Babette Christelle TCHONANG

PHYSICAL OCEANOGRAPHER

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RESERACH INTERESTS

Operational oceanography; Physical oceanography; Altimetry data processing; Satellite and in-situ data analysis; Data assimilation; Signal processing; Observing System Simulation Experiments (OSSE); Observing System Evaluations (OSE).

EDUCATION

PhD in Physical Oceanography *2017 - 2021*
Université Toulouse 3, Paul Sabatier
PhD Thesis: *Contribution of the SWOT satellite for ocean analysis and forecasting.*
Funding: CNES & Mercator Ocean International.
supervisor: Pierre-Yves Le Traon

Post-Master in observational oceanography *2016 - 2017*
Alfred Wegener Institute (AWI), Helgoland et Sylt islands, Germany.
Funding: NF-POGO COfE (Nippon Foundation – Partnership for Observation of the Global Ocean Centre of Excellence)

Master of Sciences in Physical Oceanography and Applications *2015 - 2016*
Université Toulouse 3, Paul Sabatier
Master thesis: *Exchange of passive tracers between the surface and subsurface of the Gulf of Mexico*.
Fundings: IRD and Total France

Bachelor of Sciences in Condenser Matters Physics *2011 - 2014*
Université de Dschang

RESEARCH EXPERIENCE

Postdoctoral Research Scientist
NASA Jet Propulsion Laboratory, Pasadena, CA, USA *Feb 2022 - present*
Supervisor: Lee-Lueng Fu

I work within a specialized team focusing on Cal/Val activities for the SWOT mission. My contribution includes:

- Analysis of output data (altimeters, moorings, glider) coming from a data assimilation (DA) system

- Simulation of synthetics observations from the nature run (NR) using the same position as a multi-platform observation (altimeters, moorings, glider)
- Analysis of observing system simulation experiments (OSSEs) output based on DA.

Postdoctoral Research Scientist
CNES & Mercator Ocean International, Toulouse, France *Sep 2017 - Dec 2021*
Supervisors: Elisabeth Remi, Jean-Michle Lellouche & Pierre Yves Le Traon

- Assessing the Impact of global altimetry data in Mercator Ocean forecasting systems through OSEs (Observing System Evaluations) experiments.
- Ensuring choice of nadir altimeter (real data).
- Assimilation of altimetry data.
- Analysis of simulated global scale data.
- Writing and presenting the scientific report and document highlighting the results.

Doctoral Researcher
CNES & Mercator Ocean International, Toulouse, France *Nov 2017 - June 2021*
Supervisors: Pierre Yves Le Traon & Mounir Benkiran

- Simulation of data from the future SWOT (Surface Water Ocean Topography) mission, Nadir altimeters and in-situ data.
- Analysis of simulated global scale data in a complex ocean analysis and forecasting system.
- Development of scientific algorithms.
- Writing and presentation of scientific reports and documents.

Post-Master Researcher Intern
Alfred Wegener Institute (AWI), Bremerhaven, Germany *May 2017 - July 2017*

Research topic: "*Seasonal inflow of Warm Deep Water (WDW) in the Filchner Ronne ice shelf."*
Supervisors: Tore Hatterman & Svenja Ryan

- Analysis and Validation of sea ice model outputs.

Master Researcher intern
ICPMA, Cotonou, Benin *May 2017 - July 2017*

Research topic: "*Exchange of passive tracers between the surface and subsurface of the Gulf of Mexico*."
Supervisor: Julien Jouanno
- Analysis and Validation of sea ice model outputs.

