing Earth observation data and uses them for the monitoring of hydrological processes. His main areas of interest are the large river basins and especially the Amazon. He is PI of several altimetry missions and member of the NASA/CNES SWOT mission for the applications in hydrology. He was involved in several projects on the monitoring of the hydrology of the Amazon Basin including HYBAM and CLIM-FABIAM. He is in charge of an expert committee on the monitoring of floodplains using remotely sensed observations for THEIA, the French service of data distribution for land studies.

### **Main publications linked with the BONDS proposal**

2017 Parrens, M., et al. : Mapping dynamic water fraction under the tropical rain forests of the Amazonian basin from SMOS brightness temperatures. *Water*, 9(5), 350. DOI:10.3390/w9050350.

2017 Frappart, F., et al. : Spatio-temporal dynamics of the floods in the Guayas watershed (Ecuadorian Pacific Coast) using Global Monitoring ENVISAT ASAR images. *Water*, 9(1), 12. DOI:10.3390/w9010012.

2016 Frappart, F., et al. : An ERS-2 altimetry reprocessing compatible with ENVISAT for long-term land and ice sheets studies, *Remote Sensing of Environment*, 184, 558-581. DOI:10.1016/j.rse.2016.07.037.

2014 Pfeffer, J., et al. : Low-water maps of the groundwater table in the central Amazon by satellite altimetry. *Geophysical Research Letters*, 41(6), 1981-1987. DOI:10.1002/2013GL059134.

2013 Frappart, F., et al. : Changes in terrestrial water storage vs. rainfall and discharges in the Amazon basin, *International Journal of Climatology*, 33(14), 3029-3046. DOI:10.1002/joc.3647.

2013 Espinoza, J.C., et al. : The major floods in the Amazonas River and tributaries (Western Amazon basin) during the 1970 - 2012 period: A focus on the 2012 flood, *Journal of Hydrometeorology*, 14(3), 1000-1008. DOI:10.1175/JHM-D-12-0100.1.

2013 Paiva, R.C.D., et al. : Large-scale hydrologic and hydrodynamic modelling of the Amazon River basin, *Water Resources Research*, 49(3), 1216-1243. DOI: 10.1002/wrcr.20067.

2012 Frappart, F., et al. : Surface freshwater storage in the Amazon basin during the 2005 exceptional drought. *Environmental Research Letters*, 7(4), 044010. DOI:10.1088/1748-9326/7/4/044010.

### **Coordination and participation to scientific Projects linked with the BONDS proposal**

Coordinator of the floodplains extent and water storage monitoring for “Pôle THEIA” since 2017.

Coordinator of the hydrology from space team for the French observation service “Centre de Topographie de l’Océan et de l’Hydrosphère”

Coordinator of the workpackage on surface water storage in the CNES-EUMETSAT OSTST projects “Monitoring of terrestrial water storage variability in the Tropics. An integrated approach of multi-satellite observations, in situ measurements and modeling (HyVarMultiObs)” (2012-2015) and “Perspectives for higher Resolution Altimetry - a Multi-disciplinary approach (PRIAM)” (2017-2020),