# Dr. GIRI YELLALACHERUVU, PhD

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## PROFILE

- Highly motivated Ph.D. graduate with demonstrated research experience in geophysical data analysis a interpretation.
- Worked on regional-scale geophysical datasets for geological interpretation.
- Specialist in gravity, magnetic, and GPS data acquisition, processing, and interpretation.
- Experience in 2-D/3-D geophysical modeling approaches for the generation of subsurface models
- Expert in Geosoft/Oasis Montaj, Generic Mapping Tools (GMT), ArcGIS, and G-Plates.
- Good computational and programming knowledge.

## EDUCATION

*SEP 2022 – OCT 2022*

Indian Institute of Technology Bombay, Mumbai, India – **Postdoctoral Fellow**

*July 2016 – July 2022*

**Doctor of Philosophy – Specialization in Geophysics** IITB-Monash Research Academy, IIT Bombay Mumbai
(Dual Ph.D. degree by IIT Bombay, India & Monash University, Australia)

*July 2012 – May 2015*
**MSc (Tech) Geophysics – First class with Distinction**
Andhra University, Visakhapatnam, India.

*July 2009 – May 2012*
**BSc (Mathematics, Physics, Chemistry) - First class with Distinction**
Acharya Nagarjuna University, Guntur, India.

## ACADEMIC ACHIEVEMENTS

- **Student Travel Grant Winner**-AGU Fall Meeting 2019.
- **Qualified GATE** Exam during 2015,2016,2017, and 2018.
- **Second rank** in MSc (Tech) in the class out of 36 students.
- **College Topper** in the Intermediate (12$^{th}$ Std) amongst 200 students.
- **Second rank** in SSC (class 10$^{th}$) amongst 107 students.

## RESEARCH EXPERIENCE

**Currently, 12 master's students and 3 MTech students are pursuing their dissertation work with me on various topics, such as Geophysical signatures over mineralized zones and satellite gravity for groundwater exploration.**

*SEP 2022 – OCT 2022*

Indian Institute of Technology Bombay, Mumbai, India – **Postdoctoral Fellow**

*Dec 2021 – Jun 2022*
Indian Institute of Technology Bombay, Mumbai, India **- Research Associate**

**Project Title:** Proterozoic geological correlations between the Eastern Ghats Mobile Belt and East Antarctica from regional scale aeromagnetic data analysis.

*July 2016 – Dec 2021*
IIT Bombay - Monash Research Academy - **Research Scholar**

**Thesis Title:** Geophysical signatures of craton-mobile belt interactions: determining the Neoproterozoic link between the Eastern Ghats Mobile Belt and East Antarctica.

In the current study, the regional scale gravity and aeromagnetic datasets were used to interpret the crustal architecture of the Eastern Ghats Mobile Belt and to identify the various boundaries and structural trends. The aero geophysical maps over East Antarctica were also analyzed to see the subsurface geological boundaries and major lineaments in this area. Using the integrated analysis of the gravity and magnetic data along with the compiled geochronology and geological data, I present a geological interpretation with the revised boundaries and new structural features for both areas, which further correlated to reconstructing these terranes. A geologically plausible model is proposed to explain the observed geometry in the reconstructions.

*October 2015 – June 2016*
Indian Institute of Technology Bombay, Mumbai, India- **Project Research Assistant**

**Project Title:** Delineation of crustal structure and onshore-offshore tectonic linkages along the central-eastern continental margin of India (ECMI).

## MSc DISSERTATION

*June 2014 – July 2014*

**Project Title**: Geological and Geotechnical Interpretation of Geophysical Logs – An example from Mandamarri Longwall Block, Godavari Valley, Telangana.

**Company**: The Singareni Collieries Company Limited (SCCL), Telangana.

## TEACHING EXPERIENCE

**Visiting Assistant Professor**

*Nov 2022 – present (Department of Applied Geophysics, IIT ISM Dhanbad)*

*Courses teaching:* WS 2022-23, &2023-24: GPC 520 Magnetics Methods, GPO 511 Satellite Image Processing, and GIS, GPC 207 Radiometric Methods

MS 2023-24: GPC 501 Solid Earth Geophysics, GPD 503 Image processing and GIS

Winter Geophysical Field Training (GPS501) (2022, 2023 and 2024)

**Teaching Assistant**

*Jan 2017 – November 2018 & February 2020 – August 2022 (at IIT Bombay)*

- Assisting in G&M Lab Practical (Geophysical computations, fieldwork, and programming) for MSc Applied Geophysics students
- Helping MSc final year dissertation students in geophysical data interpretation
- Evaluating assignments and presentations for MTech (Geo-Exploration) students

*March 2019 - November 2019(at Monash University)*

- Assisted in G&M Lab Assignments and evaluation of assignments for the final year undergraduate course Applied Geophysics.

