

CULTURE MERIS 5 by 5 degree tiles import (BM,V1)

Introduction

Culture-MERIS products are targeting particular land activities in Europe and Africa, for which a quick and updated overview of the land's state is needed. Every week (on Wednesdays) an updated MERIS FR (300 m.) bottom-of-atmosphere spectral reflectance composite is provided, based on data that have been acquired during the previous week (Monday to Sunday acquisitions). Therefore Culture-MERIS provides weekly (Monday to Sunday) averaged bottom-of-atmosphere cloud-free spectral reflectance composites as derived from MERIS FR (300 m.) data acquired over Europe and Africa (every Wednesday the weekly compose of the previous week is provided).

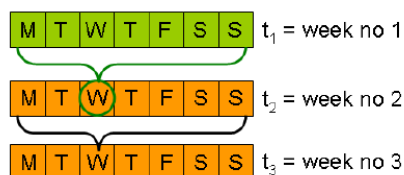


Figure 1: Weekly data provision scheme

The weekly composites are available in Hierarchical Data Format-EOS2 (HDF) and are organised on a 5° by 5° tiling without any overlap. The “GlobCover” tiling scheme has been used, but only the particular tiles over Europe and Africa are processed (see figure 2). The table below provides tile and coordinate extremes (upper left and lower right).

	Upper left tile	Lower right tile	Upper left lat-lon	Lower right lat-lon
Europe	H31 V3	H46 V11	N75 W25	N30 E55
Africa	H31 V10	H46 V24	N40 W25	S35 E55

Table 1: Upper left and lower bound areas covered.

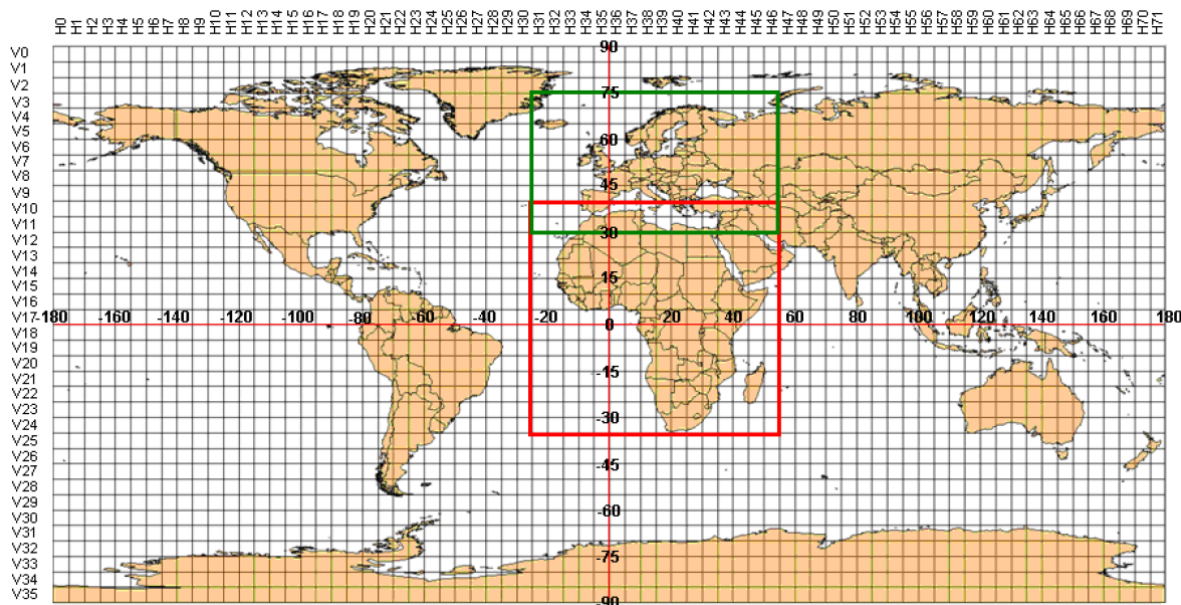


Figure 2: The tiling scheme and coverage of Culture-MERIS products.

