



Research e-infrastructure for “Geophysics” mission.

V. Nazarov, M. Mogilevsky, R. Nazirov, N. Eismont, and A. Melnik

Space Research Institute, Academy of Science, Moscow, Russian Federation (vnazarov@romance.iki.rssi.ru)

Space mission “Geophysics” intended for monitoring of ionospheric plasma parameters, electromagnetic emission and solar activity. In the frame of the project will be launched five small satellites on solar-synchronous orbits: two satellites on circular orbit, altitude 700 km, orbit plane – morning-evening, another two satellites at the same altitude but orbit plane – day-night and the last satellite – on elliptic orbit with 1200 km apogee and 400 km perigee.

Such choice of spacecraft constellation configuration is to some extent similar to the configuration usually used for the Earth remote sensing tasks. It gives advantages for the project because it allows to apply technologies of remote sensing satellites practically off-shelf. From the other side it gives new possibilities for geophysics experiments followed from the fact that the measurements may be considered as the ones done by the instruments having the size of the Earth scale.

However it brings more strict requirements for information support of the mission in general and for ground segment particularly. It needs not only on-line processing but on-line interpretation too, operative feedback link between interpretation and operation subsystems etc.

Satisfaction of such strict requirements from one side and necessity for using of existing ground resources (taking in account budget limitations) implied creating of unified ground information infrastructure for target payload of the mission. This e-infrastructure will cover traditional ground systems which are treated as systems based on Resource-Oriented Architecture (ROA) and will produce unified integration platform based on Service-Oriented Architecture (SOA) which will collect all needed services and provides access to them in frame of unified cyber-infrastructure.

The article describes technology and methodology aspects of design of this system.