

IMPRES - Minutes General Assembly

26-28 September 2016

Hotel Panorama, Chania, Crete, Greece



All presentations can be found at: <http://collab.knmi.nl/impres>



Programme Day 1: 26 September

Morning chair: Janet Wijngaard
8.30 - 9.15 Registration
9.15 Start and welcome
9.45 Case study session, part 1 (2' per case study, pitching);
<ul style="list-style-type: none"> ➤ Messara region Greece (<i>Ioannis Tsanis, TUC</i>) ➤ Segura river basin Spain (<i>Johannes Hunink, FW</i>) ➤ Llobregat river basin Spain (<i>Johannes Hunink, FW on behalf of Laurent Pouget (CETAQUA)</i>) ➤ Umeälven river Sweden (<i>Ilias Pechlivanidis, SMHI</i>) ➤ Central European rivers (<i>Dennis Meissner, BfG</i>) ➤ Pan-European water resources (<i>Albrecht Weerts, DELTARES</i>) ➤ South-eastern French river basins (<i>Maria-Helena Ramos, IRSTEA</i>) ➤ Thames river basin UK (<i>Jess Neumann, UREAD</i>) ➤ Lake Como Italy (<i>Andrea Castelletti, POLMIL</i>) ➤ Bisagno river basin Italy (<i>Francesco Silvestro, CIMA</i>) ➤ Jucar river basin Spain (<i>Joaquín Andreu, UPV</i>)
10.15 Coffee & Case study session part 2 (tables session, interactive);
11.30 Plenary feedback: Wrap-up from a few case studies (<i>Bart v/d Hurk, KNMI</i>)
11.55 Case-studies are also online (<i>Riikka Pohjankoski, ARCTIK</i>)
12.00 Cross sectoral integration (<i>Maria Mañez, HZG</i>)
12.30 - 13.30 Lunch
Afternoon chair: Felicity Liggins & Ioannis Tsanis
13.30 Presentation: Risk outlook;
<ul style="list-style-type: none"> ➤ Introduction (<i>Janet Wijngaard, KNMI</i>) 10' ➤ Pan European risk outlook forecasts (<i>Jeff Knight, MetOffice</i>) 20' ➤ Skill assessment of seasonal forecast systems (<i>Etienne Tourigny, BSC</i>) 15' ➤ The EFAS seasonal hydrological outlook (<i>Louise Arnal, ECMWF/UREAD</i>) 15' ➤ Game (<i>Louise Arnal</i>) 30'
15.00 Interactive tables session risk outlook
16.00 - 16.30 Tea break
16.30 Water resources in Crete. Focus on Messara Valley (<i>Marinos Kritsotakis, Directorate of Water of the Decentralized Administration of Crete</i>)
16.50 Samaria gorge – formation and overview (<i>Ioannis Tsanis, TUC</i>)
17.00 End of sessions day 1

Case study session

The meeting started with a quick overview of all case studies.

During the pitches all case studies were shortly presented showing their issues and how IMPREX climate services supports the local operations. The table discussions afterwards was used to give further information about the various case studies, exchange ideas, ask questions and give suggestions.

The users' needs identified so far focus mainly on the current operations, according to the motto "Learning from today, to anticipate tomorrow". The desired forecast lead time varies between days ahead till a seasonal time scale (with reference to climatology). Through all case studies a close collaboration between the users and the IMPREX project is seen, thus building the process of co-creation.

Overarching topics:

1. Looking for meteorological drivers
2. Identification of other (non-meteorological) drivers



Summary of feedback /insight gathered during the sessions per case study:

- Central European rivers : *Useful suggestion to look at additional datasets (S2S database hosted at ECMWF) and related projects (MIKLIP: <https://www.fona-miklip.de/>, PSACC project in Bangladesh, where also inland navigation is a topic). The main topic of the discussion was on the uncertainty related especially to monthly to seasonal forecasts in Central Europe and how to communicate it to*
- South-eastern French river basins: *It would be interesting to use our experiments to improve the understanding of what is driving the reservoir management application (if it is the hydro-meteorological information or any other type of information used in the optimization as, for instance, the evolution of energy prices). It could also be interesting to use extreme events to try to obtain more information from the physical features of the systems (since operations are optimized, outflows should reflect the operating rules). We could also select specific years in which the operator faced considerably more problems to enhance our understanding of current operation rules and engage the user on the contributions of Imprex.*
- Thames river basin UK:
 - 1) *It was good to clarify that we are looking at compound flooding in terms of persistence over seasonal time scales i.e., is it possible to predict the co-occurrence of high fluvial discharge and high groundwater at an extended timescale (and how important might the antecedent conditions in the catchment be?).*
 - 2) *The geology and topography of the Thames catchment provides a good 'memory' for this type of study. However, a limitation is relatively poor precipitation forecasting in this region.*
 - 3) *It was suggested that it would be valuable to look at monthly as well as seasonal forecasts - something we now plan to do.*
- Lake Como Italy (to be filled: **action: Andrea Castelletti**)
- Bisagno river basin Italy (to be filled: **action Francesco Silvestro**)
- Jucar river basin Spain: *For the case study of the Júcar River Basin, the needs for Climates services were identified and discussed (also in the last day session of "Internal Stakeholder Workshop"). Different stakeholders could use short and seasonal forecasts for improved decisions. Various stakeholders attend the participatory committees of Júcar River Basin Partnership, where this type of forecasts (short/seasonal) could be used for improved drought risk assessment and management (e.g., in the Permanent Drought Committee), and also long term climate change forecasts could be used to improve the design of programs of measures in the River Basin Plans (i.e., in the Water Council of the Basin) in order to reduce future vulnerability related to drought.*



Cross sectoral integration:

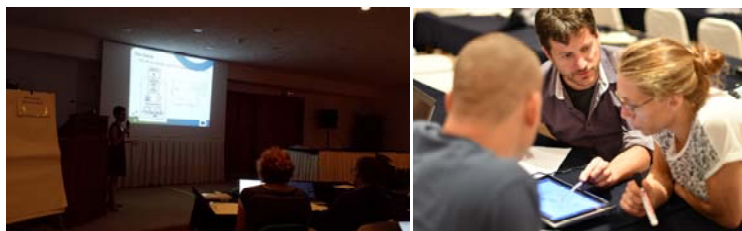
The first findings for the cross sectoral integration for the Jucar basin were presented by Maria. A complex network of interdependent “agents” was constructed for the Jucar basin. In an interactive modelling framework the consequences of interventions in one domain of the network on other domains were made visible and quantitative. This approach helps to understand the various issues (cross sectoral) being important for the Jucar, to avoid overlooking important issues that are hidden in the complex interaction network. A next step will be to integrate the quantitative climate and hydrological model information into the participatory model.



Risk outlook session

The session was introduced by a few presentations on the meteorological and hydrological forecasts on the pan-European scale.

- A seasonal hindcast is available for testing purposes. Next steps will be to enlarge the ensemble members (to get a better skill) and to apply downscale methods. Jeff highlighted the point that the signal to noise ratio of the simulations and the observations are not directly comparable, as the observation is only one realisation where the ensembles provide a distribution. The NAO signal can provide skillful predictions in winter for various regions in Europe.
- Etienne demonstrated the skill for different models. For a certain region the skill can vary significantly among the four analysed models.
- Next, the EFAS tool was presented by Louise showing an example of a risk outlook tool for flooding on the European level. The Discharge forecasts for Europe are only skillful for the first month and a difference is seen between the different seasons (winter better than summer).
- A game played with the whole audience provided insight into the challenges users experience whilst using a (paid) forecast of unknown quality in the operational practice



Discussion tables dealt with questions relating to the development of the IMPREX risk outlook. The basic idea to have a multi-layer (top-down/bottom-up) risk outlook emerged in almost all discussions. A short summary of the discussions is given below:



What's already out there?

