

# Macroseismic maps for two border crossing earthquakes in northern Europe

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We present macroseismic maps for two recent earthquakes that occurred in Sweden and were felt also in neighbouring countries. The first occurred in Sveg, Södra Härjedalen on 15 September 2014 and had magnitude  $M_L 4.1$ . According to the available pre-instrumental seismicity record, the region has not experienced earthquakes of this magnitude. The earthquake was felt in much of central Sweden and Norway, and several persons reported sensations of earth shaking also in western Finland. These latter observations were not only made in higher floors of buildings.

The second earthquake occurred in the Gulf of Bothnia on 19 March 2016. The magnitude was assessed at  $M_L 4.1$ . The earthquake was widely felt in northern Sweden and in Finland along the eastern shore of the Gulf of Bothnia. There are previous examples of earthquakes of this magnitude in the region in the pre-instrumental era, so the most recent event is usable for magnitude calibration. Here we present some estimates of the areas of perceptibility and compare them against those of historical earthquakes, and compare macroseismic magnitudes to the instrumental ones.