

Curricular Vita

Dr. KARANAM KISHORE KUMAR
Scientist/Engineer ‘SG’, Space Physics Laboratory
Vikram Sarabhai Space Centre,
Indian Space reserach Organization
Trivandrum 695 022
Kerala, India

E-mail: kishore_nmrf[at]yahoo[dot]com
Alternative E-mail: k_kishorekumar[at]vssc[dot]gov[dot]in

Research Area: Physical Sciences/ Earth Sciences /Atmospheric Dynamics

Vision: To characterize the Earth’s atmospheric motion and its variability at various spatial and temporal scales and to fathom their source mechanisms

Research Interests

Middle Atmospheric Dynamics: Middle atmospheric circulation, long period oscillations in earth’s middle atmosphere, atmospheric gravity waves, tides, planetary waves, wave-mean flow interactions, wave-wave interactions, wave momentum flux, wave drag, source mechanisms of atmospheric waves, parameterization of gravity waves in global models and numerical modeling aspects of middle atmospheric dynamics

Lower Atmospheric Dynamics: Large-scale circulations and their drivers in the earth’s lower atmosphere, Jet streams, atmospheric convection and associated dynamics, latent heat distributions in clouds and their role in driving mesoscale and global scale circulation, long-term trends in geophysical parameters and possible implications on climate.

Experimental techniques/retrieval algorithms: Radar and Lidar remote sensing, Design and development of atmospheric radars’ signal processing algorithms, developing inversion algorithms for geophysical parameter retrievals, sounding Rocket experiments and pay-load development for atmospheric observations from space

Educational qualifications

B.Sc. (Mathematics, Physics, Electronics)	: 1995 (passed with Distinction) Sri Venkateswara University, Tirupati, India
M.Sc. Tech in Engineering Physics	: 1998 (passed with University Gold medal) Sri Venkateswara University, Tirupati, India
Ph.D in Physics	: 2004 National Atmosphere research Laboratory, Gadanki, India (Degree awarded by Sri Venkateswara University, Tirupati, India)
Title of Ph.D dissertation	: Studies on Tropical Mesoscale Convective Systems and associated atmospheric dynamics using VHF and UHF Radars

Research Projects

1. Co-Investigator -Middle atmospheric dynamics (MIDAS)*
2. Principal Investigator - Megha Tropiques Utilization Project (MTUP)*
3. Principal Investigator - Research on Organization of Atmospheric Convection (RONAC)*
4. Principle Investigator-Monsoon Trough Experiment (MONTREX)
5. Lead Scientist - Fourier transform Infrared Spectrometer (FTIR) Project
6. Co-Investigator- Project under CAWSES Theme I (solar influence on middle atmosphere)*
7. Task Team Member - Lidar Project (XIIth five year plan)
8. Task team Member- VHF radar project ((XIIth five year plan)

*Completed Projects

Awards and honors

1. Indian National Science Academy (INSA) Young scientist medal for the year 2010
2. Institution of Electronics and Telecommunication Engineers (IETE) Young scientist award -2010
3. International Union of Radio science (URSI) Young Scientist Award-2008
4. Certificate for Excellency in reviewing from the ‘Journal of Atmospheric and Solar-Terrestrial Physics’
5. Certificate for outstanding contributions in reviewing from the journal ‘Atmospheric Research’

6. Best oral paper by a young scientist award at MST11 international workshop-2006
7. Best Paper award at National Space Science Symposium-2012
8. Best Paper award at International conference on Opportunities and Challenges in monsoon variability and predictability-2012
9. Best paper award at International Tropical Meteorology (INTROMET)-2014
10. Best paper award at TROPMET-2015
11. Best Paper award at National Space Science Symposium-2016
12. Best Paper award at TROPMET-2018, BHU, Varanasi
13. Invited faculty for radar meteorology by ICTP School, Botswana, 2007
14. University gold medalist in post-graduation (Engineering physics)-1998
15. Topper in national graduate physics examination-1995
16. Declared commendable contributions from CSR magazine (twice)
17. Won several prizes in essay writing, Elocution and quiz competitions at school, college and University level

Invited Lectures/ resource person/Session-Chair/Convener

1. Invited faculty for radar meteorology at ICTP school held in Botswana, 2006
2. Resource person for UGC-refresher course at University of Kerala
3. Invited talk at 7th Annual General Meeting, AOGS, Hyderabad, July 5-9, 2010
4. Invited talk at National Workshop on Recent Trends in Instrumentation for climatic change, Vijayawada, 20-21 January, 2012
5. Session chair at COSPAR session CO.2, COSPAR, July, 2012
6. Co-Convener for parallel session 2 at National Space Science Symposium, Dibrugarh, January 28- 1 February,2014
7. Invited talk at National Space Science Symposium, Dibrugarh, January 28- 1 February,2014
8. Resource person for SERB school on radar at CUSAT (2013 and 2014)

