

Stephanie Leroux

PhD, Research Scientist in oceanography and climate sciences.

36-year-old, pacsée, 1 kid
french citizenship

☎ +33 (0)4 76 82 70 76

✉ stephanie.leroux@ocean-next.fr

🌐 <http://ocean-next.fr>

Education

- 2006–2009 **PhD in atmospheric sciences**, *LTHE, Université J. Fourier, Grenoble*,
(PhD award 2009 from Grenoble university).
- 2006 **Master in Atmosphere-Ocean-Hydrology**, *Université J. Fourier, Grenoble*.
- 2005 **“Agrégation SVT”**, (*national competitive examination to be entitled to teach biology and Earth sciences in French high schools*).
- 2002–2004 **Undergraduate at Ecole Normale Supérieure de Lyon**, *Dpt of Earth Sciences*,
(“Licence” and “Maîtrise”).
- 2000–2002 **“Classe préparatoire aux grandes écoles BCPST”**, *Lycée Malherbe, Caen*, (competitive class in maths, physics, chemistry, biology and Earth sciences to join Ecole Normale Supérieure).

Research experience

- 2017–Present **Research scientist**, *Ocean Next, Grenoble*.
In charge of Ocean Next activities related to ensemble approaches in ocean numerical modeling and data analysis.
- 2015–2017 **CNRS Postdoc**, *MEOM/IGE, Grenoble*.
Intrinsic ocean variability in eddy-permitting ocean models: a probabilistic/ensemble-simulation approach (ANR OCCIPUT).
 - Analysis of intrinsic ocean variability in the OCCIPUT ensemble simulation (50× ocean/sea-ice global 1/4° hindcasts 1960-2015). Focus on ocean quantities with potential climate impact (AMOC, Heat Content, SST).
 - Additional ensemble simulations with a regional configuration of the ocean GCM NEMO.
 - Co-advisor for two masters research projects related to OCCIPUT.
- 2013–2014 **CNRS Postdoc**, *CNRM/Météo-France, Toulouse*.
Tropical intraseasonal variability simulated in global atmospheric circulation models (European project FP7-EMBRACE).
 - Numerical experiments in “aquaplanet” configuration with the CNRM GCM.
 - Analysis of tropical intraseasonal variability in aquaplanets, CMIP5 and AMIP simulations.
 - Coordination the inter-model comparison of aquaplanet experiments with the other modeling groups in the project.
- 2012 **Postdoc research associate**, *SUNY, Albany, New York*.
Influence of the mid-latitudes on intraseasonal variability in the west african monsoon.
 - Analysis of synoptic to intraseasonal modes of variability in the west african monsoon from reanalyses and satellite-derived precipitation/convection datasets.
 - Numerical experiments with an idealized global circulation model (IGCM).
 - Technical help to SUNY PhD students with the IGCM.

- 2010–2011 **Postdoc research associate**, NOAA, Boulder, Colorado.
 Analysis of the multi-scale nature of the Madden-Julian Oscillation (MJO).
 ◦ *Space-time spectral analysis of the high-frequency variability within the MJO using reanalyses data and satellite-derived precipitation/convection datasets.*
- 2006–2009 **PhD student**, LTHE/Université Joseph Fourier, Grenoble.
 Dynamics of the African Easterly Waves: origin, propagation and interaction with the environment. (International project AMMA on the west african monsoon)
 → 2009 thesis prize from Université J. Fourier.
 ◦ *Numerical experiments with an idealized global primitive equation model (IGCM).*
 ◦ *Analysis of the synoptic variability over West Africa using reanalyses data and satellite-derived precipitation/convection datasets.*

Teaching experience and communication to the public

- 2017-2018 **Presentations on oceanography and climate sciences**, (high school level).
 2016 **Co-advisor for two master's research projects**, MEOM, IGE, UJF, Grenoble.
 2006–2009 **Teaching assistant**, UJF, Grenoble (“monitorat”).
 ~200 hours taught to undergraduate students in Earth sciences and numerical computing.
 2007-2009 **Co-advisor for undergraduate research projects**, LTHE, UJF, Grenoble.
 2008 & 2009 **Tribulations Savantes**, OSUG, Grenoble.
 Local science festival explaining to the public the research activities of the PhD students in the Earth Sciences Dpt with live experiments, photo exhibitions, films, panel discussions...
 2005 **Agrégation SVT**, ENS, Lyon.
 1-year training for the national competitive examination to be entitled to teach biology and Earth sciences in French high schools (diploma obtained in June 2005).

Service

- 2007-Present Reviewer for the Journal of the Atmospheric Sciences, Journal of Climate, Quarterly Journal of the Royal Meteorological Society, Geophysical Research Letters, Theoretical and Applied Climatology
 2014-2015 Associate Editor at Monthly Weather Review.
 2008-2009 In charge of the monthly ASP group seminar at LTHE, Grenoble.

Computing and software experience

- OS Mac, Linux/Unix.
 Languages Experience in: **Python, Fortran, NCL, bash scripts, \LaTeX , Matlab, Scilab, Markdown.**
 Models: User experience with **Global Atmospheric Circulation Models**: ARPEGE-CNRM (Météo-France) and DREAM (<https://dream-gcm.github.io/>).
 User experience with **Global Ocean Circulation Models**: NEMO <http://www.nemo-ocean.eu/>.

Languages

French **Mother tongue.**

English **Good writing/speaking skills** (3-year experience in the US).

