Anta-Clarisse Sarr
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Update - APR 2025

Research interests :
Ocean-Atmosphere interactions , Numerical modeling, Cenozoic paleoclimate, Orbital variability

RESEARCH POSITIONS

Postdoctoral Research Associate, Paleoclimate modeling — *2023- present*
Poulsen Group, Department of Earth Sciences, University of Oregon, Eugene (USA)

LabEX Research Fellow, Earth System Sciences — *2022- 2023*
ISTerre, Grenoble (France)

Research Associate, Ocean biogeochemistry modeling — *2020- 2022*
CEREGE/Aix-Marseille Université, Aix-en-Provence (France)

Postdoctoral Research Associate, Paleoclimate modeling — *2019- 2020*
CEREGE/CNRS, Aix-en-Provence (France)

EDUCATION

Ph.D. Earth Sciences, Grenoble Alpes University, Grenoble, France — 2015-2018
MsC. Earth Sciences, Grenoble Alpes University, Grenoble, France — 2014-2015
MsC. Geology and Geophysics, Unilasalle, Beauvais, France — 2010-2015

FUNDING

- **BQR research project** (Internal call ISTerre lab.) — 2024
  An update on Bering biogeography and environmental evolution [PI ; 4 k€]
- **BQR research project** (Internal call ISTerre lab.) — 2023
  Inter-model comparison for Miocene climate [PI ; 3 k€]
- **LabEX OSUG Fellowship (U. Grenoble Alpes)** (Call for strategic projects) — 2022 – 2024
  Geology, Biosphere and Climate in Seaways regions (GeoBioClim)
  [103 k€, design and write the proposal, not officially PI because of internal rules]
- **PhD Scholarship** (French Ministry of Education and Research) — 2015 – 2018
  [$\sim$ 90 k€]

- Travel grant, Workshop *"Exploring New Direction on Miocene Earth System Connections"* (USA) 2024
- Travel grant, MagellanPlus Workshop *"Indian Ocean: Devling into the Past"* (Graz, Austria) 2022
- ECORD Scholarship to attend the Urbino Summer School in Paleoclimatology (Italy) [1.2 k€] 2018
- International mobility grant to support Research stay at UTIG, Austin (USA) (ED TUE - U. Grenoble Alpes) [500 €] 2016

High Performance Computing projects :

- *> 11 millions computing hours on TGCC HPC (GENCI - CEA)* — 2017 – 2022
- *Computing Project on regional HPC facilities (CIMENT - GRICAD)* — 2023

PUBLICATIONS UNDER CONSIDERATION

29. Courtial-Manent, L., Mugnier, J-L., **Sarr, A-C.**, Ravanel, L., Carcaillet, J., Vassallo, R., Schwing, A., Rockwall erosion rate inferred from in-situ ^{10}Be concentration of supra-glacial clasts: a review, *in revision* for Geographica Helvetica.

28. ***preprint***. Maffre, P., Godderis, Y., Le Hir, G., Nardin, E., **Sarr, A-C.**, Donnadieu, Y., GEOCLIM7, an Earth System Model for multi-million years evolution of the geochemical cycles and climate, *in revision* for Geoscientific Model Developments.

PUBLICATIONS

27. *Lee, D., **Sarr, A-C.**, Acosta, R.P., Poulsen, C.J. *(*PhD student)*, Multiple ocean equilibria and decoupling of Miocene atmospheric pCO2 and regional sea surface temperatures, Paleoceanography and Paleoclimatology, 40(5) (2025).

26. **Sarr, A.-C**., Poulsen, C.J., Do, E.L., Revisiting the early Late Cretaceous Equable Climate Problem through model-data perspective, Paleoceanography and Paleoclimatology, 40(4), e2024PA005002 (2025).

25. Lyu, J., Barragan Montilla, S., Auer, G., Bialik, O., Del Gaudio, A., **Sarr, A-C.**, de Vleeschouwer, D. Oxygenated bottom water conditions on Broken Ridge (central Indian Ocean) since at least 9 million years ago, Frontiers in Earth Sciences: Paleontology, 13. (2025).

24. *Pillot, Q., †**Sarr, A-C.**, Donnadieu, Y., Gramoullé, A., Suchéras-Marx, B., (**PhD student*, †*corresponding author*). Impact of dust and temperature on primary productivity in Late Miocene oceans, Paleoceanography and Paleoclimatology, 40, e2023PA004838 (2025).

