

EARTH OBSERVATION SYMPOSIUM (B1)  
GEOSS and Carbon Monitoring from Space (6)

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REMOTE SENSING OF SOIL AND BIOMASS CONTRIBUTION TO GLOBAL CARBON CYCLE

**Abstract**

Soil respiration plays a significant role in the carbon cycle and is related with soil temperature and evaporation. There is also a close relationship between climate and accumulation of carbon in vegetations. Moreover, the increased decomposition of soil organic matter after deforestation, particularly in tropical areas contributes also to carbon fluxes. The Global Earth Observing Satellite systems play significant role in monitoring deforestation, soil and biomass cover.

This study is focused on application of the Along Track Scanning Radiometer (ATSR2) on board of ERS2 for monitoring soil and vegetation temperatures and fluxes arising from the heterogeneous land surface. The vegetation fraction, biomass, sensible heat flux and evaporation are retrieved from satellite data. The soil respirations, temperature and fluxes are estimated and linked to carbon fluxes. Soil-vegetation – atmosphere interactive model is developed and applied to calculate the fluxes, arising from heterogeneous land surface. The model has been validated and applied to retrieve the land surface fluxes, calculated from the satellite ATSR2 multi-spectral observations. The developed algorithms and satellite products have significant contribution to climate change and monitoring of terrestrial fluxes from ATSR2 and the Advanced Along Track Scanning Radiometer (AATSR) on board ENVISAT.