

Dr. Tamal Basak

PRESENT STATUS

Assistant Professor II (since February 2023)

Indian Centre for Space Physics, Kolkata, India

(Govt aided autonomous institute and a sister of University of Calcutta)

Email: tamalbasak@gmail.com

Phone: +91 94773 65958

EDUCATION

Ph.D. in Physics -- University of Calcutta – pursued researched work at Department of Astrophysics and Cosmology, S. N. Bose National Centre for Basic Sciences, Kolkata, India (2014)

Specialization: Space Physics

Supervisor: Prof. Sandip K. Chakrabarti, Director and Distinguished Professor, Indian Centre for Space Physics, Kolkata, India

M.Sc. in Physics -- University of Calcutta (2008)

Specialization: Nuclear Physics, Astrophysics

B.Sc. in Physics (Hons.) -- University of Calcutta (2006)

OTHER QUALIFICATIONS

- Graduate Aptitude Test in Engineering (**GATE**) in Physics (2008)
- Joint Entrance Screening Test (**JEST**) in Physics (2008 & 2009)
- National Eligibility Test (**NET**) in Physical Sciences with CSIR-JRF (2009)
- National Eligibility Test (**NET**) in Physical Sciences with LS (2011)

PROFESSIONAL / POST-DOCTORAL EXPERIENCE

- ◆ **Assistant Professor II** (August 2019 - January 2023)
Department of Physics, AIASK
Amity University Kolkata, India
- ◆ **Assistant Professor I** (July 2017 - July 2019)
Department of Physics, AIASK
Amity University Kolkata, India
- ◆ **Project Scientist (MoES)** (April 2016 - March 2017)
Indian Centre for Space Physics, Kolkata, India
- ◆ **Project Assistant Professor** (April 2015 - March 2016)
Department of Communication Engineering & Informatics
University of Electro-Communication, Tokyo, Japan
- ◆ **Postdoctoral Researcher** (October 2014 - March 2015)
Department of Communication Engineering & Informatics
University of Electro-Communication, Tokyo, Japan
- ◆ **Postdoctoral Researcher (MoES)** (April 2014 - September 2014)
Indian Centre for Space Physics, Kolkata, India

OTHER TECHING EXPERIENCES

Guest Faculty (since September 2020)

Department of Atmospheric Sciences, University of Calcutta

Visiting Faculty (April 2017 - July 2017)

Department of Basic Science and Humanities, Narula Institute of Technology, Kolkata, India

Guest Faculty (September 2013 - March 2014)

Department of Physics, Vidyasagar College, Kolkata, India

RESEARCH INTERESTS

- Solar-ionosphere-terrestrial interaction
- Propagation effects of sub-ionospheric radio wave
- Space weather effects
- Variabilities of climatological parameters

AWARDS / HONORS

- **Chair** of the session '*Remote sensing of lower atmosphere*' - International Workshop on GNSS Ionosphere (IWGI2022), Institute for Solar-Terrestrial Physics, German Aerospace Center (DLR), Germany
- **Member, Advisory Committee**, National Seminar on Low Frequency Research and Instrumentation in Atmospheric Science, Department of Atmospheric Science, University of Calcutta, India, 23 August, 2022.
- **URSI - InRaSS Young Indian Radio Scientist Award** - Asia Pacific Radio Science Conference 2019, New Delhi, India.
- **Outstanding Paper Award** - 3rd Regional Science and Technology Congress, Southern Region (organised by the Department of Higher Education, Science and Technology and Biotechnology, Government of West Bengal), 18-19 December 2018, Bidhannagar College, Kolkata, India.

GRANT AND SUPPORTS

- ✓ **'International Travel Support (ITS)'** scheme (as a Young Scientist) of Science and Engineering Research Board (SERB), Govt. of India for attending 'International Workshop on GNSS Ionosphere (IWGI2019)' held at German Aerospace Center (DLR), Neustrelitz, Germany (September 2019)
- ✓ **Committee on Space Research (COSPAR)** for attending 39th COSPAR Scientific Assembly, 2012 held at Mysore, Karnataka, India (July 2012)
- ✓ **Indian National Science Academy (INSA)** for attending General Assembly and Scientific Symposium, 2011 XXXth URSI, Istanbul, Turkey (August 2011)

MEMBERSHIP OF PROFESSIONAL BODIES

- ➔ **Invited Member**, Coupon: ESWAN2023VAL0109, Validity: 2 October 2023 - 2 October 2024) of European Space Weather and Space Climate Association (E-SWAN)
- ➔ **Member** (Membership ID: M2019088; Validity: 31 December 2019) of Indian Radio Science Society (InRaSS) (Registered under Societies Registration act XXI of 1860 by Registrar of Societies, South-East District, Govt. of NCT of Delhi to organise not only RCRS conferences but also to host a major International URSI Flagship conferences)

➔ **Associate of COSPAR** (Committee on Space Research), Paris, France

JOURNAL REVIEWER / EDITOR

- ✓ **Review Editor** (since August 2022) in Atmosphere and Climate, a section within 'Frontiers in Environmental Science' (Electronic ISSN – 2296-665X)