Awards and grants

2010-2011 2-year competitive postdoc fellowship from the National Research Council (USA).

2009 'Best thesis' prize 2009 from Université J. Fourier, Grenoble.

2006-2009 3-year PhD fellowship from ENS-Lyon and the French Ministry of Education.

2002-2005 4-year grant from Ecole Normale Supérieure de Lyon allocated to the undergraduate students who pass the competitive entrance exam.

Referees:

- Nick Hall (PhD advisor) Professor at Université Paul Sabatier, LEGOS, Toulouse.
Email: Nick.Hall@legos.obs-mip.fr. Tel: +33 5 61 33 29 19
- Thierry Penduff (2015-2017 Postdoc advisor) Directeur de Recherche CNRS, IGE, Grenoble, France. Email: thierry.penduff@univ-grenoble-alpes.fr. Tel: +33 4 56 52 86 54

Publications

- 2018 Hall, N., **Leroux, S.**, Ambrizzi, Climate Dynamics (in rev), *Transient contributions to the forcing of the atmospheric annual cycle: A diagnostic study with the DREAM model.* (in rev.)
- 2018 Zanna, L., J.M. Brankart, M. Huber, **Leroux, T.** Penduff, P.D. Williams, S., QJRM (Accepted Author Manuscript), [doi:10.1002/qj.3397] *Model Uncertainty Quantification in Ocean Ensembles: From Seasonal Forecasts to Multi-Decadal Predictions.*
- 2018 Penduff, T., G. Sérazin, S. **Leroux**, S. Close, J.-M. Molines, B. Barnier, L. Bessi res, L. Terray, and G. Maze. Oceanography 31(2), [doi:10.5670/oceanog.2018.210], *Chaotic variability of ocean heat content: Climate-relevant features and observational implications.*
- 2018 **Leroux S.**, Penduff T., Bessi res L., Molines J.-M. , Brankart J.-M., Barnier B., Serazin G., Terray L., J. of Climate. [doi:10.1175/JCLI-D-17-0168.1] *Intrinsic and atmospherically-forced variability of the AMOC : insights from a large ensemble ocean hindcast.*
- 2017 S razin G., Jaymond A., **Leroux S.**, Penduff T., Bessi res L., Brankart J.-M., Molines J.-M. , Terray L., Barnier B., Serazin G., Geophys. Res. Lett., 44(11):5580-5589, [doi:10.1002/2017GL073026], *A probabilistic study of low-frequency ocean heat content variability: atmospheric influence versus oceanic chaos.*
- 2017 Bessi res L., **Leroux S.**, Brankart J.-M., Molines J.-M., Bouttier P.-A., Penduff T., Terray L., Barnier B., Serazin G., Geosci. Model Dev. Discuss., [doi:10.5194/gmd-10-1091-2017], *Development of a probabilistic ocean modelling system based on NEMO 3.5: application at eddying resolution.*
- 2016 **Leroux S.**, Bellon G., Roehrig R., Caian M., Klingaman N., Musat I., Rio C., Tyteca S., J. Adv. Model. Earth Syst., 8, [doi:10.1002/2016MS000683], *Inter-model comparison of sub-seasonal tropical variability in aquaplanet experiments: effect of a warm pool.*
- 2013 Dias J., **Leroux S.**, Kiladis G., Tulusch S., GRL, **40**:1420-1425. *How systematic is organized tropical convection within the MJO?*
- 2012 Lafore, J-P, N. Asencio, D. Bouniol, F. Couvreur, C. Flammant, F. Guichard, N. Hall, S. Janicot, C. Kocha, C. Lavaysse, S. **Leroux**, E. Poan, P. Peyrille, R. Roca, R. Roehrig, F. Roux, F. Said. La M t eorologie ( dition sp ciale AMMA) **8**, 11-16. *Evolution de notre compr hension du syst me de mousson ouest-africain.*
- 2012 Liebmann, Blad , Kiladis, Carvalho, Senay, Allured, **Leroux**, Funk, J. Climate, **25**:4304-4322. *Seasonality of African Precipitation from 1996-2009.*
- 2011 **Leroux S.**, Hall N. and Kiladis G., J. Climate, **24**: 5378-5396. *Intermittent African Easterly Wave activity in a dry atmospheric model: influence of the extratropics.*
- 2011 Janicot S., Caniaux G., Chauvin F., de C tlogon G., Fontaine B., Hall N., Kiladis G., Lafore J. P., Lavaysse C., Lavender S. L., **Leroux S.** , Marteau R., Mounier F., Philippon N., Roehrig R., Sultan B., Taylor C. M. Atmosph. Sci. Lett., **12**: 58-66. *Intraseasonal variability of the West African monsoon.*
- 2010 **Leroux S.**, Hall N. and Kiladis G. QJRM, **136**, 397-410. *A climatological study of transient-mean flow interactions over West Africa.*
- 2009 **Leroux S.** and Hall N., J. Atmos. Sci., **66**, 2303-2316. *On the relationship between African easterly waves and the African easterly jet.*
- 2009 Janicot S., Mounier F., Hall N., **Leroux S.**, Sultan B., Kiladis G., J. Climate, **22**, 1541-1565. *The dynamics of the West African monsoon. Part IV: Analysis of 25-90-day variability of convection and the role of the Indian monsoon.*
- 2008 Vanvyve E., Hall N., Messenger C., **Leroux S.**, van Ypersele J.-P., Climate Dyn., **30**, 191-202. *Internal variability in a regional climate model over West Africa.*