CURRICULUM VITAE

Dr. Partha Sarathi Jena

Current Position

Postdoctoral Researcher,
School of Arts, Sciences and Humanities (EACH),
University of São Paulo
Rua Arlindo Béttio, 1000 - Ermelino Matarazzo
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RESEARCH INTERESTS & EXPERTISE

1. Paleoclimatology/ paleoceanography
2. Earth Surface Processes
3. Cosmogenic nuclides (^{14}C and ^{10}Be) applications
4. Isotope and trace element geochemistry

EDUCATIONAL QUALIFICATION & WORK EXPERIENCE

Degree	Institute	Duration	Subjects
Postdoc	University of Sao Paulo, Brazil	Apr 2023-Present	Geoscience
Postdoc	Physical Research Laboratory, Ahmedabad, India	Aug 2022-Mar 2023	Geoscience
Ph.D.	Physical Research Laboratory, Ahmedabad/ Indian Institute of Technology, Gandhinagar, India	July 2017-July 2022	Earth Sciences
M.Sc.	Indian Institute of Technology, Bhubaneswar, India	July 2015-May 2017	Geology
B.Sc.	Ravenshaw University, Cuttack, India	July 2012-May 2015	Geology (Hons.) Mathematics, Physics

ACADEMIC ACHIEVEMENTS

- ⇨ Received **FAPESP fellowship for postdoctoral research** (2023-25)
- ⇨ Received **best project award (Master's dissertation)**
- ⇨ **Gold Medalist**- IIT Bhubaneswar (Topper among all MSc courses)
- ⇨ **Silver Medalist**- IIT Bhubaneswar (Topper of MSc-Geology)
- ⇨ Qualified **Joint CSIR-UGC NET**-JRF: All India Rank-103 (Dec 2017)
- ⇨ Qualified **Joint CSIR-UGC NET**-JRF: All India Rank-10 (Dec 2016)
- ⇨ Qualified **Joint CSIR-UGC NET**-JRF: All India Rank-16 (June 2016)

- ⇨ Qualified **Joint CSIR-UGC NET**-LS: All India Rank-19 (Dec 2015)
- ⇨ Qualified **GATE**: All India Rank 267 (2017)
- ⇨ Qualified **IELTS**: Band-7 (2017)
- ⇨ Qualified **IIT-JAM**: All India Rank 58 (2015)
- ⇨ Awarded **DST-INSPIRE** Scholarship (2012-2017)

RESEARCH EXPERIENCE

Postdoctoral (Ongoing)
Topic: Abrupt changes in the deep western tropical Atlantic Ocean during the last two glacial periods.
Supervisor: Prof. Cristiano M. Chiessi, School of Arts, Sciences and Humanities, University of São Paulo, Brazil.

Postdoctoral (Aug 2022-Mar 2023)
Topic: Estimation of denudation rates in the Himalaya based on Be isotopic measurements.
Supervisor: Prof. Ravi Bhushan, Physical Research Laboratory, Ahmedabad, India.

Doctorate (July 2017-July 2022)
Topic: Applications of cosmogenic nuclides in understanding Quaternary events.
Supervisor: Prof. Ravi Bhushan, Physical Research Laboratory, Ahmedabad, India.

Masters Dissertation (Duration: 6 months)
Topic: Seasonal variability of benthic micro-organism in the Chilika Lake and its environmental implication.
Supervisor: Dr. Raj K. Singh and Dr. Sourav Sil, SEOCS, IIT-Bhubaneswar, India.

Internship (Duration: 1 month)
Topic: A case study to evaluate vertical distribution of living benthic foraminifera from sediment in the western Bay of Bengal
Supervisor: Dr. Rajeev Saraswat, National Institute of Oceanography, Goa, India.

