



International survey for good practices in forecasting uncertainty assessment and communication

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Achieving technically sound flood forecasts is a crucial objective for forecasters but remains of poor use if the users do not understand properly their significance and do not use it properly in decision making. One usual way to precise the forecasts limitations is to communicate some information about their uncertainty. Uncertainty assessment and communication to stakeholders are thus important issues for operational flood forecasting services (FFS) but remain open fields for research. French FFS wants to publish graphical streamflow and level forecasts along with uncertainty assessment in near future on its website (available to the greater public). In order to choose the technical options best adapted to its operational context, it carried out a survey among more than 15 fellow institutions. Most of these are providing forecasts and warnings to civil protection officers while some were mostly working for hydroelectricity suppliers.

A questionnaire has been prepared in order to standardize the analysis of the practices of the surveyed institutions. The survey was conducted by gathering information from technical reports or from the scientific literature, as well as 'interviews' driven by phone, email discussions or meetings. The questionnaire helped in the exploration of practices in uncertainty assessment, evaluation and communication. Attention was paid to the particular context within which every institution works, in the analysis drawn from raw results.

Results show that most services interviewed assess their forecasts uncertainty. However, practices can differ significantly from a country to another. Popular techniques are ensemble approaches. They allow to take into account several uncertainty sources. Statistical past forecasts analysis (such as the quantile regressions) are also commonly used. Contrary to what was expected, only few services emphasize the role of the forecaster (subjective assessment).

Similar contrasts can be observed in uncertainty communication practices. Some countries are quite advanced in uncertainty communication to the general public whereas most of them restrain this communication to pre-defined stakeholders who have previously been sensitized or trained. Different forms of communication were met during the survey, from written comments to complex graphics. No form could claim a clear leadership.

This survey revealed useful to identify some difficulties in the design of the next French forecast uncertainty assessment and communication schemes.