Dr. A. V. SATYA KUMAR

Scientist-C | Assistant Professor (AcSIR)
CSIR–National Geophysical Research Institute,
Hyderabad, India

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PROFILE SUMMARY

Scientist and Assistant Professor with a Ph.D. in Geophysics. Research expertise includes paleomagnetism, rock magnetism, anisotropy of magnetic susceptibility, magnetostratigraphy, gravity and magnetic methods, remote sensing, and planetary geophysics. Experienced in integrating field, laboratory, satellite, and geophysical datasets to study Earth and planetary processes.

RESEARCH AREAS

- Paleomagnetism and rock magnetism
- Anisotropy of magnetic susceptibility
- Magnetostratigraphy and geomagnetism
- Gravity, magnetic and topographic analysis
- Remote sensing and InSAR
- Planetary geology and lunar geophysics
- Tectonics, magmatism and geodynamics
- Paleoclimate and geomorphology

LANGUAGES

- English: Professional proficiency
- Telugu: Native language
- Hindi: Working proficiency

TECHNICAL SKILLS

- MATLAB; Python; Fortran
- QGIS; ArcGIS
- Geosoft/Oasis montaj
- Surfer; Grapher
- CorelDRAW; Inkscape
- Adobe Photoshop
- Windows; Linux; Ubuntu

RESEARCH PROFILES

ACADEMIC AND RESEARCH EXPERIENCE

Scientist Nov 2022 — Present
CSIR–NGRI, Hyderabad

- Paleomagnetic, rock-magnetic and AMS investigations for Earth and planetary case studies.
- Gravity, remote-sensing and planetary-geology data analysis.

Project Scientist Oct 2021 — Nov 2022
CSIR–NGRI, Hyderabad

- Satellite gravity and InSAR analysis for tectonic studies; paleomagnetic, rock-magnetic and AMS investigations.

Visiting Research Fellow Apr 2021 — Oct 2021
Shanghai Astronomical Observatory, China

- Investigated crustal and lithospheric structure of the South China Sea using satellite gravity data, with implications for rifting and magmatic activity.

Senior Research Fellow Apr 2019 — Apr 2021
CSIR–NGRI, Hyderabad

- Analysed satellite and in-situ gravity, topography, and remote-sensing data for geophysical and geological applications.

Project Assistant III Sep 2015 — Apr 2019
CSIR–NGRI, Hyderabad

- Analysed ground and satellite gravity data for geophysical and geological applications.

Project Assistant II Oct 2014 — Sep 2015
CSIR–NGRI, Hyderabad

- Analysed satellite gravity data for geophysical and geological applications on the Moon.

EDUCATION

Doctor of Philosophy (Ph.D.) in Geophysics Aug

ORCID: http://orcid.org/0000-0002-7893-3199

Google Scholar: https://scholar.google.co.in/citations?hl=en&user=hDUZZpwAAAAJ

ResearchGate: https://www.researchgate.net/profile/Av_Satyakumar

Web of Science ResearcherID: AAV-5572-2020

2016 — Apr 2021
CSIR–NGRI and Andhra University, India

- Thesis: Deep Subsurface Structure of Lunar Basins from GRAIL Gravity Data.

M.Sc. (Tech.) in Geophysics Jul 2011 — Apr 2014
Andhra University, Visakhapatnam

- CGPA: 9.01/10. Thesis work included well logging, regional gravity and magnetic mapping, and marine geophysical surveys.

B.Sc. (M.P.C.) Jul 2008 — Apr 2011
Andhra University, Visakhapatnam

- Percentage: 70.1%

Intermediate and SSC (M.P.C.) 2005 — 2008
Board of Intermediate Education / Board of Secondary Education, Andhra Pradesh

- Intermediate: 74.3%; SSC: 68.3%.

RESEARCH PROJECTS

Paleomagnetic, Rock-Magnetic and Paleointensity Investigations of Rift-Related Mafic Suites of the Panjal Traps Jul 2024 — Jul 2026
Studies the genesis of Late Palaeozoic mafic continental flood basalts, pre-India–Eurasia collision tectonics, and the geodynamic evolution of the early Panjal Traps.

Magnetostratigraphic Investigations of Paleolakes in the Ladakh Himalaya Jul 2023 — Jul 2025
Examines paleolake magnetostratigraphy, Asian climate change, and correlations with extraterrestrial analogues.

