



Development of an automated first guess warning system based on the experience of an impact-based warning system at the Icelandic Meteorological Office.

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From 2010 to 2016 several high impact weathers passed over Iceland. Some of them had severe impact on farmers and energy companies where as other events had the most impact on the ever-increasing tourism industry. It became evident that older methods of warnings, where single climatological thresholds were used to determine if warning should be sent out or not were insufficient. Furthermore, dissemination of warnings was inadequate as they were not reaching the intended audience.

During 2015-2017 a new warning system was developed. The system is impact based and colour coded CAP system where likelihood and perceived impact of weather events form the severity and colour of a warning. The system was launched on 1. November 2017. During the winter of 2017-2018 a total of 1604 warnings were issued for the 10 forecasting areas in Iceland. 204 orange warnings and 1400 yellow warnings. During 2018-2019 fewer warnings were issued, both due to less frequent high impact weather event and based on the experience of the year before, impact in some cases was less than anticipated, so warnings were issued with higher thresholds than before. Those thresholds are still only based on forecasters experience, cooperation with the Icelandic Civil Protection Authorities and communication with other stakeholders. Dissemination of warnings is now through the IMO website and app, as well as through an open repository where the public, private companies and stakeholders can subscribe to xml feed of the warnings and visualize as they see fit. Warnings are also disseminated through meteoalarm.eu and WMO.

To decrease the added workload the new warning system creates for forecasters on duty, and for continuity of warnings a first guess system for warnings is in development. The system will be based both on meteorological thresholds for each of the 10 forecasting areas, for each month of the year, as well as other variables such as density of population, popular tourist spots and the location of stakeholders which are highly vulnerable to weather impacts. An analysis of impacts during the period of the new warning system will be carried out as well as impact of similar weather events in the years 2010-2016 to highlight the main concerns each type of event brings to Iceland. The final product is intended to simplify estimations of impact of weather events, decrease the workload on the forecaster on duty as well as simplify communication of risk, impact and exposure to the general public, tourists and stakeholders in Iceland.