# PUBLICATIONS

## Dr. Giri Yellalacheruvu

### Journal Papers

- **Y, Giri**., M, Radhakrishna., Betts, P.G., Biswal, T.K. and Armit, R.J., Evidence of a Proterozoic suture along the southern part of Eastern Ghats Mobile Belt based on Geophysical data: Implications for the Nuna supercontinent. *J Earth Syst Sci* **133**, 187 (2024) https://doi.org/10.1007/s12040-024-02396-y
- **Y, Giri**., Betts, P.G., M, Radhakrishna., Mclean M, Biswal, T.K., Armit, R.J (2023). A Geophysical constrained terrane map of East Antarctica between Enderby Land and Princess Elizabeth Land. *Australian Journal of Earth Sciences*, *70*(3), 303–322. https://doi.org/10.1080/08120099.2023.2169957
- **Y, Giri**., M, Radhakrishna., Betts, P.G., Biswal, T.K. and Armit, R.J, Sumanta Kumar Sathapathy, Crustal architecture of the Eastern Ghats Mobile Belt and Tectonic Implications: Constraints from Aeromagnetic, Gravity and Geological Data, Volume 835, 2022, Tectonophysics. https://doi.org/10.1016/j.tecto.2022.229386
- Sathapathy, S.K., **Y, Giri**. & Radhakrishna, M. Evidence of lithosphere erosion in the Eastern Indian shield from multi-scale potential field modelling: geodynamic implications. Int J Earth Sci (Geol Rundsch) (2024). https://doi.org/10.1007/s00531-024-02416-8
- P.U, Naveen., Sumanta Kumar Sathapathy, **Y, Giri**, Singh A.P, M, Radhakrishna. Structure and Tectonics of the Central part of Narmada-Son Lineament based on the Interpretation of Aeromagnetic and Gravity Data. Journal of Asian Earth Sciences, https://doi.org/10.1016/j.jseaes.2023.105765.
- Sumanta Kumar Sathapathy, Munukutla Radhakrishna, Tapas Kumar Biswal, **Y, Giri**. Structure and geodynamic evolution of the lithosphere below Northwest Indian Shield: Constraints from geological, geochronological and multi-scale potential field modelling, Precambrian Research, Volume 397, 2023 https://doi.org/10.1016/j.precamres.2023.107173.
- **Y, Giri**., Betts, P.G., M, Radhakrishna., Biswal, T.K., Armit, R.J. Mclean M, Indo-Antarctic correlations during the Proterozoic supercontinent cycles: New insights from aeromagnetic interpretations. (Manuscript under preparation)
- **Y, Giri**., M, Radhakrishna., Betts, P.G., Biswal, T.K. and Armit, R.J., Sumanta Kumar Sathapathy. Is the Nagavali-Vamsadhara shear zone a crustal-scale boundary? An appraisal from potential field geophysical data interpretations. (Manuscript under preparation)

### Conference Proceedings

- Tanmay Singh and **Y, Giri,** Subsurface Structure of Mahanadi Rift Basin by Using Geophysical Data: Implications on Onshore-Offshore Tectonic Linkage. AGUFM, 2024, Abstract ID: 1546798 (output of an MSc (Tech) student thesis work)
- **Y, Giri,** Southern Eastern Ghats Mobile Belt-A Geophysical perspective in the context of supercontinental reconstructions. ETES 2024, IIT (ISM) Dhanbad. (Oral Presentation)
- Sathapathy, S.K., Radhakrishna, M. and **Giri, Y.**, 2024. Multi-scale Potential Field

Modelling to Delineate the Lithosphere Structure below the Eastern Indian Shield and its Tectonic Implications (No. EGU24-17947). Copernicus Meetings.

- **Y, Giri**., M, Radhakrishna., Betts, P.G., Biswal, T.K., Armit, R.J and. McLean M, A geophysically constrained crustal element map of East Antarctica between Enderby Land and Princess Elizabeth Land: Implications towards Proterozoic supercontinent amalgamations. National Conference on Polar Sciences at NCPOR Goa. 2023 NCPS2023/166. (Invited Oral Presentation)
- **Y, Giri**., Munukutla, R., Betts, P.G., Biswal, T.K., Armit, R. and Sathapathy, S.K., 2022, December. The crustal architecture of the Eastern Ghats Mobile Belt: Implications on the position of India during the Proterozoic supercontinental cycles. In *AGU Fall Meeting Abstracts* (Vol. 2022, pp. T22A-13). (International Conference)
- Sathapathy, S.K., **Y, Giri.** and Munukutla, R., 2022, December. Crustal structure below Northwest Indian Shield through constrained potential field modeling: geodynamic implications. In *AGU Fall Meeting Abstracts* (Vol. 2022, pp. T26A-03).
- Munukutla, R., **Y, Giri.** and Betts, P.G., 2022, December. a Paleo Suture at the Southern EGMB Revisited by Using the Potential Field Geophysical Data: Implications on the Proterozoic Supercontinent Amalgamations. In *AGU Fall Meeting Abstracts* (Vol. 2022, pp. T22A-06).
- **Y, Giri**., M, Radhakrishna., Betts, P.G., Biswal, T.K. and Armit, R.J., 2021. Geological structures in East Antarctica identified from geophysical potential field data analysis and their correlations with structures of EGMB, India: Implications on the supercontinent Rodinia formation and breakup. IAGA -IASPEI Joint Assembly 2021. (International Conference)
- **Y, Giri**., M, Radhakrishna., Betts, P.G., Biswal, T.K. and Armit, R.J., 2019. India's position in supercontinent Rodinia: constraints from geophysical potential field data interpretations. AGUFM, 2019, pp. T43I-0540. (International Conference)

**Thesis Publications**

- **Y, Giri, 2022, Ph.D. Thesis,** Geophysical signatures of craton-mobile belt interactions: determining the Neoproterozoic link between the Eastern Ghats Mobile Belt and East Antarctica, http://dx.doi.org/https://doi.org/10.26180/20155094.v1

## REFEREES

Prof. M. Radhakrishna, Department of Earth Sciences, Indian Institute of Technology Bombay, Mumbai, India. Email: mradhakrishna@iitb.ac.in

Prof. Peter Betts, School of Earth, Atmosphere& Environment, Monash University, Melbourne, Australia. Email: Peter.Betts@monash.edu

Prof. P. Rajendra Prasad, Emeritus Professor, Sir Arthur cotton Chair Professor, Department of Geophysics, Andhra University, Visakhapatnam, India. Email: rpatury@yahoo.com