AMS and Rock-Magnetic Investigations in the Ladakh Himalaya Jul 2023 — Jul 2025
Constrains magma-flow directions, Ladakh Batholith emplacement history, paleopole position, and paleoreconstruction of crustal blocks.

Crustal and Lithospheric Structure of the South China Sea from Satellite Gravity Data Apr 2021 — Oct 2021
Investigated isostatic compensation, rifting, crustal and lithospheric density structure, and basin formation.

Geological Structures in Abandoned Coal Mines at Talcher and the Himalayan Foothills Nov 2017 — Mar 2021
Integrated geomorphic, spectral, gravity, topographic, SAR, and Landsat data to map structures, subsurface boundaries, and hazard-related features.

Lunar Crustal Thickness from Gravity and Topography Nov 2014 — Apr 2017
Used SELENE/GRAIL gravity models and topography to investigate lunar crustal thickness, basin structure, isostasy, and evolution.

AWARDS AND FELLOWSHIPS

- Youngest Scientific Research Developer of the Decade Award (Rural Development), 2023 — ITAP and Raja Ratna Health Care and Educational Trust, Hyderabad.
- Post-doctoral Fellowship, Henan University of Technology, China, 2022 — Martian crustal structure and gravity/topography inversion.
- Young Scientist Award and Fellowship, 2021 — Telangana Academy of Sciences, Earth, Ocean, Atmospheric, and Environmental Sciences.
- CLSE Science Summer Internship, 2019 — Lunar and Planetary Institute and Johnson Space Center, NASA, Houston.
- CSIR–Senior Research Fellowship, 2019 — Council of Scientific and Industrial Research, India.
- Pratibha Award, 2014 — Government of Andhra Pradesh, for topping M.Sc. (Tech.) Geophysics.
- SEG Travel Grant Award, 2013 — SEG Annual Convention and International Conference and Exhibition.

TECHNICAL REPORTS

- Tiwari, V.M., Niraj Kumar, **Satyakumar, A.V., 2018**. Lunar Crustal thickness determination using gravity anomaly and topography datasets. Technical report no: NGRI-2018-EXP-954.
- **Satyakumar, A.V**., Barrett, N., Boazman, S.J., Gawronska, A.J., Gilmour, C.M., Halim, S.H., Harish, McCanaan, K., Shah, J., **2019**. Geological assessment of Shackleton crater: potential sampling targets for EVA. Grant number: NNA14AB07A and 80NSSC20M0016 (NASA Solar System Exploration Research Virtual Institute contracts)
- Singh, A.P., Pandey, A.K., Tiwari, V.M., **Satyakumar, A.V., 2022**. Mapping Geological structures in abandoned coal mines at Talcher in Mahanadi basin and Foothills of Himalaya using Gravity and Airborne InSAR datasets. Technical report no: NGRI-2022-GEO-1009.

COLLABORATIONS

National

Within NGRI	**Outside NGRI**
Present	***Present***
1. Dr. Arun Kumar Ojha	1. Dr. Amar Agarwal -IIT Kanpur
2. Dr. Barnita Banerjee	2. Dr. Akhtar R. Mir –University of Kashmir
3. Dr. Monalisa Mallick	3. Dr. Firoj Kadar Badesab- CSIR-NIO
	4. Prof. S.J. Sangode- Pune University
Past	5. Dr. Vamadev Pathak-CUP, Panjab
1. Prof. Virendra M. Tiwari	6 .Dr. Souroudeep Chatterjee, MIT-Karnataka
2. Dr. M. Venkateshwarlu	
3. Dr. A.P. Singh	***Past***
4. Dr. A.K. Pandey	1. Dr. R.P. Rajasekhar -SAC, ISRO
5. Dr. Niraj Kumar	2. Dr. S. Bangaru Babu-GSI, Hyderabad
6. Dr. Muppidi Ravi Kumar	3. Dr. Prakash Chauhan, NRSC, Hyderabad
7. Dr. A. Vasanthi	4. Prof. P. Rama Rao, AU, Visakhapatnam

