

Minutes of the 23rd Annual Meeting of the Working Group on Co-operation Between European Forecasters (WGCEF)

Thursday 12th – Friday 13th October 2017

Warsaw, Poland



List of Participants (in alphabetical order):

Surname	First name	Organisation
BLAAUBOER	Dick	Eumetnet
CSEKITS	Christian	ZAMG/Austria
CUSACK	Evelyn	MET ÉIREANN
DIEPEVEEN	Jos	KNMI/The Netherlands
DOUBLET	Karen Helen	Met Norway
DROZDZYNSKA	Julianna	IMGW/Hydrometeorological Service of Poland
HAUSEN	Robert	DWD/Germany
HEWSON	Tim	ECMWF
HLADNIK	Veronika	Slovenian Environmental Agency
JAMESON	Stephanie	UK Met Office
JÓNASDÓTTIR	Elin Björk	VEDUR/Icelandic Met Office
KALIN	Lovro	DHMZ/Meteorological and Hydrometeorological Service of Croatia

KRUMINA	Laura	Latvian Environment, Geology and Meteorology Centre (LEGMC)
LAINÉ	Mikko	FMI/Finland
LEITAO	Paula	IPMA/Portugal
MANCZAK	Piotr	IMGW/Hydrometeorological Service of Poland
OGRODNIK	Michal	IMGW/Hydrometeorological Service of Poland
PATKAI	Zsolt	OMSZ/Hungary
RALIENE	Vida	Hydrometeorological Service of Lithuania
REY	Jaime	AEMET/Spain
ROULET	Bernard	Meteo-France
SANDEV	Marjan	Czech Hydrometeorological Institute
SKELBAEK	Michael	DMI/Denmark
VANHAMEL	Thomas	RMI/Belgium

Participants via videoconference: Mr. Attilio DI DIODATO (Italy), Mr. Panos GIANNOPOULOS (Greece); Mr. Andre-Charles LETESTU (Switzerland)

Meeting Venue:

Institute of Meteorology and Water Management – National Research Institute
ul. Podleśna 61
01-673 Warszawa

Thursday, 12th of October

- **Session I ‘Introduction’:**

- * Welcome Address Deputy Director General Tomasz Walczykiewicz. Piotr gives explanation about the facilities.
- * Opening words (Christian)
- * Welcome of the new WGCEF members (Jos and Christian)

A warm welcome to the new delegates Jaime Rey, Spain, Laura Krumina, Latvia, Elin Bjork Jonasdottir, Iceland and intermediate delegate Stephanie Jameson.

*Activities: Christian gives an overview of all activities of group members. WGCEF delegates were Co-Chairs in the Forecasters’ Session of the EMS Annual Conference, which took place in Dublin from 4th to 8th of September 2017 (Evelyn Cusack and Christian Csekits). Furthermore the WGCEF Chair is member of the PSC, the scientific and programme committee of the EMS.

WGCEF was also heavily involved in the Eumetnet Task Team on Improved Services and Impact Based Warnings with four participants (Laura Paterson,

Jos Diepeveen and Christian Csekits). WGCEF is participating in the Eumetnet Drafting Team on forecasting (Jos Diepeveen and Christian Csekits).

* Agree agenda and review actions from last meeting (Jos and Christian)

- **Session II 'Updates since the last meeting':**

- * Round table: participants introduce themselves and giving update on new developments within their NMSs (4 minutes each)

Cristian Csekits, ZAMG/Austria

- During night only one technical shift (instead of two; operational since summer 2017)
- New ZAMG-App for fire brigade, police and ambulance
- INCA: forecast data from AROME (instead of ALARO) from 2018/19 on
- New operational forecasting and emergency room (7 instead of 4 positions) ready in November 2017

Evelyn Cusack, Met Eireann

- New Assistant Director: Dr Sarah O'Reilly
- 8 new meteorologists going are training in KNMI: October/November/December. KNMI trainers coming to Dublin in January and February.
- European Met Society in Dublin a great success.....the largest ever over 850 (110 from Ireland). Met Eireann had a follow-on 1-day seminar last week which energized all the staff. We gave 15-minute presentations from EMS.
- We continue to automate remote rainfall stations in mountains etc and 60 are being tested (total around 450 rainfall...some monthly).

Jos Diepeveen KNMI/Netherlands

- Ambition to develop to an Early Warning Centre
- Devastating hurricane Irma hits SSS Islands, especially St. Maarten
- Buys Ballot, founder KNMI in 1854 (1817-1890) 200 year's anniversary
- New Dual-pol radar in Herwijnen and update BULL supercomputer
- Beginning of October, KNMI launches new app.
- Development of own visualisation and production system, Geoweb.

