

CURRICULUM VITAE

Dr. Aswathy. R.P



Date of birth : 31/05/1991

Email : aswathyrp872@gmail.com

Nationality : Indian

Sex : Female

SUBJECT: PHYSICS

Areas of research :

- Day-to-day variability of night time plasma irregularities at the magnetic equatorial ionosphere: Characterization, quantification and forecasting
- Investigations on the coupling processes in the ionosphere-thermosphere system using ground and space-based radio probing techniques
- Dynamics of the equatorial and low-latitude ionosphere under diverse geophysical conditions

Academic qualifications:

Ph.D (2019) in Physics, University of Kerala

Institute: Space Physics Laboratory, VSSC, ISRO

Thesis title: Investigations on the dynamics of the equatorial and low-latitude ionosphere-thermosphere system and its association with equatorial spread F

Thesis work:

- The characteristics and climatology of ionospheric gravity wave induced plasma perturbations and quantitative estimation of their role in modulating the day to day variability of nocturnal plasma irregularities at the magnetic equatorial ionosphere (*ASR, 2016; JASTP, 2017*)
- Development of empirical models for hind casting Equatorial spread F events (*JGR, 2017; JGR 2018 (a)*)
- The physical basis for the role of gravity wave induced plasma perturbations in modulating Equatorial spread F day-to-day variability in is experimentally established using satellite based neutral density profiles (*JGR 2018 (b)*)

	<ul style="list-style-type: none"> • Modulation of the day-to-day variability of the onset time of Equatorial spread F in the neural dynamical domain, by neutral wind effects (<i>JGR</i> 2018 (c))
	MSc. (2013, 90% marks, University of Kerala), with second rank Subject: Physics
	BSc. (2011, 96% marks, University of Kerala) Subject: main - Physics ; Subsidiary: Mathematics and Chemistry
	Plus two (2008, 95 % marks)
	Secondary school (2006, 94 % marks)
Additional qualification:	Post-doctoral fellow at Space Physics Laboratory, VSSC, ISRO <u>Post-doctoral research experience:</u> Two year experience (28/02/2019 – 28/02/2021) <u>Details of work during the post-doctoral research:</u> <ul style="list-style-type: none"> • Analysis on the time of evening zonal drift reversal in F- region and its implications for post sunset ionosphere (<i>JASTP</i>, 2020) • On the linkage of ionospheric zonal plasma drifts with equatorial Spread F (<i>ASR</i>, 2020) • Ionospheric planetary wave activity and its role on Equatorial Spread F variability (<i>JGR</i>, 2020)
Awards :	Received best paper award for the paper, <ul style="list-style-type: none"> • 'Hind-casting of ESF events using seasonal empirical models', National Space Science Symposium-2019, 29 - 31 January 2019, Pune, Maharashtra
Fellowships	<ul style="list-style-type: none"> • ISRO Junior Research Fellowship (2014) • CSIR UGC-NET (2012) • GATE (2014)
Computational skills	<ul style="list-style-type: none"> • MATlab • IDL • Origin Lab
Reviewer for international journals	Journal of Geophysical research
Professional memberships	Member, International Union of Radio Science (URSI)

1. **Aswathy, R.P.**, Manju, G. (2017). Gravity wave control on ESF day-to-day variability: an empirical approach. *Journal of Geophysical Research: Space Physics.*, 122 (6), 6791-6798, doi: 10.1002/2017JA023983. **ISSN no: 2169-9402**
2. **Aswathy R. P.** and G. Manju. (2018). Hind-casting of Equatorial Spread F (ESF) using seasonal empirical models, *Journal of Geophysical Research: Space Physics.* 123 (2). 1515–1524, doi.org/10.1002/2017JA025036. . **ISSN no: 2169-9402**
3. **Aswathy, R. P.**, Manju, G., & Sunda, S. (2018). The Response Time of Equatorial Ionization Anomaly Crest:A Unique Precursor to the Time of Equatorial Spread F Initiation . *Journal of Geophysical Research: Space Physics*,123 (7). 5949 -5959. doi.org/10.1029/2018JA025469. **ISSN no: 2169-9402**
4. **Aswathy R. P.** and G. Manju. (2020). Time of evening zonal drift reversal in F- region and its implications for post sunset ionosphere, *Journal of Atmospheric and Solar Terrestrial Physics*, 200, 105210, doi.org/10.1016/j.jastp.2020.105210 . **ISSN no: 1364-6826**
5. **Aswathy R. P.** and G. Manju. (2020). The post sunset equatorial F- region zonal drift variability and its linkage with equatorial spread F onset and duration over Indian longitudes. *Advances in Space Research.* <https://doi.org/10.1016/j.asr.2020.11.024>. **ISSN no: 0273-1177**
6. Manju G., **Aswathy R.P.** (2017). Climatology of GW-TIDs in the magnetic equatorial upper thermosphere over India', *Journal of Atmospheric and Solar-Terrestrial Physics*, 164, 142–148, doi.org/10.1016/j.jastp.2017.08.015. **ISSN no: 1364-6826**
7. Manju G and **Aswathy R P.** (2018), 'First time estimation of thermospheric neutral densities from seed perturbations of ESF triggering: A novel evidence for ionosphere-thermosphere coupling', *Journal of Geophysical Research: Space Physics*, 123 (12). 10,254-10,265, doi:10.1029/2018JA025967 **ISSN no: 2169-9402**

