THE SAARLOUIS SEMI CRATER STRUCTURE: NOTABLE INSIGHT INTO THE SAARLAND (GERMANY) METEORITE IMPACT EVENT ACHIEVED

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The Saarlouis semi crater - meteorite impact evidence

Impact glasses in the Nalbach strewn field

Impact melt rocks in the Nalbach strewn field

The Nalbach impactite strewn field and crater

Location map for the Saarlouis meteorite impact event (to the left); the Nalbach impactite strewn field established a few years ago and the recently discovered Saarlouis semi impact crater (to the right).

Shock metamorphism, melt rocks and glasses in the Nalbach impactite strewn field

Thin sections, photomicrographs; crossed polarizers (XX) and plane light (II).

Impact melt rocks excavated during gas pipeline burying.

The Saarlouis semi crater: The rim wall crest (+) is forming a segment of a nearly perfect 2.3 km-diameter circle (to the left).

Geological map: simplified from Geoportal.saarland.de (to the right).

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Impact melt rock matrix with moderately shocked quartz and shock PDF in quartz, XX.

Strong shock metamorphism as in proof of meteorite impact.

The Saarlouis semi crater - discussion and conclusions

- The strong and widely distributed shock metamorphism, the impact glasses, the impact melt rocks and a suevite polymictic breccia establish a proven meteorite impact event near the German-French frontier. The discovery goes back to field observations and sampling by the coauthors W. M. and A. G.

- So far two impact craters with diameters of 200 m (Nalbach) and 2.3 km (Saarlouis) and a classically countoured rim wall have been identified. Both are in part eroded to feature rather semi craters.

- The widely distributed near-surface strongly shocked impactites are considered ejected material or/and restored by fluvial transport.

- Impactites at 2 m depth excavated together with human bones from below the foundations of a Romanesque church in Nalbach exclude any anthropogenic/industrial products.

- SEM-EDS analyses of suevite composition and formation remain puzzling and require more detailed studies of the in part igneous impact target not exposed in the investigated area.

- According to the Lower Terrace sediments at the bottom of the Saarlouis semi crater the age of the impact event is Pleistocene or older.