Karen Helen Doublet

- Several episodes of extreme precipitation events/flooding
- Project updating extreme weather warning plan
- NWP cooperation between SMHI and METNorway will include FMI this year. Ensemble system MEPS 2.5 km, 10 members. Cooperation on a HPC-solution as well
- New trajectory models for drifting objects. Flexible solution, different modules: first drifting oil slick, persons in water, different objects. In general input data: current, waves and wind
- Trend: finemesh models in coastal areas and in fjords: grid size 800 m. Wave model and ocean model. 2.5 km atmospheric model

Robert Hausen DWD/Germany

- Change in „DWD-law“ – providing free data
- „Sinfony“-project – integrated forecast system
- Add-on DWD-App: warnings and reports for floodings, storm tides and avalanches

Tim Hewson, ECMWF

- Agreement reached that ECMWF computing facilities – notably the next - Supercomputer – will be re-located to Bologna in Italy
- Two new model cycles were introduced since the last WGCEF meeting. New seasonal forecast system (System 5) will become operational in November.
- For the recent devastating hurricanes in the North Atlantic ECMWF forecasts, though not perfect, outperformed forecasts from other centres (including special high resolution LAMs)

Veronika Hladnik, Slovenian Environmental Agency

- Implementation of Aladin-SI model version CY40
- Facebook account Arso Vreme
- rejuvenate of the team

Stephanie Jameson, UK Met Office

- 1) Weather challenges over the past year:
 - Storm Naming reaches ‘Ewan’ for the 2016/2017 season. Particularly notable impacts associated with Storm Angus (flooding) and Storm Doris (winds).
 - Aviation impacts due to dense fog over Christmas period.
- 2) UM Model Upgrade:
 - GM: Horizontal resolution increases

- UK High Resolution (UKV): Introduction of hourly cycling, change from 3 to 4 Dimensional Analysis (4D-Var), higher resolution lateral boundaries.
- Ensemble: Increase in number of ensemble members, increased horizontal resolution.

3) Other Business Development:

- Transform & Efficiency Programme, increase in Media & Aviation Consultancy Services, developing involvement with the UN Ops & Crisis Centre.

Mats Johansson, SMHI Sweden

- Due to new products (road condition forecasts) one more night shift for my group since October (2 total). SMHI also have 2-3 night shifts in Stockholm working mostly with aviation forecasts.
- Upgrading radar stations, 6 of 12 are done. The plan is that all of them will be modified late next year.
- The work to upgrade observation stations is ongoing and will continue also next year.
- Running a ten member high resolution EPS (Arome) together with Norway and Finland. Finland joined earlier this year.
- Impact based warning project is running and Phase I will be done in July next year. Parameters that are of most interest are wind, snow, flooding and high sea levels.
- From the coming ice season we will work together with FMI with the ice-chart for the Baltic Sea.
- Aviation forecasting group has been working together with DMI for a couple of years. The group has also started cooperation with FMI.

Elin Björk JÓNASDÓTTIR, VEDUR/Icelandic Met Office

- Elin Bjork Jonasdottir, group leader for weather services, IMO
- Harmonie, run in two separate instances, one by IMO the other in collaboration with DMI (IGA)
- New satellite images, including SCAT
- Visual Weather and Moving weather updates pending.
- CAP warning system for severe weather.

Lovro Kalin, DHMZ Croatia

- Appr. 15 forecasters (2 apprentices)
- increase of daily work – pressure on staff/schedule (health issues also)
- shift of generation
- 2017 – tough season (cold, hot, drought, fires)

- VisWe in operational forecast – visualisation, forecast production (not full)
- ongoing refurbishment of forecasting office
- Regional Maritime Centre established in Split

Laura Krumina, Latvian Environment, Geology and Meteorology Centre (LEGMC)

- Continued renovation of the meteorological and hydrological network – reduction of manual observations, but real time data flow and web cameras – completion is planned in the end of 2018;
- Development of new automatic verification system for general forecasts; verification of forecasts on daily basis – fast feedback on models and forecasters performance;
- Revision of hydrological and meteorological warnings criteria; closer cooperation with civil protection authority and municipalities. The first steps to new warnings dissemination and verification system;
- Development of the personnel competency maintenance and assessment system for the Forecasting and Climate Department (3 years cycle); competency assessment for general and marine forecasters at the end of 2017;
- More activities in the NORDMET with an emphasis on the work in the NAMCON consortium, developing closer cooperation with Estonian Environment Agency. Priorities - field of aviation forecasting (common SWC, etc.) and IT solutions;
- Analysis of past and future climate for Latvia, activities were performed in cooperation with FMI – basis for adaptation plans;
- Development of hydraulic model application, flood risk maps for flood risk areas and hydrological simulation and forecasting system. Activities are done in cooperation with SYKE (FINLAND);
- Use of SENTINEL satellite images to detect ice cover / ice jams in inland waters, flooded areas.

