

Boreal Terrestrial Ecosystems Burnt Area Mapping from Satellites

Sergey Bartalev, V.A. Egorov, E.A. Loupian

Space Research Institute of Russian Academy of Sciences

beml@smis.iki.rssi.ru

Fire is the major disturbance factor in boreal ecosystems and the area burnt is key input parameter for estimation its social-economic consequences and emissions of greenhouse gases. However in the Northern Eurasia region there is a lack of reliable and obtained in regular manner data on burnt area extend and characteristics. In order to fill this gap the Space Research Institute of Russian Academy of Sciences is working on development of new Burned Area Inventory from Satellites (BIS) initiative. The BIS initiative is mainly focused at development of the continental level products to cover Northern Eurasia region, but some products will be developed with pan-boreal coverage in order to meet needs of scientific community for whole boreal zone. The main features of the BIS initiative is multi-sensor approach, highest possible comprehensive assessment of burnt vegetation, including pre-fire characterization and post-fire evolution assessment, continuous updating of the burnt area data and modeling to derive secondary advanced products for better estimation of fire consequences in terms of socio-economy and climate change.

A new burnt area mapping method have been developed with use of SPOT-VGT S10 data combined with MODIS active fire product, which allowed to create circumpolar burnt area maps for the period 2000-2003. The first phase of the products validation have been carried out with use of representative set of reference data derived from Landsat-ETM+ imagery over Northern Eurasia. The comparison with available national statistics in Canada and Alaska demonstrated high level of correspondence between these data and BIS burnt area product for the North America continent.

The limitation of existing burnt area data and future possible steps on products validation and harmonization will be discussed.