

## EDUCATION

- 2013 Promotion (PhD) magna cum laude in Biology (Paleontology) at Humboldt-Universität, Berlin, Germany.
- 2007 Master (MSc) in Systematic, Evolution and Paleontology at Université Pierre et Marie Curie (UPMC) coaccredited with Museum National d'Histoire Naturelle and École Normale Supérieure, Paris, France.
- 2004 Licence (BSc) in Earth and Space Sciences at Université Paul Sabatier, Toulouse, France.
- 2003 DEUG in Earth and Universe Sciences at Université Paul Sabatier, Toulouse, France.
- 2001 Baccalauréat in Science (Mathematics) at Lycée Pré de Cordy, Sarlat-la-Canéda, France.

## RESEARCH EXPERIENCE

- 2018–22 PostDoc research project (DAAD MOPGA-GRI grant 57429681) at the Museum für Naturkunde (MfN) with G. Asatryan and D.B. Lazarus on 'Polar Paleogene Plankton and Productivity'.
- 2015–17 PostDoc research project (DFG grant RE3470/3-1) at MfN on 'Diatoms, Radiolarians and the Cenozoic Silicon and Carbon cycles'.
- 2014–15 PostDoc research project at MfN with D.B. Lazarus and H. Pälike on 'Earthtime-EU: Integrated deep-sea microfossil chronostratigraphic database, website and analytic tools'.
- 2008–12 PhD research project (DFG grant LA1191/8-1,2) at MfN with D.B. Lazarus and B. Mohr on a 'Synthesis on Antarctic Neogene radiolarians: taxonomy, macroevolution and biostratigraphy'.
- 2007 MSc research project at UPMC with T. Danelian and S. Saint-Martin on 'Siliceous plankton paleoecology in the tropical Atlantic in relation with Middle Eocene climatic changes'.
- 2006 MSc research project at UPMC with T. Danelian on 'Radiolarian diversity and taphonomy during the critical warming interval of the Paleocene-Eocene boundary'.

## FIELDWORK

- 2019 IODP Expedition 379 'Amundsen Sea West Antarctic ice-sheet history': Radiolarian specialist.

## PUBLICATIONS

### Peer-reviewed articles

- 2019 Piazza V., Duarte L.V., Renaudie J., Aberhan M. Reductions in body size of benthic macro-invertebrates as a precursor of the Early Toarcian (Early Jurassic) extinction event in the Lusitanian Basin, Portugal. *Paleobiology*, 45(2), 296–316.
- 2018 Renaudie J., Drews E.-L., Böhne S. The Paleocene record of marine diatoms in deep-sea sediments. *Fossil Record*, 21(2), 183–205.
- Lazarus D.B., Renaudie J., Lenz D., Diver P., Klump J. Raritas: a program for counting high diversity categorical data with highly unequal abundances. *PeerJ*, 6, e5453.
- 2016 Renaudie J. Quantifying the Cenozoic marine diatom deposition history: links to the C and Si cycles. *Biogeosciences*, 13(21), 6003–6014.
- Wiese R., Renaudie J., Lazarus, D.B. Testing the accuracy of genus-level data to predict species diversity in Cenozoic marine diatoms. *Geology*, 44(12), 1051–1054.
- Renaudie J., Lazarus D.B. New species of Neogene radiolarians from the Southern Ocean - Part IV. *Journal of Micropalaeontology*, 35(1), 26–53.
- 2015 Renaudie J., Lazarus D.B. New species of Neogene radiolarians from the Southern Ocean - Part III. *Journal of Micropalaeontology*, 34(2), 181–209.
- 2014 Lazarus D.B., Barron J., Renaudie J., Diver P., Türke A. Cenozoic diatom diversity and correlation to climate change. *PLoS ONE*, 9(1), e84857.
- 2013 Renaudie J., Lazarus D.B. New species of Neogene radiolarians from the Southern Ocean - Part II. *Journal of Micropalaeontology*, 32(1), 59–86.
- Renaudie J., Lazarus D.B. On the accuracy of paleodiversity reconstructions: a case study in antarctic radiolarians. *Paleobiology*, 39(3), 491–509.
- 2012 Renaudie J., Lazarus D.B. New species of Neogene radiolarians from the Southern Ocean. *Journal of Micropalaeontology*, 31(1), 29–52.
- 2010 Renaudie J., Danelian T., Saint-Martin S., Le Callonec L., Tribouillard N. Siliceous phytoplankton response to a Middle Eocene warming event recorded in the tropical Atlantic (Demerara Rise, ODP Site 1260A). *Palaeogeography, Palaeoclimatology, Palaeoecology*, 286, 121–134.