Mikko Laine, FMI Finland

- A joint Nordic (Norway, Sweden, Finland) model MEPS has replaced our own Harmonie model.
- New weather warning system, now some of our warnings are given up to 5 days ahead.
- Free choice of area for warnings.
- Meteorologist are co-operating with research/developers/sales –personnel.
- New services/products: meteorologists were on site on Nordic World Ski Championships in Lahti.

Paula Leitao, IPMA/Portugal

- ecCharts (for EPS system, visibility over the sea, and other)
- South radar with operation problems
- New lightning detector network is operational

- Pre operational severe weather warning, which congregates different phenomena resulting from convection
- Forest fire risk based on impacts is operational
- Improving connections with other national authorities and knowledge in order to Impact Based Forecasts and Warnings
- Low level area forecast (GAMET – over mainland)
- Aerodrome warnings
- Contact with UK and Spain in case of significant weather over the border.

Later this year

- Contact with Morocco in case of significant weather over the border.
- Pre operational AUTOMETAR at small aerodromes during night time (Pico, Graciosa e Corvo – Azores)
- Pre operational severe weather warning by counties

Planning for near future

- New radar for Madeira
- New lightning detector network at Madeira and Azores
- New meteorological visualization and processing system

17 June - Forestry fire causes 64 casualties

- Severe convection with lightnings and strong downdrafts in a very warm day (above 40 °C at 50% of the weather stations)
- A comprehensive report of tornados in Portugal from 2001 to 2010

Andre Charles Letestu, Meteoswiss

- Simplification of warnings
- Autometars during the night at Geneva's airport.
- New apps: type of precipitation in radar animation.
- New forecasters, employed as AMFe later becoming AMFm

Piotr Manczak, IMGW/Hydrometeorological Service of Poland

- Works on nowcasting tool SEiNO are in progress. Particular modules of the SEiNO system are responsible for different calculations. For example: GRS – estimation of precipitation field based on rain gauges, radar and satellite data; SCENE – detection of convection and precipitation nowcasting using extrapolation vectors; SNOF – Fourier analysis is used to particular hydrometeors (similarly to STEPS models in other countries); ENSEMBLE and PROB modules of this nowcasting system are tested.
- Works on forecast simulator have begun this year. It's going to be a training tool which will allow users to work operationally on archive data. There are works in progress on interface and database. This simulator will be used in the future to examine candidates for the job, to raise and periodically check forecasters' qualifications.
- In 2015 and 2016 we experienced staff redundancies and automation of about 40% of the synoptic stations. This year, however, a slightly opposite

trend is visible. Human observations were restored in several synoptic stations, only during the day as yet.

Zsolt Patkai, OMSZ/Hungary

- New Aviation Meteorology portal has been launched (aviation.met.hu).
- Widespread weather information available: Bulletins, Observations, Regional Area Forecast for VFR flights, Tons of forecast maps based on AROME (e.g. thermals, wave forecast, wind, cross-sections, convective indices).
- Staff number is stable, but people are coming and going, only last year 5 forecaster colleagues decided to leave. The main reason: salaries are very low, they weren't raised since 2008.
- This year WMO released a new International Cloud Atlas. Linked to this, our Met. Service also released a book called Cloud Atlas ([Cloud Atlas - OMSZ](#))

Vida Raliene, Hydrometeorological Service of Lithuania

- New super computer SGI ICE X Replacing Hirlam 4km by Harmonie 2,5 km.
- TRAINING COURSE „BALTIC+“ on 14–16 March in VILNIUS.
- 19 Forecasters and 9 Teachers from 7 countries and EUMETSAT.
- The information about this event was published in „EUMETRAIN training bulletin“ in July's issue.
- The presentation "Baltic+ 2017 course on Convection – Collaborative Effort for High Quality Convection Training" was done in ESSC-2017.

Jaime Rey, AEMET/Spain

- Since June Harmonie-Arome cycle 40 is fully operational in AEMET's Bull supercomputer. Gives often problems in case of convective situations
- Warnings issuance in CAP format to Meteoalarm and Civil Protection authorities is in test phase.
- Ninjo licenses expired in January and were not renewed. It didn't fulfill our expectations (e.g. only one product was generated through Ninjo for external users).

