

## The state-of-the-art of the investigation of 1858 Žilina (Slovakia) earthquake

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The territory of Slovakia is a region with the low-to-moderate seismic activity. However, there are evidences of several historical earthquakes that caused large damage and loss of human life. Although the January 15, 1858 Žilina earthquake with the epicentral intensity 7-8° EMS-98 does not belong to the most devastating historical earthquakes located on the territory of Slovakia, its historic documentation was significant for earthquake research (Moczo et al. 2002).

The 1858 Žilina earthquake was the first earthquake in the Western Carpathians that was systematically investigated by the contemporary earthquake researchers. A systematic data collection was done shortly after the earthquake using a kind of macroseismic questionnaire for the first time. The questionnaire answers and other documents collected by H. Jeitteles are archived in the Austrian Academy of Sciences (Labák and Hammerl 1997). The earthquake caused damage to all houses in the city of Žilina, many of them were inhabitable. The macroseismic effects (including negative answers) are documented for more than 700 localities in today's territory of Slovakia, Czech Republic, Poland, Austria and Hungary. Hammerl and Labák (2000) identified more than 360 of them with today's villages and towns.

We present the state-of-the-art of the 1858 Žilina earthquake investigation based on primary sources and the preliminary results of Intensity Data Points (IDPs) re-evaluation in the EMS-98 scale.

Key words:

historical earthquakes, 1858 Žilina earthquake, Slovakia

References:

- Hammerl, Ch., Labák, P. (2000). Comparison of three intensity estimations for the January 15, 1858 Žilina (Slovakia) earthquake – example of importance of the primary source completeness. Proceeding of the 1st workshop of the ESC working group Historical Seismology, Macerata, Italy, Sep. 1-5, 1999, pp. 44-47.
- Labák, P., Hammerl, Ch. (1997). Source study of the January 15, 1858 Žilina (Slovakia) earthquake. *Annales Geophysicae*, 15, Supplement I, Part I, C179.
- Moczo, P. et al. (2002). 100 Years of Seismology in Slovakia. Comenius University in Bratislava and Slovak Academy of Sciences, Bratislava.