## Other publications

- 2019 Gohl K., Wellner J., Klaus A. and the Expedition 379 Scientists<sup>1</sup>. Expedition 379 Preliminary Report: Amundsen Sea West Antarctic Ice Sheet History. *International Ocean Discovery Program: Preliminary Reports*, 379:1–33.
- Varela S., Sbrocco E.J., Tarroso P., Perez-Luque A.J., Renaudie J., Warnstädt N., Fandos G., Foster W.J., Tietje M. BioExtreme hackathon en el Museum für Naturkunde de Berlín, Alemania. *Ecosistemas*, 28(1):129.

## Submitted

- 2019 Renaudie J., Lazarus D.B., Diver P. NSB: an expanded and improved database of marine planktonic microfossil data and deep-sea stratigraphy. *Submitted to Palaeontologia Electronica*.
- 2018 Renaudie J., Gray R., Lazarus D.B. Accuracy of a neural net classification of closely-related species of microfossils from a sparse dataset of unedited images. *Submitted to PeerJ*.

## SEMINAR TALKS

### Invited talks

- 2019 GFZ-Potsdam, Germany: Cenozoic changes in the Si and C marine cycles from the point of view of diatoms. July, 23rd.
- 2016 University of Leeds, UK : Diatoms, climate and the marine Silicon cycle. November, 10th.

### In-house talks

- 2018 Evolutionsbiologisches Seminar (MfN): The Cenozoic evolution of the diatom-climate system. September, 27th.
- 2017 Wissenschaftstag 'Taxonomie' (MfN): Micropaleontology, between taxonomic backbone databases and alpha taxonomy. May, 31st.

## CONGRESS PARTICIPATIONS

### Organization

- 2019 EGU general meeting in Vienna, Austria: 'SSP4.6: Plankton in modern and past ecosystems' (convener: Thibault N.; co-conveners: Bottini C., Luciani V., Renaudie J., Noble P.).

### Talks (speaker; last 5 years only)

- 2019 3rd International Congress on Stratigraphy in Milan, Italy: Renaudie J., Lazarus D., Diver P., NSB, a Big Data tool for chronostratigraphic syntheses of the deep-sea sediment record.
- North American Paleontological Conference (NAPC) in Riverside, USA: Lazarus D., Renaudie J., Asatryan G. Diversity dynamics and climate change in Cenozoic marine siliceous plankton; Lazarus D., Renaudie J., Young J., Diver P., NSB and Mikrotax: Databases and software tools for fossil and living plankton research; Trubovitz S., Lazarus D., Renaudie J., Noble P., Tropical and polar plankton demonstrate contrasting sensitivities to climate change throughout the Late Neogene.
- Biodiversity\_Next in Leiden, Netherlands: Lazarus D., Renaudie J., Paleobiodiversity and Earth Science Environmental Data.
- 2018 GEOBONN 2018 'Living Earth' in Bonn, Germany: Jansen M., Buchwitz M., Renaudie J., Voigt S., Reconstruction of an ancestral amniote trackmaker based on trackway data, track-trackmaker correlation and phylogeny.
- 2017 InterRad 15th meeting in Niigata, Japan: Renaudie J., Fontorbe G., Lazarus D., Salzmann S., Frings P., Conley D., Testing the vital effect on silicon isotope measurements in Late Eocene Pacific radiolarians.
- 2016 Lyell Meeting of the Geological Society in London, UK: Lazarus D., Renaudie J., Diver P., The NSB (Neptune) Database : current status and future development.
- 2015 InterRad 14th meeting in Antalya, Turkey: Renaudie J., Lazarus D., Diatoms, radiolarians and the Cenozoic Si and C cycles ; Lazarus D., Renaudie J., Reconstructing radiolarian diversity: what we don't know; and a new analysis of the Cenozoic.
- since 2007 18 talks (including 11 as speaker) at 15 international conferences.

