The paper entitled 'The Transient Variation of the Complexes of the Low Latitude Ionosphere within the Equatorial Ionization Anomaly Region of Nigeria' by Rabiu et al. attempts to study the utility of Lyapunov exponents and Tsallis entropy computed from the total electron content (TEC) derived from GPS observations in characterization of the dynamical response of the dip equatorial ionosphere to external influences. One major shortcoming of the paper is the assumption on the part of the authors that the only external influence is due to magnetospheric forcing seen during magnetic storms. There is also significant forcing from below the ionosphere, which causes day-to-day variability, even during magnetically quiet periods, in the occurrence of the equatorial plasma bubble that produces the largest changes in the de-trended time series for daily TEC at a low latitude station, after the diurnal variation has been removed, as has been done in the present paper. It is not clear from the results presented in the paper, that non-linear dynamics of the low latitude ionosphere is mainly determined by geomagnetic storms and substorms. On the whole, the quality of the paper is poor, with some glaring errors mentioned in the next paragraph.

The paper has several basic scientific issues that need to be addressed and corrected before the authors even proceed to present results pertaining to the non-linear dynamics of equatorial and low-latitude ionosphere. These are listed below:

1. On p 1960, lines 13-14 are incorrect. In the dip equatorial region and at the low dip latitudes (all below 3.5 degrees) where the stations considered by the authors are located, the magnetic field B is horizontal and perpendicular to the dip equator and not parallel to the equator as stated by the authors.

2. On p 1960, lines 14-17: 'Off the equator map along F region …….' are meaningless. What do the authors mean by 'the eastward electric field (E) of the E-region interacts with the magnetic field B during the day'? There is no **E** X **B** drift of the E region plasma as a whole because in the E region only the electrons are magnetized while ion motion is influenced more by collisions with neutrals.

3. On p1864, the authors fail to mention what the set u_i consists of and how do they obtain this set. Moreover, T_i in equation (3) is not the diurnal variation reduced time.

4. Authors fail to mention the formulae they have used to calculate the mutual information and the number of false nearest neighbours.

5. What does the delay representation of the time series shown in Figure 5 represent?

6. What are Δx and r in Equation (5)?

7. In equation (6), limit has to be calculated for $r \rightarrow 0$, and not $r \rightarrow \infty$.

8. Instead of the lengthy write-up on Tsallis Entropy, which has been better described in cited references, the authors should mention the formula that they have used to calculate the Tsallis Entropy from their data.

9. Equation (14) is incorrect and need not be given. Authors should write Eq. (15) correctly: they are summing over i and x is characterized by n? The authors should take greater care to write correct equations.

10. Page 1876, lines 1-2. There is no such thing as 'acoustic motions of the atmosphere electromagnetic emission'!

11. On p 1876, line 23. The solstices are not necessarily months of low solar activity. Some major magnetic storms have occurred during the solstices.