

DR. AJESH ASOKAN PILLAI

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Date of Birth: 10TH Nov 1986, Nationality: **Indian**



Areas of Scientific Interest

Atmospheric & Space Sciences: Solar-Terrestrial Physics, Optical & Radio Remote Sensing of Terrestrial Upper Atmosphere, Aeronomy and Airglow Processes, Energetics-Dynamics and Chemistry of Equatorial and Low Latitude Mesosphere-Thermosphere-Ionosphere system, Optical Instrumentation.

Present Position

Assistant Professor at the Department of Physics, University of Kerala.

Academic Qualifications

Course	University	Main Subjects	Class & Year
PhD (Physics)	University of Kerala, Thiruvananthapuram, Kerala, India.	Physics	2019
B.Ed. Physical Science		Physics (Core Subject)	78.8% (First Class), 2012
M. Phil. Physics		Physics (Project: Nano materials)	A grade, (First Class), 2011
M. Sc. Physics		Physics (Specialization: Applied Electronics)	74.6 % (First Class), 2009
B. Sc. Physics		Physics (Subsidiary: Mathematics and Chemistry)	89.9% (First Class), 2007

Professional Experience

Name of the Institution	Position	Period	Duration
Government College Attingal, Trivandrum	Guest Lecturer	10 Nov 2021- 11 Jan 2022	2 months
Space Physics Laboratory, VSSC, Thumba, Trivandrum	Research Associate	18 July 2019- 16 July 2021	2 years

Proficiency in Computers

Operating Systems : Windows, Linux
Analytical Software : Matlab, Origin, Octave

Reviewer of International Journals

- ✓ Advances in Space Research (Since 2017)
- ✓ Journal of Geophysical Research-Space Physics (Since 2018)

Awards and Fellowships

- Junior Research Fellowship by ISRO (2012-2014).
- Senior Research Fellowship by ISRO (2014-2017).

- Travel grant from COSPAR-NCU for attending International Reference Ionosphere Workshop (COSPAR IRI CBW-2017).
- SPD studentship award from Solar Physics Division of the American Astronomical Society, (SPD-AAS) for attending Triennial Earth-Sun Summit (TESS-2018) jointly organized by AGU and SPD-AAS (2018).
- Travel grant from UNOOSA to attend the first ISWI School on Space weather effects on GNSS at Baku, Azerbaijan (2018).
- Postdoctoral Fellowship by ISRO (2019-2021)

Professional Memberships

- ✓ Student member of American Geophysical Union (AGU), (Since 2015).

Experimental Skills

- ✓ Involved in design and development of multi wavelength **Portable Nighttime Photometer** for upper atmospheric studies.
- ✓ Proficient in handling instruments like the **Digital Ionosonde, Flux Gate Magnetometer, Grating based Monochromator, All Sky Airglow Imager etc.** and in using satellite data (**ACE, TIMED, SWARM, ICON, DMSP**)
- ✓ Experience in working with various **Optical and Radio Remote Sensing** techniques for probing the terrestrial upper atmosphere. Hands on experience in using various optical components like Interference filters, Light sources, Detectors & Photon counters (PMTs, APDs, CCD etc.).
- ✓ Proficiency in synthesis, characterization and analysis of nano materials like Mn_3O_4 as part of MSc. and MPhil. projects.
- ✓ Expertise in handling physics classes to school/college students and actively participating in World Space Week since 2014.

Campaigns Organized

Name of the Campaign	Period	Major Responsibilities under taken
SPL-EGRL-PRL (2014-2015)	Space Physics Lab, VSSC, Trivandrum, India. 10-31 March 2014; 20 January-27 March 2015.	Operation of Optical Instruments, H.F. Radar, Meteor Wind Radar, Magnetometer and Ionosonde.
SPL Campaign (2016-2017)	Space Physics Lab, VSSC January 01-March 31, 2017	Operation of Optical Instruments, Meteor Wind Radar, Magnetometer and Ionosonde
Solar Eclipse Campaign-1	Space Physics Lab, VSSC 24-28 December 2019	H.F. Radar, Ionosonde and Magnetometer.
Solar Eclipse Campaign-2	Space Physics Lab, VSSC 19-23 June 2020	H.F. Radar, Magnetometer and Ionosonde.
SOUREX rocket Campaign	(Coordinated the team (at Chennai, India) for the observation) Space Physics Lab, VSSC 12 March 2021	H.F. Radar, Magnetometer, Ionosonde. Analysis of photographic data obtained using TMA payload flown in a RH 560 rocket.