Reviewer Assignments

Journal of Geophysical Research, Geophysical Research Letters, Atmospheric Environment, Radio Science, Annals of Geophysicae, Journal of Atmosphere and Solar terrestrial Physics,

Journal of Atmospheric Sciences, Journal of Meteorology and Applied Climatology, Journal of Earth system Sciences, Indian Journal of radio space Physics

Research supervision

Ph.D - 1(Awarded) + 2 (submitted) + 1 (on going)

M.Phil - 1

M.Tech - 2

M.Sc. - 9

Total number of scientific publications in peer-reviewed Journals: 99
(Refer to Annexure#1 for complete list)

Annexure#1

List of published papers in peer-reviewed Journals by Dr. Karanam Kishore Kumar

1. **Kumar, K.K.**, S.S. Mathew, & K.V. Subrahmanyam, (2018), Anomalous tropical planetary wave activity during 2015/2016 quasi biennial oscillation disruption, *Journal of Atmospheric and Solar-Terrestrial Physics*, Vol., 167, pp. 184-189, 10.1016/j.jastp.2017.12.004.
2. Mathew, S.S and **K.K. Kumar** (2018), Characterization of the long-term changes in moisture, clouds and precipitation in the ascending and descending branches of the Hadley circulation, *Journal of Hydrology*, (accepted for publication)
3. Mathew, S.S and **K.K. Kumar** (2018), Estimation of Zonally Resolved Edges of the Tropical Belt Using GPS-RO Measurements, *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 10.1109/JSTARS.2018.2828342.
4. Mathew, S.S and **K.K. Kumar** (2018), On the role of precipitation latent heating in modulating the strength and width of the Hadley Circulation, *Theoretical and Applied Climatolog*, DOI: 10.1007/s00704-018-2515-4
5. Subrahmanyam, K. V., **K.K.Kumar** & D. Tourville, Natalie. (2018), CloudSat Observations of Three-Dimensional Distribution of Cloud Types in Tropical Cyclones. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*. PP. 1-6. 10.1109/JSTARS.2017.2786666.
6. Subrahmanyam, K.V and **K. K. Kumar** (2018), Vertical structure of stratocumulus clouds and associated dynamics over the Arabian Sea during Indian summer monsoon season, *J. Appl. Remote Sens.* 12(1), 016018 (2018), doi: 10.1117/1.JRS.12.016018.
7. Koushik, N, **K. K. Kumar**, G. Ramkumar and K.V. Subrahmanyam (2018), Response of equatorial and low latitude mesosphere lower thermospheric dynamics to the northern hemispheric sudden stratospheric warming events. *Journal of Atmospheric and Solar-Terrestrial Physics*. doi:10.1016/j.jastp.2018.01.021.
8. Subrahmanyam, K.V. and **K.K. Kumar** (2018), New insights into the convective system characteristics over the Indian summer monsoon region using space based passive and active remote sensing techniques, *IETE Technical Review* (in press)
9. Premkumar,B., K. Chenna Reddy, G. Yellaiah, **K. Kishore Kumar** (2018), Seasonal variations in vertical distribution of meteor decay time as observed from meteor radars at 8.5°N and 80°N, *Advances in Space Research*, <https://doi.org/10.1016/j.asr.2018.11.019>.
10. Niranjana Kumar, K., D.V. Phanikumar, S. Sharma, G. Basha, M. Naja, T.B.M.J. Ouarda, M.V. Ratnam, **K. Kishore kumar** (2019), Influence of tropical-extratropical

interactions on the dynamics of extreme rainfall event: A case study from Indian region, **Dynamics of Atmospheres and Oceans**, Volume 85, Pages 28-40, <https://doi.org/10.1016/j.dynatmoce.2018.12.002>.

