

Installation of Meteorological, Climatological and Hydrological Data Base Management System  
and the related training in the Hydrometeorological Institute  
Pristina, Kosovo<sup>1</sup>  
2 – 6 June 2014



**Mission report**

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<sup>1</sup> This designation is without prejudice to positions on status, and is in line with UNSCR 1244 and the ICJ Opinion on the Kosovo Declaration of Independence

## **SUMMARY**

The main objective of the mission was to install the English version of the Meteorological, Climatological and Hydrological (MCH) Database Management System (DBMS) and provide the related training in the Hydrometeorological Institute in Pristina, within the framework of the IPA 2012 project “Building resilience to disasters in Western Balkans and Turkey”, funded by the European Commission (IPA project task: 3.1.2).

The training has been given by Dr. José Antonio Guijarro (AEMET) and Mr Nirina Ravalitera (WMO Secretariat) and was attended by five participants.

MCH has been successfully installed in a server configuration and on the laptops of two participants. It has been considered as a very valuable solution to digitize meteorological and hydrological historical data and to store them on a unique platform.

The lack of time, mainly due to logistical and linguistics issues, didn't allow to fulfil all the items of the training agenda. Nevertheless, it allowed the participants to be trained on how to define the stations and variables as well as on how to capture, import, export and visualize data using MCH DBMS and Excel.

## **Introduction**

The mission to Pristina was carried out by Dr. José Antonio Guijarro (Spanish Meteorological Agency) and Mr Nirina Ravalitera (WMO Secretariat) within the framework of the IPA 2012 project “Building resilience to disasters in Western Balkans and Turkey”, funded by the European Commission (IPA project task: 3.1.2).

The main objective of the mission was to install the English version of the Meteorological, Climatological and Hydrological (MCH) Database Management System (DBMS) and provide the related training in the Hydrometeorological Institute of Kosovo in Pristina. The training has been given by Dr. José Antonio Guijarro (Spanish Meteorological Agency) and Mr Nirina Ravalitera (WMO Secretariat). It was attended by: (1) Mr Bashkim kastrati, MSc. Hydrology, Head of Hydrology Sector, (2) Mr Hasan Hasani, Engineer in Geology MSc. Hydrogeology responsible for groundwater, (3) Mr Faton Sopi, Database operator for hydrology and meteorology sectors and IT for internet network (4) Mr Besim Aliu, Meteorological forecaster and (5) Mr Agron Skala.

## **1. Activities**

### **1.1 Installation of and training on Meteorological, Climatological and Hydrological Database Management System**

- Welcome meeting with the Director of the Institute Ms Letafete Latifi.
- Presentation of MCH DBMS and discussion with the participants.
- Installation of MCH DBMS on the server
  
- Installation of MCH DBMS on the laptops of two participants
- Training on the definition of stations interfaces.
- Training on the “definitions of the variables” interfaces.
  
- Quick presentation of the meteorological instruments installed at the Institute.
- Definition of hydrological stations
- Presentation and training on the importation and exportation interfaces of MCH DBMS.
- Preparation of importation files and data formatting.
- Importation of precipitation, temperature, min and max temperature and water level data.
  
- Installation of MCH DBMS as client (by the local database manager) and connection to the server.
- Importation of maximum temperature data, sun duration.
- Presentation and training on the data validation and data capture interfaces.
- Graphical interfaces (detection of anomalies and missing data).
  
- Conversion of detailed data to daily data
- Short introduction to the map interfaces of MCH DBMS

## **2. Major issues and outcomes**

### **2.1 Historical data**

Except for the hydrological data (water level) directly exported from the software provided by SEBA (DEMASdb), the format of the meteorological data didn't allow us to prepare macros to automatize the process of configuring data to be imported. Indeed most of the meteorological data are compiled on Excel spread sheets in different formats.