Data Source

The current data access point is the <ftp://culturemeris@ionia2.esrin.esa.int>. (enter as Username and Password: culturemeris). You can also use: <ftp://culturemeris:culturemeris@ionia2.esrin.esa.int>

Select the directory of the week of interest and download from this directory or from the sub_directory the appropriate H/V indexed files for your area of interest (having the extension *.hdf.gz!!).

Further information

Vasileios Kalogirou, Jose Ramos Perez (2011): *Culture-MERIS Product Description Manual*. Available from the ftp site indicated above (CULTURE-MERIS_PDM_1.2.pdf)

Installation of the Utilities

Follow the procedure described below:

1. Download the file “CultureMERIS2ILWIS.zip”
2. Create your working directory (directory name without spaces!!).
3. Unzip the file “CultureMERIS2ILWIS.zip” in this active working directory. Check the content. The following files should now be available: culture_meris_import.isf and culture_meris_import.isl, create_cm_grf.bat, band_mosaic4.isf and band_mosaic4.isl
4. Ensure that you have properly installed “ILWIS” and the “GEONETCast toolbox”. The routines use “GDAL_translate.exe”, which should be available in your ILWIS sub-directory \Extensions\Geonetcast-Toolbox\GDAL\bin and “7Z.exe” which is situated in the sub-directory \Extensions\Geonetcast-Toolbox\util.
5. Open ILWIS, use the Navigator to move to your newly created working directory and close ILWIS.
6. Open ILWIS again, it should now open in your selected working directory.

Importing of the Culture MERIS weekly composites in ILWIS

After having downloaded the 5 by 5 degree zipped HDF files and copied them to your working directory, start ILWIS. In the catalog you find a script called “culture_meris_import”. Double click with the left mouse button on the script to open it. You can check the content of the “Script” Tab, showing the import procedure. Note that %1 - %4 are replaceable parameters, these are defined under the “Parameters” Tab. Click with the left mouse button on the “Run Script” icon ► and enter the appropriate information for the 4 parameters, see also figure 3. Here as example the import is performed of the file “CULTUREMERIS_V1.0_20110704-20110710_H34V10.hdf.gz”.

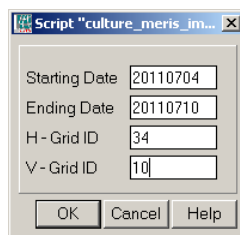


Figure 3: Script parameter window

Press “OK” to execute the operation. The script is unzipping the file, an external batch routine is creating the appropriate georeference (using the latlonwgs84 coordinate system), and importing 5 data layers (mean of band 3, band 5, band 7, band 14 and the ndvi), transforming the MERIS bands into reflectance and transforming the ndvi into scaled values between -1 and 1 (having as file name extension *.r).

Upon completion of the import a number of newly created files should be available in your map catalog, as indicated by figure 4, left hand. The MERIS bands 3, 5, 7, 14 (visible blue, green red and NIR) can be displayed using as Representation “Gray”. The ndvi can be displayed using as Representation “Pseudo” and for the ndvir the Representation “NDVII” can be used. In the ILWIS sub-directory ‘\Extensions\Geonetcast-Toolbox\util\maps’ a vector map is available, called “country_02”. This can be added to the active map display window, using the option “Add Layer”, use as display option “Boundaries Only”. A sample is provided of the ndvir map in figure 4, right hand.