List of Publications

1. **Ajesh, A.**, Pant, T. K., Vineeth, C., Mridula, N., & Kumar, K. K. (2018). Vertical coupling between the mesopause region and sporadic-E layer during equatorial counter electrojet events–A case study. *Advances in Space Research*, 62(7), 1787-1799. <https://doi.org/10.1016/j.asr.2018.07.001>. (*Impact factor (2019): 2.177*)
2. Mridula, N., Pant, T. K., & **Ajesh, A.** (2018). On the QBO modulation in the frequency of occurrence of pre noon F3 layers over the dip equatorial location of Thiruvananthapuram. *Journal of Atmospheric and Solar-Terrestrial Physics*, 179, 114-119. <https://doi.org/10.1016/j.jastp.2018.07.004>. (*Impact factor (2019): 1.503*)
3. Shreedevi, P. R., Choudhary, R. K., Yadav, S., Thampi, S., & **Ajesh, A.** (2018). Variation of the TEC at a dip equatorial station, Trivandrum and a mid latitude station, Hanle during the descending phase of the solar cycle 24 (2014–2016). *Journal of Atmospheric and Solar-Terrestrial Physics*, 179, 425-434. <https://doi.org/10.1016/j.jastp.2018.09.010>. (*Impact factor (2019): 1.503*)
4. Sumod S. G, T. K. Pant & **Ajesh, A.** (2019). Signatures of Sudden Storm Commencement on the equatorial thermospheric dayglow, *Journal of Space Weather and Space Climate*, 9, A31. <https://doi.org/10.1051/swsc/2019026>. (*Impact Factor (2019*): 3.095*)
5. C. Vineeth, **Ajesh, A.**, T. K. Pant & J.M. Ruohoniemi, (2019). Response of Thermospheric Nightglow Emissions over the magnetic Equator to Prompt Penetration Electric Field: a Case Study, *Journal of Geophysical Research: Space Physics*. 124(7), 5918-5935. <https://doi.org/10.1029/2018JA026317>. (*Impact Factor (2019): 2.80*)

Conferences/Symposia

National

1. **Ajesh A.**, C. Vineeth and T. K. Pant, Vertical Coupling between the equatorial Mesosphere and Lower E region: Analysis using the ground based Optical and Radio Techniques (*18th National Space Science Symposium, Dibrugarh, India, 29 January -01 February 2014*).
2. **Ajesh A.**, C. Vineeth and T. K. Pant, Evidence for Coupling between the Mesopause Temperature, Sporadic E layer Base Height during Equatorial Counter Electrojet Events (*27th Kerala Science Congress 2015, Alappuzha, India, 27-29 January 2015*).
3. **Ajesh A.**, C. Vineeth and T. K. Pant, Evidence for the Role of Atmospheric Waves in Seeding the Equatorial Spread F (*NSSSM 2015, Changanacherry, India, 11-13 March 2015*).
4. **Ajesh A.**, C. Vineeth and T. K. Pant, Role of Atmospheric Waves in Seeding the Equatorial Spread F: First results. (*52nd Annual Convention of Indian Geophysical Union, Goa. India, 3-5 November 2015*).
5. **Ajesh A.**, C. Vineeth, T. K. Pant, M. M. Hossain, Anumod P G, Satheesh Kumar B. and Pradeep Kumar P., Development of a Portable Nighttime Photometer and its inter-comparison with collocated All Sky Imager observations. (*19th National Space Science Symposium 2016. SPL, VSSC, Trivandrum, India, 09-12 February 2016*).