Status of historical data:

- Hydrological data: Since 2003, all hydrological data are available in electronic format. We were informed that out of the 27 hydrological stations in 2007, currently 10 are still operational.
- Meteorological data: Meteorological data are available in electronic format from 2001 until now; the historical data from 1948 to 1999 (with some missing data between 1984 and 1986) are available in PDF format.

Most of the historical data have not yet been digitized mainly due to the lack of staff.

## **2.2 Database management System used in the service**

The hydrological data are stored and processed using the software DEMASdb provided by SEBA, all the meteorological data available in digital format are stored on Excel spread sheets.

## **3. Findings and problems encountered**

### **3.1 On-going projects**

#### **3.1.1 'Climate Change Adaptation in Western Balkan'**

We were informed that the Hydrometeorological Institute is part of the project on 'Climate Change Adaptation in Western Balkan'. This is a joint cooperation between the German Agency for International Cooperation and the government ministries in Albania, Kosovo, the Former Yugoslav Republic of Macedonia, Montenegro and Serbia.

This project supports those countries in establishing a flood early warning system and will implement four meteorological stations and two hydrological stations to provide real time data.

#### **3.1.2 Eptisa Project on hydrological cross boundaries stations.**

The institute is also collaborating with Eptisa, which is an international engineering, architecture and information technology company based in Spain and involved in a project on hydrological cross boundaries stations.

### **3.2 Language issue**

The whole training has been given in English and translated in Albanian by an interpreter due to the low level of knowledge of English of the participants. This linguistic issue almost double the time needed for the training and all the agenda items were not covered. In this regards, the participants asked if it would be possible to provide an additional training to consolidate what has been presented and trained during the week and also to go through the features that have not been covered during this training.

## **4 Conclusions and recommendations**

The installation of the software has been successful despite some delays. As result of the provided training the participants could easily define stations and variables, capture, import, export data and use the graphical interfaces of MCH DBMS.

A great interest has been expressed especially regarding the flexibility of MCH DBMS to store and display various type of data under a unique platform.

Furthermore, this training allowed also a reflexion about the naming, codification and categorization of stations and station groups within their network.

### **Recommendations:**

#### **Historical Data digitization**

- Follow up the import of the historical meteorological data.

#### **Follow up**

- The participants expressed the desire to have an additional training to consolidate their knowledge on the different functionalities of MCH DBMS as well as to explore further functionalities that have not been covered during this training.

## Provisional Agenda

Course	Activities
<b>Monday 02.06.2014</b>	
Introduction	Presentation of MCH DBMS Presentation of available documentation
Configuration of the computers	Installation environment & additional software (Notepad++)
	Deactivate antivirus, full rights (admin), firewalls, regional settings, shortcuts to odbc and services
Installation of MCH DBMS	Install MCH DBMS as server and client on each computer
Introduction to the User Community	Presentation of the Moodle platform
	Creation & activation of user accounts
	Dropbox & Skype
User level	Configuration of user levels (security)
Definition of stations interface	Definition of stations
	Stations metadata
	Definition of station groups
<b>Tuesday 03.06.2014</b>	
Definition of variables interface	Definition of variables
Data capture	Validation rules
	Data capture interface
Data importation	Data importation interface
	Customization of importation files
	Data importation using EXCEL
<b>Wednesday 04.06.2014</b>	
Finalize work from Tuesday (if needed)	
Graphic interfaces	Presentation of the graphic interfaces
	Comparative graphs
Quality control	Identification of gaps/missing data
	Data correction
Data conversion	Detailed data to daily data
	Normals
	Weekly, ten days, monthly data
<b>Thursday 05.06.2014</b>	
Finalize work of Wednesday (if needed)	
Export data using MCH & Excel	Exportation interface
	Customization of the export files
Maps	Using pictures
	Using georeferenced pictures
<b>Friday 06.06.2014</b>	
Finalize work of Thursday (if needed)	
Generate personalized reports using Excel (if enough time)	Generating reports using Excel