FIELD AND LABORATORY EXPERIENCE

Field trips
I have visited Ladakh Himalaya on multiple (three) geological field trips for-

- ⇨ Sampling glacially exposed boulders and bedrock for exposure age dating
- ⇨ Sampling paleolake deposits to reconstruct Quaternary paleohydrology

I have visited the Central Himalaya on one geological field trip for-

- ⇨ Sampling strath terraces and riverine sediment in the Bhagirathi, Alaknanda, Kali, and Dhauliganga Valley

I have participated in multiple field trips to Chilika Lake, Odisha and Mandavi Estuary, Goa for-

- ⇨ Sampling of sediment samples for microfossil and geochemical study

Sample processing

I have experience in sample processing for multiple numerical dating techniques (^{210}Pb, ^{14}C, ^{10}Be, and luminescence dating) as well as in chemical and isotopic analysis. A few of them can be listed as follows

- ⇨ Sample processing for radiocarbon analysis (e.g., sediment, peat, charcoal, bone, terrestrial and marine carbonates etc.)
- ⇨ Quartz extraction and purification for in-situ ^{10}Be analysis
- ⇨ Sediment processing for meteoric ^{10}Be analysis
- ⇨ Column chemistry for beryllium separation
- ⇨ Extraction of quartz in dark room for optically stimulated luminescence dating
- ⇨ Sample processing for isotopic analysis (stable isotopes)
- ⇨ Geochemical methods of processing (major and trace elements)
- ⇨ Microfossil separation
- ⇨ Microlayer drilling of coral samples

INSTRUMENTAL EXPERTISE

I am well conversant in the operation and maintenance of the following instruments:

- ⇨ Accelerator Mass Spectrometer (AMS)
- ⇨ Graphitisation System
- ⇨ Isotope Ratio Mass Spectrometer (IRMS)
- ⇨ Inductively Coupled Plasma - Optical Emission Spectroscopy (ICP-OES)
- ⇨ CN elemental analyser
- ⇨ Coulometer
- ⇨ X-ray Fluorescence (XRF) analyser
- ⇨ Risø TL/OSL Reader

SOFTWARE EXPERTISE

I have working experience with multiple softwares, such as:

- ⇨ ArcGIS
- ⇨ QGIS
- ⇨ MATLAB
- ⇨ R
- ⇨ Corel Draw
- ⇨ Ocean Data View (ODV)
- ⇨ Sigma Plot/ Origin

LECTURES/ CONFERENCES AND WORKSHOPS

Invited Talks /lectures

- Invited talk on "Deglacial evolution in ventilation of the western equatorial Atlantic Ocean and its link to atmospheric CO_2 changes" at the Indian Institute of Technology Bhubaneswar on 4th March 2024.
- Invited keynote presentation on "Coupling between deep ocean circulation and terrestrial climate change: lessons from the past" at the Fakir Mohan University, Balasore on 9th January 2025.
- Extramural lecture on "Decoding Earth's Climate History: Techniques and Insights" at Fakir Mohan Autonomous College, Balasore on 13th January 2025.

Presentations in Conferences

- **Topic:** Deglacial evolution in ventilation of the western equatorial Atlantic Ocean and its link to atmospheric CO_2 changes
  - TROPQUA-2024
  - Mode: Presentation (Offline/ In-person) on 3rd Nov 2024
- **Topic:** The Atlantic meridional overturning circulation during Heinrich Stadial 1
  - AGU fall meeting-2023
  - Mode: Presentation (Offline/In-person) on 14 Dec 2023
- **Topic:** Past geomagnetic field intensity reconstructed using authigenic $^{10}Be/^{9}Be$
  - Frontiers in Geoscience Research Conference (FGRC-23), PRL, Ahmedabad
  - Mode: Presentation (Offline/In-person) on 03 Feb 2023
- **Topic:** $^{10}Be/^{9}Be$ Ratio Variation in the Central Indian Ocean during the Last 43 ka; Implication to Past Geomagnetic Field Intensity Changes
  - AGU fall meeting-21
  - Mode: Presentation (Online) on 17 Dec 2021
- **Topic:** Spatial variability and residence time of beryllium isotopes in the Indian Ocean: Role of oceanic processes
  - Frontiers in Geoscience Research Conference (FGRC-21), PRL, Ahmedabad
  - Mode: Presentation (Online) on 28 Sept 2021
- **Topic:** Role of In-situ and Meteoric ^{10}Be in Quaternary Glaciation, Marine Chronology, and Paleomagnetic Reconstruction
  - 7th national conference of Ocean Society of India (OSICON-21), NCPOR, Goa
  - Mode: Presentation (Online) on 14 Aug 2021
- **Topic:** "Quaternary Glaciation Studies using terrestrial cosmogenic radionuclides"
  - Second National Conference and Field Workshop on "Recent Studies on Geology of Kachchh Basin", KSKV Kachchh University, Gujarat
  - Mode: Poster (Offline/In-person) on 30 Dec 2018

