Ground based support for ASIM and TARANIS space missions over Indian region

Rajesh Singh[1], Ajeet K Maurya[1], B. Veendhari[2], Torsten Neubert[3], Olivier Chanrion[3]

[1]*KSK Geomagnetic Research Laboratory, IIG, Chamanganj, Allahabad, India*
[2]*Indian Institutes of Geomagnetism, New Panvel, Navi Mumbai, India*
[3]*Department of Solar System Physics, DTU Space, Denmark*

Indian region is the part of tropical regions in the world, where two of every three lightning flashes occurs and make this region an important location for TLEs observations. In spite of being lightning active region, TLE observations in this region were lacking mainly because of two main reasons (1) thunder clouds over Indian region do not form Mesoscale Convective Systems (MCSs) which are proposed to produce TLEs (sprite) events (2) Absence of proper observation facilities. With the collaboration between Indian Institute of Geomagnetism (IIG) and DTU space, Denmark in the year 2010 led to the setup of TLEs observation system at IIG centre in India. During last two years observations of several TLEs events over Indo-gagantic plains started new interest in this filed in Indian region. The Indian observation stations are the part of ground based support facilities to ASIM and TARANIS space mission to be flown in the year 2015-2016. IIG operates several geomagnetic observatories and several experiments related to ionosphere studies at various locations covering full Indian region. It provides excellent place for setup of TLEs observation system to cover lightning activity over full Indian region along the coast and Indian mainland. The lightning activity over Indian region is significant from March to November with first occurrence maximum during April to June (pre-monsoon) and second occurrence maxima during August to June (post-monsoon) seasons (Kandalgaonkar et al., 2003). There are three most lightning active centres in India: north-west, north-east and south-west regions and it will be our prime motto to setup TLE observation systems in these regions to provide ground based support for future space mission to cover these regions.