Sharing of model bioefficiency EPIC and space images TERRA MODIS for forecasting productivity of grain crops

Vitaly Bryskin, A.V. Yevtyushkin Ugra Research Institute of Information Technologies

avy@uriit.ru

Imagery from TERRA\MODIS sensor with daily coverage at 250-m resolution for monitoring of grain cultures in South Western Siberia is discussed. Remote Sensing Center of URIIT daily receiving data from TERRA and METEOR satellites. The model EPIC daily calculates a biomass of grain crops – spring wheat, oats, peas, barley. In calculations data of meteorological stations of Federal Hydrometereology and Environmental Monitoring Service are used. For contours of test fields leaf index LAI with use of algorithm MOD15 was calculated. We consider, that the satellite estimation of LAI index is more exact, than calculated on model EPIC. Correction calculation biomass of grain crops is spent 3-4 times before achievement by index of maximal value. Open code of model EPIC is modified for an opportunity of updating of a LAI index and introduction meteorological dates, calculated on aprioristic dependences. It is offered to define a date started of cleaning by two criteria: on termination of escalating a biomass and on falling a leaf index up to zero. Accuracy of calculation of productivity of grain crops raises up to 1 centner from hectares.