Workshops

- ⇨ Workshop on **Paleoclimate data assimilation** (Online; 21-23 Aug 2023) organised by Northern Arizona University.
- ⇨ Webinar & Workshop on **Proxy System Modeling for Lacustrine Archives** (Online; 13 Apr 2023)
- ⇨ Workshop on **Isotopes in Earth, Ocean & Atmospheric Sciences** organised by National Institute of Oceanography, Goa
- ⇨ **Isocamp2021** organised by the Center for Stable Isotopes, University of New Mexico (Online)

SCIENTIFIC PUBLICATIONS

Published Articles:

1. Dias, B.B., Chiessi, C.M., Piotrowski, A.M., Campos, M.C., **Jena, P.S.,** Ballalai, J.M., Nascimento, R.A., Santos, T.P., Venancio, I.M., Mashayek, A., Albuquerque, A.L.S., 2025. Reduced penetration of northern-sourced waters into the South Atlantic during the Last Interglacial relative to the Holocene. *Paleoceanography and Paleoclimatology*. https://doi.org/10.1029/2024PA004955.
2. **Jena, P.S.*,** Bhushan, R., Jena, S.K., Ajay, S., Sudheer, A.K., 2024. Spatial variability in residence time of Beryllium in the Indian Ocean. *Journal of Environmental Radioactivity*. 280, 107549. https://doi.org/10.1016/J.JENVRAD.2024.107549.
3. Ansari, M.A., Ansari, A.H., Mishra, R., Arif, M., **Jena, P.S.,** Dabhi, A., Bhushan, R., Singh, D.P., Maurya, A.S., Das, P.K., Rahi, I.C., Agrawal, S., 2024. Centennial-millennial scale global climate-linked monsoonal and non-monsoonal changes in the eastern Arabian Sea during the last 42,800 years. Mar. Geol. 472, 107307. https://doi.org/10.1016/J.MARGEO.2024.107307
4. Sarkar, A., Sengupta, T., Ambekar, A., Bhushan, R., Dimri, A.P., Deshpande-Mukherjee, A., Sharma, A., Liang, M.C., **Jena, P.S.,** Chakraborty, A., Sanyal, P., Dabhi, A., Juyal, N., 2024. Climate, human settlement, and migration in South Asia from early historic to medieval period: Evidence from new archaeological excavation at Vadnagar, Western India. *Quaternary Science Reviews*. 324, 108470. https://doi.org/10.1016/J.QUASCIREV.2023.108470
5. **Jena, P.S**.*, Bhushan, R., Sharma, S., Dabhi, A.J., Shivam, A., Raj, H., Juyal, N., 2023. ^{10}Be exposure age dating of moraines and glacially polished bedrocks in Karakoram and Ladakh Ranges, NW Himalaya: Implications and limitations in Quaternary glaciation studies. *Journal of Geophysical Research: Earth Surface*. 128, e2023JF007216. https://doi.org/10.1029/2023JF007216
6. **Jena, P.S.*,** Bhushan, R., Ajay, S., Dabhi, A.J., Gaddam, M., Sudheer, A.K., 2023. Applicability of meteoric ^{10}Be in dating marine sediment cores. *Marine Chemistry*. 104275. https://doi.org/10.1016/J.MARCHEM.2023.104275
7. Kumar, A., Maurya, D.M., Phartiyal, B., Arif, M., Khonde, N., Bhushan, R., **Jena, P.S**., Dabhi, A., Chamyal, L.S., 2023. Holocene evolution of the Banni Plain at the North-East margin of the Arabian Sea: constraints from a ca 50 m long sediment core. *The Depositional Record*. 0–3. https://doi.org/10.1002/dep2.241
8. **Jena, P.S**.*, Bhushan, R., Ajay, S., Sudheer, A., 2023. Spatial heterogeneity in beryllium isotopic distribution in the Indian Ocean. *Geochimica et Cosmochimica Acta*. https://doi.org/10.1016/J.GCA.2022.12.009