Bernard Roulet, Meteo France

- Evolutions of Models
 - Global model ARPEGE
 - AROME/AROME-PI and Ensemble High Resolution Model AROME
- Vigilance/Cloud Sourcing Applications
 - Public observation applications for smartphone
 - Test of connected cars in partnership with Continental

Marjan Sandev, Czech Hydrometeorological Institute

The basic changes in the Integrated Warning Service System at Czech Hydrometeorological Institute (near future)

Current IWSS	Changes in new one
Output in .xml format and text	Output in CAP and for media text
Issuing as needed (usually around 11:00 am)	Issuing daily at 11.30 am
Outlook of dangerous phenomena for web CHMI or as a separate information	Outlook of dangerous phenomena on days D + 3 to D + 5 as part of CAP
Only one warning for the whole country and all groups of phenomena	Possibility of splitting into separate reports by regions and phenomena
All warnings are issued by CFO - Prague	Some interventions may be also performed by RFO (<u>meteo-hydro</u>)
Warnings are issued on district level (77)	Warnings issued on municipalities level (262)
It gives only general alert severity (degree of danger)	It can be obtained separate information about intensity and probability of the event
No additional background information (maps, graphs)	CAP provides links to additional background information
Text is always relative to the warning as a whole	For each event / area / length of time a separate text

Changes in the Integrated Warning Service System at Czech Hydrometeorological Institute

Alert Editor as a module of the Visual Weather system
 Future performance of warning web page (from the beginning of 2018?)

Projects:

Prevention of security risks caused by extreme meteorological phenomena - their specification and innovation of forecasting and warning systems with respect to climate change

The project is financed by the Ministry of Foreign Affairs

Main goals:

- Analysis of impacts caused by extreme meteorological phenomena
- Definitions and Database of Extremes
- Impact analysis and draft criteria for issuing impact-based alerts
- Evaluation of the success of predictions of dangerous hydrometeorological phenomena
- Estimation of the evolution of frequency of dangerous phenomena with regards to climate change

Michael Skelbaek, DMI/Denmark

- Black November – 20% got fired or left voluntarily
- Progress due to new contracts and appropriations
- 3 new Doppler radars - new Harmonie and Ensemble model

Thomas Vanhamel, RMI/Belgium

New products and developments:

- New model ALARO13 operational with resolution of 1.3 km
- Bellavista (BELLS lightning detection)
- Open data: growing catalogue (climate data, ALARO-4 output, lidar) with GIS-application

General news concerning the weather office

- (Ongoing) organisational changes: automatization of some products & from 3 -> 2 forecasters on duty during the day: test phase
- Road condition forecasting (preliminary development phase)

- **Session II 'Updates since the last meeting':**

- * Discussion of the 22nd WGCEF Newsletter (Bernard)

Great thanks and respect goes to the reviewers of the last newsletter. And also for the printing of the beautiful magazine, kindly provided by Meteo France. We are very grateful that Meteo France is willing to print the letter also in the near future!

- * WGCEF website and social media report (Andre-Charles/Jos)

-Andre Charles gives an update about the website. Presentations will be put on this site in the secured area.

-Jos offers all participants to connect via Facebook to the (closed) group of WGCEF, you can also encourage colleagues to join: send a message to Jos Diepeveen, via FB/Email!

- **EUMETNET Update (Dick)**

Future

The next phase, 2019-2023, of EUMETNET programmes is being prepared. Drafting teams in the area of Observations and Forecasting are drafting the requirements for the various programmes in these areas. The main theme of the Forecasting Programme in the next phase will be "impact based forecasting and warning", which is currently a main subject on the agenda of many NMHSs. The subject is related with several activities within the programme like probability forecasting, nowcasting, impact assessment, verification of IbW and education&training.

Activities and projects will be integrated in a smaller number of programmes which will focus on:

- EMMA/Meteoalarm
- Forecaster support
- NWP cooperation
- Education&Training

EUMETNET is striving for more flexibility. This means projects with flexible start and duration, flexible number of participating Members. New activities may arise during the next programme phase and fit in the existing programmes.

Today

All projects in the forecasting domain, EMMA, EMMA-H, Eumetcal, C-SRNWP, SRNWP EPS II, ASIST are well underway, details can be found in the presentation on the website.

The yearly Heads of Forecasting meeting in Warsaw in May 2017 was focused on planning the new phase of projects, especially “Impact based warnings and forecasting”. There were special presentations on the ESFS projects, where interested NMHSs may cooperate in a storm forecasting activity in cooperation with ESSL. Also a very interesting presentation was given on the HIWeather project from WMO/WWRP by Brian Golding. The importance of including other disciplines like economy, sociology, communication in the production chain of impact forecasting was discussed.

Related non-EUMETNET projects:

- Aristotle, started February 2016 ending January 2018: <http://aristotle.ingv.it/> . Seven individual NMHSs and EUMETNET are joining, a project financed by and in support of the ERCC in Brussels. Currently in a semi-operational pilot phase. Much related with current impact based forecasting activities;
- ANYWHERE (EnhANCing emergencY management and response to extreme WeatHER and climate Events, H2020-DRS-1-2015-700099)) is funded within EU’s Horizon 2020 research and innovation programme. The principal objective of ANYWHERE is to enable society as a whole and the main civil protection agencies to respond more rapidly than today to extreme climate and weather events, and to better cope with the high social, environmental and economic impacts related to these extremes.

