CGMS-XXXIII ROSS-WP-04
Prepared by Russia
Agenda Item: C.3

Future Research and Development Satellite Systems

FUTURE RUSSIAN RESEARCH AND DEVELOPMENT SATELLITES

Summary and purpose of the WP

Roscosmos intends to launch in 2005-2006 years three new research and development satellites: “Kompas-2”, “Resurs-DK” and “Baumanets”.

They are designated for investigation of Earthquakes prediction possibilities (“Kompas-2”), précised remote sensing of the Earth (“Resurs-DK”) and to acquire practical experience in space technology by students (“Baumanets”).

Action proposed: no action required.

FUTURE RUSSIAN RESEARCH AND DEVELOPMENT SATELLITES

Roscosmos planned to launch three new research and development satellites in 2005-2006 years.

The first satellite is “Kompas-2”. This spacecraft must be launched at the end of 2005 year. Its designation is fulfilling various experiments in the nearest Earth space for the aim of investigation of different possibilities to predict Earthquakes. “Kompas-2” has got several payload devices for detection and registration of anomaly processes and phenomena in the Earth ionosphere. For these tasks, “Kompas-2” devices will measure high and low frequency electromagnetic radiation, electron concentration in F2 layer of ionosphere and nuclear particles in the near-Earth space. The satellite will be launched in elliptical orbit with apogee of 550 km and perigee of about 400 km, the inclination is 79°.

The satellite “Kompas-2” has been developed by State Rocket Center “Academician Makeyev Design Bureau” in Miass town.

The second satellite that Roscosmos intends to launch in the next year is “Resurs-DK”. The satellite is developed by TsKB-Progress State Research and Production Rocket and Space Center in Samara city. The designation of this spacecraft is to obtain précised panchromatic and multispectral images of the Earth for various economical and commercial applications, such as ecology, mapping, forestry monitoring, cadastre production, agriculture, disaster monitoring and others.

The satellite payload must include the main onboard instrument “Geoton” for observation of the Earth surface in two modes: 1) panchromatic mode at spatial resolution about 1 m and 2) multispectral mode at spatial resolution from 2 to 3 m in three spectral bands (0.5-0.6, 0.6-0.7 and 0.7-0.8 μm). The swath width is approximately 30 km.

The payload of “Resurs-DK” will include some additional devices to register high-energy electrons, protons and other nuclear particles and ions.

The data from “Resurs-DK” will be received and processed in Fast-Response Earth Monitoring Research Center of Roscosmos in Moscow. Thematic processing of these data is planned to carry out as in this Center as in the closed joint-stock company SOVINFORMSPUTNIK in Moscow.

The third Russian research and development satellite “Baumanets” must be launched in the middle of 2006 too. It is a very small satellite. Its main purpose is to give students of Russian Bauman State University and other high technical educational organizations the real opportunity to provide own experiments and acquire practical experience in space technology and receiving and processing space images of the Earth from the satellite “Baumanets”.

The satellite “Baumanets” will provide the space images at a spatial resolution 50 m and swath width 100 km in four spectral channels: 0.45-0.5, 0.5-0.6, 0.6-0.7 and 0.7-0.9 μm.

This spacecraft is developed by specialists of Bauman State University and Machine-Building Research and Production Association in Moscow.

The data from this satellite will be received and processed in the above-mentioned University and Fast-Response Earth Monitoring Research Center in Moscow.