9. Sagwal, S., Sengupta, D., Kumar, A., Dutt, S., Srivastava, P., Agnihotri, R., Gahlaud, S., **Jena, P.S.,** Shivam, A., Bhushan, R., 2022. Late Holocene wildfire record from the Stagmo peat section, Leh valley, NW Himalaya. *The Holocene*. https://doi.org/10.1177/09596836231157066
10. Samal, P., Singarasubramanian, S. R., Srivastava, J., Kawsar, M., Manoj, M.C., Gurumurthy, G.P., Chauhan, M., Ali, S., Mahboob, A., Sharma, A., **Jena, P.S**., Shivam, A., Bhushan, R. 2023. A 2600 year -multi-proxy record for climate and vegetation reconstruction along the Mahanadi River delta, East coast of India. *The Holocene.* https://doi.org/10.1177/09596836231163492
11. Samal, P., Singarasubramanian, S. R., Srivastava, **Jena, P.S**., Shivam, A., Bhushan, R. 2023. Coastal vegetation dynamics in response to climatic and relative sea level changes in Mahanadi River delta, NE coast of India. *Palynology.* https://doi.org/10.1080/01916122.2022.2134937
12. Raj, H., Bhushan, R., Banerji, U.S., **Jena, P.S**., Dabhi, A.J., 2022. Seasonal variation of surface seawater radiocarbon in the Andaman Sea as recorded in coral. *Journal of Environmental Radioactivity*. 255, 107021. https://doi.org/10.1016/J.JENVRAD.2022.107021
13. **Jena, P.S**.*, Bhushan, R., Raj, H., Dabhi, A.J., Sharma, S., Shukla, A.D., Juyal, N., 2022. Relict proglacial lake of Spituk (Leh), northwest (NW) Himalaya: A repository of hydrological changes during Marine Isotopic Stage (MIS)-2. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 111164. https://doi.org/10.1016/j.palaeo.2022.111164
14. Phartiyal, B., Ali, S.N., Sharma, A., Agrawal, S., Nag, D., Tiwari, P., Kumar, M., Morthekai, P., Govil, P., Thakur, B., Bhushan, R., **Jena, P.S**., Shivam, A., 2022. Palaeoclimatic variability during last eight millennia from a morainal lake in Zanskar, northwest Himalaya. *Journal of Palaeosciences* 71, 75–88.
15. Patel, N., Trivedi, P., Agnihotri, R., Rai, N., Sathe, V., Khonde, N., Bhushan, R., **Jena, P.S.,** Shivam, A., Kumar, A., 2022. New chronology for megalithic burials in Vidarbha (central India): insights into contemporary hydro-climate and food habits. *Radiocarbon* 00, 1–17. https://doi.org/10.1017/RDC.2022.47
16. Bharti, N., Bhushan, R., Skinner, L., Muruganantham, M., **Jena, P.S.,** Dabhi, A., Shivam, A., 2022. Evidence of poorly ventilated deep Central Indian Ocean during the last glaciation. *Earth and Planetary Science Letters.* 582, 117438. https://doi.org/10.1016/J.EPSL.2022.117438
17. **Jena, P.S.,** Bhushan, R., Ajay, S., Bharti, N., Sudheer, A.K., 2022. ^{10}Be depositional flux variation in the central Indian Ocean during the last 43 ka. *Science of The Total Environment.* 149808. https://doi.org/10.1016/j.scitotenv.2021.149808
18. **Jena, P.S.,** Bhushan, R., Shivam, A., Nambiar, R., Bharti, N., 2021. Production rate variation and changes in sedimentation rate of marine core dated with meteoric ^{10}Be and ^{14}C. *Journal of Environmental Radioactivity.* 237, 106678. https://doi.org/10.1016/j.jenvrad.2021.106678.
19. Ali, S.N., Agrawal, S., Sharma, A., Phartiyal, B., Morthekai, P., Govil, P., Bhushan, R., Farooqui, S., **Jena, P.S.,** Shivam, A., 2020. Holocene hydroclimatic variability in the Zanskar Valley, Northwestern Himalaya, India. *Quaternary Research.* 1–17. https://doi.org/10.1017/qua.2020.22
20. Barik, S.S., Singh, R.K., **Jena, P.S.,** Tripathy, S., Sharma, K., Prusty, P., 2019. Spatio-temporal variations in ecosystem and CO2 sequestration in coastal lagoon: A foraminiferal perspective. *Marine Micropaleontology.* https://doi.org/10.1016/j.marmicro.2019.02.003

