

Babette Christelle TCHONANG

PHYSICAL OCEANOGRAPHER

✉ tchonang@jpl.nasa.gov

🌐 <https://babettetchonang.github.io>

Last updated : Feb 2022

Jet Propulsion Laboratory,
4800 Oak Grove Dr, M/S 300-329
Pasadena, CA 91109-8099

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 synthetic 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.
- 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.

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/51111/1/2021TOU30125.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?

- **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 National 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