### Posters (last 3 years only)

<sup>1</sup>Gohl K., Wellner J., Klaus A., Bauersachs T., Bohaty S.M., Courtillot M., Cowan E.A., Esteves M.S.R., De Lira Mota M.A., Fegyveresi J.M., Frederichs T.W., Gao L., Halberstadt A.R., Hillenbrand C.-D., Horikawa K., Iwai M., Kim J.-H., King T.M., Klages J.P., Passchier S., Penkrot M.L., Prebble J.G., Rahaman W., Reinardy B.T.I., Renaudie J., Robinson D.E., Scherer R.P., Siddoway C.S., Wu L., Yamane M.

- 2019 EGU general meeting in Vienna, Austria: Asatryan G., Lazarus D., Renaudie J., The preliminary studies of plankton in the framework of the project “Paleogene Polar Plankton and Paleoproductivity”.
- NAPC in Riverside, USA: Trubovitz S., Lazarus D., Renaudie J., Noble P., New census of radiolarian communities in the Eastern Equatorial Pacific reveals unprecedented biodiversity throughout the Late Neogene
- Society of Vertebrate Paleontologists (SVP) Annual Meeting in Brisbane, Australia: Jansen M., Buchwitz M., Renaudie J., Voigt S., Reconstruction of an ancestral amniote trackmaker based on trackway data, trackmaker correlation and phylogeny.
- Paläontologisches Gesellschaft General Meeting in Munich, Germany: Özen V., Rodrigues de Faria G., Asatryan G., Renaudie J., Lazarus D., Investigating the role of Southern Ocean phytoplankton in the end Eocene climatic events.
- 2018 TMS Annual meeting in Leeds, UK: Asatryan G., Lazarus D., Renaudie J., Paleogene polar phytoplankton and oceanic carbon sequestration; Renaudie J., Drews E.-L., Böhne S., The Paleocene fossil record of marine planktonic diatoms in deep-sea sediments; Renaudie J., Gray, R., Lazarus D., Testing the accuracy of the MobileNet convolutional neural network to identify closely-related radiolarian species based on a sparse dataset.
- 25th International Diatom Symposium in Berlin, Germany: Renaudie J., Lazarus D., Macroevolutionary patterns in Cenozoic marine diatoms from deep-sea sediments, and their relationship with climate and marine geochemical cycles.
- 2017 Kolloquium der DFG-Schwerpunkte ICDP/IODP in Braunschweig, Germany: Renaudie J., Fontorbe G., Drews E.-F., Böhne S., Lazarus D., Constraining the history of the Cenozoic marine silicon cycle with siliceous microfossils.
- Evolution 2017 in Portland, Oregon: Renaudie J., Lazarus D., Diver P., The NSB (Neptune) marine microfossil occurrences database.
- since 2006 31 posters at 24 international conferences.

## SCIENTIFIC PROGRAMMING

### Softwares

- 2017 NSB\_ADW\_wx – Age-Depth plot maker in Python (last update: version 0.7; 2019).
- 2016 Raritas – Micropaleontological counting software in Python (last update: version 0.7; 2018).

### Packages

- 2014 NSBcompanion – R package to work with the NSB database (last update: version 2.1; 2019).
- 2013 CONOP9companion – R package to integrate software CONOP9 in a statistical workflow.
- dendextend – R package for dendrogram visualizations (as contributor only).