International

Present

1. Prof. Satria Bijaksana-ITB, Indonesia

2. Prof. Joseph Meert- University of Florida
3. Dr. P.B. Suryanata- ITB, Indonesia

Past

1. Dr. David Kring- Lunar and Planetary Institute, USA
2. Dr. Shreekumari Patel- Khalifa University
3. Dr. ShuanggenJin- Henan Polytechnic University, China

STUDENTS (PhD/Project)

Present

Mr. Parandhaman R- JRF (Joined AcSIR-2026 Jan Batch)

Past

Mr. Jangidi Ashok- Project Associate-1
Mr. Yogesh Throat- SRF (Presently Assistant Geologist, GSDA, Government of Maharashtra)

MASTER STUDENTS SUPERVISION

Year	Name	University/Institution	Title
S-2023	Deepak, B.B	Cochin University of Science and Technology, Kochi, Kerala	Geological and Geophysical characteristics of Aitken crater on the Lunar Farside: implications for volcanic and tectonic activities
W-2023	Malla Ramesh	Andhra University, Visakhapatnam	Paleomagnetic study of Bhonigir and Narapally dykes
M-2024	Shivangi Gaur	School of Earth Sciences, Banasthali Vidyapith, Rajasthan	Delineating structural and tectonic features in Rajasthan, NW Indian Shield using Remote sensing and Gravity data
S-2024	Antara Mrinal	University of Petroleum and Energy Studies, Dehradun	Rock magnetism and Remote sensing study of Deccan Basalts at Anantagiri Hills, Telangana
M-2026	Gowri Nandana M S	Cochin University of Science and Technology, Kochi, Kerala	On the emplacement history of Hyderabad Granite Batholith from Anisotropy of Magnetic Susceptibility (AMS) and Magnetic Mineralogy
S-2026	Bandi Sumanth	Osmania University, Hyderabad	Rock and Mineral magnetic study of the rocks in Tamil Nadu and Kerala, Southern Granulite Terrain, India
M-2026	Kavya N	Manipal Institute of Technology (MIT), Karnataka	Deciphering the Link Between Tectonic Shearing and Hydrothermal Mineralization: Integrated Paleomagnetism, AMS and Rock Magnetic Evidence from Amangal Sheared Granites, Eastern Dharwar Craton, India

PUBLICATIONS

SCI : **25** Non-SCI : **0** Technical Reports : **03**

As on 15/09/2026

Total Impact Factor :**68.4** Total citations :**292**
h-index :**08** i10index :**07**

Published

2026

25. Samanta, V., Banerjee, B., Mallick, M., **Satyakumar, A.V**., Tiwari, M., Venkateshwarlu, M., Kumar, P., Kar, N.R., Babu, E.V.S.S.K., Vijay Kumar, T., Balu, G., 2026. The Holocene Northeast Monsoon Enigma: Multi-Proxy Reconstruction from Pulicat Lagoon Sediments. **Quaternary Science Reviews (Accepted)**. **IF: 3.3**

24. **Satyakumar, A.V***., Gaur, S., Ashok, J., **2026**. Mapping structural and lithological features in the Aravalli-Delhi Fold Belt, NW India using integration of Remote sensing (Landsat-8, DEM, SAR) and Gravity data. **Advances in Space Research, 78(3), 2400-2425.** https://doi.org/10.1016/j.asr.2026.05.065**. IF: 2.8**

23. **Satyakumar, A.V.,** Venkateshwarlu, M., **2026**. Ladakh Batholith emplacement mechanism based on analysis of Magnetic fabric and mineralogy. **Physics of the Earth and Planetary Interiors, 371, 107500.** https://doi.org/10.1016/j.pepi.2026.107500**. IF: 1.9.**

22. Badesab, F., Nitin Kadam, N., Pednekar, P., Shaheen, S., Sagavekar, O., Gullapalli, S., Venkateshwarlu, M., Kumar, T.V., **Satyakumar, A.V**., Mohan, K., Gaikwad, V., Sangode, S.J., Waghmare, S., Varma, A., Babu, E.V.S.S.K., Raikar, S., **2026**. Magnetic Mineralogical Approach for Tracing Source-to-Sink Processes in a Tropical Fluvial, Estuarine, and Marine System. **Continental Shelf Research, 298, 105630.** https://doi.org/10.1016/j.csr.2025.105630. **IF: 2.2.**