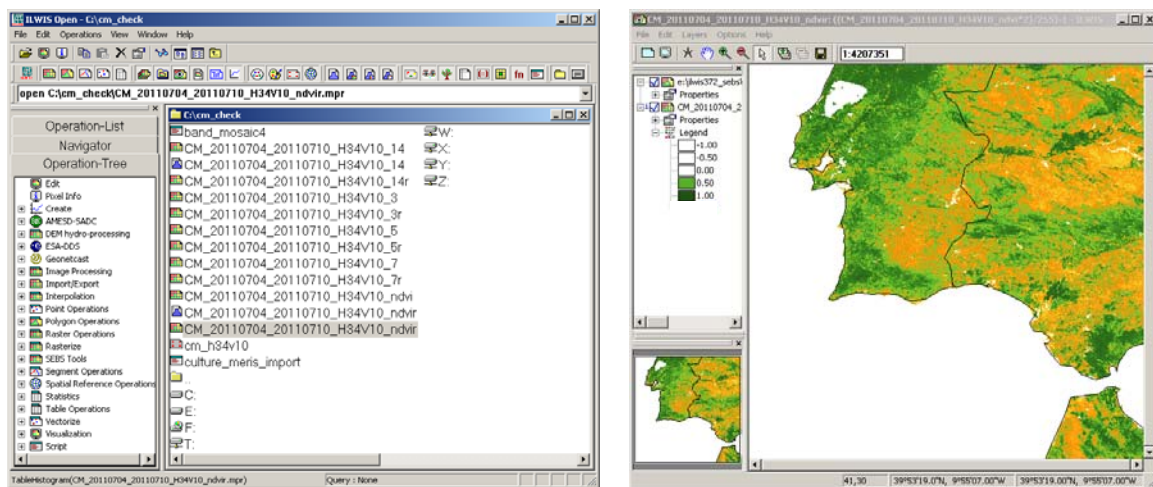


Figure 4: Importing the MERIS bands and NDVI layer

To create a colour composite you first have to prepare a new “Maplist”. From the main ILWIS menu, select “File > Create > Map List”, select the appropriate layer and use the add option “>” to move the layer the right hand side. Add also the other layers; see as example the creation of a maplist for the image layers that have been transformed to reflectance in figure 5.

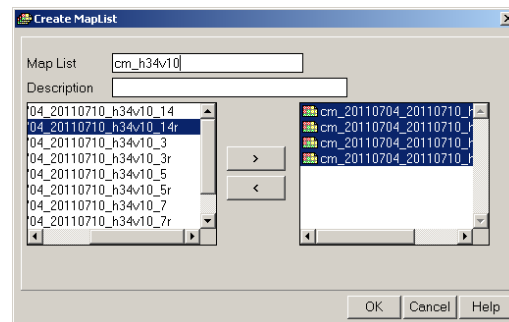


Figure 5: Create a maplist of the MERIS reflectance bands (band 3, 5, 7, 14 respectively)

Once the maps are selected press “OK” to create the maplist. From the catalog, select the newly created maplist and in the map list window select the option “Open as ColorComposite”, select for red, green and blue the layers: band14, band 7 and band 5 to create a false colour composite, or for red, green and blue the layers: band 7, band5 and band 3 for a true colour composite. See also figure 6.