6. **Ajesh A.** C. Vineeth and T. K. Pant, On the mesospheric dynamics in seeding the Equatorial Spread F: evidence for the role played by waves of lower atmospheric origin, *(19th National Space Science Symposium 2016. SPL, VSSC, Trivandrum, India, 09-12 February 2016)*.
7. **Ajesh A.** C. Vineeth and T. K. Pant, Response of equatorial nighttime thermosphere ionosphere system to penetrating interplanetary electric field: a case study. *(27th Kerala Science Congress 2015, Thiruvalla, India, 28-30 January 2017)*.
8. **Ajesh A.** Shreedevi P. R., T. K. Pant, C. Vineeth and R. K. Choudhary, Response of Equatorial Thermosphere-Ionosphere System to Midnight Temperature Maximum: A study using optical and radio techniques *(20th National Space Science Symposium 2019. at Savitribai Phule Pune University (SPPU), Pune, India, 29-31 January 2019)*.
9. **Ajesh A.**, and T. K. Pant, Impact of Penetrating Electric Fields to the Equatorial Thermosphere-Ionosphere System, *(31st Kerala Science Congress 2019. at Fatima Mata National College, Kollam, India, 02-03 February 2019)*.
10. **Ajesh A.** T. K. Pant and C. Vineeth, On the role of equatorial neutral dynamics in controlling the centroid of O¹D 630.0 nm emission during quiet and disturbed conditions, *(Young Scholar's Congress 2019, at University of Kerala, Thiruvananthapuram, India, 16-17 March 2019)*.

International

1. **Ajesh A.** C. Vineeth and T. K. Pant, Equatorial Counter Electrojet and E-Region Base Height:- An Investigation Using Daytime Optical and Radio Techniques. *(2nd URSI RCRS, JNU, New Delhi, India, 16-19 November 2015)*.
2. **Ajesh A.** T. K. Pant and C. Vineeth, On the variability of centroid of nocturnal O¹D 630.0 nm emission: an investigation *(International Reference Ionosphere Workshop (COSPAR IRI CBW-2017), National Central University, Taoyuan, Taiwan, 13-17 November 2017)*.
3. **Ajesh A.** C. Vineeth, T. K. Pant and K.K. Kumar, Vertical Coupling between Sporadic-E Layer and Mesopause Region: A Case Study during Counter Electrojet Events, *(International Reference Ionosphere Workshop (COSPAR IRI CBW-2017), National Central University, Taoyuan, Taiwan, 13-17 November 2017)*.
4. **Ajesh A.** T. K. Pant, P. R. Prasad and C. Vineeth, On the Response of Equatorial Nighttime Thermosphere Ionosphere System to Penetrating Electric Field: a case study *(SCOSTEP 14th Quadrennial Solar-Terrestrial Physics Symposium (STP14), York University, Toronto, Canada, 9-13 July 2018)*.

Workshops Attended

National

1. National Workshop on GPS RO Techniques and Applications, *(at SRM University, Chennai, India, 2015, 16-19 March 2015)*.
2. GNSS Aids and Applications, *(by Institute of Radio Physics and Electronics, University of Calcutta, India, 2015, September 23, 2016)*.
3. National webinar on "Climate change and sustainable future" organized by Sri Sathya Sai College of Arts and Science, Thiruvananthapuram, on 16th Sep 2020.

1. International School on Space Science, (by SCOSTEP/ ISWI, at Smt. Kasturbai Walchand College, Sangli, Maharashtra, India. 07-17 November 2016).
2. International Reference Ionosphere Workshop (COSPAR IRI CBW-2017), (at National Central University, Taoyuan, Taiwan 06-10 November 2017).
3. The International Space Weather Initiative (ISWI) School on Space Weather and Global Navigation Satellite Systems (Jointly organized by SDF, ShAO, Azerbaijan National Academy of Sciences, UNOOSA, ISWI and SCOSTEP at Pullman Hotel, 8–12 October 2018, Baku, Azerbaijan).
4. Helio Hackweek 2020 (HW 20 Virtual Hackweek Focused on Heliophysics), supported by NASA Center for Climate Simulation, the University of Washington eScience Institute, University of Maryland Department of Geographical Sciences and NVIDIA, Aug 20-28, 2020.
5. AOGS-EGU NatHazards Virtual Meeting (AOGS-EGU Joint Conference Series on New Dimensions for Natural Hazards in Asia), Sep 21-23, 2020.
6. Impact of Cold Plasma Populations in the Earth's Magnetosphere, organized by Center for Nonlinear Studies and Los Alamos National Laboratory, USA, Sep 28th-Oct 2nd 2020.
7. African Workshop on GNSS and Space Weather organized by UNOOSA, International Committee on GNSS, Boston College, USA, ICTP, African Regional Centre for Space Science and Technology Education-in French Language (CRASTE-LF), 5-6 Oct 2020.
8. The 6th East African Astronomical Society (EAAS) Workshop Dodoma, Tanzania, jointly Organized By Open University Of Tanzania (OUT), University Of Dodoma (UDOM), 20-22 May 2021.

Trivandrum

February 01 , 2021



(AJESH A)

Reference

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