

3rd International Conference on Hydrology & Meteorology

September 15-16, 2014 Hyderabad International Convention Centre, India

Observations of EPBs over India: A study using OI 630.0 nm images and TEC measurements

D P Nade^{1,2}, A K Sharma¹, D J Shetti³, A Taori⁴, G A Chavan¹, S S Nikte^{1,5}, O Gurav¹ and S Gurubaran⁶

¹Shivaji University, India

²Sanjay Ghodawat Group of Institutions (SGI), India

³Smt. Kasturba Walchand College, India

⁴National Atmospheric Research Laboratory, India

⁵Vishveshwarya Technical Campus Patgaon-Miraj, India

⁶Indian Institute of Geomagnetism, India

The simultaneous observations of total electron content (TEC) and intensity of nightglow OI 630.0 nm emissions is used to examine the occurrence of equatorial plasma bubbles (EPB) in low-latitude night time ionosphere over India. The radio observations of TEC using the Global Positioning System (GPS) were carried out from Hyderabad (17.67°N, 83.32°E). The optical observations of nightglow OI 630.0 nm images have been carried out using all sky imager (ASI) from Kolhapur (16.8° N, 74.2° E) during April 2011. We have taken an average intensity of a square bin (5 × 5 pixel) of an individual image (OI 630.0 nm) in order to study occurrence of EPBs. The zonal drift velocities of EPBs were estimated using method recently developed by Sharma et al. (2014). The EPBs occurred in evening hours ~19:30 IST and move towards eastward with average speed 138 m/s. prior to local midnight, and then gradually decreases with time. The calculated EPB velocities are compared with recently developed model by England and Immel (2012). We found that the time difference between occurrences of EPBs in TEC measurement and intensity of OI 630.0 nm about ~1 hr. Herein we have discussed possible mechanism for occurrence and evolution of EPBs over Indian region.

Biography

D P Nade has completed his PhD at the age of 32 years from Shivaji University Kolhapur. He is Assistant Professor in Department of Basic Science and Humanities of Sanjay Ghodawat Group of Institution, Atigre. He has published more than 14 papers in reputed journals and has been attended more than 19 national and international conferences, workshops etc. He has been serving as reviewer of Journal of Geophysical Research.

aks_phy@unishivaji.ac.in

Hydrology & metrology services towards desert prosperity in Libya

S P Bindra and Ashour Sassi

Meteorology Civil Aviation & Meteorology Technical College, Libya

This paper is designed to present hydrological & meteorological technologies application for devising strategies and a plan of action to evolve low or no carbon prosperity for sustainable and equitable development of desert regions that faces climate change impacts mainly because of rise in temperature due to human activities like Libyan man made river, target to increase oil & gas production to 3.0 mbd by 2020 leading to global warming. Interesting findings on hotspots, bright spots and trend exciting studies initiated in Libyan desert region shows that short-term remedial programs for dealing with immediate problems such as ground water recharging, green sky initiative, soil remediation, soil erosion, salinization or famine are possible to enhance desert prosperity. It shows the extent to which deserts prosperity is threatened by a combination of human exploitation by way of manmade river for ground water exploitation, air cargo expansion plan, enhanced oil & gas production and climate change. Role model of UNCSD Rio+20 Focal Point at Civil Aviation Technical Colleges Sphea is briefly outlined to show how the Best Practices Programme on various desert prosperity initiatives using hydrology & meteorology services are helping to provide new solutions to accelerate and streamline learning that applies recent technology, industry know-how and business essentials to provide new and effective blended learning products and programs. Finally the paper presents how adaptation planning by incorporating climate change impacts in to hot arid regions development plans can play a role in fostering desert prosperity by strengthening of existing centers and for the establishment of a more extensive international monitoring network with personnel equipped and trained to collect baseline hydrological & meteorological data relevant to study all aspects of Linkages between Climate Change and Desert prosperity using zero carbon or low carbon initiatives to meet the millennium development goals.

s.p.bindra@gmail.com