23. Zhang, Z., Nie, J., Licht, A., Cogné, N., **Sarr, A-C.**, Shen, T., Liu, X., Wang, W., Gao, P., Li, L. Poujol, M., Hao, L. Anti-phase variation of long eccentricity and precipitation in inland Asia during the middle Miocene Climatic Optimum (MMCO). Geological Society of America Bulletin, (2025).

22. Beaufort, L., & **Sarr, A-C.**. Eccentricity forcing on Tropical Ocean Seasonality. Climate of the Past, 20:1283-1301 (2024).

21. Acosta, P., Burls, N., Bradshaw, C. **et al.**, A model-data comparison of the hydrological response to Miocene warmth: leveraging the MioMIP1 opportunistic multi-model ensemble. Paleoceanography and Paleoclimatology, 39:e2023PA004726 (2024).

20. †Tardif, D., † **Sarr, A-C.**. Fluteau, F., Licht, A., Kaya, M., Ladant, J-B., Meijers, N., Donnadieu, Y., Dupont-Nivet, G., Bolton, C.T., Le Hir G., Pillot, Q., Poblete, F., Sepulchre, P., Toumoulin, A., Banfield, W. (†*both are corresponding authors*). The role of paleogeography in Asian monsoon evolution: a review and new insights from climate modelling, Earth-Science Reviews, 23:104464 (2023).

19. *Pillot, Q., Succhéras-Marx, B., **Sarr, A-C.**, Bolton, C., Donnadieu, Y., (**PhD student)*. A global reassessment of the spatial and temporal expression of the Late Miocene Biogenic Bloom, Paleoceanography and Paleoclimatology, 38:e2022PA004564 (2023).

18. **Sarr, A-C.**, Donnadieu, Y., Laugié, M., Ladant, J-B., Suchéras-Marx, B., Raisson F., Ventilation changes drive orbital-scale deoxygenation trends in the late Cretaceous ocean, Geophysical Research Letters, 49:e2022GL099830 (2022).

17. Martinot, C., Bolton, C., **Sarr, A-C.**, Donnadieu, Y., Garcia, M., Gray, E. and Tachikawa, K. Drivers of late Miocene tropical sea surface cooling: a new perspective from the equatorial Indian Ocean. Paleoceanography and Paleoclimatology, 37: e2021PA004407 (2022).

16. *Pillot, Q., Donnadieu, Y., **Sarr, A-C.**, Ladant, J-B., Suchéras-Marx, B., (**PhD student)*. Evolution of ocean circulation in the North Atlantic Ocean during the Miocene : impact of the Greenland Ice-Sheet and the Eastern Tethys seaway, Paleoceanography and Paleoclimatology, 37:e2022PA004415 (2022).

15. **Sarr, A-C.**, Donnadieu, Y., Bolton, C., Ladant, J-B., Licht, A., Fluteau, F., Laugié, M., Tardif, D., Dupont-Nivet, G. Neogene South Asian Monsoon Rainfall and Wind Histories diverged due to topographic effects, Nature Geoscience, 15:314-319 (2022).

14. Bolton, C.T., Gray, E., Kuhnt, W., Holbourn, A., Lübbers, J., Grant, K., Tachikawa, K., Marino, G., Rohling, E.J., **Sarr, A-C.**, Andersen, N. Secular and orbital-scale variability of equatorial Indian Ocean summer monsoon winds during the late Miocene, Climate of the Past, 18:713:738 (2022).

13. Husson, L., Riel, N., Aribowo, S., Authemayou, C., DeGelder, G., Kaus, B., Mallard, C., Natawidjadja, D.H., Pedoja, K., **Sarr, A-C.**, Slow geodynamics produces morphotectonic extremes in the far East Tethys, Geochemistry, Geophysics, Geosystems, 23(1):e2021GC010167 (2022).

12. Beaufort, L., Bolton, C., **Sarr, A-C.**, Sucheras-Marx, B., Rosenthal, Y., Donnadieu, Y., Barbarin, N., Bova, S., Cornuault, P., Gally, Y., Gray, E., Mazur, J-C., and Tetard, M. Cyclic evolution of phytoplankton forced by tropical seasonality. Nature, 601:79-84 (2022).

