Geophysical Research Abstracts
Vol. 17, EGU2015-14844, 2015
EGU General Assembly 2015
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MITRA Virtual laboratory for operative application of satellite time series for land degradation risk estimation

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This paper aims to present the development of a tool to integrate time series from active and passive satellite sensors (such as of MODIS, Vegetation, Landsat, ASTER, COSMO, Sentinel) into a virtual laboratory to support studies on landscape and archaeological landscape, investigation on environmental changes, estimation and monitoring of natural and anthropogenic risks.
The virtual laboratory is composed by both data and open source tools specifically developed for the above mentioned applications.
Results obtained for investigations carried out using the implemented tools for monitoring land degradation issues and subtle changes ongoing on forestry and natural areas are herein presented.
In detail MODIS, SPOT Vegetation and Landsat time series were analyzed comparing results of different statistical analyses and the results integrated with ancillary data and evaluated with field survey.
The comparison of the outputs we obtained for the Basilicata Region from satellite data analyses and independent data sets clearly pointed out the reliability for the diverse change analyses we performed, at the pixel level, using MODIS, SPOT Vegetation and Landsat TM data.
Next steps are going to be implemented to further advance the current Virtual Laboratory tools, by extending current facilities adding new computational algorithms and applying to other geographic regions.

Acknowledgement
This research was performed within the framework of the project PO FESR Basilicata 2007/2013 - Progetto di cooperazione internazionale MITRA “Remote Sensing tecnologies for Natural and Cultural heritage Degradation Monitoring for Preservation and valorization” funded by Basilicata Region

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