

16. Estimation of vegetation and soil moisture in the arid and semi-arid region using by optical remote sensing data

Buheasier (Hokkaido Institute of Environmental sciences)

Miki Asai, Masami Kaneko, Noriyuki Ohtaishi (Rakuno Gakuen University)

Estimation of the soil moisture using remote sensing is difficult. The two methods of estimating of the soil moisture by remote sensing techniques are raised. One of them is based on microwave (Synthetic Aperture Radar(SAR)) remote sensing, and another is the multispectral optical remote sensing technique. The microwave methods is the direct prediction technique and the optical remote sensing methods is the indirect prediction technique. In this study, we used optical mutispectral Terra/ASTER (Advanced Spaceborne Thermal Emission and Reflectance Radiometer) and MODIS (Moderate-resolution Imaging Spectro Radiometer) visible and near infrared (VNIR), short wave infrared (SWIR) and thermal infrared (TIR) data, developed the indirect estimation technique of the soil moisture by indices, such as NDVI, NDWI NDLWI and land surface temperature (LST) etc. We selected the intensive ground truth survey area of Tarim Diversifolious Poplar Protection Area(TDPPA) of Taklimakan Desert in Xinjiang, China, and Mongolian semi-arid grass land, succeeded in the classification of soil moisture distribution area in the oases and desert.

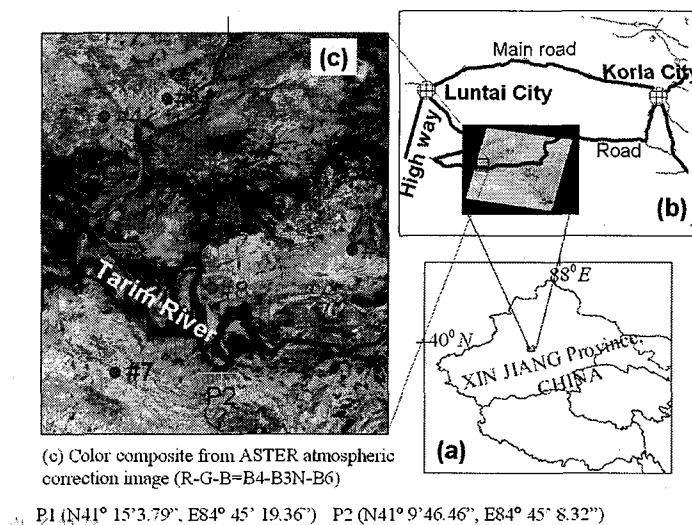


Fig.1 Study area