Real time satellite observation of large basins using the ILWIS Open GEONETCast Toolbox

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Abstract

Real-time satellite observation capabilities have been greatly enhanced in recent years by data infrastructures such as GEONETCast, the global satellite and *in situ* data dissemination system of GEOSS, the emerging Global Earth Observation System of Systems, an initiative led by the Group on Earth Observation (GEO).

GEONETCast permits open and free data reception through a global network of communication satellites, and provides near real-time earth observation and environmental data and derived products. This DVB-S or digital video broadcasting by satellites is emerging rapidly as a very effective way for persons around the globe to receive satellite and environmental data and geo information instantaneously.

The Geonetcast Toolbox is an ILWIS 3.7 Open source plug-in. It enables direct import and management of GEONETCast satellite data streams and supports their subsequent processing using ILWIS or other geospatial analysis systems.

ILWIS Open also contains hydrological functionality permitting to use satellite observations and data for monitoring and management of water resources. Its geographic data handling permits easy geographic analysis, ranging from very small regions of interest, to large river basins or global area mapping. Modules for automated hydrological network analysis, satellite-based computation of evapotranspiration using the surface energy balance method and other functions are available. Open plug-ins for coupling of hydrological models to satellite and *in situ* data are under continuous development.

As such the Integrated Land and Water Information System is permitting users to generate and analyse satellite data-driven near real-time scenarios in river basins and forecast or predict changes or environmental risks more soundly.

ILWIS and GEONETCast Toolbox are open source contributions, available under 52north.org, an initiative for Geospatial Open Source of ITC-UT with the University of Munster (Germany) and other partners.