- EUMETNET Task Team on Storm-Naming Update and Discussion (Evelyn)

A start has been made in discussing how to structure this challenge. After a long discussion during late afternoon, we decide to continue the discussion on Friday morning (second half) For the minutes, see further below in this document.

Friday, 13th of October

- **Session III 'Presentations'**

- * Bernard Roulet: 'Behaviour of ensemble forecast systems during Storm Zeus'

Storm « Zeus » has crossed France from Brittany to the Gulf of Genoa on 6 March 2017 with some extreme gusts especially on western Brittany, on mountainous areas in the Massif Central and then on the French Riviera.

The behaviour of two ensemble systems based on IFS model (EPS) and ARPEGE model (PEARP) at forecast ranges day+2 and day+1 is studied and then compared to a poor man ensemble of operational models.

The contribution of a high resolution ensemble based on model AROME is then analysed for short range forecast and vigilance.

- Michael Skelbaeck: 'Silent Storm Surge'

Storm surges are usually associated with strong and howling wind and whipping waves that cross over the docks or the dikes. But 4. January 2017 the southern part of Denmark experienced a 100-year storm surge event without having any stormy wind conditions!

The presentation will show how that's possible and will include a hurricane with various names in the late Christmas days. Despite the very rare event, the damage was relatively modest, but it was only a few centimeters that separated cities from being affected by a major disaster.

- * Marjan Sandev: 'Mechanism of Circulation over Europe in Cases of Heavy Rainfalls and Floods in Central Europe'

Since 1997 frequent floods have occurred in Central Europe. Some of them were caused by significant warming associated with snowmelt (2005) or as a combination of heavy rainfall and snowmelt (2000, 2006); others were associated with significant thunderstorm activity (2008, 2009, 2010, and 2012). The floods that hit the Czech Republic in the summers of 1997, 2002, 2005, 2010, 2011 and 2013 were caused by large-scale heavy rainfall, which occurred in the wider region of Central Europe. A comparison of the overall situation during 2013 showed floods and other flood situations in the Czech Republic. If the years 1997 and 2002 are included, they show similarities in the mechanism of the general formation of the flood situation. The circulation mechanism is almost the same in all cases and takes place in several steps, starting with the polar jet stream that brings cyclonic vorticity to the Western Mediterranean and through the process of cyclogenesis and the formation of cyclones advancing to the northeast. In its movement, it encounters (quasi) stationary blocking areas of higher pressure in the north/northeast of Central Europe. At a certain stage of pressure life, the Azores

anticyclone expands to Southwestern and Western Europe, which terminates with the process of the formation of heavy rainfall in the Central Europe area. This work is associated with the 20-year anniversary of the disastrous floods in Moravia and Silesia, and its aim is to present those mechanisms for a better understanding of the heavy rainfall process and for the successful forecasting of potential flood situations across Central Europe with a focus on the Czech Republic.

* Piotr Manczak: 'RainGRS System - quality-based quantitative precipitation estimation'

The GRS System is a software which estimates precipitation based on three data sources: rain gauges, radar and satellite data.

The merging of this data into the final product takes into account its quality. Each piece of data is subject to quality control and the Quality Index (QI) is calculated for it. During quality control process, the measurement errors are removed or corrected. The more proper data, the higher QI.

Rain gauge data from 491 gauges is controlled in a few steps, e.g.: negative values and higher than 80 mm/10min are removed, observed data is compared with climatological data in particular location, spatial distribution is analysed comparing to neighbouring gauges, temporal consistency is checked between two sensors of the same gauge from the last two hours. At the end, rain gauge data is conformed with the radar and satellite data.

Radar data from 15 radars is used. Quality control algorithm is responsible for, e.g.: analysis of effects related to the distance to the radar site, removal of non meteorological echos, removal of the measurement noise, correction of beam blockage or correction due to attenuation in rain.

Satellite data precipitation field is calculated on the basis of the NWC-SAF product formulas; MSG rapid scans are used. The satellite data is subject to parallax correction.

Radar and satellite data is adjusted to the rain gauge data after quality control and corrections. It means that the gauge measurement is assigned to the radar and satellite data pixels in gauge locations.

Rain gauges, radar and satellite data is merged conditionally, based on QI. The final precipitation field is calculated every 10 minutes in 1 km space resolution.

GRS data is the input data to the nowcasting system and it is used in operational work of forecasters as well. The basic product is 10-minute precipitation, but it can be accumulated to different time frames (in operational work from 1 hour to 24 hours).

