



Greenhouse gas management
in European land use systems

FP7 Project GHG-Europe
Grant agreement No 244122

Deliverable D1.2a			
Title	Complete European harmonized driver maps and time series for natural drivers including direct and diffuse radiation for past, present and future		
Delivery date from Annex I (project month)	12		
Actual delivery date	28/03/2011 (month 15)		
Lead participant	WP	Nature	Dissemination level
MPG (4)	1	R	RE

Deliverable description

The objective of Task 1.1 is to provide standardized gridded fields of natural drivers for EU27+ which are then used both as input to modelling and data analysis in WP2, WP4, WP5 and WP6 via the GHG-Europe database (WP7).

The climate dataset for past and present covers the period 1901-2010 and is planned to be gradually extended to the year 2013, as the original data from ECMWF will become available. It's the result of the harmonization of WATCH and ERA-Interim climatic fields. We applied a correction of the seasonal cycle of the latter dataset using the first database as reference. The year-to-year variability was made comparable for the period 1901-2001 (original WATCH) and the period 2002-2010 (harmonized ERA-Interim) by means of normalizing the whole time series variability using as reference the overlapping period (1989-2001). Since precipitation is a none continuous field, a specific correction was applied to this climatic variable to account just for the rain events. While the spatial resolution of the original datasets was 0.5 °, the harmonized dataset was spatially downscaled to 0.25 ° using CRU2.0. We extracted the spatial monthly anomalies from the CRU climatology and overlapped them to the harmonized datasets for each single climatic variable.

The same harmonization approach was adopted for extending the dataset to the future (2010-2100). For this specific purpose, we used regional climate simulations from REMO nested into ECHAM5 and bias corrected with CRU at 25km resolution from the ENSEMBLE project.

The final dataset contains the following variables:

- mean temperature (Tair)
- minimum temperature (Tmin)
- maximum temperature (Tmax)
- precipitation (Precip)
- short wave solar radiation downward (SHdown)
- long wave solar radiation downward (LWdown)
- wind speed (Wind)

- specific humidity (Qmean)
- atmospheric pressure at the surface (PSurf)

The final daily dataset available at <ftp://ftp.bgc-jena.mpg.de/pub/outgoing/etomell/GHG-EU/Meteo/>

The driver maps for diffuse radiation have not been finished yet, but will be delivered as Deliverable 1.2b in January 2012 with 12 months of delay. We are exploring the use of different datasets in collaboration with Hadley Centre. Short wave down is however already available as driver map.