11. Ajesh, A., T.K. Pant, C. Vineeth, N. Mridula, **K.K. Kumar (2018)**, Vertical coupling between the mesopause region and sporadic-E layer during equatorial counter electrojet events – A case study, *Adv. Space Res.*, Volume 62, Issue 7, Pages 1787-1799.
12. Shukla, K.K., D Phanikumar, K. Niranjana Kumar, N. Singh, N. Ojha, R.K. Newsom, S. K. Sharma, V. Kotamarthi, **K. Kishore Kumar (2018)**, Investigations of vertical wind variations at a mountain top in the Himalaya using Doppler Lidar observations and model simulations, *Journal of Atmospheric and Solar-Terrestrial Physics*, (in Press)
13. Ando, H., Takagi, M., Fukuhara, T., Imamura, T., Sugimoto, N., Sagawa, H., Noguchi, K., Tellmann, S., Pätzold, M., Häusler, B., Murata, Y., Takeuchi, H., Yamazaki, A., Toda, T., Tomiki, A., Choudhary, R.K., **Kishore Kumar**, Ramkumar, G., Antonita, M., **(2018)**, Local time dependence of the thermal structure in the Venusian equatorial upper atmosphere: Comparison of Akatsuki radio occultation measurements and GCM results, *Journal of Geophysical Research: Planets*, <https://doi.org/10.1029/2018JE005640>
14. **Kumar, K.K.**, K.V. Subrahmanyam, S.S. Mathew, N. Koushik & G. Ramkumar, **(2017)**, Simultaneous observations of the quasi 2-day wave climatology over the low and equatorial latitudes in the mesosphere lower thermosphere, *Climate Dynamics*. 1-13. [10.1007/s00382-017-3916-2](https://doi.org/10.1007/s00382-017-3916-2).
15. Subrahmanyam, K.V. and **K.K. Kumar (2017)**, CloudSat observations of multilayer clouds across globe, *Climate Dynamics*, DOI [10.1007/s00382-016-3345-7](https://doi.org/10.1007/s00382-016-3345-7)
16. Yadav, Sneha, T.K. Pant, R.K. Choudhary, C. Vineeth, S. Sunda, **K.K. Kumar**, R. Shreedevi & S. Mukherjee, **(2017)**, Impact of Sudden Stratospheric Warming of 2009 on the Equatorial and Low-Latitude Ionosphere of the Indian Longitudes: A Case Study. *Journal of Geophysical Research: Space Physics*, [10.1002/2017ja024392](https://doi.org/10.1002/2017ja024392).
17. John, S.R. and **K.K. Kumar (2016)**, Global normal mode planetary activity: a study using TIMED/SABER observations from the stratosphere to the mesosphere lower thermosphere, *Climate Dynamics*, DOI [10.1007/s00382-016-3046-2](https://doi.org/10.1007/s00382-016-3046-2)
18. John, S.R. and **K.K. Kumar (2016)**, HIRDLS observations of global gravity wave absolute momentum fluxes: A wavelet based approach, *J. Atmos. Solar Terr.*, <http://dx.doi.org/10.1016/j.jastp.2015.12.004>
19. Mathew S.S., **K.K. Kumar** and K.V. Subrahmanyam **(2016)**, Hadley cell dynamics in Japanese Reanalysis-55 dataset: evaluation using other reanalysis datasets and global radiosonde network observations, *Climate Dynamics*, DOI [10.1007/s00382-016-3051-5](https://doi.org/10.1007/s00382-016-3051-5)

20. Subrahmanyam, K.V., **K.K. Kumar**, N.V.P. Kiran Kumar and G. Viswanathan (2016), Evaluation of Doppler Weather Radar MEGHA-2700 Observations Using Gematronik Doppler Weather Radar and TRMM Precipitation Radar, *Meteorological Applications*, (In press)
21. Vineeth, C., N. Mridula, P. Muralikrishna, **K. K. Kumar** and T.K. Pant (2016), First Observational Evidence for the Connection between the Meteoric Activity and Occurrence of Equatorial Counter Electrojet, *Journal of Atmospheric and Solar-Terrestrial Physics*, doi:10.1016/j.jastp.2016.07.007
22. Das, S.S., M. V. Ratnam, K. N. Uma, A. K. Patra, K. V. Subrahmanyam, I. A. Girach, K.V. Suneeth, **K. K. Kumar** and G. Ramkumar (2016), Stratospheric intrusion into the troposphere during the tropical cyclone Nilam, *Quarterly Journal of Royal Meteorological Society*, doi: 10.1002/qj.2810.
23. Das, S.S., M. V. Ratnam, K. N. Uma, K. V. Subrahmanyam, I.A. Girach, A. K. Patra, S. Aneesh, K.V. Suneeth, **K. K. Kumar**, A.P. Kesarkar, S. Sijikumar and G. Ramkumar(2016), Influence of Tropical Cyclones on Tropospheric Ozone: Possible Implications, *Atmospheric Chemistry and Physics*, 16, 1-11, doi :10.5194/acp-16-1-2016.
24. Venkateswara Rao, N., M. Venkat Ratnam, C. Vedavathi, T. Tsuda, B.V. Krishna Murthy, S. Sathishkumar, S. Gurubaran, **K. Kishore Kumar**, K.V. Subrahmanyam and S. Vijaya Bhaskara Rao (2016), Seasonal, inter-annual and solar cycle variability of the quasi two day wave in the low-latitude mesosphere and lower thermosphere, *Journal of Atmospheric and Solar- Terrestrial Physics*, <http://dx.doi.org/10.1016/j.jastp.2016.11.005>
25. Subrahmanyam, K.V., **K.K. Kumar** and A.N. Babu (2015), Phase relation between CAPE and precipitation at diurnal scales over the Indian summer monsoon region, *Atmospheric Science Letters*, doi: 10.1002/asl2.566
26. Kishore Kumar, G., **K. K. Kumar**, G. Baumgarten and Geetha Ramkumar (2015), Validation of MERRA reanalysis upper-level winds over low latitudes with independent rocket sounding data, *J. Atmos. Solar Terr.*, 123, 48-54, 2015, DOI:10.1016/j.jastp.2014.12.001
27. Singh, C., Thomas, L., and **K. K. Kumar** (2015), Impact of aerosols and cloud parameters on Indian summer monsoon rain at intraseasonal scale: a diagnostic study, *Theor. Appl. Climatol.*, DOI 10.1007/s00704-015-1640-6.
28. Sunilkumar, S.V., M. Muhsin, K. Parameswaran, M. Venkat Ratnam, Geetha Ramkumar, K. Rajeev, B.V. Krishna Murthy, K.V. Sambhu Namboodiri, K.V. Subrahmanyam, **K. K. Kumar**, Siddarth Shankar Das (2015), Characteristics of turbulence in the troposphere and lower stratosphere over the Indian Peninsula, *J. Atmos. Solar Terr.*, <http://dx.doi.org/10.1016/j.jastp.2015.07.015>.
29. Kishore Kumar, G., **K. K. Kumar**, Werner Singer, Irina Strelnikova, S. Gurubaran, G. Baumgarten, Geetha Ramkumar, S. Sathishkumar Kumar, Markus Rapp, (2014),

