

**SPACE ENVIRONMENT RESPONSES OF NATURAL DISASTERS —  
THE COUPLING MECHANISMS OF EARTH INNER ACTIVITIES  
WITH SPACE ENVIRONMENT**

**Xuhui Shen on behalf of CSES and IMCP Team**

*National Space Science Center, CAS, Beijing, China,  
xuhuishen@nssc.ac.cn*

Currently, China is operating and developing a series of projects related with Space environment, such as CSES-01/02, SMILE, CMP, IMCP and soon, to monitor and record the Inospheric plasma, EM waves and charged particles environments as well as their disturbances with space weather and natural hazards. By combining all these data, we acquired a lot of large events of earthquake, Volcano and Space Weather records, and then a series of case Analysis and statistical researches. On the basis of all these data and events studies, we developed the systematic mechanisms of lithosphere-Atmosphere-Ionospheres coupling of Electromagnetic channel to understood the Propagation and effects of the earth inner activities up to near-Earth space and make disturbance to the Regional Characteristics with the key point of LF EM wave can propagate among lithosphere, atmosphere and ionosphere. But the wave energies decimated while its going in and away of the wave-guide layer.

Regarding to the IMCP application objectives related with natural hazards, global Change and Sustainable Develop Goals, the main interested topics between Russia-China should be: 1. Jointly observation and research of global geomagnetical field and Polar Shift & SAA change as well as its impact to global change; 2. Jointly observation and research of multi-kind of natural hazards, such as EQ, Typhoon/Hurricane, waterflood, extreme weather etc., monitoring, mitigation and research by Combining of Space environment and Remote sensing information, as well as the Interaction of multi-plates, multi-spheres and multi-geophysical fields; 3. Joint research of the Inter-spheric coupling within Earth Critical Zone and SDGs.