# ORBITAL OBSERVATORY FOR PLANETARY SCIENCE ON LOW COST AUTONOMOUS PLATFORM

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The Space Research Institute of Russian Academy of Science (IKI RAS) and Dauria Aerospace are currently developing the middle class space telescope project aiming to observe Solar system planets by a long term spectroscopy and polarimetry monitoring, as well aiming to extra solar planets (exoplanets) engineering and scientific goals. The spacecraft is scheduled to be launched in 2017. It is planned first to be delivered on board of the ISS by the Progress spacecraft, then it will be released to the desired orbit approx. 550 km by the Progress in the way to its final destination.

The "Planetary monitoring" telescope has a 0.6 meter primary mirror diameter

Telescope currently includes 5 science instruments:

NIR: 1000…4000 nm high-resolution spectrometer with the spectral resolution of R>10000;

Visible Field camera with filters wheel;

UV-VIS field resolved Fourier spectrometer;

UV-VIS spectropolarimeter;

Stellar coronagraph linked with a low-resolution spectrometer.

The scientific goals of the "Planetary monitoring" telescope are devoted to explore not yet well studied questions on Mars (methane, ozone, dust and clouds, isotope ratio of $HDO/H_2O$), on Venus (UV absorber, night glow, atmosphere dynamics), icy and gaseous Solar system planets, Jovian moons, Lunar exosphere, comets, meteorites. This telescope aims also for engineering development of exoplanet study by stellar coronagraphy linked with a low-resolution spectrometry.

This Orbital Observatory mission uses the first low cost small satellite platform developed by the *Dauria Aerospace*® - Russian private company and reuses the Progress to elevate the observatory orbit. The Progress launches four times per year to provide supplies and scientific instruments to the ISS. The Progress is capable of raising the height of the orbit for the piggyback scientific missions; therefore, the implementation of the Orbital Observatory mission is considered not just as a development of a successful science mission so it is most importantly developing an affordable and frequent flight opportunities for space sciences research in Russia and worldwide.

The paper describes the scientific objectives and corresponding instruments, and introduces the low cost satellite platform and launch opportunities.