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Geo space observation of natural and anthropogenic processes

We study the impact and effects of different natural and anthropogenic events on atmosphere and ionosphere by using multi-instrument geospace observations. The coupling processes within the system Earth System of Atmosphere-Ionosphere attract more and more attention from the world scientific community. One of the most discussed recently topics in geophysical science is the coupling mechanism, which generates anomalies in different near-Earth shells starting from boundary layer of atmosphere up to magnetosphere of our planet, which was generalized in the form of the Lithosphere-Atmosphere-Ionosphere Coupling (LAIC). We use multi-instrument space-borne observations including NASA/EOS, NOAA/POES, EUMETSAT, CNES/DEMETER, FORMOSAT-3/COSMIC, as well as ground observations of GPS/TEC and meteorological monitoring data to study changes in Earth troposphere and plasma environment system under various geophysical conditions including natural and anthropogenic disasters. We have found that many of different natural and anthropogenic phenomena contain similarity of their behavior and effects on atmosphere and ionosphere. We are presenting few cases from our analyses, which show the synergetic behavior of different atmospheric and ionospheric parameters related to: (1) Phenomena preceding large earthquake (Wenchuan, China, 2008; L'Aquila, Italy 2009; Tohoku, Japan, 2011); (2) Effects associated with major hurricanes and dust storms; and (3) Radioactive pollution during technological disaster (Fukushima 2011).

Biography

Dimitar Ouzounov is an Associate Professor at Chapman University. He works as a Research Scientist in geo-physics, satellite earth observations, and geo-computing. He conducts research on utilizing near-space earth observations for studying geodynamics processes. He contributed in validation of the new geophysical theory of lithosphere-atmosphere-ionosphere coupling in relation to earthquake processes. He has coordinated international initiatives on utilizing space-borne and ground observations for earthquake hazard risk assessments. He has won multiple NASA grants and has published more than 150 papers. He teaches satellite applications in natural hazards at Chapman University. He is a Keynote speaker at international conferences.

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