Our modern civilization is becoming increasingly dependent on space-borne technologies such as GNSS, and communication satellite systems. The performance of these systems is adversely affected by the state of the ionosphere**.** The dispersive nature of the ionosphere introduces group delay to trans-ionospheric radio waves. This is a major source of positioning error in single frequency, stand alone GNNS. This delay is proportional to the total electron content (TEC). TEC can exhibit fluctuations. The fluctuations are manifestations of plasma density irregularities that cause ionospheric scintillations. Scintillations cause loss of lock in GNNS receivers, and represent a problem in the availability and precision of GNNS. In the case of communication satellite systems, scintillation may cause problem for data transmission. In digital transmission radio link it can also cause corruption of data bits. This is of concern in GNSS, where the satellite ephemeris data may be adversely compromised resulting in the unavailability of the satellite. This is of great concern in the case of space-based augmentation system data transmission on geostationary satellites; where the data contains information for all satellites in view. Corruption of the data may affect all satellites, thus making loss of positioning very likely. The consequence can be catastrophic. Two important ionospheric parameters in the context are TEC, and scintillation strength, characterized by S_4. S_4 is much greater in the polar and low latitude regions, whose ionospheres exhibit great variability, which is very much affected by space weather events, such as geomagnetic storms. These storms can cause change in range delay, proportional to ΔTEC: the storm-time TEC departure from the undisturbed TEC. In this work we have carried out a statistical study of storm-time behaviour of TEC at Lagos, (6.40^o N; 3.40^o E; 3.10^o S, dip angle) by investigating the deviations of storm-time TEC from the undisturbed TEC, obtained by taking the average of TEC values for six undisturbed days, three before and three after the disturbed day. We also investigated the temporal variations of TEC for some GNSS satellites, identified by their PRNs, by estimating the time rate of change of TECs, ROT, and its standard deviation, ROTI. It was, our intention to find out how S_4, relates to ROT, and ROTI. A total of twelve storms, from March 2008 to March 2012, were studied. The storm events were chosen in such a way as to reveal any dependence of TEC behaviour on: (i) storm intensity, characterized by the disturbed storm tine, Dst; (ii) season, and (iii) the duration of the southward excursion of, IMF B_Z. It is hoped that the result findings will among others, enrich our understanding of solar wind-magnetosphere-ionosphere coupling. And major practical import is in estimating the maximum range error under storm conditions. This is a potential limitation in precise positioning employing radio waves for GNNS. The TEC data analysed were captured using Novatel 400B dual frequency GPS receiver installed at our University since 2008. For each storm, the TEC data was analyzed to retrieve calibrated slant TEC for PRNs with mask angle $\geq 30^o$ (to eliminate multipath effect). This TEC was subsequently converted to vertical TEC, using a mapping function which assumes ionospheric pierce point height of 350 Km. Preliminary results show that: (i) in most cases, especially during March equinox, and when there is long duration of southward excursion of IMF B_Z , there were TEC enhancements, especially ~ 2400 hrs LT (UT+1). In some cases the enhancement was up to 30 TECU translating to ~5m at L1; (ii) during some storms TEC bifurcation was observed ~15 hrs LT; and (iv) there was increased S_4 most of the time there was TEC enhancement ~ 2400 hrs LT, especially when no bifurcations were observed. These observed high S_4 is associated with high TEC fluctuations, which are manifestations of Equatorial plasma bubbles. Detailed results and the plausible explanations are proffered in the main report.