

## Current status of SCOSTEP/VarSITI - Variability of the Sun and Its Terrestrial Impact (2014-2018)

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The Scientific Committee On Solar-Terrestrial Physics (SCOSTEP) operates the unique scientific program “Variability of the Sun and Its Terrestrial Impact” (VarSITI) in 2014-2018 to focus on the recent and expected future solar activity and its consequences for the Earth, for various time scales from the order of thousands years to milliseconds, and for various locations and their connections from the solar interior to the Earth’s atmosphere. Four scientific projects are carried out under the VarSITI program: (1) Solar Evolution and Extrema (SEE), (2) International Study of Earth-Affecting Solar Transients (ISEST/MiniMax24), (3) Specification and Prediction of the Coupled Inner-Magnetospheric Environment (SPeCIMEN), and (4) Role Of the Sun and the Middle atmosphere/thermosphere/ionosphere In Climate (ROSMIC).

In order to elucidate various Sun-Earth connections, VarSITI has encouraged close communications between solar scientists (solar interior, atmosphere, and heliosphere) and geospace scientists (magnetosphere, ionosphere, and atmosphere). We have carried out observation/data analysis campaigns for particular intervals, such as ISEST/Minimax24 campaign ([http://solar.gmu.edu/heliophysics/index.php/The\\_ISEST\\_Event\\_List](http://solar.gmu.edu/heliophysics/index.php/The_ISEST_Event_List)) for Earth-affecting solar transients, ICSOM campaign (<http://pansy.eps.s.u-tokyo.ac.jp/icsom/>) for interhemispheric coupling during stratospheric sudden warming, and ERG-ground campaign for the dynamics of inner magnetosphere. We have supported more than ten VarSITI-related meetings and several campaign and database constructions every year using the SCOSTEP/VarSITI grants. VarSITI mailing list, which contains ~900 mail addresses from ~70 countries, was constructed for communications among scientists on various fields. VarSITI newsletters have been published every three months to introduce new scientific results, young scientists newly joined into the VarSITI science, and meeting reports. About 130 databases are registered for VarSITI-related research activities. All this information is available at the VarSITI web pages at <http://www.varsiti.org/>.

After the first three years of the VarSITI program, various outstanding results has been obtained, such as solar dynamo simulations, imaging measurements of earth-affecting solar transients, high-energy particle precipitation on the Earth’s atmosphere and its consequence on the ozone and other constituents in the upper and middle atmosphere, and effects of lower atmosphere to the thermosphere and ionosphere through the middle atmosphere. In the presentation we will review these various recent results obtained during the VarSITI period.

Keywords: VarSITI, SCOSTEP, Sun-Earth Relationship