Mesosphere and lower thermosphere zonal wind variations over low-latitudes: Relation to local stratospheric zonal winds and global circulation anomalies, *J. Geophys. Res.*, doi10.1002/2014JD021610.

30. Rao, S. V. B., S. Eswaraiyah, M. Venkat Ratnam, E. Kosalendra, **K. K. Kumar**, S. Sathish Kumar, P. T. Patil, and S. Gurubaran (2014), Advanced meteor radar installed at Tirupati: System details and comparison with different radars, *J. Geophys. Res.*, 119, 11,893–11,904, doi:10.1002/2014JD021781.
31. Das, S.S., **K. K. Kumar**, K. N. Uma, M. V. Ratnam, A. K. Patra, S. K. Das, A. K. Ghosh, and A. R. Jain (2014), Modulation of thermal structure in the upper troposphere and lower stratosphere (UTLS) region by inertia-gravity waves : A case study inferred from simultaneous MST radar and GPS sonde observations, *Ind. J. Radio. Space Phys.*, 43, 2014, PACS No. 92.60.hd;92.60.hf,92.60.hh
32. Mridula, N., Pant, T.K., Vineeth, C., and **Kumar, K.K** (2014), Features of the occurrence of the additional stratification on the bottom-side F region over the equatorial location of Trivandrum, *Adv. Space Res.*, <http://dx.doi.org/10.1016/j.asr.2013.12.036>.
33. John, S. R., and **K. K. Kumar** (2013), A discussion on the methods of extracting gravity wave perturbations from space-based measurements, *Geophys. Res. Lett.*, 40, doi:10.1002/grl.50451.
34. Subrahmanyam, K.V. and **K. K. Kumar** (2013), Megha-Tropiques/SAPHIR measurements of humidity profiles: validation with AIRS and global radiosonde network, *Atmos. Meas. Tech. Discuss.*, 6, 11405–11437
35. Das, S. S., **K. K. Kumar**, and G. Ramkumar (2013), First observations of quasi 120 day oscillation in Mesospheric winds and temperature: Observations inferred from Meteor Radar, *Radio Sci.*, 48, doi:10.1002/rds.20037
36. Subrahmanyam, K.V., **K. K. Kumar** and G. Ramkumar (2013), Delayed effects of annular solar eclipse of 15 January 2010 on the tropospheric and lower stratospheric winds along the eclipse path, *Atmos. Res.*, 122, 1-7, doi.10.1016/atmosres.2012.10.034
37. Subrahmanyam, K.V., and **K. K. Kumar** (2013), CloudSat observations of cloud-type distribution over the Indian summer monsoon region, *Ann. Geophys.*, 31, 1155–1162, doi: 10.5194/angeo-31-1-2013.
38. Uma, K. N., S. K. Das, S. S. Das, and **K. K. Kumar** (2013), Aura-MLS observations of water vapor entering the stratosphere over the northern Bay of Bengal and East Equatorial Indian Ocean. *Terr. Atmos. Ocean. Sci.*, 24, 357-368, doi: 10.3319/TAO.2012.11.06.01(A)
39. Uma, K. N., **K. K. Kumar** and S.S. Das (2013), Migrating and non-migrating diurnal and semi-diurnal tides over tropical and an equatorial station, *Ind. J. Radio. Space Phys.*, Vol.42, 340-355