PH.D. SUPERVISION: 1 (ongoing)

SEMINAR / CONFERENCES ORGANIZED

- **Member, LOC**, *First Biennial Conference on Astronomy, Astrophysics and Space Science 'Exploring the Universe: from Near to Far'*, Indian Centre for Space Physics, Kolkata, India, 16 - 21 February, 2024
- **Convener** (jointly with Dr. Carine Braine and Dr. Nina Aleksandra) of a 'Parallel 100% Community-Driven Session' (100CD-09) titled '*Advancements in Theory, Instrumentation and Exploration of Space Weather Data Sensing Middle and Lower Ionosphere*' in 19th European Space Weather Week (ESWW 2023), November 20-24, 2023, France
- **Member, LOC**, *An International Conference on Exploring the Universe: Near Earth Space Science to Extra-Galactic Astronomy*, S. N. Bose National Centre for Basic Sciences, Saltlake, Kolkata, India, November, 2018
- **Member, LOC**, *1st International conference on science with Very Low Frequency Radio Waves: Theory and Observations*, S. N. Bose National Centre for Basic Sciences, Saltlake, Kolkata, India, March 2010

PUBLICATIONS IN REFEREED JOURNALS

(Google scholar link: <https://scholar.google.com/citations?user=eRVn6e4AAAAJ&hl=en&oi=ao>)

- Tamal Basak, Y. Hobara, S. Pal, T. Nakamura, J. Izutsu, T. Minatohara, *Modeling of Solar Eclipse effects on the sub-ionospheric VLF/LF signals observed by multiple stations over Japan*, *Advances in Space Research*, doi:10.1016/j.asr.2023.09.063, 2024 (ISSN: 0273-1177)
- S. Ghosh, S. Chowdhury, S. Kundu, S. Biswas, A. Dawn, S. Ray, A. K. Choudhury, Md. W. Bari, D. Bhowmick, S. Manna, S. K. Mondal, S. Chakrabarti, R. Maiti, R. C. Das, Tamal Basak and S. K. Chakrabarti, *Observations and modeling of D-region ionospheric response of Annular Solar Eclipse on December 26, 2019, using VLF signal amplitude and phase variation*, *Astrophysics and Space Science*, doi:10.1007/s10509-023-04179-1, Volume 368, Issue 3, Pages 1-18, 2023 (ISSN: 0004-640X)
- S. Karmakar, P. N. Tiwari and Tamal Basak, *A combined influences of surface temperature and daily rainfall to the historical landslides occurred on 7th September 2007 over sub-Himalayan region, India*, *Journal of Earth System Science*, 10.1007/s12040-023-02054-9, Volume 132, Issue 2, Pages 1-9, 2023 (ISSN: 0253-4126)
- S. Chakraborty, R. Paul and Tamal Basak, *On the altitude profile of lower ionospheric D-region response time delay during solar flares*, *Frontiers in Environmental Science: Section: Atmosphere and Climate*, Special Issue: Atmospheric Disturbances: Responses to Phenomena from Lithosphere to Outer Space 2022, doi: 10.3389/fenvs.2022.1020137, 2022, (ISSN: 2296-665X)
- S. Chakraborty, K. Aryan, T. Roy, S. K. Midya and Tamal Basak, *Quantitative analysis of lower ionospheric response time delay associated to the solar flares*, *Acta Geodaetica et*

Geophysica, [doi:10.1007/s40328-022-00390-8](https://doi.org/10.1007/s40328-022-00390-8), Volume 57, Issue 3, Pages 447-459, 2022 (ISSN: 2213-5820)