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8. Manju, G., & **Aswathy, R. P.** (2020). Ionospheric planetary wave activity and its role in equatorial spread F day-to-day variability. *Journal of Geophysical Research: Space Physics*, 125, e2020JA027960. <https://doi.org/10.1029/2020JA027960> ISSN no: **2169-9402**
 9. G. Manju, M.K. MadhavHaridas, **Aswathy R.P.** (2016). Role of gravity wave seed perturbations in ESF day-to-day variability: A quantitative approach. *Advances in Space Research*, 57, 1021–1028, doi.org/10.1016/j.asr.2015.12.019. ISSN no: **0273-1177**
 10. Manju, G., Tarun K. Pant, Mridula N., **Aswathy R. P.**, P. Sreelatha, Rosmy John, Satheesh Thampi R., Aneesh. N. and Abhishek J. K. In-situ observations of rocket burn induced modulations of the top side ionosphere using the IDEA payload on-board the unique orbiting experimental platform (PS4) of the Indian Polar orbiting Satellite Launch Vehicle mission, *Journal of Atmospheric and Solar Terrestrial Physics*, 199 (2019) 105203, doi.org/10.1016/j.jastp.2020.105203 ISSN no: **1364-6826**
 11. G. Manju , Tarun K. Pant, P. Sreelatha, Santhosh J. Nalluveettil, P. Pradeep Kumar, Nirbhay Kumar Upadhyay, Md. Mosarraf Hossain, Neha Naik, Vipin Kumar Yadav, Rosmy John, Sajeew R., Jothi Ramalingam, Philip George, Amarnath Nandi, N. Mridula, **Aswathy R. P.** Janmejaya Jaiswal Rana, Snehil Srivastava and Satheesh Thampi, New outlook on lunar near surface plasma environment from Chandrayaan-2 lunar lander platform: RAMBHA_LP Payload perspective, *Current Science* (2020), VOL. 118, NO. 3 ISSN **0011-3891**
 12. **Aswathy, R.P** & Manju, G.. (2021). Equatorial Ionization Anomaly crest magnitude and its implications on the nocturnal equatorial ionospheric plasma irregularity characteristics. *Advances in Space Research.*, 10.1016/j.asr.2021.07.019.
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Conference presentations:

1. **Aswathy R. P** and Manju. ‘Role of planetary wave activity in the seasonal/ day to day variability of the time of peak post sunset vertical drift over Indian longitudes’, second **URSI-Regional conference on radioscience**,New-Delhi,November,2015.
2. **Aswathy R. P.** and Manju.G. " Role of planetary wave activity in the seasonal/ day to day variability of the time of peak post sunset vertical drift over Indian longitudes" **National Space Science Symposium (NSSS -2016)** ,Trivandrum, February 9-12, 2016.
3. **Aswathy R. P.** and G. Manju, Gravity wave control on ESF day to day variability,: An empirical approach **29th Kerala Science Congress**, January 28-30, 2017, Pathanamthitta, Kerala
4. **Aswathy R.P.** and G. Manju, Gravity wave control on ESF day to day variability, **URSIRegional conference on radioscience**, March 1-4, 2017, Tirupathi, Andhra Pradesh
5. **Aswathy R. P.** and G. Manju, Gravity wave control on ESF day to day variability: An empirical approach , **32nd National Symposium on Plasma Science & Technology**’, 0710 November 2017, Institute for Plasma Research, Gandhinagar ,Gujarat.
6. **Aswathy R P**, Manju G, S.Sunda, ‘The response time of Equatorial Ionization Anomaly: A unique precursor to Equatorial Spread F initiation’, **15thInternational Symposium on Equatorial Aeronomy**, 22- 26 October 2018, PRL,Ahmedabad
7. Manju G, Tarun Kumar Pant, Sreelatha P, Rosmy John, N. Mridula, **Aswathy R. P.**, SatheeshThampi , J.K. Abhishek and A. N. Aneesh, IDEA payload observations of electron density and electric fields in the Near Earth Space Environment on board PS4 orbiting platform, **APRSAF-24**, Nov.13-18, Bangalore, India
8. **Aswathy R. P.** and G. Manju ,‘Hind-casting of ESF events using seasonal empirical models’, **National Space Science Symposium-2019**, 29 - 31 January 2019, Pune, Maharashtra
9. **Aswathy R.P.** and G. Manju, ‘The response time of Equatorial Ionization Anomaly: A unique precursor to Equatorial Spread F initiation’, **URSI Asia Pacific Radio Science Conference**, March 9- 15, New-Delhi, India

List of Workshops:

- Manju G.,Aswathy R. P. and Madhav Haridas M. K., Gravity wave control on equatorial spread f day to day variability: an empirical model approach, UN/USA Workshop on the International Space Weather Initiative: The Decade after the

	<p>International Heliophysical Year 2007, July 31-August 04, 2017, Boston, USA</p> <ul style="list-style-type: none"> • Workshop on ‘GNSS aids and applications’, September 23, 2016, Kolkata
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References:

1. Dr. Manju G, Scientist ‘SF’, Space Physics laboratory, Vikram Sarabhai Space Center, Indian Space Research Organization, Thiruvananthapuram. Ph:04712562597; email:Manju_spl@vssc.gov.in
2. Dr. Tarun Kumar Pant, Scientist ‘SG’, Space Physics laboratory, Vikram Sarabhai Space Center, Indian Space Research Organization, Thiruvananthapuram. Ph:04712563665 email:tarun_kumar@vssc.gov.in