



## **Effects on the thermosphere density of space weather events: an analysis of the STAR/CHAMP measurements**

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We use the thermosphere density values deduced from STAR accelerometer measurements onboard the CHAMP satellite for investigating the impact of geomagnetic activity on the thermosphere behaviour at about 400 km altitude. The analysis is conducted through a comparison between the STAR deduced density values and those computed using the NRLMSIS-00 empirical model with two different definition of the geomagnetic activity: the current one, and a hypothetical quiet situation (denoted as NRLMSISQuiet) obtained by setting the daily  $A_p$  value to 4. The first step is defining a reference status that encompasses the effects of solar radiation variability, as well as those of solar zenith angle and satellite altitude variations. A practical definition of the reference status is discussed. In particular the possibility of using NRLMSISQuiet values is considered. We consider the whole range of geomagnetic activity, from moderate activity conditions to intense geomagnetic storms, and focus on low to middle latitudes (50N to 50S). Statistical results characterizing the thermosphere density dependence on magnetic activity are presented.