11. Salles, T., Mallard, C., Husson, L., Zahirovic, S., **Sarr, A-C.**, Sepulchre, P. Quaternary landscape dynamics boosted species dispersal in SE Asia, Communications earth & environment, 2(240) (2021).

10. Burls, N.J., Bradshaw, C.D., De Boer, A.M., Herold, N., Huber, M., **et al.**, Simulating Miocene warmth: insights from an opportunistic Multi-Model ensemble (MioMIP1). Paleoceanography and Paleoclimatology, 35(6):e2020PA004054 (2021).

9. Sepulchre, P., Caubel, A., Ladant, J-B., Bopp, L., Boucher, O., **et al.**. IPSL-CM5A2: An Earth System Model designed for long simulation of past and future climates. Geoscientific Model Development, 13:3011-3053 (2020).

8. Husson, L., Boucher F., **Sarr, A-C.**, Sepulchre, P., Cahyarini S.Y., Evidence of Sundaland's subsidence requires revisiting its biogeography. Journal of Biogeography, 47(4):843-853 (2020).

7. **Sarr, A-C.**, Mugnier, J-L., Abrahami, R., Carcaillet, J., Ravanel, L., Sidewall erosion: insights from in situ-produced ^{10}Be concentrations measured on supraglacial clasts (Mont Blanc massif, France). Earth Surface and Planetary Landform, 44:1930-1944 (2019).

6. **Sarr, A-C.**, Husson, L., Sepulchre, P., Pastier, A.-M, Pedoja, K., Elliot, M., Arias-Ruiz, C., Solihuddin, T., Aribowo, S., Susilohadi, Subsiding Sundaland: REPLY. Geology, 47(7):e470 (2019).

5. **Sarr, A-C.**, Sepulchre, P., Husson, L., Impact of Sunda shelf exposure on the climate of the Maritime Continent. Journal of Geophysical Research: Atmospheres, 124 (2019).

4. **Sarr, A-C.**, Husson, L., Sepulchre, P., Pastier, A.-M, Pedoja, K., Elliot, M., Arias-Ruiz, C., Solihuddin, T., Aribowo, S., Susilohadi, Subsiding Sundaland. Geology, 47:119-122 (2019).

3. Husson, L., Pastier, A-M., Elliot, M., Pedoja, K., Paillard, D., Authemayou, C., **Sarr, A-C.**, Schmitt, A., Cahyarini, S. Y., Hantoro, W. S. Reef carbonate productivity during Quaternary glacial oscillations, Geochemistry, Geophysics, Geosystems, 19:1148-1164 (2018).

2. Pedoja, K., Husson, L., Bezos, A., Pastier, A-M., Imran, A-M., Arias, C., **Sarr, A-C.**, Elliot, M., Pons-Branchu, E., Regard, E., Nexer, M., Regard, V., Hafidz, A., Robert, X., Benoit, L., Delcaillau, B., Authemayou, C., Dumoulin, C., Choblet, G. On the long-lasting sequences of coral reef terraces from SE Sulawesi (Indonesia): distribution, formation, and global significance, Quaternary Science Reviews, 188:37-57 (2018).

1. Potel, S., Maison, T., Maillet, M., **Sarr, A-C.**, Dublier M. P., Trullenque, G. and Ferreiro Mahlmann, R., Reliability of very low-grade metamorphic methods to decipher basin evolution: Case study from the Markstein basin (Southern Vosges, NE France). Applied Clay Science, 134:175-185 (2016).

Book chapter

1. Fluteau F., Tardif, D., **Sarr, A-C**, Le Hir, G., Donnadieu, Y. Orogenesis and climate. *In*: Cattin, R and Epard, J-L. Himalayas, Dynamics of a Giant 3 : Current Activity of the Himalayan Range (2023).

