Severe weather forecasting program in Finland

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Severe weather has occasionally a large impact on society in Finland. In November 2001, two winter storms overturned 5 million cubic meters of trees in Southern and Central Finland. Only eight months later a bow echo hit Eastern Finland and devastated a million cubic meters of trees. In both cases, hundreds of households suffered from power blackouts for several days. In previous years, the forecasters at Finnish Meteorological Institute (FMI) have had the certain scheduled duties despite the severity of the weather. This has resulted in situation where, in case of severe weather, the forecaster is overwhelmed by the work tasks and is unable to cope with any extra duties (telephone calls etc.). By increasing the staff members at the forecasting room in such situations the shift forecasters are able to concentrate better on the scheduled work duties. An extra forecaster can provide help with the warning decision making, monitoring the weather situation and co-operation with emergency authorities.

In order to tackle the work load problem, a severe weather forecasting program was created at Finnish Meteorological Institute in 2004. The program was tested in January, February, June and August 2005. After the test phase, it has been in operation since November 2005 and currently seven Warning Weather Service forecasters are involved in the program. One extra forecaster is in duty every weekday. If no severe weather is expected, this preparedness forecaster will work with other duties. If severe weather is threatening Finland, the forecaster will work as an extra forecaster in the weather room, as long as needed, up to from 9 AM to 9 PM. In wintertime, the preparedness forecaster mainly focuses on wind storms and heavy snowfall associated with severe winter cyclones. In summertime, severe thunderstorms with strong straight-line winds, torrential rain or large hail are the main phenomena to be forecasted and monitored.

The main objectives of the program are to provide emergency authorities and other forecasters information on severe weather risk 0-48 h before the event and to improve operational severe weather warnings. The program also aims to improve forecasting tools together with the developers and to learn more on severe weather forecasting in our area. The main means of communication is a severe weather outlook issued by the preparedness forecaster. The outlook typically contains a picture of a risk area and a written severe weather outlook. A short outlook is sent by email to the emergency managers and other FMI forecasters. It contains a web link to a detailed outlook with explaining pictures and the current warnings. The outlooks do not have a strict schedule, and are issued on if needed basis. One or two days before the event, typically only

one outlook a day is issued, during the same day several outlooks, if needed. Besides this, the other FMI forecasters are informed by phone conferences. If the weather situation is serious, the preparedness forecaster may issue public news releases or extra outlooks on public FMI web pages.

The feedback received from the users of the severe weather outlooks has been very encouraging. In some cases emergency authorities have increased the amount of standby personnel based on the information in severe weather outlooks. Thus, the emergency authorities have been able to handle the emergency situations related to the severe weather better than earlier. The 24/7 operation of the severe weather forecasting program will be tested in the near future. In addition, there are plans to include the program to be a permanent part of FMI operational weather forecasting.