



Providing web-based tools for time series access and analysis

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Time series information is widely used in environmental change analyses and is also an essential information for stakeholders and governmental agencies. However, a challenging issue is the processing of raw data and the execution of time series analysis. In most cases, data has to be found, downloaded, processed and even converted in the correct data format prior to executing time series analysis tools. Data has to be prepared to use it in different existing software packages. Several packages like TIMESAT (Jönsson & Eklundh, 2004) for phenological studies, BFAST (Verbesselt et al., 2010) for breakpoint detection, and GreenBrown (Forkel et al., 2013) for trend calculations are provided as open-source software and can be executed from the command line. This is needed if data pre-processing and time series analysis is being automated.

To bring both parts, automated data access and data analysis, together, a web-based system was developed to provide access to satellite based time series data and access to above mentioned analysis tools. Users of the web portal are able to specify a point or a polygon and an available dataset (e.g., Vegetation Indices and Land Surface Temperature datasets from NASA MODIS). The data is then being processed and provided as a time series CSV file. Afterwards the user can select an analysis tool that is being executed on the server. The final data (CSV, plot images, GeoTIFFs) is visualized in the web portal and can be downloaded for further usage.

As a first use case, we built up a complimentary web-based system with NASA MODIS products for Germany and parts of Siberia based on the Earth Observation Monitor (www.earth-observation-monitor.net). The aim of this work is to make time series analysis with existing tools as easy as possible that users can focus on the interpretation of the results.

References:

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