

PERTURBATIONS IN VLF ATMOSPHERICS AND FM RADIO SIGNAL DURING SEPTEMBER 2012 EARTHQUAKE AT SIKKIM: A CASE STUDY

**ASIT BARAN BHATTACHARYA^{1*}, KOUSHIK ROY²
AND ATANU NAG^{1,3}**

¹ Department of Physics, University of Kalyani, Kalyani 741235, India

² Department of Electronics and Communication Engineering,
Asansol Engineering College, Asansol-713305, India

³ Department of Physics, Modern Institute of Engineering & Technology,
Hooghly 712123, India

Abstract

Round-the-clock record of VLF atmospherics at 40 kHz showed typical variations in the noise level during the Sikkim earthquake of 18 September, 2012. We have also simultaneously recorded a significant variation in the received FM signal at 92.7 MHz in our observatory at Kalyani (22.98° N, 88.46° E), West Bengal. A preliminary analysis of the earthquake and its effect on atmospherics and radio signal levels are reported in this paper. The results are interpreted considering the gravity wave perturbations responsible for affecting the lower ionospheric layers in course of the propagation of electromagnetic wave in the form of atmospherics or the radio signal corresponding to FM band.

Keywords: Atmospherics, Radio Signal, Earthquake.