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LOIS–a unique combination of radio facilities and IT infrastructures for Space Weather purposes

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To understand the property of solar terrestrial environment and to develop a quantitative model of the magnetosphere-ionosphere-thermosphere subsystem, which is strongly coupled via the electric field, particle precipitation, heat flows and small scale interaction, it is necessary to design and build new generation multipoint and different type sensor diagnostics, as proposed by LOFAR/LOIS facility. Ground based multi frequency and multi polarization LOIS clusters antennas and clusters observations in the in the space should be helpful in achieving to solve problems of space physics and described long term environmental changes. The real-time access to gathered based data relevant to the impact of environment physical condition on communications and global positioning system and will create the possibility to improve quality of different type space related services. The aim of this presentation is to show the general architecture of LOIS project and its diagnostics and scientific challenges. It will be emphasize the description of electromagnetic Earth environments in HF range as well.