*Thomas Vanhamel: 'Validation of weather-types'

A first part of the presentation will deal on the verification of weather types. Since 2015, the RMI has a mobile app designed for android and iOS devices. This app uses a model, feeding on real-time observations, output of our fine-mesh model ALARO-4

and IFS for longer ranges to yield hourly weather forecasts on the scale of our municipalities. Since it is relatively new that this kind of deliverable (i.e. forecasts with a high spatial and temporal resolution) are dispersed to a broad audience, a quality assessment is needed. A first exploratory verification is performed. This presentation focuses on the methodological structure and associated problems of such an analysis, along with some preliminary results. Since the model is fed with ALARO output for the first few time steps, known biases and model errors arise, such as an underestimation of cloud cover.

A second part of this presentation shortly explains the procedure for issuing meteorological warnings at the weather office. The types of warning (early-warning, warning & nowcast-warning) and some of the tools used for each type are discussed in brief.

* Laura Krumina: 'Competency Assessment for General and Marine Forecasters in LEGMC'

In 2013 Latvian Environment, Geology and Meteorology Centre (LEGMC) developed the first version of the competency assessment system for aviation forecasters according to WMO "Aeronautical Meteorological Forecaster and Observer Competency Standards". Three years later – in 2016 we have a new and improved version has been developed. The reason for the new approach was to make a system applicable not only to formal assessment of competency for aviation forecasters, but also transform competency maintenance in a way of continuous process of improvement of professional knowledges and skills. It is a process how forecasters, hydrologists and climatologists from the Forecasting and Climate Department progress as professionals. Therefore LEGMC despite being a small National Hydrometeorological Service can raise capacity for introducing new forecasting approaches, developing new products and services according to clients' requirements. Based on these conclusions, the competence assessment process will also be carried out for general and marine forecasters at the end of 2017.

* Karen Helen Doublet: 'How we use social media to communicate weather news'

How we use social media to communicate weather news.

One year ago we decided to establish a new project: communicating weather in social media. We use Instagram, Facebook and Twitter. Through these channels we share weather news with the public so they can make good decisions.

We share articles explaining weather and climate, interviews with the forecasters or scientists and pictures, videos etc.

Twitter is where we share weather related news several times every day. The most important is how our content is disseminated and understood by users, and how it's used further especially by newspapers.

The editorial team is built of meteorologists, climate scientist and run by a communication advisor.

The presentation will show the results of this work, and we will share our experience with you.

* Tim Hewson: 'Recent ECMWF developments'

Since the last WGCEF meeting in Reading ECMWF has upgraded its IFS forecasting system twice, improved the product website, and implemented two upgrades to the interactive "ecCharts" web portal. This presentation will describe some of the highlights in each area. As examples, the IFS now incorporates an interactive sea ice model, most web site products now offer "clickability" (to see site-specific CDFs for example), and ecCharts now allows the user to interactively display output from the monthly forecast in various formats up to week 6. ECMWF future plans will also be discussed. Whilst considerable effort will go into relocating our computer facilities in Bologna, work on the model and on outputs will continue. For example, we expect to be able to deliver two new products related to instantaneous precipitation type, and also accurate point rainfall probabilities derived through post-processing. To assist with convection forecasting we will also introduce a new CAPE diagnostic. In the IFS there will be marked improvements in the representation of rainfall in warm airmasses, addressing a long-standing model problem.

- **Continuation of discussion about storm naming**

There's a thorough discussion about storm naming. Groups are being made for regional naming of storms:

<i>Region</i>	<i>Countries</i>	<i>leader</i>
Northwest	Iceland	Elin
North	Norway, Sweden Denmark, Finland (Iceland)	Michael/Matts/Karen Helen
East	Bulgaria, Romania, Moldova*	?
Northeast	Estonia, Latvia, Lithuania	Laura/Vida
Southeast	Italy, Greece, Malta, Cyprus, Slovenia, Croatia, Montenegro, FYROM Macedonia, Israel.	Lovro/Veronika
Southwest	Portugal, Spain France, Belgium	Bernard, Pauola, Jaime
West	Ireland, UK, The Netherlands	Will/Evelyn/Jos
Central	Germany, Luxemburg, Switzerland, Austria, Czech Rep. Slovakia, Hungary, Poland	Christian, Robert, Zsolt, Marjan.

**(Co-operating members). In the future this group would contain also Albania/Bosnia & Herzegovina/Belarus/Ukraine.*

Goal

The Working Group for the Cooperation between European Forecasters (WGCEF) is developing a common approach for European storm naming in order to help assert the authority of NMHSs and fulfil their primary directive:

To ensure the protection and safety of life and property by issuing public weather forecasts and warnings

Proposal

The objective of this Task Team is to make a unified Storm Naming scheme that will be operated by all the NMS's in Europe and will be used by the media and all other agencies including Civil Protection.

The ultimate goal is the integration of a storm naming framework/scheme in Europe into the next phase of EMMA in 2019.

