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Macroseismic Intensity Map of Austria for the Swabian Alb Earthquake of September 3, 1978

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Key words: Swabian Alb earthquake – Macroseismic observations in Austria.

The strong tectonic earthquake of September 3, 1978, at 05 h 08.5 m UTC, in the region of the western Swabian Alb (Albstadt, Baden-Württemberg, F.R.G.) was widely felt in Austria, too. However, with $I_0 = \text{VIII}^\circ$ MSK (according to USGS) and $M_s = 5.3$ (the arithmetical mean of eleven MLH, MLV and M -values published by CSEM) it was evidently weaker than the earthquake of November 16, 1911, in the same area.

On September 3 and 4, 1978, the 'Österreichischer Erdbebendienst' (Austrian Earthquake Service) propagated by means of broadcasting and newspapers an appeal, asking people for reports how they perceived the earthquake. Many persons reacted spontaneously. In order to increase the number of reports, 649 inquiries were sent to police stations, post offices, and schools. Finally, 377 reports from 179 places in Austria (besides 8 reports from abroad) as well as 539 negative reports could be used in working out the macroseismic map. The classification of the reports was made according to the macroseismic scale of Medvedev-Sponheuer-Kárník, 1964.

As Fig. 1. (solid isolines) shows, in Austria a maximum intensity of 5° MSK was reached in the northwest of Vorarlberg. The 3° isoseismal, being practically the limit of perceptibility, was in an epicentral distance of at least 350 km (Kötschach-Mauthen in Carinthia) and 550 km at the utmost (Vienna). – In Austria, 48,000 square km (about 58% of the whole territory) were shaken with an intensity of at least 3° MSK, 9,600 sq. km with at least 4° MSK, and 450 sq. km with at least 5° MSK. There were no damages in Austria. Accordingly, the effects of this earthquake were clearly inferior to those of November 16, 1911, event (cf. Fig. 1, dashed isolines); this time, in the west of Austria the intensity was about one degree MSK lower, corresponding to an earthquake magnitude being about 0.7 units smaller. – Remarkable in both cases is a better perceptibility of the earthquakes north of the main line of the Alps than south of it.

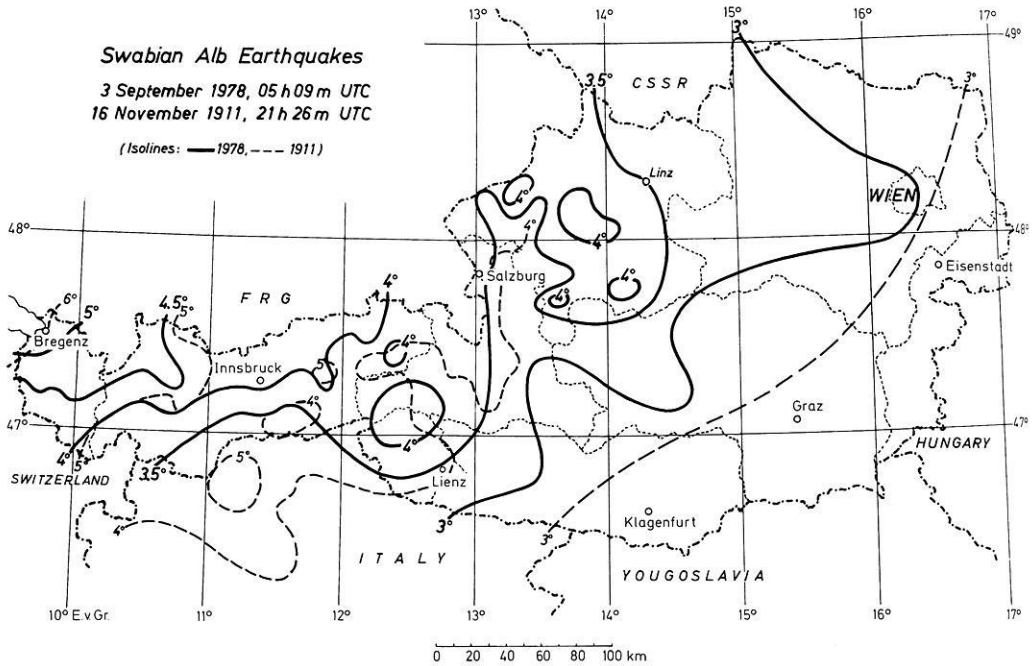


Fig. 1. Macroseismic intensity map of Austria for the Swabian Alb earthquake of September 3, 1978 (*solid isolines*) and of November 16, 1911 (*dashed isolines*). The isoseismals were drawn on ground of unpublished macroseismic data of the Austrian Earthquake Service

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