40. Liu, G., T. J. Immel, S. L. England, H. U. Frey, S. B. Mende, **K. K. Kumar**, and G. Ramkumar (2013), Impacts of atmospheric ultrafast Kelvin waves on radio scintillations in the equatorial ionosphere, *J. Geophys. Res.*, 118, 885–891, doi:10.1002/jgra.50139
41. Ramkumar, G., K.V. Subrahmanyam, **K.K Kumar**, D. Swain, S.S. Das, S V Sunil Kumar, K V S Namboodiri, K.N. Uma, V. S. Babu, John, S.R., and Asha Babu (2013), First Observational Study of Eclipse induced Variations in Horizontal Winds in the Troposphere-Stratosphere-Mesosphere-Lower Thermosphere region over Trivandrum (8.5° N, 77° E), *Earth, Planet and Space*, 65, 781–790
42. Swain D, N. V. P. Kiran Kumar, **K. K. Kumar**, M.M. Hossain, M. Rajasekhar, G. Ramkumar (2013), Application of Wavelet De-noising for Wind Speed Retrieval from a 2.5 MHz Partial Reflection Radar, *Current Trends in Signal Processing*, Volume 3, Issue 2, ISSN: 2277-6176
43. John, S.R and **K.K. Kumar** (2012), TIMED/SABER Observations of Global Gravity Wave climatology and their interannual variability from stratosphere to mesosphere lower thermosphere, *Climate Dynamics*, 39:1489–1505 doi: 10.1007/s00382-012-1329-9.
44. John, S. R., and **K. K. Kumar** (2012), The concept of wave-turbopause layer and its signature in the global mesosphere-lower thermospheric gravity wave activity, *J. Geophys. Res.*, 117, A10310, doi:10.1029/2012JA018172
45. **Kumar, K.K.** and K.V. Subrahmanyam (2012), A discussion on the assumption of ambipolar diffusion of meteor trails in the Earth's upper atmosphere, *Mon. Not. R. Astron. Soc.* 425, L1–L5, doi:10.1111/j.1745-3933.02012.01279.x
46. Liu, G., S.L. England, T.J. Immel, **K.K. Kumar**, G. Ramkumar, and L. P. Goncharenko, (2012), Signatures of the 3-day wave in the low- and mid-latitude ionosphere during the January 2010 URSI World Day campaign, *J. Geophys. Res.*, 117, A06305, doi: 10.1029/2012JA017588.
47. England, S.L., G. Liu, T.J. Immel, Q. Zhou, **K.K. Kumar**, G. Ramkumar (2012), On the signature of the quasi-three-day wave in the thermosphere during the January 2010 URSI World Day Campaign, *J. Geophys. Res.*, 117, A06304, doi: 10.1029/2012JA017558.
48. Das, S.K., S.S. Das, Chih-Wei Chiang, **K. K. Kumar**, J.B. Nee (2012), Variability in tropopause height and its temperature on different time scales: An observational study over Banqiao, Taiwan, *J. Atmos. Solar Terr.*, 81-82 (1-8)
49. Uma, K. N., **K. K. Kumar**, S. S. Das, T. N. Rao, and T. M. Satyanarayana (2012), On the Vertical Distribution of Mean Vertical Velocities in the Convective Regions during Wet and Dry Spells of Indian Summer Monsoon over Gadanki, *Mon. Wea. Rev.*, Vol.140, 398-410, DOI: 10.1175/MWR-D-11-00044.1

