Geophysical Research Abstracts
Vol. 12, EGU2010-12661, 2010
EGU General Assembly 2010

Remote Monitoring and Analysis of geo- and biophysical Parameters Related to Mass Movements in the Catchment Area of the Yangtze River Dam/ China

Michaela Frei
Universität Potsdam, Geowissenschaften, Germany (mfrei@gfz-potsdam.de)

The overall goal of this project is to develop a better understanding of mechanisms and triggers of mass movements in an area influenced by the rising water level in connection with the Three Gorges Dam and to estimate the probability of their occurrence. Investigations are carried out for along the Yangtze River and the Xiangxi river catchment area, a tributary of the Yangtze River discharging into the Three-Gorges-Dam reservoir.
In this context, we focus at methodological and conceptual strategies that allow the correlation between recent mass movements with associated soils and lithologies, structural inventory, developed slopes, vegetation coverage and rainfall data. The results provide essential contributions to the estimation of the risk potential and thus, to the safety and future usability of the river banks.
To meet the requirements, a synergetic approach of optical imaging and InSAR measurements and advanced remote sensing techniques for data extraction and monitoring are investigated: The differential INSAR method to monitor initial movements along the river banks and optical data for the detection and differentiation of varying soil and rock types as well as for the identification and quantification of vegetation canopies via Knowledge Based Classification. In addition, geologic structures are deduced from multi- and hyperspectral remote sensing data and correlated with collected field data. The merge of Radar and Optical data (Aster, Landsat TM/ETM, Spot and Hyperion). In the future the use of Terra-SAR data TanDEM X– measurements without corners will improve the results over heavily vegetated areas.