21. Harlianti, U., Bijaksana, S., Iskandar, I., Lubis, R.F., Venkateshwarlu, M., **Satyakumar, A.V**., Suryanata, P.B., Fajar, S.J., Suandayani, N.K.T., Ibrahim, K., **2026**. Magnetic properties of surface sediment in a closed alkaline volcanic lake: A case study from Lake Batur, Bali, Indonesia. **International Journal of Sediment Research, 41,** https://doi.org/10.1016/j.ijsrc.2025.11.004. **IF: 3.5.**

2025

20. **Satyakumar**, **A.V***., Mrinal, A., Ojha, A.K., Ashok, J., Venkateshwarlu, M., **2025**. Effect of local topography/structure on magma flow direction: A view from Ananthagiri Hills from Deccan Basalts, India. **Journal of Volcanology and Geothermal Research, 466, 108408,**https://doi.org/10.1016/j.jvolgeores.2025.108408**. IF: 2.3**

19. **Satyakumar, A.V.,** Patel, S**.**, Patel, D.D.,**2025.** Volcanic processes within the Petavius Crater, nearside of the Moon. **Scientific Reports-Nature**, **15, 10176,**https://doi.org/10.1038/s41598-025-95132-5.**IF: 3.8**

18. **Satyakumar, A.V*.,** Venkateshwarlu, M., Phukon, P., **2025.** Anisotropy of Magnetic Susceptibility reveals the magma flow direction and emplacement history of Malani Rhyolites, Northwest India. **Journal of Asian Earth Sciences, 286, 106573,** https://doi.org/10.1016/j.jseaes.2025.106573**.IF: 2.7**

17. Matondang, F., Bijaksana, S., Harlianti, U., Suandayani, N.K.T., Noya, Y., Suryanata, P.B., Ibrahim, K., Widagdo, T.A.M., Venkateshwarlu, M., **Satyakumar, A.V., 2025**. Rock Magnetism and Geochemistry Analyses of Surface Sediments at Maar Lake: Study Case at RanuKlakah, East Java, Indonesia. **Rudarsko-geološko-naftnizbornik**, **40 (4), 75, IF: 1.3**

2024

16. **Satyakumar, A.V*.,** Patel, S., **2024**. Morphological and Chronological mapping of Petavius crater, nearside of the Moon. **Advances in Space Research, 74 (11), 6124-6143,**https://doi.org/10.1016/j.asr.2024.08.074, **IF: 2.8**

15. **Satyakumar, A.V*.,** Deepak, B.B., **2024.** Volcanic eruptions and tectonic activity of Aitken crater: implications for SPA and farside volcanism of the Moon. **Journal of Indian Society of Remote Sensing, 53, 39-58,**https://doi.org/10.1007/s12524-024-01979-y. **IF: 2.2**
14. Venkateshwarlu, M* and **Satyakumar, A.V.**, **2024**. Paleomagnetism of mafic dykes in South Rewa Basin, India: constraints to extension of Deccan volcanism. **Geosystems and Geoenvironment, 3(3), 100292,** https://doi.org/10.1016/j.geogeo.2024.100292, **IF: 3.1**
13. Venkateshwarlu, M., **Satyakumar, A.V**., Ramesh Babu, N., Singh, A.K., **2024**. Magnetic Polarity Stratigraphy of Quaternary sediments from Ramganga paleolake, NW Himalaya, India and its paleoenvironmental implications, **Quaternary Science Advances, 14, 100196,**https://doi.org/10.1016/j.qsa.2024.100196.**IF: 4.5**