From this discussion a preference was expressed to develop a system at the intersection between the UK detailed risk maps complemented by the SMHI display of past and future time evolution, where possible enriched with user/stakeholder/sector storylines enriching the information about the risk. An important conclusion is that we need to define how our risk outlook is going to look like: what is it, how does it feel, where is it hosted, etc. For this we need to get into contact with the Copernicus Sectoral Information System (SIS) group EDgE, coordinated by CEH (<https://climate.copernicus.eu/edge-end-end-demonstrator-improved-decision-making-water-sector-europe>), to discuss overlaps and interactions with the IMPREX risk outlook deliverable.

Are you getting what you want?

There is a gap between the spatial scale of the high impact events and the seasonal predictions. Case studies need high resolution seasonal predictions but this is beyond the current level of capability of seasonal climate forecasts. Yet many studies have shown a link between the risk of local extremes and large-scale climate anomalies. In order to bridge the spatial gap between the case studies and the climate prediction information, existing or future statistical downscaling techniques should be employed. Hydrological modeling should take advantage of the variety of seasonal prediction systems and use an ensemble approach in order to estimate the confidence of their predictions.

How do we go from regional to local?

Knowing the various stakeholders is an important basis for the impact level of the risk outlook. The case studies can deliver the basis for this impact level, whereas the sectors could be a good entry point for the portal. The system should include, current status, climatology and seasonal forecasted anomalies which could be presented by indicators and supported by decision trees. Indicators mentioned are: water levels, flow velocity, flow volumes, soil moisture and ground water level. A business and innovation corner could present showcases from the operational practice showing the benefits of using risk outlook information.

Next steps in developing the risk outlook:

- Connection with Copernicus to be sought (EDgE group)
- Sectoral and case study oriented showcases to supply already existing portals with "user stories"
- Risk outlook working group will be formed, first action will be to develop a risk outlook strategy
(Action: Felicity Liggins)

Greek stakeholder presentation on water resources on Crete

This presentation gave an overview of the organisation of the Water authority on Crete and highlighted the issues they encounter managing the water resources on Crete and in more detail in the Messara Valley. An issue is the communication between the various stakeholders, ranging from scientist to local operators. Climate change is supposed to impact the Crete water resources; Although the low resolution and accuracy of climate models prevents a good application on the local scale, such as the Messara Valley.



Day 2: 27 September

Morning chair: Bart vd Hurk	
9.00 Climate services in the US (Andy Wood, NCAR)	
9.35 JRC researches and policy support activities on extreme weather events: Flood & Drought (Fabio Micale, JRC)	
10.10 Guidelines bias correction (Erik Kjellström, SMHI)	
10.25 Data flow: linking DMP and DEP (David Lavers, ECMWF)	
10.45 - 11.15 Coffee	
11.15 Parallel session	
11.15 Data workshop (David Lavers, ECMWF) PhD & Post-doc meeting (Emma Aalbers, KNMI)	Video, bilaterals, etc.
12.00 Verification score card (Maria-Helena Ramos, IRSTEA) for case study managers; optional for others	Video
12.30 - 13.15 Lunch	
Afternoon chair: Bart vd Hurk	
13.15 Breakout sessions 1: Work Packages (progress reports M12 & brainstorm/discussion, preparing plenary feedback; led by WP-leaders)	
(15.00 Tea)	
15.00 Breakout sessions 2: Work Packages (led by WP-leaders)	
16.30 Plenary feedback (Progress, challenges, plans; per WP)	
17.30 End of day 2	

Climate service presentations

We started with two comprehensive and interesting overviews of climate services (CS). One by Andy wood regarding the activities in the US, and the other by Fabio Micale presenting the activities of the JRC in the fields of Flood and Drought. A clear difference with Europe is the way the CS is organised in the US: No US climate services exists nor a consensus vision.

Many organisations take part in climate services, among the best working are the sectoral agencies. JRC operates a platform both for the Flood (EFAS) and Drought (EDO). The first is operational, the second is in the developing stage. These activities are closely related with the IMPREX activities and may enforce each other.

