



Space-Data Routers: Advanced data routing protocols for enhancing data exploitation for space weather applications

Anastasios Anastasiadis (1), Ioannis A. Daglis (1,2), George Balasis (1), Constantinos Papadimitriou (1), Vassilios Tsaoussidis (3), and Sotirios Diamantopoulos (3)

(1) National Observatory of Athens, Institute for Astronomy, Astrophysics, Space Applications & Remote Sensing, Greece, (2) University of Athens, Faculty of Physics, Athens, Greece, (3) Democritus University of Thrace, Department of Electrical and Computer Engineering, Xanthi, Greece

Data sharing and access are major issues in space sciences, as they influence the degree of data exploitation. The availability of multi-spacecraft distributed observation methods and adaptive mission architectures require computationally intensive analysis methods. Moreover, accurate space weather forecasting and future space exploration far from Earth will be in need of real-time data distribution and assimilation technologies. The FP7-Space collaborative research project “Space-Data Routers” (SDR) relies on space internetworking and in particular on Delay Tolerant Networking (DTN), which marks the new era in space communications. SDR unifies space and earth communication infrastructures and delivers a set of tools and protocols for space-data exploitation. The main goal is to allow space agencies, academic institutes and research centers to share space-data generated by single or multiple missions, in an efficient, secure and automated manner. Here we are presenting the architecture and basic functionality of a DTN-based application specifically designed in the framework of the SDR project, for data query, retrieval and administration that will enable addressing outstanding science questions related to space weather, through the provision of simultaneous real-time data sampling at multiple points in space.

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