- S. Chowdhury, S. Kundu, [Tamal Basak](#), S. Ghosh, M. Hayakawa, S. Chakraborty, S. K. Chakraborty and S. Sasmal, *Numerical simulation of lower ionospheric reflection parameters by using International Reference Ionosphere*, *Advances in Space Research*, [doi:10.1016/j.asr.2020.12.017](https://doi.org/10.1016/j.asr.2020.12.017), Volume 67, Issue 5, Pages 1599-1611, 2021 (ISSN: 0273-1177)
- S. Chakraborty and [Tamal Basak](#), *Numerical analysis of electron density and response time delay during solar flares in mid-latitude lower ionosphere*, *Astrophysics and Space Science*, [doi:10.1007/s10509-020-03903-5](https://doi.org/10.1007/s10509-020-03903-5), Volume 365, Issue 12, 2020
- S. Chakraborty, S. Sasmal, [Tamal Basak](#) and S. K. Chakrabarti, *Comparative study of charged particle precipitation from Van Allen radiation belts as observed by NOAA satellites during a land earthquake and an ocean earthquake*, *Advances in Space Research*, [doi:10.1016/j.asr.2019.05.020](https://doi.org/10.1016/j.asr.2019.05.020), Volume 64, Issue 3, Pages 719-732, 2019 (ISSN: 0273-1177)
- S. Ghosh, S. Chakraborty, S. Sasmal, [Tamal Basak](#), S. K. Chakrabarti and A. Samanta, *Comparative study of the possible lower ionospheric anomalies in Very Low Frequency (VLF) signal during Honshu, 2011 and Nepal, 2015 earthquakes*, *Geomatics, Natural Hazards and Risk*, [doi:10.1080/19475705.2019.1595178](https://doi.org/10.1080/19475705.2019.1595178), Volume 10, Issue 1, Pages 1596-1612, 2019 (Print ISSN: 1947-5705 Online ISSN: 1947-5713)
- S. K. Chakrabarti, S. Sasmal, S. Chakraborty, [Tamal Basak](#), R. Tucker, *Modeling D-Region Ionospheric Response of the Great American TSE of August 21, 2017 from VLF signal perturbation*, *Advances in Space Research*, [doi:10.1016/j.asr.2018.05.006](https://doi.org/10.1016/j.asr.2018.05.006), Volume 62, Issue 3, Pages 651-661, 2018
- S. Sasmal, [Tamal Basak](#), S. Chakraborty, S. Palit, S. K. Chakrabarti, *Modeling of temporal variation of Very Low Frequency (VLF) radio waves over long paths as observed from Indian Antarctic stations*, *Journal of Geophysical Research - Space Physics*, [doi:10.1002/2016ja023812](https://doi.org/10.1002/2016ja023812), Volume 122, Issue 7, Pages 7698-7712, 2017
- S. Chakraborty, S. Sasmal, [Tamal Basak](#), S. Ghosh, S. Palit, S. K. Chakrabarti, S. Ray, *Numerical modeling of possible lower ionospheric anomalies associated with Nepal earthquake in May, 2015*, *Advances in Space Research*, [doi:10.1016/j.asr.2017.06.031](https://doi.org/10.1016/j.asr.2017.06.031), Volume 60, Issue 8, Pages 1787-1796, 2017
- S. Palit, [Tamal Basak](#), S. Pal, S. K. Chakrabarti, *Theoretical study of lower ionospheric response to solar flares: Sluggishness of D-region and Peak time delay*, *Astrophysics and Space Science*, [doi:10.1007/s10509-014-2190-6](https://doi.org/10.1007/s10509-014-2190-6), Vol. 356, Issue 1, pp. 19-28, 2015
- [Tamal Basak](#), S. K. Chakrabarti, *Effective recombination coefficient and solar zenith angle effects on low-latitude D-region ionosphere evaluated from VLF signal amplitude and its time delay during X-ray solar flares*, *Astrophysics and Space Science*, [doi:10.1007/s10509-013-1597-9](https://doi.org/10.1007/s10509-013-1597-9), Vol. 348, Issue 2, pp. 315-326, 2013
- S. Palit, [Tamal Basak](#), S. K. Mondal, S. Pal and S. K. Chakrabarti, *Modeling of the Very Low Frequency (VLF) radio wave signal profile due to solar flares using the GEANT4 Monte Carlo simulation coupled with ionospheric chemistry*, *Atmospheric Chemistry and Physics*, [doi:10.5194/acp-13-9159-2013](https://doi.org/10.5194/acp-13-9159-2013), Vol. 13, pp. 9159-9168, 2013
- S. K. Chakrabarti, S. Pal, S. Sasmal, S. K. Mondal, S. Ray, [Tamal Basak](#), S. K. Maji, B. Khadka, D. Bhowmick and A. K. Chowdhury, *VLF campaign during the total eclipse of 22nd July, 2009: observational results and interpretations*, *Journal of Atmospheric and Solar-Terrestrial Physics*, [doi:10.1016/j.jastp.2012.06.006](https://doi.org/10.1016/j.jastp.2012.06.006), Vol. 86, p.65-70, 2012
- S. K. Chakrabarti, S. K. Mondal, S. Sasmal, S. Pal, [Tamal Basak](#), S. Chakrabarti, D. Bhowmick, S. Ray, S. K. Maji, A. Nandi, V. K. Yadav, T. B. Kotoch, B. Khadka, K. Giri, S.K. Garain, A.K. Choudhury, N. N. Patra and N. Iqbal, *VLF signals in summer and winter in the Indian sub-continent using multi-station campaigns*, *Indian Journal of Physics*, [doi:10.1007/s12648-012-0070-x](https://doi.org/10.1007/s12648-012-0070-x), Vol. 86, No. 2, 323-334, 2012

PUBLICATIONS IN BOOK CHAPTERS

- S. Chakraborty, Tamal Basak, *Brief Review on the Lower Ionosphere and the Effects of Solar Flare Thereon*, Advances in Modern and Applied Sciences: A collection of research reviews on contemporary research (Vol. 1), Chap. 2: Atmospheric and Space Sciences, pp. 137-145, Published by Scientific Research Publishing, Inc., ISBN 978-1-64997-437-2, <https://www.scirp.org/book/detailedinforofabook.aspx?bookid=2907>, 2022
- S. Pal, Tamal Basak, S. K. Chakrabarti, *Results of computing amplitude and phase of the VLF wave using wave hop theory*, Advances in Geosciences, [doi:10.1142/9789814355414_0001](https://doi.org/10.1142/9789814355414_0001), Vol. 27, p.1-11, Solar Terrestrial (2011), World Scientific