COMMUNICATION (*up-coming)

Invited keynotes and Plenary talks

*2. ICP15, Bengaluru, India. *An Indian Ocean perspective on Neogene South-Asian Monsoon.* **2025/08**

1. Magellan+ Workshop "Indian Ocean: Devling into the Past", Graz, Austria. *Indian Ocean Climate, (Paleo-)Circulation, and Model Integration.* **2022/09**

Invited seminars

Oregon State University, USA **2025/05** | CEREGE, France. **2024/12** (***online***) | Urbino Summer School in Paleoclimatology and Paleoceanography, Italy. **2024/07** | University of Oregon, USA. **2024/05** | National Oceanographic Center Southampton, UK. **2022/11** | IISER Pune, India. **2022/11** (***online***) | Monsoon Seminar Series. **2022/11** (***online***) | Zhejiang University, China. **2022/09** (***online***) | Urbino Summer School in Paleoclimatology and Paleoceanography, Italy. **2022/07** | IPGP, France (GDR-climats anciens). **2022/03** | CEREGE, France. **2019/03** | ISTerre Grenoble, France. **2019/01** | UTIG, UT Austin, USA. **2016/08**

MENTORING

PhD students

2023-2025 Daeun Lee (University of Michigan, USA) - *Significant mentoring involvement* (30%).

2020-2024 Quentin Pillot (Aix-Marseille University, FR) - *Co-supervisor / Invited Committee Member* (30%).

Master students

2025 Evan Manley (University of Oregon, USA - 6 months). Principal advisor (80%). Co-advisor : C.J. Poulsen

2024 Julie Le Merrer (Grenoble Alpes University, FR - 5 months). Principal advisor (50%). Co-advisors : S. Lavergne, L. Husson

2023 Cédric Dobin (Grenoble Alpes University, FR - 2 months). Principal Advisor

2020 Quentin Pillot (University of Lyon, FR - 5 months). Co-advisor (50%). Principal Advisor : Y. Donnadieu

TEACHING

- Urbino Summer School on Paleoclimate and Paleoceanography (Italy) | Guest Lecturer 2022-2024
  - *Climate of the Miocene*
  - *Climate modeling*
  - *Climate modeling 101*

- University Grenoble Alpes (France) | MsC in Earth System Sciences | Guest Lecturer 2023
  - *Solid Earth and Atmosphere*
  - *Solid Earth and Oceans*

SKILLS

Languages | python (eg. xarray, numpy, pandas, matplotlib, cartopy), NCL, pyferret, Generic Mapping Tool (GMT), Fortran (basics).

Computing | Linux/Unix environment, Jupyter notebooks, High Performance Computing, Shell/Bash scripting.

Tools | Paraview, VIM text editor, NetCDF Operators (NCO), Climate Data Operators (CDO), ESRI ArcGIS, Illustrator.

Earth System Models | *Water isotopologues enabled* : iCESM1.2 and 1.3 (various resolution); *Ocean and atmosphere* : IPSL-CM5A2 (Earth System Model) ; *Atmosphere-Vegetation* : LMDz-ORCHIDEE ; *Marine biogeochemistry* : PISCESv2.

Field Experience - 3 weeks (2016) - Indonesia [GPS, coral sampling] ; 2 days (2014) - Mont-Blanc massif [supra-glacial sediments sampling] ; 4 weeks (2012) - Vosges massif [sampling, tectonic mapping].

SERVICES

Reviewer for : *Climate of the Past, Communication Earth & Environment, Earth and Planetary Science Letters, Geophysical Research Letters, Nature, Nature Communication, Nature Geoscience, Paleoceanography & Paleoclimatology, Science Advances*

Conferences convener . Seminars organizer :

- *2025 - *Contrôle Climatique et paléogéographique sur l'évolution des biotas continentaux*. Co-convener, with A. Licht, R. Amiot, A-L. Decombeix, O., Otero (RST, Montpellier, France)
- 2025 - *Deep-time climate change and carbon cycle: insights from models and proxies*. Co-convener, with J-B. Ladant, H. Jurikova, Y. Liu and P. Vervoort (EGU, Vienna, Austria)
- 2024 - *Miocene Climate Dynamics*. Co-convener, with X. Liu, H. Stoll (AGU, Washington DC, USA)
- 2023 - *Data and models constraining Earth's deep-time paleogeography*. Co-convener, with S. Zahirovic, M. Arnould, J. Leonard and Alexandre Pohl. (EGU Vienna, Austria)
- 2023 - Meeting on Geology-Ecology trans-disciplinary research at Grenoble Alpes University (1 day, 17 speakers). Organizer.

Science communication :

- Scientific animation for Primary and Highschool students
  - Forum Météo-Climat [LSCE-IPSL - Paris]) (2017, 2018)
  - Fête de la Science [CEREGE] (2020, 2021)
- Podcast - CycloPod by D. de Vleeschouwer Episod 11 (June 2022) https://rss.com/podcasts/cyclopod/521228/