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The EURO4M web based Climate Information Bulletin environment

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The Global Climate Observing System (GCOS) established a list of Essential Climate Variables (ECV's) that need to be measured in order to monitor the climate effectively. The EURO4M project (FP7 SPA.2009.1.1.02 Monitoring of climate change issues) will develop the capacity for, and deliver the best possible and most complete (gridded) climate change time series and monitoring services covering all of Europe. These will describe the evolution of the Earth system components by seamlessly combining two different but complementary approaches: regional observation datasets of ECVs on the one hand and model based regional reanalysis on the other.

EURO4M products are disseminated through regularly issued Climate Indicator Bulletins (CIBs). These bulletins focus on user groups interested in, for instance, disaster prevention, health, energy, water resources, ecosystems, forestry agriculture, transport, tourism and biodiversity at European, national and local levels. These user groups do not have to access and process the terabytes of raw observation data or reanalysis data. Instead, the CIB provides them with simple, effective and timely knowledge abstractions from EURO4M data and activities. The bulletins are flexible user-driven products that respond to current environmental and climatic events.

The CIB environment enables to create and maintain web based CIBs by providing:

- A data processing environment for creation of maps, plots and graphs, based on provided data and recipe for publication in the web based environment

- A Web based environment for publishing and maintaining web based CIBs

The CIB environment will deliver high resolution plots, graphs and maps, to be used for CIB booklet publications. The CIB environment itself will not be responsible for the creation of this CIB booklet publication. The CIB environment can also ingest data from data providers using OGC services (WMS, WCS, WFS).

The CIB environment will be able to run recipes on delivered data to create maps, plots or graphs. A recipe is a text document containing a description of how a map, plot or graph is generated, and can include example graphs (used as provenance metadata). The recipes are developed by the Climate scientists and delivered to the developers to be included in the environment. Once delivered and implemented in the Visualization component, the environment can automatically generate maps, plots and graphs.

Data providers deliver data to the CIB environment in predefined and agreed data formats (NetCDF, ASCII) and interface (OGC, OpenDAP). When data is delivered to the CIB environment, the climate scientist is notified and can start the data processing.

The CIB scientist can login on the web based environment to create a new web based CIB (of to edit and existing one). The CIB scientists will create the CIB according a predefined template, entering text and placing the desired plots, maps and graphs. The CIB scientist can select a recipe to generate a plot, map or graph and can configure (e.g. time, station highlighting, resolution, data usage) the recipe to generate a new map, plot or graph.

The CIB scientist can also download high resolution maps, plots and graphs from the CIB environment to be used in the CIB booklet. The PDF version of this booklet can be uploaded to the web based CIB by the CIB scientist. The CIB scientists can also look at monitoring information and arrange the backup of important data

Note that some maps will be interactive, i.e. the CIB user can zoom, pan and request detailed information if available. Station maps will also have the option to slide through time to see which stations were available at a specific date.

The online version of the CIB will be automatically updated (graphs, maps, plots). From the web interface is must be possible to print a version of the web based CIB.

The CIB will consist of 4 main components:

- The web based CIB environment, based on OGC services and Media Wiki

- The processing environment,

- The data import environment, OpenDAP and OGC services

- The data storage

In March the first CIB on 'European Mean Temperature' will be presented at the EURO4 Workshop 2011 (March15-17, Romania).

At EGU we will show lessons learned from building the system and integrating ECV data, demonstrate the environment and show the resulting European Mean Temperature CIB.