Benefits

At present there is confusion and often names are given by media or commercial weather companies. For example the 28th October, 2013 storm had FIVE different names:

- St Jude (Weather Channel)
- Christian (FU Berlin)
- Allan (DMI)
- Simone (SMHI)
- Carmen (European Windstorms Centre)

A single NMS European storm naming scheme would produce Reach, Engagement and Influence by providing the following:

- Authoritative Voice
- Single name
- Easy communication
- Opportunity for collaboration
- Useful post-event for reference

Requirements/activities until the end of 2018: The tasks are summarized as follows:

Task 1- Finalize groups: Consensus has still to be reached to include all countries in EUMETNET... broadly eight groups as above.

SOUTHWEST: Portugal/Spain/France/Belgium.

WEST: Ireland/UK/Netherlands

NORTHWEST: Iceland

NORTH: Norway/Sweden/Denmark/Finland

NORTHEAST: Estonia/Latvia/Lithuania

SOUTHEAST:

Italy/Greece/Malta/Cyprus/Slovenia/Croatia/Montenegro/Macedonia/Israel
EAST: Bulgaria/Romania/Moldova (Co-operating members). *In the future this group would contain also Albania/Bosnia & Herzegovina/Belarus/Ukraine.*

CENTRAL: Luxemburg/Switzerland/Austria/Czech Republic/Slovakia/Hungary/Germany/ Poland

Task 2 - Formulation of rules: The simplest method of storm naming as broadly agreed by WGCEF thus far is that the NMS who first issues an Orange/Red Meteoalarm warning names the storm. All the NMS's then use that name regardless of their own list (see DWD below). The rules would include proposed lists of names.

Task 3 - Coordination with the scheme run by the Free University of Berlin: The Meteorological Institute of the University of Berlin names all low and high pressure areas on a daily basis whereas our proposal is to give names only to significant impact storms with Status Orange/Red Meteoalarm warnings. We propose that DWD continue to use FU Berlin names but in the exceptional cases when a storm has been named by another NMS due to Orange/Red Meteoalarm warnings then DWD should put the EUMETNET name in brackets (or vice versa).

Task 4 - Co-ordination with WMO: A European Storm Naming scheme could publish a Six-Year cycle list of names in analogy with the tropical storm naming schemes in the Atlantic and Pacific etc. It may seem a little cumbersome to have eight different groups but the advantage of using the established WMO 6-year cycle is that the names would be agreed on in advance and could contain equal contributions from each NMS. Simple (cross-cultural?) names would be encouraged and the final lists would need general approval to avoid possible faux-pas etc.

Task 5 – Implementation into Meteoalarm:

This requires forward planning by the EMMA project in order to include information on the Storm naming scheme and the lists of names in the next phase of EMMA. This work will be included in the EMMA requirements and budget for the next phase, In general the NMS's warnings' may continue as at present with just the inclusion of the storm name in the warning. Details about the precise implementation need to be discussed.

A meeting within half year is proposed with the question to prepare the above mentioned tasks. Ideally this could be organised somewhere in the central part of Europe, to minimize traveltime and expenses.

- Visit of the Remote Sense Department and the Forecast Office
- **Session III 'Presentations'** (15 minutes each including discussion):

* Lovro Kalin: 'Warnings at DHMZ: challenges and latest developments'

The role of national meteorological services is increasingly related to the warnings. At the Meteorological and Hydrological Service of Croatia various warnings products are issued: from the general public, Civil protection service and MeteoAlarm to different specialized products, such as heat spells, cold spells, forest fire warnings, etc. Some results of warnings verification will be presented, such as those in the last extremely hot summer season. Major problems will be discussed, such as inconsistent and insufficient data, choice of thresholds, scoring methods, influence of non-meteorological elements, orientation towards impacts etc. Psychological pressure on the duty forecaster has also to be addressed. The results aim to build an insight to the warning forecasting systems, their properties and provide a feed-back to the forecasters, but also to give a guidance for the improvement of the forecasts.

- Zsolt Patkai: 'New GIS system for severe weather warnings'

A Geographical Information System based project is led by the National Directorate General for Disaster Management. This brand new system is being designed to help decision makers preventing and managing disaster situations. Now this system is just before the implementation. In this short presentation I will give an overview of the project focusing on our working groups task (Severe Weather Working Group).

- Stephanie Jameson: 'Impact based warnings at the UK Met Office'

This presentation looks briefly at the history of our warnings service and the steps that led to the impact-based approach we now employ, before taking a more in-depth look at how we apply this operationally. We determine the severity of our warnings by utilising an 'impact versus likelihood' matrix, which means that our warnings are also dependent on a number of non-meteorological variables. We will go on to look at some of these variables, as well as how we gather insight into the impacts of our weather forecast by working in partnership with other organisations. Finally, we will discuss some of the challenges we have come across in implementing an impacts-driven approach, in particular taking a brief look at how we verify our impacts-based warnings.