### Databases

- since 2013 Maintainer and developer of the NSB database, successor of the legacy Neptune database.

## SERVICES TO PROFESSION

- 2019 Outside reader for an MSc defense (William Bugbee; University of Northern Illinois, USA).
- 2018 Remote reviewer for an ERC Advanced Grant proposal.
- 2015–18 Organizer of the MfN ‘Code Clinic’ Scientific Programming Club (on-the-job training for ECR).
- since 2013 Reviews for *Proceedings of the Royal Society B*; *Paleoceanography*; *Paleobiology*; *Palaeogeography*; *Palaeoclimatology*; *Palaeoecology*; *Microorganisms*; *Journal of Plankton Research*; *Water*; *Bulletin de la Société Géologique de France*; *Revue de Micropaléontologie*; *Acta Palaeontologica Romaniaae*.

## WORKSHOPS

- 2018 BioExtreme hackathon at MfN.
- 2017 ‘Access to Geosciences: sharing and publishing data related to paleontological, mineralogical, and petrological objects using a common data standard’ workshop at MfN.
- 2010 ‘Paleobiology Database Intensive Workshop in Analytical Paleobiology’ at Macquarie University, Sydney, Australia.

## PUBLIC OUTREACH

- 2019 ‘The ocean’s plankton and climate change; how to see the future from the bottom of the ocean’ booth at the MfN during the Lange Nacht der Wissenschaften and the Lange Nacht der Museen.

- 2014 'Tiefenzeit Geschichten der Zukunft: von Plankton, Muscheln und Klimawandel' booth at the MfN during the Lange Nacht der Wissenschaften.
- 2011 Guided tour of the MfN Micropaleontology Collection during the Lange Nacht der Museen.

## GRANTS & AWARDS

### Grants

- 2018 DAAD 'Make Our Planet Great Again – German Research Initiative' Grant 57429681 (PI: G. Asatryan).
- 2015 DFG Grant RE3470/3–1: 'Eigene Stelle' grant in the Priority Program 527 (IODP).

### Awards

- 2012 TMS Student Prize for best Poster at InterRad 13th meeting in Cadiz, Spain.

## MEDIA COVERAGE

of projects I'm involved with (selection)

- 2019 The 'time machines' unlocking Antarctica's past, *BBC*. May, 31st.  
Newly drilled sediment cores could reveal how fast the Antarctic ice sheet will melt, *Science*. April, 15th.
- 2018 "Make Our Planet Great Again – German Research Initiative": Forschung für die Zukunft der Erde, *DAAD Aktuell*. October, 11th.

## WORK EXPERIENCE

- 09/2018–06/2022 Postdoctoral researcher (DAAD MOPGA-GRI) at the MfN.
- 11/2015–05/2017 Postdoctoral researcher (DFG) at the MfN.
- 03/2014–06/2015 Postdoctoral researcher (Earthtime-EU) at the MfN.
- 05–07/2013 Programmer at the MfN for the Neptune Database web interface.
- 11/2008–09/2012 Scientific assistant at the MfN.
- 07–08/2008 Bartender at the brasserie 'Le Jardin Gourmand', Castelnaud-la-Chapelle.
- 10/2007–07/2008 Library assistant at the Bibliothèque Centrale of Université Paris VII.
- 07–08/2003–2007 Bartender at the restaurant 'Le Bouffon', Sarlat-la-Canéda.

## PROFESSIONAL MEMBERSHIP

- European Geosciences Union (EGU)
- International Association of Radiolarian Scientists (InterRad)
- The Micropalaeontological Society (TMS)

## OTHER

- Fluent in French (native) and English, intermediate level in Latin and German.
- Advanced programming skills in R, python (including Django and wxPython), postgresSQL (and other SQL derivatives) and  $\text{\LaTeX}$ . Familiar with Unix shell and Apache Webserver.