**Corresponding author*

Submitted/ Under Review Articles:

1. **Jena, P.S.,** Chiessi, C.M., Beese, I., Butzin, M., Dias, B.B., Campos, M.C., Lehmann, G., Mulitza, S. Centennial-scale overshoots in Atlantic Meridional Overturning Circulation during Heinrich Stadial 1. *Nature Communications.*
2. Mangattayil, D., Rastodi, N., Das, S.K., **Jena, P.S.,** Dabhi, A., Bhushan, R. Inter-annual variability in sources and characteristics of carbonaceous aerosols using dual-carbon isotopes over a megacity in eastern India. *Atmospheric Environment.*
3. Bharti, N., Bhushan, R., Muruganantham, M., Ajay, S., Gandhi, N., **Jena, P.S.** Late Quaternary variation in productivity and oxygen in the deep Central Indian Ocean based on benthic foraminiferal abundance and assemblages. *Ocean Science Journal*
4. Barik, S.S., Singh R.K., Rath, S., Bhushan, R., Farooq, S.H., **Jena, P.S.,** Dabhi, A.J., Jena, S.K. Indian Summer Monsoon variability during the Meghalayan Stage in the Mahanadi basin, India. *Quaternary International*

Conference Publications (international)

1. **Jena, P.S.,** Chiessi, C.M., Voigt, I., Mulitza, S., 2023. The Atlantic meridional overturning circulation during Heinrich Stadial 1. *AGU Fall meeting (OS43A-03)*.
2. **Jena, P.S.,** Bhushan, R., Ajay, S., Bharti, N., Sudheer, A.K., 2021. $^{10}Be/^{9}Be$ Ratio Variation in the Central Indian Ocean during the Last 43 ka; Implication to Past Geomagnetic Field Intensity Changes. *AGU Fall meeting (GP43A-05)*.
3. Bharti, N., Bhushan, R., Skinner, L., Muruganantham, M., **Jena, P.S.,** Dabhi, A., Shivam, A., 2021. First Radiocarbon Evidence of Poorly Ventilated Deep Central Indian Ocean during the Last Glaciation: Implication to Glacial Carbon Sequestration and Atmospheric CO_2. *AGU Fall meeting (OS21A-09).*
4. Ghosh, P., Banerjee, Y., Sarkar, A., Pathak, P., Bhushan, R., **Jena, P.S**., Sen, P.K., 2020. Similar magnitude of seasonal freshwater flux to the Bengal basin during late Holocene solar minima events revealed from the carbonate clumped isotope compositions of growth bands of fossil molluscs. *AGU Fall meeting (PP022-0010).*
5. Jena, S.K., Bhushan, R., Bharti, N., **Jena, P.S**., 2022. Paleo Thermocline Ventilation and Upper Ocean Water Mass Evolution of the Equatorial Indian Ocean during the Last 44ka. *AGU Fall meeting (PP15B-03)*

OTHER SCIENTIFIC AND ACADEMIC ACTIVITIES

Peer-Reviewer

- ⇨ I have contributed to reviewing articles for multiple journals i.e., ***Radiocarbon, Limnology and Oceanography: Methods, Geochimica et Cosmochimica Acta, Journal of Geophysical Research - Oceans*** *etc.*

Scientific Outreach

- ⇨ Volunteer at National Science Day (NSD) and open house organised at PRL, Ahmedabad: March

2018

- ⇨ Volunteer at Science Express organised at Ahmedabad, Gujarat: December 2018
- ⇨ Organising committee member (Frontiers in Geosciences Research Conference): Feb 2023

Teaching

- ⇨ Experienced in teaching at PRL, Ahmedabad (2018 to 2021; One class annually for first-year coursework)
  Title: Applications Cosmogenic Nuclides in Earth Science

HOBBIES AND EXTRACURRICULAR ACTIVITIES

- ⇨ I like to play badminton, cricket, and table tennis during my leisure time.
- ⇨ I love to spend time designing my personal website (www.parthasarathi.info) with the help of an online interface (Wix) and HTML programming.
- ⇨ In my spare time, I enjoy video editing and creating travel vlogs.

Declaration: I hereby declare that all the information provided here is correct to the best of my knowledge.

Date: 25-Feb-2025
Place: Sao Paulo, Brazil

(Partha Sarathi Jena)