1st JOINT DMCSEE & JRC WORKSHOP
Ljubljana, Slovenia
21. – 25. September 2009

Draft Minutes

Monday, 21. September 2009

- Opening of the workshop: dr. Gregorič (EARS) and dr. Niemeyer (JRC) – both coorganizers- and dr. Žlebir (EARS, director general) welcomed participants.
- Introduction of all participants and presentation of organizational matters

Stefan Niemeyer (JRC): The European Drought Observatory – presentation outline:

- About the structure of JRC
- Institutes and mission
- Structure of information, databases
- History of working on drought topics
- Current set-up within desert action
- Collaboration IES – EARS
- Vision of the European Drought Observatory (EDO)
- Current state of drought information in Europe
- European Commission: WISE system (water information); JRC: EDO – internal portal for global drought monitoring
- Water scarcity (long-term imbalance between water availability and use) vs. drought (deviation from normal conditions)
- Current products: hydrological model, SPI, 10.days fAPAR, NUTS-3. LISFLOOD model, meteo-forecasts, NDWI, developing database for drought products
- http://edo.jrc.ec.europa.eu
- Examples
- Future plans: system development, research of drought indices, forecasting, networking

Gregor Gregorič (ARSO): DMCSEE– presentation outline:

- History of the idea
- Process of creation
- Presentation of the DMCSEE project in the framework of the Transnational Cooperative Programme for SEE

Tuesday, 22. September 2009

Petr Stepanek (CHMI): Time series Analysis and Homogenisation

- AnClim and proclaim software - Introduction and training

Wednesday, 23. September 2009

Tuesday Session wrap-up:

Most participants found homogenization session to be interesting, although it was too intense in sense of quantity of information. Some discussion points:

- Croatia: they have other people already working on similar software
- Serbia: a very useful presentation and a very good tool
- Bulgaria: a very good presentation, they will try to use the tool
- Romania: good, but others are working on this theme
- Monte Negro: looks good to them, easy to use; no experiences yet, they will test different methods
- FYROM: no improvement on homogenisation yet, they will invite Petr Stepanek
- Hungary: new, looks useful; they use their own tool – MASH; they would like to have print screens with instructions
- Turkey: they are end users, but they will present the tool to others working with the data

Andrej Ceglar (Biotechnical Faculty): Drought indices - SPI, PDSI – presentation outline

- Theoretical introduction
- Practical part: SPI daily, SPI monthly, PDSI
- Manual is available together with the software
- Some problems with preparing the correct form of their own data. Suggestion: program should be able to process matrix-type data
- If there is no precipitation, you can not have an empty space (you should write 0)
- Problems with long periods without precipitation (Bulgaria) – you have to take longer period for calculating SPI; -9999 means extreme drought in this context

Stefan Niemeyer (JRC): EDO Map Server - presentation

- How to use their products on the web
- Everyone should log-in and try to use EDO interactivly

Thursday, 24. September 2009

Blaž Kurnik (JRC): Drought Forecasting Methods- presentation outline:

- Statistical and numerical methods of drought forecasts, time scale, probabilistic approaches - SPI calculations
- Soil moisture information: the LISFLOOD model
- Forecast validation – longer time-series
- Statistical and numerical forecasting
- Drought forecasting - both hydrological indicators and meteorological indicators should be forecasted

Simone Rossi (JRC): Drought Monitoring using Remote Sensing data- presentation outline:

- Drought, remote sensing, parameters, indices and indicators

- Remote sensing measurements, remote sensing based drought monitoring (vegetation, soil moisture, snow cover, evapotranspiration, radiative exchange)
- Remote Sensing indicators within EDO, fAPAR, fAPAR anomalies
- Data assessment

Stefan Niemeyer (JRC): Application of Numerical hydrological models for drought Monitoring- presentation outline:

- Hydrological Models: representation of the hydrological cycle (inputs – outputs), resolution
- LISFLOOD (EDO - Daily Soil Moisture Map, Forecasts, Anomalies)
- Validation- Global Soil Moisture Archive derived from ESA ERS scatterometer data
- Future work on calibration of the model, pilot study on models with different requirements, increasing availability of remote sensing products on soil moisture

Stefan Niemeyer (JRC): Drought products- presentation outline:

- Drought indices – several existing: meteorological, hydrological, agricultural, connected to remote sensing, combined, others (Palmers, BMDI, DSI …)
- Requirements for deriving drought index (guidance, criteria, assessment of the performance, information from different disciplines and technologies

Friday, 25. September 2009

Jožef Roškar (ARSO): Numerical Weather Prediction Models for Drought Monitoring- presentation outline:

- Numerical Weather Prediction Models - NWP and theirs Application for Drought Monitoring and verification
- Structure: input-model-output
- Resolution, relief, consideration of physical laws (scale interaction of variables)
- Uncertainty and use of the NWP products for drought monitoring
- Limited Area Model and application for drought monitoring, output (appropriate time scale)
- Goals to re-compute reanalyses data over SE Europe in dense grid to obtain “climatology” for drought situations interpretation
- Possible products: accumulated water balance, soil moisture index, mean temperature; using decadal time scale
- Verification – in situ data (measurements of soil moisture flow)

Presentations of the Countries, 24/9/09 and 25/9/09, EARS, Ljubljana

FYROM

- 160 precipitation stations, 14 meteorological stations, 2 automatic weather stations (+ 2 more during 2009)
- 6 point measurements of gravimetric soil moisture, only during vegetation period
- CLIDATA db from CZ (want to invite Petr Stepanek to give a course on his software)
- Local drought definition: Minimum of 10 days with < 0.1 mm precipitation
- UNCCD focal point at Ministry for Environment.
- Official info: meteo and drought db does not exist; data holding is de-central with projects and research groups

- Institute have taken part in the following drought issues: Strategy for Spatial Planning of their country, Capacity Self Assessment within the Thematic Area of Land Degradation and Desertification, Information and reports for different users

Bulgaria

- National Institute for Meteorology and Hydrology at the Academy of Sciences
- Soil moisture monitoring, a dense soil moisture observation network exists
- Many players, institutes in (agro)meteo data collection and processing
- Agro-meteorological network within NIMH
- Currently analogical info collected in the regional centres, digitalization centralized in Excel at NIMH
- AgroDB exists, high level of details
- SQL Server 2000 Enterprise Manager
- Procedures written in Transact-SQL for calculation of soil moisture, etc.
- Also Meteo Db exists, developed before AgroDB
- No real-time data in Db
- First attempts to produce Z Index, CMI, Palmer Index
- CERES, WOFOST models have been already used in studies
- Bulgaria has a network of 32 agrometeorological stations and 52 phenological stations. Soil moisture info only on limited areas. They are now inserting the data into AGRODB.

Bosnia and Herzegovina

- Temperature and precipitation anomalies produced as first drought information
- De Martonne Index has been already calculated (climate index)

Croatia

- www.meteo.hr with drought info online
- ISDR publication: HR has had 38 % economic losses in 1980-2000 due to droughts
- Croatian Meteorological and Hydrological Service DHMZ
- Members of COST 734
- Members of COST ES601
- SPI calculations operational since 2007
- Since 2008 also precipitation statistics, e.g. cumulative precipitation, daily scale precipitation graphs
- Recently also agrometeorological information included

Greece

- Christos Karavitis group, Water Resources Management
- The university group is involved in official drought assessment, within Drought Task Force and State Drought Advisory Committee
- In case of drought, production of situation reports, in collaboration with National Meteorological Service
- No continuous drought indicators are currently produced in GR
- Greece issues reports in case of drought events. Does not have a regular production of data.

Hungary

- 17 people in climatology division: data check and control (MISH, MASH), research, data management
- 57 homogeneous temperature stations, 160 precipitation stations
- 1983-1995: longest drought situation
- March 2003 extremely dry, April 2007 very dry
- 10 km spatial resolution has proven to be the best choice for SPI calculation in HU, comprises all necessary details
- Hungary uses MASH software for homogenization of the data

- Hungary comment that two possibilities should be included for input precipitation in the programme for the SPI calculations: DB format with YYYY MM RR in separate columns or YYYY MM matrix format.
- Hungary would be interested in a tutorial with step-by-step description. It is possible to set thresholds in the height of the station for excluding stations from the homogenization. Info on climatic zones can be inserted as shape-file through ArcView.

