

SEVERINE FOURNIER

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EDUCATION

- 2010-2014** **PhD** - Spatio-temporal coherence between spaceborne measurements of salinity and optical properties in the Amazon-Orinoco plume region, **IFREMER** – Satellite Oceanography Laboratory, Brest, France with Nicolas Reul and Bertrand Chapron, with Honors
- 2009-2010** Research **Master Degree Physical Methods in Remote sensing, University Paris 7**
- 2006-2009** **ENSTA Bretagne, Brest, France** - Specialization **Hydrography-Oceanography French Graduate Engineering School**
Category A IHO Certificate
- 2004-2006** **Lycée Bellevue, Toulouse, France**
Classes préparatoires, equivalent to the first two years of undergraduate studies: intensive preparation courses for competitive exams to the top French Engineering Schools
- 2001-2004** **Lycée Pierre Paul Riquet, Toulouse, France**
Scientific Baccalaureat (High School Diploma), specialization Mathematics, with Honors

PROFESSIONAL EXPERIENCE

- 2015-present** **NASA Postdoctoral Program Fellowship, Jet Propulsion Laboratory, Pasadena, CA, USA**
Researcher in Jet Propulsion Laboratory
Application of multi-sensor satellite observations to study river plumes and their relationship with other oceanic biophysical properties:
- Investigation of seasonal and interannual variations of sea surface salinity associated with the Mississippi River plume
 - Use of a Lagrangian method to monitor the biophysical properties of water masses in the Amazon River plume
 - Early use of SMAP sea surface salinity data in plume areas
- 2010-2014** **PhD Thesis, IFREMER, France**
Researcher in IFREMER's Satellite Oceanography Laboratory
Spatio-temporal coherence between spaceborne measurements of salinity and optical properties in the Amazon-Orinoco plume region:
- Correlation between SMOS sea surface salinity (SSS) and ocean color sensors optical properties
 - Establishment of the conservative mixing relationships in the Amazon plume
 - SSS retrieval from ocean color in the Amazon plume
 - Lagrangian approach of the SSS/optical properties relationship using altimetric currents
- 2010**
5 months **CLS – Collecte et Localisation par Satellites, France**
Research internship in the Space Oceanography Division
Intercalibration of an ICESat altimetric database with the conventional altimetric radars:
- Comparisons between ICESat, Jason-1 and ENVISAT data
 - Study of cross overs (ICESat-ICESat, ICESat-ENVISAT, ICESat-Jason-1)
- 2009**
5 months **CARIS BV, The Netherlands**
Assistant engineer
Study on the influence of input values in the computation of the total depth and horizontal uncertainties of bathymetric data (TPE) and in the computation of a statistical method of processing data (CUBE)
- 2008**
2 months **Canadian Hydrographic Service, Canada**
Hydrographer onboard Coast Guard Ship Matthew, Newfoundland and Labrador
- Bathymetric acquisitions on a launch
 - Bathymetric data processing
 - Tide gauges setting up, GPS acquisitions (rocks, coastlines)

AWARDS

2014 NASA Postdoctoral Program (NPP) Fellowship - Application of multi-sensor satellite observations to study river plumes and their relationship with other oceanic biophysical properties

COLLABORATIONS

Tong Lee, Michelle Gierach – *NASA Jet Propulsion Laboratory, USA*
Doug Vandemark, Joe Salisbury, Tim Moore - *University of New Hampshire, USA*
J.T. Reager, Jorge Vasquez, Cédric David – *NASA Jet Propulsion Laboratory, USA*
Atsushi Matsuoka, Marcel Babin - *University of Laval, Canada*
Antonio Turiel, Carolina Gabarro, Marcos Portabella – *SMOS-BEC, ICM, Spain*
Lucile Gaultier – *Ocean Data Lab, France*
Nicolas Reul, Bertrand Chapron – *IFREMER, France*
Jérôme Vialard – *IRD, France*

PEER-REVIEWED PUBLICATIONS

Fournier S., Gaultier L., Vandemark D., Lee T., Gierach M. (2016). Monitoring the Amazon plume northwestward transport along Lagrangian pathways. *Journal of Geophysical Research, in prep.*

Fournier, S., Reager, J. T., Lee, T., Vazquez-Cuervo, J., David, C. H., & Gierach, M. M. (2016b). SMAP observes flooding from land to sea: The Texas event of 2015. *Geophysical Research Letters.*

Fournier S., Lee T., Gierach M. (2016). Seasonal and interannual variations of sea surface salinity associated with the Mississippi River plume observed by SMOS and Aquarius. *Remote Science of Environment, Remote Sensing of Environment, 180, 431-439.*

Fournier S., Chapron B., Salisbury J., Vandemark D., Reul N. (2015). Comparison of spaceborne measurements of Sea Surface Salinity and colored detrital matter in the Amazon plume. *Journal of Geophysical Research, vol 120.*

Reul N., Quilfen Y., Charpon B., **Fournier S.**, Kudryavtsev V., Sabia R. (2014). Multi-Sensor Observations of the Amazon Orinoco River Plume Interactions with Hurricanes. *Journal of Geophysical Research, vol119, p8271-8295.*

Reul N., **Fournier S.**, Boutin J., Hernandez O., Maes C., Chapron B., Alory G., Quilfen Y., Tenerelli J., Morisset S., Kerr Y., Mecklenburg S., and Delwart S. (2013). Sea surface salinity observations from space with the SMOS satellite: A new means to monitor the marine branch of the water cycle. *Surveys in Geophysics, pages 1-42.*

