

Carine van der Boog

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Professional experience

2021 - present Postdoctoral fellow
Jet Propulsion Laboratory, California Institute of Technology
Research Advisor: Ian Fenty

Education

2016 - 2021 PhD research in Physical Oceanography
Delft University of Technology
PhD thesis: [Dynamics of the Caribbean](#)
Supervisors: Caroline Katsman, Julie Pietrzak and Henk Dijkstra (Utrecht University)

2014 - 2016 Master of Science in Civil Engineering and Geosciences
Delft University of Technology
Specialisation: Environmental Fluid Mechanics, Hydraulic Engineering
Result: 4.0 GPA (with honors)

Master Thesis: [Sinking in the Labrador Sea](#)
Supervisors: Caroline Katsman, Sotiria Georgiou, Julie Pietrzak, Martin Verlaan

2010 - 2013 Bachelor of Science in Architecture and the Built Environment
Delft University of Technology
Result: 4.0 GPA (with honors)

List of publications

van der Boog, C.G., Pietrzak, J.D., Dijkstra, H.A., Katsman, C.A.: Can double-diffusive fluxes density Antarctic Intermediate Water in the Caribbean Sea? *In preparation*

van der Boog, C.G., Molemaker, M.J., Dijkstra, H.A., Pietrzak, J.D., Katsman, C.A.: Generation of vorticity by flow-topography interaction: Anticyclones in the Caribbean Sea. *In preparation*

Kleptsova, O.S., Dijkstra, H.A., van Westen, R.M., **van der Boog, C.G.**, Katsman, C.A., James, R.K., Bouma, T.J., Klees, R., Riva, R.E.M., Slobbe, D.C., Zijlema, M., Pietrzak, J.D.: Impacts of tropical cyclones on the Caribbean under future climate conditions. *Under review*

van der Boog, C.G., Dijkstra, H.A., Pietrzak, J.D., Katsman, C.A. (2021). Double-diffusive mixing makes a small contribution to the global ocean circulation. *Communications Earth and Environment*. doi: [10.1038/s43247-021-00113-x](https://doi.org/10.1038/s43247-021-00113-x)

van der Boog, C.G., Koetsier, J.O., Dijkstra, H.A., Pietrzak, J.D., Katsman, C.A. (2021). Global dataset of thermohaline staircases obtained from Argo floats and Ice Tethered Profilers. Earth System Science Data. doi: [10.5194/essd-13-43-2021](https://doi.org/10.5194/essd-13-43-2021)

Georgiou, S., Ypma, S.L., Brüggemann, N., Sayol, J.M., **van der Boog, C.G.**, Spence, P., Pietrzak, J.D., Katsman, C.A.: Direct and indirect pathways of convected water masses and their impacts on the overturning dynamics of the Labrador Sea. Journal of Geophysical Research: Oceans. doi: [10.1029/2020JC016654](https://doi.org/10.1029/2020JC016654)

Keyzer, L.M., Herman, P.M.J., Smits, B.P., Pietrzak, J.D., ... , **van der Boog, C.G.**, ... & Dijkstra, H.A.: The potential of coastal ecosystems to mitigate the impact of sea-level rise in shallow tropical bays. Estuarine, Coastal and Shelf Science. doi: [10.1016/j.ecss.2020.107050](https://doi.org/10.1016/j.ecss.2020.107050)

van Westen, R.M., Dijkstra, H.A., **van der Boog, C.G.**, Katsman, C.A., ... & Pietrzak, J.D.: Ocean model resolution dependence of Caribbean sea-level projections. Scientific Reports. doi: [10.1038/s41598-020-71563-0](https://doi.org/10.1038/s41598-020-71563-0)

James, R.K., Lynch, A., Herman, P.M.J., ... , **van der Boog, C.G.**, ... & Bouma, T.J. (2020). Tropical biogeomorphic seagrass landscapes for coastal protection: persistence and wave attenuation under major storm events. Ecosystems. doi: [10.1007/s10021-020-00519-2](https://doi.org/10.1007/s10021-020-00519-2)

van der Boog, C.G., Pietrzak, J.D., Dijkstra, H.A., Brüggemann, N., Van Westen, R.M., James, R.K., ... & Katsman, C.A. (2019). The impact of upwelling on the intensification of anticyclonic ocean eddies in the Caribbean Sea. Ocean Science. doi: [10.5194/os-15-1419-2019](https://doi.org/10.5194/os-15-1419-2019)

van der Boog, C.G., de Jong, M.F., Scheidat, M., Leopold, M.F., ... & Katsman, C.A. (2019). Hydrographic and biological survey of a surface-intensified anticyclonic eddy in the Caribbean Sea. Journal of Geophysical Research: Oceans. doi: [10.1029/2018JC014877](https://doi.org/10.1029/2018JC014877)

