

## ***Changelog ISOD-Toolbox XML Version 1.4***

### **ISOD Toolbox version 1.4**

In this release some new resources have been added. All internet links have been checked and modified when the URL's or the products have changed, to assure proper operation.

### **Changes**

In the XML version 1.4 of the ISOD toolbox a number of additional routines are added, like the import and radiometric calibration of LANDSAT 8, partial import of large GEOTIF and SHAPE files, NOAA STAR Vegetation products (time series), CHIRPS global rainfall, POWER and CPC Global Forecasting System.

Landsat 8 product from USGS:

- Geotif import, imported as UInt32
- Radiometric calibration implemented:
  - DN to Radiance
  - Radiance to Reflectance, corrected for sun angle
  - Radiance to Temperature, for bands 10 and 11
- Using the parameters from the header file (\*MTL\_txt)
- PDF document is included describing the procedure

Partial import of large GEOTIF and SHAPE files, using GDAL\_Translate and OGR2OGR:

- Using gdalinfo and ogrinfo to obtain map extent
- Subsequent import of TIF file based on user defined map extent
- Import of partial SHAPE file using the user defined map extent to clip the output vector file.  
The import is only possible if the map layer name is identical to the shape file name!

For both routines use is made of powershell based sub menu's. The ps1 files are situated in the respective \toolbox\_startscript sub directories (here \Landsat8 and \shp\_tif\_import).

Added routine to visualize the latest NOAA CPC Forecasts from the Global Forecasting System (GFS) under the Web Mapping Services.

Added routine to retrieve and process CHIRPS pentad and monthly rainfall.

Added routine to retrieve and process JRC – MARS ECMWF based meteorological data: rainfall, temperatures, ETO and Radiation.

Added routine to retrieve and process time series of NOAA STAR Vegetation products, like Smoothed NDVI, Vegetation Condition Index, Smoothed Brightness Temperature, Vegetation Health Index as well as Climatology for the NDVI and Brightness Temperature.

Added link to Climatology Resource for AgroClimatology (POWER), under Web Mapping Services

Some routines have been adapted to reflect appropriate import due to changes in the data provision, such as:

- GWADI rainfall: new server address;
- CMORPH 8 km 30 minutes and 0.25 degrees 3 hourly and daily global rainfall. Now use is made of the Version 1.0 bias corrected and gauge-satellite blended precipitation product;
- FEWS-PET: new routines for import of the daily (and the monthly) PET after 30 March 2014, as the new PET products do not require a byte swap anymore;
- Added meta data and legend to the MPE and RFS visualization (under Web Mapping Services).

### ***Changelog ISOD-Toolbox XML Version 1.3***

#### **ISOD Toolbox version 1.3**

In this release some new resources have been added. All internet links have been checked and modified when the URL's or the products have changed, to assure proper operation.

A help function was included, providing a direct link to the installation and user manual.

#### **Changes**

In the XML version 1.3 of the ISOD toolbox a number of additional routines are added, like the MOD16 ET and PET products, the Soil Water Index from the Copernicus Global Land Service, a Geotif import routine to quickly import the Landsat-8 images and retrieval of online maps from Google and Virtual Earth. The TAMSAT climatology has been modified to represent the 30 years climatology currently provided.

It was noted that there was a problem to display map overlays in Google Earth, e.g. for the retrieved MPE and RFS maps. New Georeferences have been created to solve this problem.

#### **ISOD Toolbox version 1.2**

The ISOD toolbox XML version 1.2 menu structure has been modified to reflect the changes due to the reprocessing of the CMORPH and TRMM rainfall data. Also some new resources have been added. All internet links have been checked and modified when these have changed to assure proper operation.

#### **Changes**

In the XML version 1.2 of the ISOD toolbox the import routines of the CMORPH and TRMM 3B42 have been adapted to incorporate the changes due to reprocessing of the rainfall estimates. The TRMM extraction routine makes use of a small Java based utility; this requires installation of JAVA RTE. Next to this, routines have been added to display Julian Day tables for normal and leap years, 3 and 6 hourly precipitation estimates from the GWADI server, GLDAS-Noah model data (28 parameters) for 3 hour intervals on a daily basis, online rolling archive of AMESD-SADC products (these routines are developed by Masego Rachel Nkepu, BDMS-Botswana).

#### **ISOD Toolbox version 1.1**

The ISOD toolbox v1.1 menu structure has been modified substantially and a number of new data retrieval – import routines have been added. The menu structure, also due to the addition of routines, required modification. The Web Mapping Services now focus on retrieval of data sets that are not imported into an ILWIS data format, the data is visualized using IrfanView or Panoply. All other routines extract (multi-temporal) data which is subsequently transformed into an ILWIS data format for further analysis. Next to this for all routines first a check is done if the data is available from the archives, if this is not the case the user is informed about the missing data and can abort the import procedure. The Installation and User Guide has been updated to reflect the changes incorporated.

## **Changes**

In the XML version 1.1 of the ISOD toolbox various changes have been implemented. The most important are:

Modification of the menu, the web mapping services are now retrieving the data and do not convert these into ILWIS data format, the data is visualized using IrfanView and Panoply.

All routines have been checked and in case data sources have been modified (e.g. re-processed) or if links to these data sources have changed the import routines have been adapted. Some bugs in import routines have been corrected.

All routines now first check if data is downloaded before further processing is done, if no data can be retrieved the routine can be aborted.

New routines have been added, like retrieval of:

TRMM 3B42 global daily rainfall archive;

MEaSURES Global Vegetation Products (NDVI and Enhanced Vegetation Index) for various data integration periods, like daily, 7-days, 15-days and monthly time intervals;

NASA Global Ocean Data (day and night time SST and Chlorophyll-*a* from MODIS Terra and Aqua);

Daily Surface Soil Moisture from TRMM-TMI (day and night time overpasses) from the Global Land Data Assimilation System;

Web Mapping Services, added visualization of data from the ECMWF (using Panoply) and NOAA-CPC SST and SST anomaly animations.