Geophysical Research Abstracts, Vol. 7, 09236, 2005
SRef-ID: 1607-7962/gra/EGU05-A-09236

Modelling and remote sensing of energy cycle and its components over heterogeneous land surface

V.Djepa

Dundee University, DD1 4HN, Dundee, UK (v.djepa@dundee.ac.uk)

Modelling and remote sensing of energy cycle and temperature of a heterogeneous land surface is important for hydrology, climate, Numerical Weather Prediction (NWP) and agriculture. Using the advantage of the Thermal Infrared (TI) channels and the two viewing angles of the Along Track Scanning Radiometer (ATSR2) on board ERS2 satellite, the surface temperatures of the sun-lit and shaded components (vegetation and soil) and the corresponding emissivities over heterogeneous land surface have been retrieved. The energy cycle over heterogeneous land surface is modelled and the sensible fluxes arising from soil and vegetation are calculated. This paper summarises the radiative transfer model for atmospheric correction of the ATSR2 data and algorithms for retrieval of the radiometric sunlit and shaded temperatures of vegetation and soil and energy cycle over heterogeneous land surface. Results of the retrieved surface temperatures and fluxes over heterogeneous land surface using satellite data from ATSR2/ERS2 are presented. The developed technique can find wide application in remote sensing of the Earth, hydrology and climate study using the long term observations from the ATSR2 on board ERS2 satellite continued with the Advanced Along Track Scanning Radiometer (AATSR/ENVISAT) and future ESA mult-viewing space systems.