

CURRICULUM VITAE

Name: Partha Sarathi Jena

Current Position

Postdoctoral Researcher,
School of Arts, Sciences and Humanities (EACH),
University of São Paulo, Brazil

Research Interests

1. Quaternary paleoclimate/ paleoceanography
2. Cosmogenic nuclides (^{14}C and ^{10}Be) applications
3. Isotope and trace element geochemistry



Contact Information

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EDUCATIONAL QUALIFICATION

Degree	Institute	Year of passing	Subjects
Postdoc	University of Sao Paulo, Brazil	On-going	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

- ⇒ Qualified **IIT-JAM**: All India Rank 58 (2015)
- ⇒ Awarded **DST-INSPIRE** Scholarship (2012-2017)
- ⇒ Qualified **GATE**: All India Rank 267 (2017)
- ⇒ Qualified **Joint CSIR-UGC NET-LS**: All India Rank-19 (Dec 2015)
- ⇒ Qualified **Joint CSIR-UGC NET-JRF**: All India Rank-16 (June 2016)
- ⇒ Qualified **Joint CSIR-UGC NET-JRF**: All India Rank-10 (Dec 2016)
- ⇒ Qualified **Joint CSIR-UGC NET-JRF**: All India Rank-103 (Dec 2017)
- ⇒ Qualified **IELTS**: Band-7 (2017)
- ⇒ **Gold Medalist** for being the topper of MSc in IIT Bhubaneswar
- ⇒ **Silver Medalist** for being the topper of MSc-Geology at IIT Bhubaneswar
- ⇒ Received **best project award (MSc)**

RESEARCH EXPERIENCE

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.

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.

Doctorate (July 2017-July 2022)

Topic: Applications of cosmogenic nuclides in understanding Quaternary events.

Supervisor: Prof. Ravi Bhushan, Physical Research Laboratory, Ahmedabad, India.

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.

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.

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
- ⇒ 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

CONFERENCES AND WORKSHOPS ATTENDED

Conferences

- ⇒ **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
- ⇒ **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:** 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:** $^{10}\text{Be}/^9\text{Be}$ 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:** Past geomagnetic field intensity reconstructed using authigenic $^{10}\text{Be}/^9\text{Be}$
 - Frontiers in Geoscience Research Conference (FGRC-23), PRL, Ahmedabad
 - Mode: Presentation (Offline/In-person) on 03 Feb 2023

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

Peer-reviewed journals:

1. **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*. (Under Review)
2. **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. *Mar. Chem.* 104275. <https://doi.org/10.1016/J.MARCHEM.2023.104275>
3. 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. *Depos. Rec.* 0–3. <https://doi.org/10.1002/dep2.241>
4. **Jena, P.S.***, Bhushan, R., Ajay, S., Sudheer, A., 2023. Spatial heterogeneity in beryllium isotopic distribution in the Indian Ocean. *Geochim. Cosmochim. Acta*. <https://doi.org/10.1016/J.GCA.2022.12.009>

5. 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>
6. 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>
7. Samal, P., Singarasubramanian, S. R., Srivastava, **Jena, P.S.**, Shivam, A., Bhushan, R. 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>
8. 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. *J. Environ. Radioact.* 255, 107021. <https://doi.org/10.1016/J.JENVRAD.2022.107021>
9. **Jena, P.S.***, Bhushan, R., Raj, H., Dabhi, A.J., Sharma, S., Shukla, A.D., Juyal, N., 2022. Relict proglacial lake of Spitik (Leh), northwest (NW) Himalaya: A repository of hydrological changes during Marine Isotopic Stage (MIS)-2. *Palaeogeogr. Palaeoclimatol. Palaeoecol.* 111164. <https://doi.org/10.1016/j.palaeo.2022.111164>
10. 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 Zaskar, northwest Himalaya. *J. Palaeosciences* 71, 75–88.
11. 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>
12. 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 Planet. Sci. Lett.* 582, 117438. <https://doi.org/10.1016/J.EPSL.2022.117438>
13. **Jena, P.S.**, Bhushan, R., Ajay, S., Bharti, N., Sudheer, A.K., 2022. ¹⁰Be depositional flux variation in the central Indian Ocean during the last 43 ka. *Sci. Total Environ.* 149808. <https://doi.org/10.1016/j.scitotenv.2021.149808>
14. **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 ¹⁰Be and ¹⁴C. *J. Environ. Radioact.* 237, 106678. <https://doi.org/10.1016/j.jenvrad.2021.106678>.
15. 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 Zaskar Valley, Northwestern Himalaya, India. *Quat. Res.* 1–17. <https://doi.org/10.1017/qua.2020.22>
16. 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. *Mar. Micropaleontol.* <https://doi.org/10.1016/j.marmicro.2019.02.003>

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Conference Publications (international)

1. **Jena, P.S.**, Bhushan, R., Ajay, S., Bharti, N., Sudheer, A.K., 2021. $^{10}\text{Be}/^9\text{Be}$ Ratio Variation in the Central Indian Ocean during the Last 43 ka; Implication to Past Geomagnetic Field Intensity Changes. *AGU Fall meeting (GP43A-05)*.
2. Bharti, N., Bhushan, R., Skinner, L., Muruganatham, 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)*.
3. 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)*.
4. 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*

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
- ⇒ Organiser (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.

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

Date: 07-Sept-2023

Place: Sao Paulo, Brazil

A handwritten signature in blue ink, appearing to read 'Psjena', with a long horizontal line extending to the right.

(Partha Sarathi Jena)