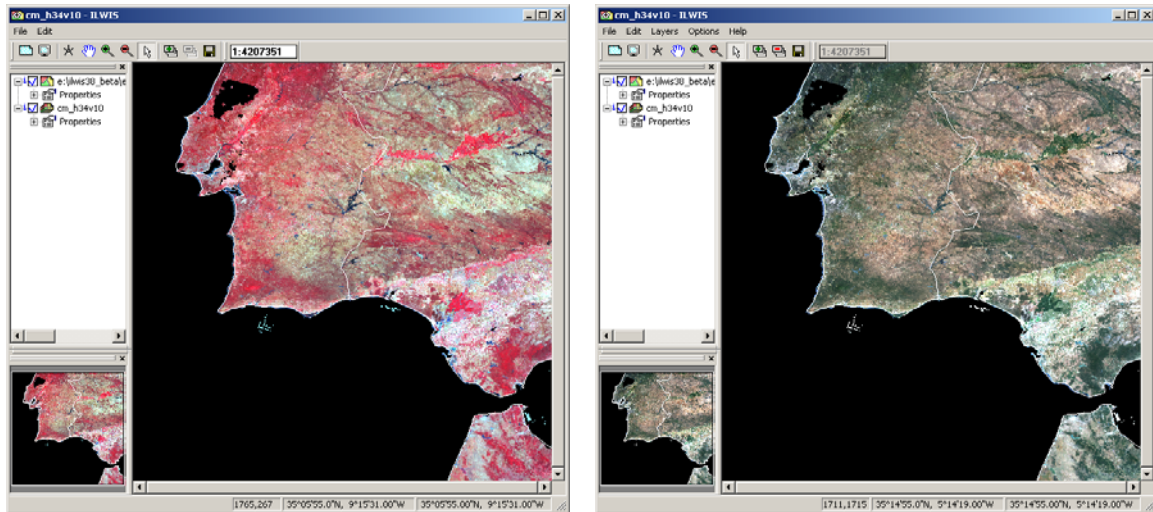


Figure 6: False and True color composites

Run the Script from the ILWIS command line

To quickly import the Culture MERIS data the script can be executed from the ILWIS command line. The following expression is required:

```
run culture_meris_import 20110704 20110710 34 11
```

where:

run culture_meris_import	= execute the ilwis script “culture_meris_import “
20110704	= start date (%1)
20110710	= end date (%2)
43	= H – Grid (%3)
11	= V – Grid (%4)

You can use the command line history button (at the right side of the command line) and select the previous line that executed the script, change the H and V Grid numbers and execute the script again, by pressing enter. In this way quickly other tiles can be imported.

Mosaic 4 tiles

After having imported various 5 by 5 degree tiles, a mosaic can be constructed. Here an example is presented using 4 tiles, H and V Grid numbers 34, 35 and 10, 11 respectively. Select the script called “band_mosaic4”. ILWIS currently supports creation of a mosaic of maps having integers, decimals are not supported. Double click the script

“band_mosaic4” and enter the appropriate tiles to create a mosaic, in figure 7 as example band 3 is used. Press “OK” to run the script.

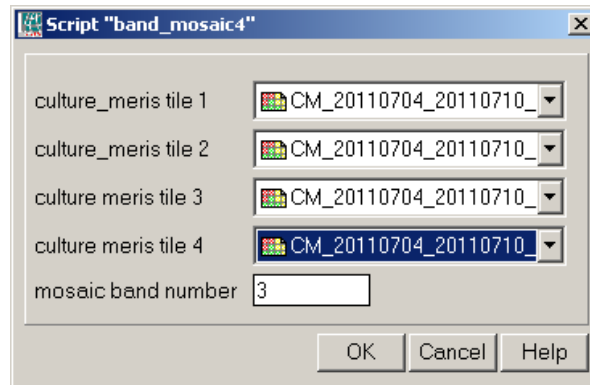


Figure 7: Create mosaic of 4 tiles of Culture MERIS band 3 images

Note that the mosaic band number has to correspond with the band selected, e.g. 3, 5, 7, 14. Upon completion of the operation, select the newly created file: “mos_band3” and display the map, eventually add the country boundary layer (boundaries only).

You can also run the ILWIS Script “band_mosaic4” from the command line, here as example the mosaic creation of band 5 is presented:

```
run band_mosaic4 CM_20110704_20110710_H34V10_5
CM_20110704_20110710_H34V11_5 CM_20110704_20110710_H35V10_5
CM_20110704_20110710_H35V11_5 5
```

(syntax: run “script_name” “tile1_band_N” “tile2_band_N” “tile3_band_N” “tile4_band_N” “band_N_number”)

This script has got 5 parameters, bands 1-4 and the output mosaic band number. The file created using this command line syntax is “mos_band5”. In a similar manner also a mosaic of bands 7 and 14 can be created. Use the command line history option and change the band numbers and press <enter> to execute the script from the command line. Note that use is made of the ILWIS operation “glue raster map”. This operation is also available under the “Operation-List” Tab.

When the mosaics are created of each of the bands, prepare a new maplist, here called “mos”. Add the appropriate layers and display these as a false and true colour composite. The results for a false colour composite should resemble those of figure 8.