50. Das, S.S., **K.K. Kumar**, S.K. Das, C. Vineeth, T. K. Pant and G. Ramkumar (2012), Comparison of Mesospheric temperature derived from meteor radar with co-located multi-wavelength day-glow photometer, SABER and EOS MLS observations over equatorial station Thumba (8.5°N, 76.5°E, 0.5°N diplat), *Int. J. Remote Sensing*, Vol. 33, No. 14, 4634–4647
51. Phani kumar, D.V., S. Kwak, A.K. Patra, **K. K. Kumar**, and G. Yellaiah (2012), Altitudinal and latitudinal asymmetry in diurnal variation of sporadic meteor flux observed over Thumba, *Curr. Sci.*, VOL. 103, NO. 1, 62-67.
52. **Kumar, K.K.**, D. Swain, S.R.John and G.Ramkumar (2011), Simultaneous observations of SAO and QBO in winds, temperature and ozone in the tropical middle atmosphere over Thumba (8.5 N, 77 E), *Climate Dynamics*, 37:1961–1973, DOI 10.1007/s00382-010-0991-z
53. Babu, V. S., **K. K. Kumar**, S. R. John,, K. V. Subrahmanyam and G. Ramkumar (2011), Meteor radar observations of short-term variability of quasi 2-day waves and their interaction with tides/planetary waves in the Mesosphere-Lower Thermosphere region over Thumba (8.50 N, 770 E)', *J. Geophys. Res.*,116, D16121, doi:10.1029/2010JD015390
54. Vineeth, C., T.K. Pant , **K.K.Kumar**, Lijo Jose , S.G. Sumod and S. Alex (2011), Counter equatorial electrojet: Analysis of the variability in daytime mesopause temperature and winds, *J. Atmos. Solar Terr.*, 75-76,115-121,doi:10.1016/j.jastp.2011.01.005
55. Sumod, S.G., T.K. Pant, Lijo Jose, M.M. Hossain, **K.K. Kumar** (2011), Signatures of Sudden Stratospheric Warming on the Equatorial Ionosphere-Thermosphere System, *Planetary and Space Science*, 63-64, 49-55 doi:10.1016/j.pss.2011.08.005
56. John, S.R and **K.K. Kumar** (2011), TIMED/SABER Observations of Global Cold-Point Mesopause Variability at Diurnal and Planetary Wave Scales, *J. Geophys. Res.*, 116, A06314, doi: 10.1029/2010JA015945.
57. **Kumar, K.K.**, K. V. Subrahmanyam and S. R. John (2011), New insights on the response of stratospheric and mesosphere-lower thermospheric ozone to abrupt changes in solar forcing, *Ann. Geophys.*, 29, 1093-1099, doi:10.5194/angeo-29-1093-2011.
58. John, S.R., **K.K. Kumar**, K. V. Subrahmanyam, G. Manju, and Q. Wu (2011), Meteor radar measurements of MLT winds near the equatorial electro jet region over Thumba (8.5°N, 77°E): comparison with TIDI observations, *Ann. Geophys.*, 29, 1209–1214.
59. Uma, K. N., **K.K. Kumar**, and T. N. Rao (2011), VHF radar observed characteristics of convectively generated gravity waves during wet and dry spells of Indian monsoon. *J. Atmos. Sol.-Terr. Phys.*, 73, 815-824, 2011, doi:10.1016/j.jastp.2010.07.016.

60. Subrahmanyam, K.V., G. Ramkumar, **K.K. Kumar**, D. Swain, S.V.Sunilkumar, S. S. Das, R.K. Choudhary, K V S Namboodiri, K.N.Uma, S.B. Veena, S.R.John, and A. Babu (2011) , Temperature perturbation in the troposphere-Stratosphere at Trivandrum during the Solar Eclipse 2009/2010 , *Ann. Geophys.*, 29, 275–282, doi:10.5194/angeo-29-275-2011
61. Vineeth, C., T. K. Pant, **K. K. Kumar**, S. G. Sumod, S. Gurubaran, and R. Sridharan (2011), Planetary wave-tidal interactions over the equatorial mesosphere-lower thermosphere region and their possible implications for the equatorial electrojet, *J. Geophys. Res.*, 116, A01314, doi:10.1029/2010JA015895
62. Das, S. S., **K. K. Kumar**, and K. N. Uma (2010), MST radar investigation on inertia-gravity waves associated with tropical depression in the upper troposphere and lower stratosphere over Gadanki (13.5°N, 79.2°E), *J. Atmos. Terr. Phys.* 72 (2010) 1184–1194, doi:10.1016/j.jastp.2010.07.016
63. Das, S. S., **K. K. Kumar**, S. B. Veena, and G. Ramkumar (2010), Simultaneous observation of quasi 16 day wave in the mesospheric winds and temperature over low latitudes with the SKiYMET radar, *Radio Sci.*, 45, RS6014, doi:10.1029/2009RS004300.
64. Liu, G., T. J. Immel, S. L. England, **K. K. Kumar**, and G. Ramkumar (2010), Temporal modulation of the four-peaked longitudinal structure of the equatorial ionosphere by the 2 day planetary wave, *J. Geophys. Res.*, doi:10.1029/2010JA016071
65. Liu, G., Immel T.J., England S.L., **Kumar K.K.** and Ramkumar, G (2010), Temporal modulations of the longitudinal structure in F2 peak height in the equatorial ionosphere as observed by COSMIC, *J. Geophys. Res.*, 115, A04303, doi:10.1029/2009JA014829
66. Abhilash , S., K. Mohankumar , S. Shankar Das, **K. K. Kumar** (2010), Vertical structure of tropical mesoscale convective systems: observations using VHF radar and cloud resolving model simulations, *Meteorol Atmos Phys.*, DOI 10.1007/s00703-010-0087-7
67. Vineeth C., T.K. Pant., **K.K. Kumar** and S.G. Sumod (2010)., Tropical connection to the polar stratospheric sudden warming through quasi 16-day planetary wave, *Ann. Geophys.*, 28, 2007–2013
68. Narendra Babu, A., J. B. Nee, and **K. K. Kumar** (2010), Seasonal and diurnal variation of convective available potential energy (CAPE) using COSMIC/FORMOSAT-3 observations over the tropics, *J. Geophys. Res.*, 115, D04102, doi:10.1029/2009JD012535
69. **Kumar, K. K.**, and K. N. Uma, (2009), High temporal resolution VHF radar observations of stratospheric air intrusion into the upper troposphere during the passage of a mesoscale convective system over Gadanki, *Atmos. Chem. Phys. Disc*, 9, 1-15