PUBLICATIONS

- **Tchonang, B.** C., Benkiran, M., Le Traon, P. Y., Jan Van Gennip, S., Lellouche, J. M., & Ruggiero, G. (2021). *Assessing the impact of the assimilation of SWOT observations in a global high-resolution analysis and forecasting system. Part 2: Results. Frontiers in Marine Science,* 1208. https://doi.org/10.3389/fmars.2021.687414

- Benkiran, M., Ruggiero, G., Greiner, E., Le Traon, P. Y., Rémy, E., Lellouche, J. M., ... & **Tchonang, B.** (2021). *Assessing the Impact of the Assimilation of SWOT Observations in a Global High-Resolution Analysis and Forecasting System Part 1: Methods*. *Frontiers in Marine Science*, 947. https://doi.org/10.3389/fmars.2021.691955

OTHER PUBLICATIONS

- **Tchonang, B. C**. (2021). *Contribution du satellite SWOT (Surface Water Ocean Topography) pour l'analyse et la prévision océanique* (Doctoral dissertation, Université de Toulouse, Université Toulouse III-Paul Sabatier) http://thesesups.ups-tlse.fr/5111/1/2021TOU30125.pdf.

- **Tchonang, B. C.,** Le Traon, P. Y., Benkiran, M., & Ruggiero, G. (2018). How can Surface Water Ocean Topography (SWOT) satellite better reconstruct horizontal and vertical velocities? https://ui.adsabs.harvard.edu/abs/2019EGUGA..21.1901C/
- **Tchonang, B. C.,** Hattermann, T. & Ryan, S. (2017). Seasonal inflow of warm Deep Water (WDW) in the continental shelf in the Filchner Ronne ice shelf (*Helmholtz Centre for Polar and Marine Research, Alfred Wegener Institute*) https://tchonang.github.io/files/POGO_research_project.pdf.
- **Tchonang, B. C** & Jouanno J. (2015) Université d'Abomey-Calavi, Faculté des Sciences et Techniques, Chaire internationale en Physique Mathématique et Applications (CIPMA-UNESCO Chair) http://www.cipma.net/IMG/pdf/tchonang_rapport_m2oa_2016.pdf.

CONFERENCES / POSTERS / WORKSHOPS

- ***The second international Operational Satellite Oceanography Symposium (OSOS-2):*** May 25-27, 2021 (online). **Oral presentation:** *Assessing the impact of the assimilation of SWOT observations in a global high-resolution analysis and forecasting system.*
- **General assembly of *European Geosciences Union* (EGU**), Vienna, Austria, session: Ocean Science 4.7 (O.S4.7) 07–12 Avr.2019. **Oral presentation**: *How can Surface Water Ocean Topography (SWOT) satellite better reconstruct horizontal and vertical velocities?*
- **Conference of the Parties 24 (COP24) Katowice**: On behalf of Partnership for Observation of the Global Oceans (POGO) Society, Katowice, Poland. 6-8 Dec. 2018.
- **25th years of Progress in Radar Altimetry Symposium:** European Space Agency (ESA) and Centre Nationnal d'Etudes Spatiales (CNES), Ponta Delgada, Portugal, 27–29 Sept. 2018. **Poster**: How can Surface Water Ocean Topography (SWOT) satellite better reconstruct horizontal and vertical velocities?
- **Conference of the Parties 23 (COP23) Fiji:** On behalf of Partnership for Observation of the Global Oceans (POGO) Society, Bonn, Germany, 6–17 Nov. 2017.

SERVICES AND ACTIVITIES

- **Newsletter editor:** Fendereski, F., Wilson, A., **Tchonang, B.,** Shatova, O., Krug, L., & Seeyave, S. (2017). NANO News, Volume 13, December 2017.
- **Newsletter editor:** Paiva, M., Adeleye, A., **Tchonang, B.,** Silva de Souza, M., Bilan, M., Krug, L., ... & Seeyave, S. (2019). NANO News, Volume 16, May 2019.

SCHOLARSHIPS

- Scholarship from **NF-POGO COfE** (*Nippon Foundation – Partnership for Observation of the Global Ocean Centre of Excellence*), Post- Master in Observational Oceanography (2016).
- Scholarship from **IRD and Total France,** Master in Physical Oceanography (2015).

COMPUTER SKILLS

- Operating System: Windows and Linux
- Coding: Python, Shell, Git, Fortran and Matlab

LANGUAGES

- English
- French