



DEMETER lessons and next mission analysis

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The information obtained from many precedent space missions and first of all from the first successful dedicated one – DEMETER – allows discussion about the optimal payload and composition of the future space missions optimized for the study of ionospheric EQ precursors.

There is necessary to answer two important questions before to plan any experiment to study ionospheric precursors of EQ. First one – whether the variations in the ionosphere definitely connected with the EQ preparation process do exist, and the second one – if they do, whether using these signals the precursors of EQ can be reliably identified and used for, if not prediction, then for the warning that the EQ in the given area approaches. To answer these questions, the available information about the EQ-connected signals collected in former spatial experiments, mainly in DEMETER, is analyzed. Possible mechanisms of energy transfer from EQ preparation area to the ionosphere are reviewed and the mostly supported ones - FWC and AGW – are discussed. Most probable, real lithosphere-atmosphere-ionosphere coupling includes several mechanisms and in dependence of momentary factors one or other prevails. So, according to the information given above let us accept that both mechanisms have to be verified. This allows us to single out the main physical values which it would be advisable to monitor in the planned spatial mission in order to try to increase the EQ precursors detection rate. Preferably, the monitoring of such parameters has to be made minimum in two, better in three points, preferably with the possibility to control the distance between them. This will increase the reliability to extract the seismogenic variations, being mostly local, at the background of the variations of other nature, being mostly enough spacious or even global. The multi-points space experiment realization possibility is discussed. This work was supported by FP7 project 312993 and by SSAU grant 4-03/13.