- Elin Björk Jónasdóttir: 'New severe weather warning system at the Icelandic Meteorological Office'

For the last few decades warnings for severe weather have been issued by the same standard by the Icelandic Meteorological Office. With high thresholds for wind and rain, societal impact has not been considered at all. During the last few years, with an enormous increase in tourists and winter time traveling the need for a different approach has become apparent.

Two years ago, a team was assembled by IMO to define and design a warning system where societal impact and likelihood of events would be considered in equal measures. After careful consideration, a system which is a combination of climatological thresholds and societal impact has been designed. The system is a CAP alerting system and will be fully launched for weather related warnings next week (Oct. 18th 2017). In this talk the challenges of the design of such a system is discussed as well as the future vision for multi hazard warning system in Iceland.

* Jos Diepeveen: 'Impact-based warnings at KNMI'

KNMI now works with a hybrid warning system. Yellow warnings are completely threshold based, amber warnings have included a 'light' impact estimation. A red code is fully impact based. For this red code no thresholds are being communicated to the public, so it could be the case that a "meteorological" yellow situation can turn out to be a red warning (weather alarm)

The above mentioned system is now being evaluated and will undergo further development in the coming 2 years, divided into 3 major fields of interest and research:

Impact:

The idea is to switch to a fully impact based warning system: "Not what the weather will do, but what the weather will mean" This development will be supported by objective decision systems which will be able to make an objective estimation of impact. Pilots are already realised: e.g. cross wind component on high ways. But also combination of other social-geographical data in combination with numerical weather prediction data is foreseen. This will be supported by a new work station which is now being developed at KNMI, the so-called 'Geoweb'.

Regionalization and further personalisation

The aim is to make a warning system which is fully personalised and will bring as much detail as possible, using a polygon system to indicate warning areas which will become personalised via modern media (eg. Our KNMIApp/Api) Further on convective weather will be semi-automated using sophisticated algorithms with help of cell tracking systems.

Division between the general public and professional users

Eventually the warning system can be further optimised for professional users in a way that they are able to tweak their own sensitiveness by setting their dynamical weather risk profiles. These profiles will be fed by probabilistic data from high resolution Harmonie-EPS.

- * Christian Csekits: 'Change in the warning philosophy at ZAMG: from a threshold to an impact-based severe weather warning system'

In the last years there is an increasing pressure from the costumers to the forecasters to move away from the 'how does the weather will be?' information to a 'what does it mean?' statement. Therefore at the Austrian Meteorological Service we are changing our warning philosophy from a threshold to an impact-oriented weather warning system. Examples will be shown to illustrate the importance of the impact-based approach in severe weather conditions. The weather impact matrix from UK Met Office is used as basic principle to generate impact-oriented warnings, where the colour coding is a function of impact and likelihood of severe weather phenomena. The kind of non-meteorological information taken into account will be presented and additional data sources, that are needed in the near future, will be mentioned.

- **Session IV 'Concept and request and Closure of the meeting'**
- Decide location and date of next meeting

Location Israel, kindly offered by the Meteorological Service of Israel by Alyssa Razy

Date overview:

A choice will be made soon between the following options:

- **Week 38: Sept 17-18;**
- **Week 44: Oct 29-30;**
- **Week 45: Nov 5-6**

Recommendations from small groups, for topics next year: (concept and request)

Group 1

Communication
Impact based warnings
forum

Group 2

another subject than impact based warnings!
two topics to focus people's mind
social media

crowd sourcing

Group 3

crowd sourcing

new role of forecaster, changes in society that changes its role

Group 4

impact based warnings

communication

crowd sourcing

Group 5

Crowd sourcing

Storm naming

Working more in smaller setting/group

Important letters like storm naming could be provided earlier in advanced, to have proper discussion at home.

We appreciate the focus in achieving things like storm naming

Announcements/and appointments Christian/Jos

-Greetings from Will Lang!

-Check the contact data on the website send changes to Andre Charles

-Be careful for the emails, don't wait too long take care for the deadlines.

-Christian wants to contact the non-active members, Tim will help with Bulgaria.

-Articles recommended in the newsletter.

-Laura and Evelyn will review for English spelling

-Concerning storm naming: From every institute overview of amber or higher for wind warnings for last warnings. → Get it out of Meteoalarm!

-Subscribe to the WGCEF group on Facebook!

-length/organization of the meeting

-2 full days

-next time again organizing a social event, sight seeing

-compliment to the hosts Piotr and Julianna.

Saturday, 14th of October

Joint Excursion to Centrum Nauki Kopernik (reservation for 10:20 am)

Jos Diepeveen; 20th of October 2017