

## Radio frequency diagnostics on board of Cubesat as a tool for planetary Space Weather monitoring

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### Abstract

CubeSat pico-satellite standard was developed recently to allow easy access to space for projects with limited funds. Due to relatively cheap yet professional development process, CubeSats have also great educational impact. This allows the students to learn about all crucial aspects of space engineering and project management. Since all the basic steps for developing CubeSat are similar to those performed on bigger satellites (i.e. designing, testing, operating in space), this gives possibility to develop all the necessary skills and experience for future work at space industries.

Space Research Center, together with its collaborators from University of Warmia and Mazury in Olsztyn and others, would like to design and build double unit CubeSat as an opportunity to perform scientific experiments in space together with technological demonstrators of subsystems. In order to monitor the Earth's and planetary space environment and obtain a much more complete picture of magnetosphere and ionosphere coupling and particularly waves-particle interaction in this system than those available hitherto new mission of clustered Cubesat mission can be propose. Moreover to enhance our understanding of the rich plasma physical processes that drive the Solar Terrestrial space environment, we need to increase our ability to perform multi-point measurements by means of different sensors. Therefore, new technologies radio frequency radio analyser RFA instrument will give the possibility for diagnostics 3D electric field component (spectra and wave forms) with extremely high time resolution. Additional technological challenges regarding size, computational power and energy constraints are imposed by the design of CubeSat.