

Dr. GIRI YELLALACHERUVU, PhD

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PROFILE

- Highly motivated Ph.D. graduate with demonstrated research experience in geophysical data analysis and 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 (12th Std) amongst 200 students.
- **Second rank** in SSC (class 10th) amongst 107 students.

RESEARCH EXPERIENCE

Currently, 12 master's students and 1 M.Tech student are pursuing their dissertation work with me on various topics like Geophysical signatures over mineralized zones and satellite gravity for groundwater exploration, etc.,

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

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

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, Sumanta Kumar Sathapathy, Crustal architecture of the Eastern Ghats Mobile Belt and Tectonic Implications: Constraints from Aeromagnetic, Gravity and Geological Data, 2022, Tectonophysics, <https://doi.org/10.1016/j.tecto.2022.229386>
- **Y, Giri.**, Betts, P.G., M, Radhakrishna., Mclean M, Biswal, T.K., Armit, R.J. A Geophysical constrained terrane map of East Antarctica between Enderby Land and Princess Elizabeth Land. Australian Journal of Earth Sciences, <https://doi.org/10.1080/08120099.2023.2169957>
- 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>.
- 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>
- **Y, Giri.**, M, Radhakrishna., Betts, P.G., Biswal, T.K. and Armit, R.J., A Proterozoic collisional suture at southern Eastern Ghats Mobile Belt: Revisited by a geophysical perspective in the context of the supercontinent Nuna (Under Review)
- **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

- **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)
- **Y, Giri.**, M, Radhakrishna., Betts, P.G., Biswal, T.K. and Armit, R.J., 2021. Geological structures in East Antarctica identified from analysis of geophysical potential field data and their correlations with structures of EGMB, India: Implications on the supercontinent Rodinia formation and breakup. IAGA -IASPEI Joint Assembly 2021. (International Conference)

- Sathapathy, S.K., **Y, Giri.** and Munukutla, R., 2022, December. Crustal structure below Northwest Indian Shield through constrained potential field modelling: geodynamic implications. In *AGU Fall Meeting Abstracts* (Vol. 2022, pp. T26A-03).
- **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 position of India during the Proterozoic supercontinental cycles. In *AGU Fall Meeting Abstracts* (Vol. 2022, pp. T22A-13).
- 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).

Thesis Publications

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