70. **Kumar, K. K.**, G. Ramkumar, and S. T. Shelbi (2009), Reply to comment by R. Dhanya and S. Gurubaran on “Initial results from SKiYMET meteor radar at Thumba (8.5°N, 77°E): 1. Comparison of wind measurements with MF spaced antenna radar system”, *Radio Sci.*, 44, RS5005, doi:10.1029/2008RS004123.
71. Dolas, P.M. & **K. K. Kumar** (2009), Retrieval of static stability parameter from the radiosonde/rawinsonde ascent rate profiles: A wavelet approach, *Ann. Geophysicae*, 27,1-7
72. Vineeth C., T. K. Pant, **K. K. Kumar**, G. Ramkumar, R. Sridharan (2009), Signatures of low latitude–high latitude coupling in the tropical MLT region during sudden stratospheric warming, *Geophys. Res. Lett.*, 36, L20104, doi:10.1029/2009GL040375
73. **Kumar, K.K.**, C. Vineeth, T. M. Antonita, T. K. Pant and R. Sridharan (2008), Determination of day-time OH emission heights using simultaneous meteor radar, day-glow photometer and TIMED/SABER observations over Thumba (8.5°N, 77°E), *Geophys. Res. Lett.*, 35, L18809, doi:10.1029/2008GL035376.
74. **Kumar, K.K.**, V. Deepa, T. M. Antonita and G. Ramkumar (2008), Meteor radar observations of short-term tidal variabilities in the low-latitude Mesosphere-Lower Thermosphere: Evidence for non-linear wave-wave interactions, *J. Geophys. Res.*, 113, D16108, doi: 10.1029/2007JD009610.
75. Babu, A.N., **K.K. Kumar**, G. K. Kumar, M.V. Ratnam, S.V.B. Rao & D. N. Rao (2008), Long-term MST radar observations of vertical wavenumber spectra of gravity waves in the tropical troposphere over Gadanki (13.5°N, 79.2° E): Comparison with model spectra, *Ann. Geophysicae*, 26,1671-1680.
76. Antonita, T.M., Geetha Ramkumar, **K.K. Kumar** and S. V. Sunil Kumar (2008), Quantification of gravity wave forcing in driving the stratospheric Quasi - Biennial Oscillation, *Geophys. Res. Lett.*, L09805, doi:10.1029/2008GL033960
77. Das, S.S., A. R. Jain, **K. K. Kumar**, D. N Rao (2008), Diurnal variability of the tropical tropopause: significance of VHF Radar measurements, *Radio sci.* 43, RS6003, doi:10.1029/2008RS003824.
78. Deepa, V., G. Ramkumar, T.M. Antonita, **K.K. Kumar** (2008), Meteor Wind Radar Observations of tidal amplitudes over a low latitude station Trivandrum (8.5°N, 77°E): Interannual variability and the effect of background wind on diurnal tidal amplitudes, *J. Atoms. Solar Terr* doi:10.1016/j.jastp.2008.07.017
79. Kumar, G.K., M. V. Ratnam, A. K. Patra, V. V. M. Jagannadha Rao ,S. V. B. Rao, **K. K. Kumar**, S. Gurubaran, Geetha Ramkumar and D. N. Rao (2008), Low-Latitude Mesospheric Mean Winds Observed by Gadanki MST Radar and Comparison with Rocket, HRDI, MF Radar measurements and HWM93, *J. Geophys. Res.* 113, D19117, , doi:10.1029/2008JD009862

