Remote sensing applications for agriculture monitoring in the Northern Eurasia

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Northern Eurasia has a diverse land cover with over 20% of the world's arable lands. Northern Eurasian ecosystems present challenges to social and ecosystem scientists assessing the human dimensions of land cover and land use change. The social forces that underlay these complex vegetative changes are unique to the region, which has experienced profound institutional change over the past decade. Climate change affect agricultural system and their productivity, thus affecting the magnitude of land carbon fluxes and their spatial distributions. One of the main factors affecting the state of the environment in Northern Eurasia is the change of area and structure of agricultural lands.

Reliable and up-to-date information on agricultural lands is critical issue of the day and is needed for sustainable socio-economic development of the region and global climate change modelling. Monitoring of agricultural lands and production is improving with the wider availability of satellite remote sensing data and especially with improved moderate resolution satellite sensors, such as Terra/Aqua-MODIS instrument.

The Space Research Institute of Russian Academy of Sciences in partnership with Russian Ministry of Agriculture is working on the development of the agriculture satellite monitoring system at the level of whole breadbasket belt of the Northern Eurasian sub-continent. The presentation will give the overview of first results of these developments, including the methodology and set of derived thematic products on various aspects of agricultural lands status and dynamic. These tools, although tested in various locations, have yet to be evaluated over large regions and transitioned to operational datastreams for use by agricultural agencies. Developed datasets are available at web-site of the TerraNorte Information System (http://tem.iki.rssi.ru).