Stephanie Leroux

38-year-old, pacsée, 1 kid
french citizenship
✉ *leroux.ste@gmail.com*
PhD, Engineering & research scientist in oceanography and climate sciences. *https://stephanieleroux.github.io/*

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 **Engineering & research scientist**, *Ocean Next*, Grenoble, (July 2017–...).
In charge of Ocean Next activities related to ensemble approaches in ocean numerical modelling and data analysis.

2015–2017 **CNRS Postdoc**, *MEOM/IGE*, Grenoble, (Mars 2015–Mars 2017).
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 environnement. (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, Quaterly 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 38 38 81 62

Publications (peered reviewed)

2020 Zhen Y., P. Tandéo, **S. Leroux**, S. Métref, T. Penduff, J. LeSommer, Journal of Atmospheric and Oceanic Technology, **37**, 1697–1711. [doi: 10.1175/JTECH-D-20-0001.1], *An Adaptive Optimal Interpolation Based on Analog Forecasting: Application to SSH in the Gulf of Mexico*.

2020 N. Hall, H. Le,. and **S. Leroux**, Climate Dynamics, **55**, 813–829. [doi: 10.1007/s00382-020-05299-y], *The extratropical response to a developing MJO: forecast and climate simulations with the DREAM model*.

2019 Penduff, T., W. Llovel, S. Close, I. Garcia-Gomez, and **S. Leroux**, Surveys in Geophysics, [doi: 10.1007/s10712-019-09571-7], *Trends of Coastal Sea Level Between 1993 and 2015: Imprints of Atmospheric Forcing and Oceanic Chaos*.

2019 Hall, N., **Leroux, S.**, Ambrizzi, Climate Dynamics, **52**:6719. [doi: 10.1007/s00382-018-4539-y], *Transient contributions to the forcing of the atmospheric annual cycle: A diagnostic study with the DREAM model*.

2018 Zanna, L., J.M. Brankart, M. Huber, **Leroux**, T. Penduff, P.D. Williams, S., QJRMS (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. Bessières, 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., Bessières 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 Sérazin G., Jaymond A., **Leroux S.**, Penduff T., Bessières 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 Bessières 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., Tulisch S., GRL, **40**:1420-1425. *How systematic is organized tropical convection within the MJO?*

2012 Lafore, J-P, N. Asencio, D. Bouniol, F. Couvreux, 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 Météorologie (édition spéciale AMMA) **8**, 11-16. *Evolution de notre compréhension du système de mousson ouest-africain*.

2012 Liebmann, Bladé, 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 Cötlogon 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. QJRMS, **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., Messager C., **Leroux** S., van Ypersele J.-P., Climate Dyn., **30**, 191-202. *Internal variability in a regional climate model over West Africa.*