Albania

- Institute for Energy, Water, and Environment (IEWE) since 2008, under Poly-technical faculty, University of Tirana; before National Meteorological Office
- 120 meteorological stations, recording mainly once per day temperature and precipitation analogical; slowly decreasing number of stations
- 6 principle weather stations
- Not much request so far for drought products from Ministry or public
- First simple drought products: Number of consecutive days of no rain
- Problem with digitalization of meteorological data

Serbia

- Operative procedures for moisture conditions indices – based on the data of 30 stations
- Serbia calculates SPI on regular basis, on different time scale (1 to 24 M) also PDSI with 10 days updates, Palmer Z index and soil moisture storage.
- SPI mapping presented

Monte Negro

- Lack of permanent drought assessment
- Monte Negro calculates SPI only for analysis and not for operational purposes
- Structure of national Hydrometeorological institute presented and activity on drought issues
- Several national institutions involved

Moldova

- Share of droughts is 12,5% from the total number of natural hazards
- HTC index used to analyse drought vulnerability of the country (classification: sufficient moistening, weak drought, dry, strong and very strong)
- Frequency of drought out of 10 years

Romania

- National strategy for drought monitoring
- Drought vulnerability assessment using Aridity index, Palfai agroclimatic index, soil moisture content and NDVI index.
- In the future SPI and combining information from satellite products and meteorological indexes

Turkey

- Presented drought assessment tools and key indicators for drought monitoring
- Drought occurrences and spatial analysis (period 1951-2001) to identify areas vulnerable to drought
- Calculates SPI between 1 and 12 months operationally. Results are published on the web page

Round Table Discussion and Workshop Summary

The highlights of the discussion were:

Data homogenisation and data quality control

Homogenization of the data time series is necessary before starting any kind of the calculation of drought products. Participating countries reported work and their efforts on data homogenisation and data correction process. Approach on data homogenisation should be more systematic. Countries were

urged to benefit the process of homogenisation using the application presented by Stepanek (Chech republic) or the procedure reported to be used in the Hungary (MASH). Homogenisation of the data is also the topic of COST ES602. Croatia reported their activity in the action. It would be a benefit that all meteorological services from DMCSEE region would be included into this action.

Data quality process

On the question was how to attain certain data quality, most countries reported regular quality control of the data recorded on climatological stations. Procedures are more or less established. The control procedure is time consuming, demands a certain span of delay of the data. The quality control for AWS needs different approach than climatological data and this issue has to be tackled from all DMCSEE member states. Some countries reported that their QC of the data recorded on AWS is still not performed satisfactory. Some countries have their procedures of QC in development. Several additional procedures of quality control were reported. For instance control for outliers in Serbia. Comparison analysis is the next step to be done.

Data organisation

DBs are more or less well organized in all member states. The importance of the data assess to the real data was impacted. Real time data are not always available. In some cases data assess should follow organisational procedures demanded by institutions. Some constrains exist for publishing data on the web page. Real time data access through web is still not possible in all countries due to organisational or technical constraints. User friendly way to attain the data through internet is important. Romania reported their data to be attained completely through internet. In Bulgaria the data are available on operational maps like fire index etc. Those data everybody can access.

SPI

Drought modelling is taking part in many drought preservation activities. Many experiences and tools for SPI calculation are available. The question is which tool can be implemented in the process of Drought monitoring and drought assessment in the DMCSEE region. Selection of the index depends on the purpose of the type of drought monitor. Important is also spatial scale. Many parallel activities for drought assessment are performed also in the frame of UNCCD and National Action Plan's.
Participants reported their national approaches of SPI calculations (presentations). They were all invited to send their web pages, where national approach of the SPI calculation is presented, to JRC (Niemeyer) until the next week.

Plans forward

Work on Transnational Cooperation Programme (TCP) DMCSEE project, implementation has started. Presentation of forthcoming Carpathian project – project call on climate data processing will be broadened to a wider Carpathian area and will be complementary to the TCP project. Presentation of the COST ES 602 action – data homogenisation process, which is relevant for data requirements for drought monitoring.

Organisational issues

All presentations will be available through the DMCSEE web page as pdf files.
SPI and PSDI software are available on CD.
The final report of the workshop will be drafted by EARS/JRC.