

Accepted Manuscript

Role of Equatorial Anomaly in Earthquake time precursive features: A few strong events over West Pacific Zone

Minakshi Devi, S. Patgiri, A.K. Barbara, Koh-Ichiro Oyama, K. Ryu, V. Depuev, A. Depueva

PII: S0273-1177(18)30011-5
DOI: <https://doi.org/10.1016/j.asr.2018.01.003>
Reference: JASR 13576

To appear in: *Advances in Space Research*

Received Date: 7 September 2017
Revised Date: 15 November 2017
Accepted Date: 1 January 2018

Please cite this article as: Devi, M., Patgiri, S., Barbara, A.K., Oyama, K-I., Ryu, K., Depuev, V., Depueva, A., Role of Equatorial Anomaly in Earthquake time precursive features: A few strong events over West Pacific Zone, *Advances in Space Research* (2018), doi: <https://doi.org/10.1016/j.asr.2018.01.003>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**Role of Equatorial Anomaly in Earthquake time precursive features: a few strong events
over West Pacific Zone**

Minakshi Devi ^{a,*}, S. Patgiri ^a, A.K. Barbara ^a, Koh-Ichiro Oyama ^b, K. Ryu ^c, V. Depuev ^d and
A. Depueva ^d

^a *Department of Physics, Gauhati University, Guwahati 781014, Assam, India*

^b *International Center for Space Weather Study and Education, Kyushu University, Fukuoka,
Japan*

^c *Satellite Technology Research Center, Korean Advanced Institute of Science and Technology
(KAIST), Daejeon, Korea*

^d *Pushkov Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation
(IZMIRAN), Moscow, Troitsk, Russia*

Abstract

The earthquake (EQ) time coupling processes between equator-low-mid latitude ionosphere are complex due to inherent dynamical status of each latitudinal zone and qualified geomagnetic roles working in the system. In an attempt to identify such process, the paper presents temporal and latitudinal variations of ionization density (foF_2) covering 45° N to 35° S, during a number of earthquake events ($M > 5.5$). The approaches adopted for extraction of features by the earthquake induced preparatory processes are discussed in the paper through identification of parameters like the ‘EQ time modification in density gradient’ defined by $\delta = (foF_{2 \max} - foF_{2 \min}) / \tau_{mm}$, where τ_{mm} – time span (in days) between EQ modified density maximum and minimum, and the Earthquake time Equatorial Anomaly, i.e. EEA, one of the most significant phenomenon which develops even during night time irrespective of epicenter position. Based on the observations, the paper presents the seismic time coupling dynamics through anomaly like manifestations between equator, low and mid latitude ionosphere bringing in the global Total Electron Content (TEC) features as supporting indices.

Key words: ionosphere, Earthquake, equatorial anomaly, foF_2 , TEC

Corresponding author: Minakshi Devi. Email address: md555gu@gmail.com

Download English Version:

<https://daneshyari.com/en/article/8132167>

Download Persian Version:

<https://daneshyari.com/article/8132167>

[Daneshyari.com](https://daneshyari.com)