Haakman, K., Sayol, J.M., **van der Boog, C.G.**, & Katsman, C.A. (2019). Statistical characterization of the observed cold wake induced by North Atlantic hurricanes. Remote Sensing. doi: [10.3390/rs11202368](https://doi.org/10.3390/rs11202368)

Georgiou, S., **van der Boog, C.G.**, Brüggemann, N., Ypma, S.L., Pietrzak, J.D., & Katsman, C.A. (2019). On the interplay between downwelling, deep convection and mesoscale eddies in the Labrador Sea. Ocean Modelling. doi: [10.1016/j.ocemod.2019.02.004](https://doi.org/10.1016/j.ocemod.2019.02.004)

James, R. K., Silva, R., van Tussenbroek, B. I., Escudero-Castillo, ..., **van der Boog, C. G.**, ... & Bouma, T.J. (2019). Maintaining tropical beaches with seagrass and algae: a promising alternative to engineering solutions. BioScience. doi: [10.1093/biosci/biy154](https://doi.org/10.1093/biosci/biy154)

van Westen, R. M., Dijkstra, H. A., Klees, R., Riva, R. E., Slobbe, D. C., **van der Boog, C. G.**, ... & James, R. K. (2018). Mechanisms of the 40–70 day variability in the Yucatan Channel volume transport. Journal of Geophysical Research: Oceans. doi: [10.1002/2017JC013580](https://doi.org/10.1002/2017JC013580)

Selected presentations

- 2021 Virtual European Physical Oceanography and Shelf Seas Seminar
Online presentation: Double-diffusive mixing makes a small contribution to the ocean circulation.
- 2021 KITP Layering in Atmospheres, Oceans and Plasmas
Invited online presentation: Double-diffusive mixing makes a small contribution to the ocean circulation.
- 2020 Hydraulic Engineering Colloquium, Delft, NL
Online lunch seminar: The global impact of thermohaline staircases
- 2020 European Geosciences Union General Assembly, Vienna, AT
Online presentation: The impact of thermohaline staircases: estimates from a global analysis of Argo floats
- 2020 Ocean Sciences Meeting, Portland, USA
Poster: The impact of upwelling and river outflow on the mesoscale variability in the Caribbean Sea
- 2019 European Geosciences Union General Assembly, Vienna, AT
Invited oral presentation: Hydrographic and biological survey of a surface-intensified anticyclonic eddy in the Caribbean Sea
- 2019 European Geosciences Union General Assembly, Vienna, AT
PICO: The impact of upwelling on the intensification of anticyclones in the Caribbean Sea
- 2018 University of California Los Angeles, Los Angeles, USA
Lunch seminar: A preview of the first results on the formation of Caribbean anticyclones
- 2018 European Geosciences Union General Assembly, Vienna, AT
Poster: Mechanisms affecting the life cycle of anticyclones in the Caribbean Sea

Media attention

- 2018 Interview on [Dutch national radio](#) about the measurements of a Caribbean anticyclone.
- 2018 News article on [Kennislink](#) about how to select the right cruise track for a hydrographic survey.
- 2018 Highlight story about the hydrographic survey in the Delft University of Technology's [Stories of Science](#) series.

Awards

- 2018 [Outstanding Student Poster and PICO Award](#) at the EGU General Assembly 2018
- 2017 Awarded with 11 days of ship time to perform a hydrographic section through an eddy as a part of the [NICO-expedition](#)

Relevant courses and summer schools

2018	Fluid Dynamics, Sustainability and the Environment, Cambridge, UK
2017	Sea-level change: observations processes and modelling, Delft, the Netherlands
2017	Physics of the Ocean, Bad Honnef, Germany

Teaching activities

2017 - 2020	Supervisor of 3 graduate students (MSc) and 2 undergraduate students (BSc) on topics related to my PhD research.
2016 - 2020	Teaching assistant for the following courses: Physical Oceanography (MSc), Stratified Flows (MSc), Ocean Waves (MSc)
2014 - 2016	Student assistant for the following courses: Fluid Dynamics (BSc), Stratified Flows (MSc)

Skills

Languages	Dutch, English
Models	MITgcm, ROMS, SWASH
Programming	Fortran, Python, Matlab, Unix shell