EWENT

EWENT WP2 Workshop on

Estimation of Probabilities of Extreme and Harmful Weather Events in a Changing Climate

Tuesday 14 September, 10:00-12:30 (Room E33.1)

To be held during the 10th EMS Annual Meeting / 8th European Conference on Applied Climatology (ECAC) at ETH, Zurich, Switzerland

Summary of the workshop
(compiled by Pirkko Saarikivi)

Workshop discussed the analysis and climate scenarios of extreme weather events in Europe. The presentations covered comprehensively the problematics of extreme weather event analysis showing the availability and effects of observational data, various analysis methods and scenarios especially for extreme temperature, strong winds, cyclone tracks and heavy precipitation. Assessment of impact thresholds for transport and European climatology and scenarios of disruptive weather events such as severe storms were presented.

10:00-10:20 Pertti Nurmi (FMI): Introduction to EWENT and WP2 highlights

Workshop was opened by Pertti Nurmi (FMI) on behalf of Pekka Leviäkangas, EWENT project manager (VTT) who sent his regrets because was unable to attend. PN introduced the partners and key objectives of EWENT.

10:20-10:35 Rasmus Benestad (met.no): Extremes and record breaking events

RB presented estimating trends in extreme precipitation events in Europe. Mean temperature and precipitation can be used to predict the future distribution of extremes using gamma or exponential distribution. Number of record-breaking events reveal the trends.

10:35-10:50 Albert Klein Tank (KNMI): Observational data for analysing extremes

Observational data on European scale was considered for analysing extremes. Difficult to get European wide data sets for extreme event studies especially if cross-border cases are studied. ECA&D, ENSEMBLES, EURO4M, EUMETGRID are European data projects. Trend in tropical nights in Europe is clear. ECCONET project is related to EWENT; dealing with inland waterways.

10:50-11:05 Malcolm Haylock (PartnerRe): Considerations when analysing extremes in gridded observational climate datasets

Effects of grid box averaging and interpolation on decreasing the analysed extremes was discussed. EMULATE recreated historic dataset by Sequential Gaussian Simulation, used for Extreme Wind Indices. Decadal storminess 1882-2000 has been studied. Station density correlates strongly with uncertainty of the analysis.

11:05-11:20 Joaquim Pinto (Uni. Köln): The statistical uncertainty of changes in winter storms over the North Atlantic and Europe in an ensemble of transient climate simulations

JP presented methods for cyclone tracking, statistical tools and changes over time using NCEP and ERA40 data with ECHAM5/OM1 model. Cyclone track density and intensity over Northern Atlantic shows 10% less cyclones, but over British Isles and the North Sea significant enhancement of density and intensity of cyclones. Return periods of an extreme can be reduced considerably as early as 2040. This means higher risk of damaging winds over Europe in the future.

11:20-11:35 Ilkka Juga (FMI): Estimating the impact of weather on transportation in Europe – assessing impact thresholds for different weather parameters

Wintertime risks of snowfall and slipperiness for and summertime extreme convective phenomena were presented, causing risks for all traffic modes in Europe. Impact review and media reports analysis on cases were made. Indicative threshold values of accumulated snowfall, temperature, wind gusts and blizzards were selected to show clear impacts on transport.

11:35-11:50 Andrea Vajda (FMI): Preliminary results on climatology and scenarios of adverse weather events for transport in Europe

E-OBS dataset and ERA-40 re-analysis was used for analysis of European climatology of extreme events. Scenarios for 2011-2040 and 2041-2070 were calculated with Ensemble project models. Not only extremes but also "unfavorable" weather were considered for heat, heavy rainfall and wind gusts. Models showed large differences in wind gust simulations. Duration of rainfall events needs to be considered and will be studied further.

11:50-12:05 Pieter Groenemeijer (ESSL): Severe thunderstorms in a changing climate: current data situation and plans

Severe thunderstorms and ESWD database, types of events, recorded coverage and quality control were considered. Events are severe, local and short-lived such as wind gusts, large hail, tornadoes, and flash floods. Website for data is eswd.eu. Data is classified in four quality levels. Avalanches, damaging lightning and heavy snowfall will be analysed as well.

12:05-12:15 Lasse Makkonen (VTT): Effects of methodological errors on estimated probabilities of extreme events

Very extreme events are rare and thus impacts difficult to assess. Valid models for return periods should be found, and may different ones have been suggested. Fitting of data, e.g. wet snow load to calculate the correct return period can lead to completely different results. Asymptotic extreme theory should not be used. Errors in terms of the return period can be 100-200% in climate change estimates.

12:15-12:20 Heikki Tuomenvirta (FMI): EWENT Workpackage 2 challenges

Main challenges in WP 2 are the complexity of weather phenomena and varying impacts to transport modes, limitations in observations and climate scenario modelling. How to utilise other relevant work?

12:20-12:30 Pirkko Saarikivi (Foreca): Summary of the Workshop Including a general discussion on the EWENT approach

Summary of the workshop was compiled and sent for EWENT partners and presenters.