80. Ratnam, M.V., G. K. Kumar, B. V. K. Murthy, A. K. Patra, V. V. M. J. Rao, S. V. B. Rao, **K.K. Kumar**, G. Ramkumar (2008), Long-term variability of the low latitude mesospheric SAO and QBO and their relation with stratospheric QBO *Geophys. Res. Lett.*, 35, L21809, doi: 10.1029/2008GL035390
81. Vineeth, C., Tarun K. Pant , Smitha V. Thampi, R. Sridharan, Sudha Ravindran, C. V. Devasia, **K. K. Kumar** and S. Alex (2008), Investigation of the response of equatorial MLTI region during a partial solar eclipse through ground-based daytime optical technique , *J. Geophys. Res.*, 113, A03302, doi:10.1029/2007JA012335
82. **Kumar, K. K.** (2007), Temperature profiles in the MLT region using radar-meteor trail decay times: Comparison with TIMED/SABER observations, *Geophys. Res. Lett.*, 34, L16811, doi:10.1029/2007GL030704.
83. **Kumar, K. K.** (2007), VHF radar investigations on the role of mechanical oscillator effect in exciting convectively generated gravity waves, *Geophys. Res. Lett.*, 34, L01803, doi:10.1029/2006GL027404.
84. **Kumar, K. K.**, Maria Antonita, G. Ramkumar, Deepa, Gurubaran and Rajaram (2007), On the tropospheric origin of MLT region intraseasonal wind variability, *J. Geophys. Res.*, 112, D07109, doi:10.1029/2006JD007962.
85. **Kumar, K. K.**, G. Ramkumar, T. Shelbi (2007), Initial results from SKiYMET meteor radar at Thumba (8.5°N, 77°E): Comparison of wind measurements with MF spaced antenna radar system, *Radio Sci.*, 42, RS6008, doi:10.1029/2006RS003551.
86. **Kumar, K. K.**, Maria Antonita, T. Shelbi (2007), Initial results from SKiYMET meteor radar at Thumba (8.5°N, 77°E): 2.Gravity wave observations in the MLT region, *Radio Sci.*, 42, RS6009, doi: 10.1029/2006RS003553.
87. Kalapureddy, M.C.R., **K.K. Kumar**, V. Siva Kumar, A.K. Ghosh, A.R. Jain and K. Krishna Reddy (2007), Diurnal and seasonal variability of TKE dissipation rate in the ABL over a tropical station using UHF wind profiler, *J. Atmos. Solar Terr.*, doi:10.1016/j.jastp.2006.10.016.
88. Antonita, T.M., Geetha Ramkumar, **K.K. Kumar**, K.S. Appu and K.V.S. Nambhoodiri (2007), A quantitative study on the role of gravity waves in driving the tropical Stratospheric Semiannual Oscillation, *J. Geophys. Res.*, 112, D12115, doi:10.1029/2006JD008250.
89. Deepa, Geetha Ramkumar and **K.K. Kumar** (2007), Observational evidence for the generation of 4-day oscillation in the low-latitude middle atmosphere associated with an anomalous stratospheric cooling, *Ann. Geophysicae*, 25, 1959-1965.
90. Antonita, T.M., Geetha Ramkumar, **K. K. Kumar** and V. Deepa (2007), Meteor wind radar observations of gravity wave momentum fluxes and their forcing towards the Mesospheric Semiannual Oscillation, *J. Geophys. Res.*, 113, D10115, doi: 10.1029/2007JD009089

91. **Kumar, K. K. (2006)**, VHF radar observations of convectively generated gravity waves: some new insights, *Geophys. Res. Lett.*, 33, L01815, doi:10.1029/2005GL024109.
92. **Kumar, K.K. & A. R. Jain (2006)**, L-band wind profiler observations of convective boundary layer over Gadanki (13.5⁰ N, 79.2⁰ E), India, *Radio Sci.*, 41, RS2004, doi:10.1029/2005RS003259.
93. Mrudula, G., K. Mohan Kumar and **K.K. Kumar (2006)**, Tropospheric circulation changes during the passage of Tropical cyclone over Gadanki, *J. Atmos. Solar Terr.*, 68, 869–876.
94. Deepa, V., Geetha Ramkumar, Maria Antonita, **K.K. Kumar** and M.N. Sasi (2006), Vertical wave propagation characteristics and seasonal variability of tidal wind oscillations over Trivandrum (8°N, 77°E): First results from SKIYMET meteor radar observations, *Ann. Geophysicae*, 24, 2877–2889.
95. **Kumar, K. K., J. Joseph, A. R. Jain, and D. N. Rao (2005)**, VHF radar observations of weak echo regions in tropical mesoscale convective systems, *Geophys. Res. Lett.*, 32, L10804, doi:10.1029/2004GL022238.
96. **Kumar, K. K., A. R. Jain, and D. N. Rao (2005)**, VHF/UHF radar observations of tropical mesoscale convective systems over southern India, *Ann. Geophysicae*, 23, 1673–1683.
97. Das, S.S., **K.K. Kumar**, A.R. Jain, D. Narayana Rao and K. Nakamura (2004), Observations of trapped humidity layer and Kelvin-Helmoltz instability using L-band radar and GPS sonde, *Radio sci.*, Vol 39, RS2024 Doi:10.1029/2003RS003003.
98. Jain, A. R., A. K. Ghosh, V. Sivakumar, and **K. K. Kumar (2003)**, Simultaneous MST radar and radiosonde measurements at Gadanki (13.5⁰ N, 79.2⁰ E), 1, Causative mechanism and characteristics of radar backscatterers at VHF, *Radio Sci.*, 38(1),1013, doi:10.1029/2000RS002527
99. Ghosh A. K., Siva Kumar V, **K. K. Kumar** and A.R. Jain (2001), VHF radar observations of atmospheric winds, associated shears and Cn² at a tropical location: interdependence and seasonal pattern, *Ann. Geophysicae*, Vol. 19, 965-973