Bias correction

Depends on the specific inputs which method will serve the best. In IMPREX the sectoral work packages will mainly apply the bias corrections. But the data providers have an important role in guiding the bias correction (which method, how to apply). An (already existing) package with different bias correction methods will be distributed to the sectoral work packages, WP₃ will take the lead in that (**action: Erik Kjellström**).

Score card

Maria-Helena demonstrated a first version of the score card (as described in Deliverable 4.1). The score card is meant to give an overview of the "scores" of the forecasts produced for the users. The first forecasts are available now in the tool. Next step will be that all sectoral work packages producing forecasts upload their own scores for their current forecast achievements. This will provide the benchmark and, as improved forecasts become available along the project, progress can be demonstrated. Important to note is that meta-information as reference period, data description and methods used should be provided, to understand the background of the scores in different case study applications.



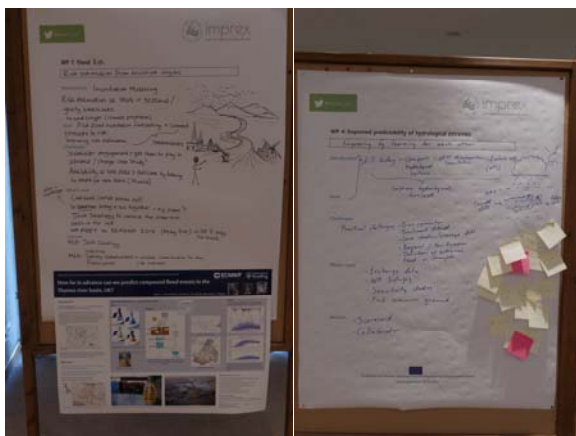
Data workshop

A poster with the Data Management plan and the Data expectation plan linked gave insight into data supply and demands (see picture below). The color of the post-its indicate the state of the data transfer (green: data received by data user, orange: contact between data user and provider red: no contact yet). In order to facilitate updates of the data transfer in future, the poster will be transferred to a living google document (**action: David Lavers**). Although the data users are in charge to organise the data exchange process, data providers should give advice and guidance (and tools; see also bias correction above). Regarding data requests the Jucar and Segura case studies will team up because of their similar demands.



Work packages session

All work package teams had time to discuss their work package. At the end of the session a plenary feedback was given regarding all work packages. For each work package a poster with the challenges, status and plans were presented. The sectoral work packages have gathered a lot of stakeholder information; a summary of the results will become available by Deliverable 2.1 which will be ready beginning of November. The next step will be to ingest forecast and climate information. The tooling work packages showed the forecast and tools which are available for application. Next steps include the extension and refinement of these models and tools. The plenary feedback also showed the extensive collaboration between the different work packages.



Day 3: 28 September

Morning chair: Riikka Pohjankoski & Janet Wijngaard

9.00 Internal stakeholder workshop (ARCTIK)

10.30 Scientific coffee (PhD students, post docs)

11.30 Wrap up from the Advisory Board (Penny Whetton, CSIRO)

11.45 Reflections last year, expectations next year (Bart v.d Hurk, KNMI)

12.30 Finish GA

Internal stakeholder workshop

After a introducing a few "personas", everyone could join a sector to build a persona. A persona described a user of one of the sectors and highlighted what their challenges are in daily practice and what their questions are for the IMPREX community. Working with personas proved to be an efficient way for the audience to identify themselves with the IMPREX users. The next step was to discover the steps to satisfy and support the user, using a process of co-creation.

An extensive summary of the personas and the outcomes will become available on the IMPREX website (**Action: ARCTIK**).

Scientific coffee

In many of the work packages post docs and PhD students are contributing. During the coffee each of them gave a short summary of their work (see presentations).

Wrap up Advisory Board

The Advisory Board said to perceive good progress since the kick-off, a better clarity around directions and feeling. More detailed feedback is provided in the notes of the Advisory Board (by Penny Whetton) and will be formalised in their official report as planned for M21..

Reflections

Bart concluded the meeting with his reflections about last year and the meeting.

