A study of day to day variability in geomagnetic field variations at the electrojet zone of Addis Ababa, East Africa

A. B. Rabiu (1), N. Nagarajan (2), E. A. Ariyibi (3), G. M. Olayanju (4), E. O. Joshua (5), V. U. Chukwuma (6).

(1) Department of Physics, Federal University of Technology, Akure, Nigeria, (2) National Geophysical Research Institute, Uppal road, Hyderabad 500 007, INDIA, (3) Department of Physics, Obafemi Awolowo University, Ile-ife, Nigeria, (4) Department of Applied Geophysics, Federal University of Technology, Akure, Nigeria, (5) Department of Physics, University of Ibadan, Ibadan, Nigeria, (6) Department of Physics, Olabisi Onabanjo University, Ago Iwoye, Nigeria.

Magnetic records obtained at low latitude geomagnetic observatory of Addis Ababa in Africa for the sunspot minimum year 1986 are analysed for day-to-day variability of the hourly amplitudes of Solar daily variation. Direct measurement of the day to day variability were measured using a proven differential expression. The variability was studied under quiet and disturbed conditions. Quiet day day-to-day variability has consistent, smooth and explicable diurnal and seasonal variation. Day to day variability in the elements H and Z have certain degrees of correlation with one another on both quiet and disturbed conditions. It is suggested that day to day variability is a reflection of solar daily variation and thus suggesting common cause for the two phenomena.