2023

12. **Satyakumar, A.V*.**, Jin, S., Tiwari, V.M., Xuan, S., **2023**. Crustal structure and isostatic compensation beneath South China Sea using Satellite Gravity data and its implications for the rifting and magmatic activities. **Physics of the Earth and Planetary Interiors**, 344, 107107, https://doi.org/10.1016/j.pepi.2023.107107, **IF:2.3**
11. Patel, S., **Satyakumar, A.V***., El-marry, M.R., Solanki, P., **2023**. Compositional variations in Ohm ray crater on the farside of the Moon: implications for mafic anomaly. **Planetary and Space Science, 229, 105674,** https://doi.org/10.1016/j.pss.2023.105674**. IF: 2.4**
10. Venkateshwarlu, M., Ramesh Babu, N., M. R. Kapawar, Bahadur Singh Kotlia, Anoop Kumar Singh, **Satyakumar, A.V**., **2023**. Magnetostratigraphy of paleolake sequence from Kumaun Lesser Himalaya (India): Implications on young geomagnetic excursions. **Geological Journal,58 (3), 1-12,** https://doi.org/10.1002/gj.4682**. IF: 2.128**
9. Venkateshwarlu, M., Ramesh Babu, N.,**Satyakumar, A.V., 2023.** Rock magnetism and Anisotropy of magnetic susceptibility studies on charnockites, southern India. **Acta Geophysica, 71 (2), 613-624,** https://doi.org/10.1007/s11600-022-00991-5**. IF: 2.3**
8. Bangaru Babu, S.,**Satyakumar, A.V*.,** Ajay Vinayak Kulkarni, ParijatKishan Vats., **2023.** Structurally controlled mineralization in parts of Aravalli Fold Belt, Rajasthan, India: Constraints from land Gravity and Magnetic data. **Journal of Geodynamics, 155, 101954,** https://doi.org/10.1016/j.jog.2022.101954. **IF: 2.673**

2022

7. Boazman, S.J., Shah, J., Harish, Gawronska, A.J., Halim, S.H., **Satyakumar, A.V**.,Gilmour, C.M., Bickel, V.T., Barrett, N., Kring. D.A., **2022**. The distribution and accessibility of geologic targets near the lunar south pole and candidate Artemis landing sites. **The Planetary Science Journal, 3 (12), 275,** https://doi.org/10.3847/PSJ/aca590. **IF: 2.99.**
6. **Satyakumar, A.V*.**, Pandey, A.K., Singh, A.P., Tiwari, V.M., **2022**.Delineation of structural and tectonic features in the Mahanadi basin, eastern India: New insights from remote sensing and land gravity data. **Journal of Asian Earth Sciences,** 227, 105116.https://doi.org/10.1016/j.jseaes.2022.105116. **IF: 3.374**.

2021

5. Vasanthi, A., Singh, A.P., Niraj Kumar, Nageswara Rao, B., **Satyakumar**, A.V., Santosh, M., **2021**. Crust-mantle structure and lithospheric destruction of the oldest craton in the Indian shield. **Precambrian Research**, 362, 106280. https://doi.org/10.1016/j.precamres.2021.106280. **IF: 4.261**.
4. Halim, S.H., Barrett, N., Boazman, S., Gawronska, A.J., Gilmour, C.M., Harish, McCanaan, K., **Satyakumar, A.V.**., Shah, J., Kring, D.A., **2021**. Numerical modeling of the formation of Shackleton Crater at the lunar south pole. **Icarus**, 351, 113992,https://doi.org/10.1016/j.icarus.2020.113992.**IF: 3.657.**

2020

3. Ravikumar, M, Singh, B, Pavankumar, V, **Satyakumar, A.V**., Ramesh, D.S., Tiwari, V.M., **2020**. Lithospheric density structure and Effective Elastic Thickness beneath Himalaya and Tibetan plateau: Inference from the integrated analysis of Gravity, Geoid, and Topographic data incorporating seismic constraints. **Tectonics**, 39, e2020TC006219. https://doi.org/10.1029/2020TC006219. **IF: 5.26.**
2. Gawronska, A.J., Barrett, N., Boazman, S., Gilmour, C.M., Halim, S.H., Harish, McCanaan, K., **Satyakumar, A.V**., Shah, J., Kring, D.A., **2020**. Geological Context and Potential EVA Targets at the Lunar South Pole. **Advances in Space Research,** 66 (6), 1247-1264. https://doi.org/10.1016/j.asr.2020.05.035. **IF: 2.611**

2018

1. Satyakumar**, A.V., Rajasekhar, R.P., Tiwari, V.M.,** 2018**. Gravity anomalies and crustal structure of the lunar farside highlands.** Planetary and Space Science**, 163, 106-113. https://doi.org/10.1016/j.pss.2018.04.009.** IF: 2.4

