

IAF EARTH OBSERVATION SYMPOSIUM (B1)  
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Dr. Changin Ri  
Korea, Democratic People's Republic of, changinri@gmail.com

TITLE: PROCESS SYSTEM TO ESTIMATE FUNDAMENTAL PARAMETERS OF ATMOSPHERE  
AND SURFACE WITH MULTI-PURPOSE SATELLITE DATA

**Abstract**

Abstract: The paper covers methods and process systems to estimate the fundamental parameters of atmosphere and surface, using the multi-purpose satellite data such as Landsat serial data and MODIS data, which are widely being used in the world. The paper firstly, suggests a method to estimate the atmospheric transmissions and vapor contents from two thermal infrared channel data of Landsat 8 TIRS sensor applying split window variance-covariance ratio approach. secondly, suggests an automatic algorithm to detect pixels covered with clouds, their shadows, water body, snow and ice using sensor reflectance and bright temperatures provided by Landsat 8 OLI/TIRS. thirdly, suggests a new integrated radiometric correction model to simultaneously correct the atmosphere and topography using Landsat 8 OLI and DEM data and the products for the corrected surface reflectance and radiation per remotely sensed scene. fourthly, suggests methods to estimate the surface albedo and emissivity applying the above-estimated surface spectral reflectance and to make the products per scene. fifthly, suggests a method of land and sea surface temperature retrieval using Landsat8 OLI and TIRS data and an automatic method of sea surface temperature retrieval using Aqua/Terra MODIS data, and a product for them. finally, establishes a comprehensive process system to estimate the fundamental parameters with multi-purpose satellite data.