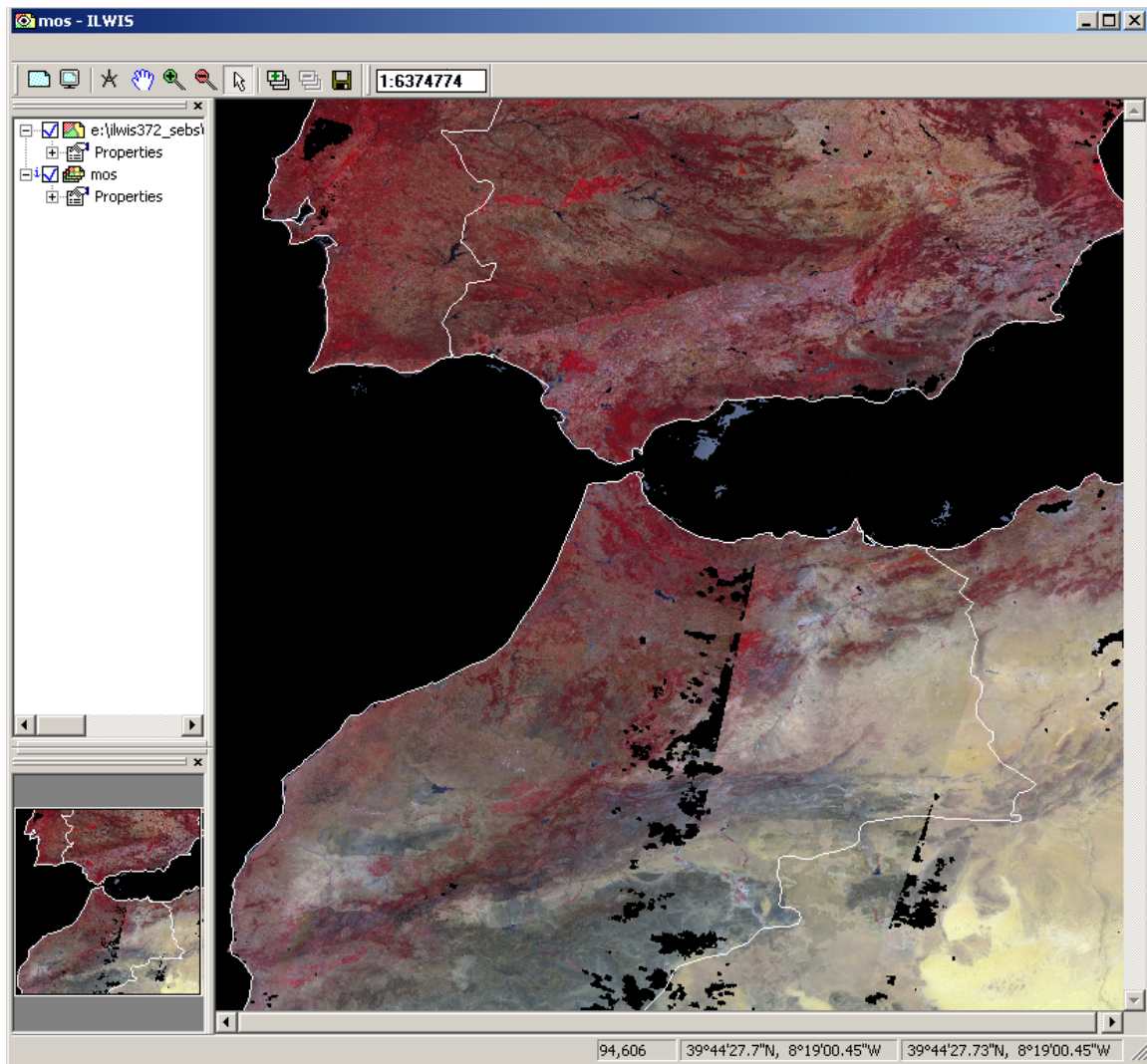


Figure 8: False colour composite of 4 Culture MERIS tiles