Under Review

1. Thorat, Y., **Satyakumar, A.V**., Venkateshwarlu, M., 2026. New Paleomagnetic results of 2205-2208 Ma mafic dykes from Dharwar craton: latest clues for the Paleogeographic position of Peninsular India. **Precambrian Research** (**Under review**), **IF: 3.2**
2. Sarianna, F.N*****., Bijaksana, S., Suryanata, P.B., Harlianti, U., Widagdo, T.A.M., Ibrahim, K., Daryono, M.R., Venkateshwarlu, M., **Satyakumar, A.V***., **2026**. Analysis of the Effect of Strain on Igneous Rock Samples in Cimeta Section, Lembang Fault, West Java, Indonesia Using AMS (Anisotropy of Magnetic Susceptibility) and Petrographic Data. **Studia Geophysica et Geodaetica** (**Under Review), IF: 1.0.**
3. Mariyanto, M., Suryanata, P.B., Ibrahim, K., Ihsan, M., Widagdo, T.A.M., Harlianti, U., Ariyanti, N., Pratama, A., **Satyakumar, A.V.,** Venkateshwarlu, M., Abdurrachman, M., Andri Dian Nugraha, A.D., Bijaksana, S., **2026**. Petromagnetic and geochemical studies of historic lavas from Lamongan volcano, East Java, Indonesia. **Vietnam Journal of Earth Sciences** (**Under Review), IF: 2.5.**
4. **Satyakumar**, **A.V.,** Rajasekhar, R.P., Tiwari, V.M*., **2026**. Mafic crustal intrusion under Dewar Lunar Geochemical Anomaly. **Planetary and Space Science (Under Review). IF: 1.9**
5. Pandey, A.K., **Satyakumar, A.V**., Joshi, G., Agarwal, A., 2026. Magnetic Evidence for Subsurface Impact Melt Deposits at the Dhala Impact Structure, India. **Studia Geophysica et Geodaetica** (**Under Review), IF: 1.0.**
6. Pathak, V., Tamta, B.K., **Satyakumar, A.V**., Sangode, S.J., Shrivastava, J.P., Patil, S.K., 2026. Magnetic Fabric and Rock-Magnetic Constraints on Lava-Flow Emplacement Dynamics in the Mandla Lobe, Eastern Deccan Volcanic Province. **Journal of Volcanology and Geothermal Research (Under Review). IF: 2.5.**
7. Firoz Badesab, F., Kadam, N., Sagavekar, O., Anand, S.S., Shaheen, S., Gaikwad, V., Prusty, A., **Satyakumar, A.V**., Venkateshwarlu, M., Kumar, T.V., Babu, E.V.S.S.K., Kumar, P., 2026. Hypoxia drove magnetofossil gigantism in Arabian Sea shelf sediments during Holocene. **Paleoceanography and Palaeoclimatology (Under Review). IF: 3.0**
8. Yadav, S., Bansal, A.R., Chauhan, M.S., Rao, B.N., Pandey, A.K., Singh, A.P., Prasad, K.N.D., Hemasunder, T., Tirupathi, M., **Satyakumar, A.V.,** Rao. N.S., 2026. Crustal configuration and seismogenesis of the Kumaun Himalaya: Insights from gravity modelling along the Kali river transect. **GJI (Under Review). IF: 2.8**
9. Pradyut, P., Varela, N., Venkateshwarlu, M., **Satyakumar, A.V**., Ferré, E.C., Agarwal, A., 2026. Landward flow of the lava in the Seaward Dipping Reflectors along the Mid-Norwegian Volcanic Margin. **Journal of Volcanology and Geothermal Research (Under Review). IF: 2.5.**
10. Ibrahim, K., Abdurrachman, M., Sahara, D.P., Matondang, F., Nurpujiono, Kurniawan, A., Ahmed, A., **Satyakumar, A.V**., Bijaksana, S., 2026. Regional geothermal screening and crustal-thermal variability of the Kelud-Ijen volcanic segment, East Java, from gravity-derived Moho and magnetic Curie-depth models. **Geothermics (Under Review). IF: 4.6**

11. Badesab, F., Sagavekar, O., Gaikwad, V., Kadam, N., **Satyakumar, A.V**., Abinash Prusty, A., Priyanka, V., Khan, S., 2026. Cold Seeps Feeding Giant Iron-Biomineralizing Organisms in the Mannar Basin. **Under Review.**