NON PEER-REVIEWED PUBLICATIONS

Pavelsky, T. M., C. H. David, R. O. Green, **S. Fournier**, C. I. Michailovsky, S. Calmant, J. –F. Cretaux, J. D. Bales, S. Biancamaria, T. S. Bianchi, C. Dupouy, M. M. Gierach, C. B. Jones, B. Laignel, M. P. Lamb, C. J. Legleiter, J. – M. Martinez, J. M. Melack, F. E. Muller-Karger, J. E. Richey, E. Rodriguez, M. Simard, and L. C. Smith (2016), From the Mountains to the Sea: Interdisciplinary Science and Applications Driven by the Flow of Water, Sediment, and Carbon II, *2017-2027 Decadal Survey for Earth Science and Applications from Space of the National Academies of Sciences, Engineering and Medicine*, 2nd Request for Information, submitted on 2016-05-17

Fournier S. (2014) Spatio-temporal coherence between spaceborne measurements of salinity and optical properties in the Amazon-Orinoco plume region, PhD Thesis

Salisbury J., Vandemark D., **Fournier S.**, Reul N., Chapron B., Mannino A., Wollheim W.M. Linking the continental landmass to biogeochemical variability in the coastal ocean: the role of hydrological models and new satellite ocean color and salinity sensors (2012). *AGU Fall Meeting Proceedings, Abstracts, 1, L06.*

Reul N., Chapron B., Tenerelli J., **Fournier S.**, Quilfen Y. Sea Surface Salinity observations from Space : A new tool to monitor the oceanic freshwater cycle as well as ocean/land and ocean/atmosphere interactions (2012). *EGU General Assembly Conference Proceedings, Abstracts 14, 8720.*

Fournier S., Reul N., Charpon B., Tenerelli J. Spatio-temporal coherence between spaceborne measurements of Salinity and Light Absorption in the Amazon plume region. (2011) *ESA-SOLAS, Earth Observation for Ocean Atmosphere Interaction Science Proceedings. ESA Special Publication 703, 10.*

PROPOSALS

Co-I: SMAP observations to trace the lifecycle of hydrologic extreme events from land to ocean (2016-2019). *ROSES 2015, Science Utilization of the SMAP Mission [PI : Reager]*.

CONFERENCES

Fournier S., Lee T., Gierach M., Seasonal and interannual variations of sea surface salinity associated with the Mississippi River plume observed by SMOS and Aquarius. *ESA Living Planet Symposium, 8th – 13th May 2016, Prague, Czech Republic* – poster.

Fournier S., Gaultier L., Vandemark D., Lee T., Salisbury J., Monitoring the Amazon plume northwestward transport along Lagrangian pathways. *EGU, 17th – 22nd April 2016, Vienna, Austria* – oral presentation.

Fournier S., Gaultier L., Vandemark D., Salisbury J., Lee T., Gierach M., Monitoring the biophysical properties along Lagrangian advection pathways in the Amazon River plume. *Ocean Sciences Meeting, 22nd – 26th February 2016, New Orleans, USA* – poster.

Fournier S., Gaultier L., Vandemark D., Salisbury J., Lee T., Gierach M., Monitoring the biophysical properties along Lagrangian advection pathways in the Amazon River plume. *AGU, 14th – 18th December 2015, San Francisco, USA* – oral presentation.

Fournier S., Gaultier L., Vandemark D., Salisbury J., Lee T., Gierach M., Monitoring the biophysical properties along Lagrangian advection pathways in the Amazon River plume. *Open Science Conference: Salinity and Freshwater Changes in the Ocean, 12th – 15th October 2015, Hamburg, Germany* – oral presentation.

Fournier S., Lee T., Gierach M., Monitoring and understanding seasonal and interannual variations of sea surface salinity associated with the Mississippi River plume. *Open Science Conference : Salinity and Freshwater Changes in the Ocean, 12th – 15th October 2015, Hamburg, Germany* – poster.

Fournier S., Reul N., Chapron B., Salisbury J., Vandemark D., Large tropical river plume monitoring with SMOS to better estimate land-sea freshwater fluxes. *ESA-EGU-SOLAS, Air-Sea Gas Flux Climatology, Progress and Future Prospect, 24th – 27th September 2013, Ifremer, Brest, France* – oral presentation.

Fournier S., Reul N. Spatio-temporal coherence between spaceborne measurements of Salinity and Light Absorption in the Amazon plume region. *ESA Living Planet Symposium, 9th – 13th September 2013, Edinburgh, Scotland* – poster.

Fournier S., Reul N. Spatio-temporal coherence between spaceborne measurements of Salinity and Light Absorption in the Amazon plume region. *India EU Workshop on Marine Primary Production, 12th -15th March 2013, Kochi, India* – oral presentation.

Fournier S., Reul N., Charpon B., Tenerelli J. Spatio-temporal coherence between spaceborne measurements of Salinity and Light Absorption in the Amazon plume region. *ESA-SOLAS, Earth Observation for Ocean Atmosphere Interaction Science, 29th November-2nd December 2011, ESRIN, Frascati, Italy. ESA Special Publication 703, 10* – oral presentation.

SKILLS

Languages French (mother tongue), English (fluent), Bahasa Indonesia (basic level), Spanish (basic level)
Computer Windows, Linux / Unix, Mac OS, Matlab, Scilab, Python, LaTeX, Microsoft Office, Open Office
Volunteer Volunteer at the Downtown Women Center, CA, USA - 2016
Member of GENEPI: teaching mathematics lessons to incarcerated people - 2008
Treasurer of the ENSTA Bretagne students committee – 2007/2008

Sports and Travelling