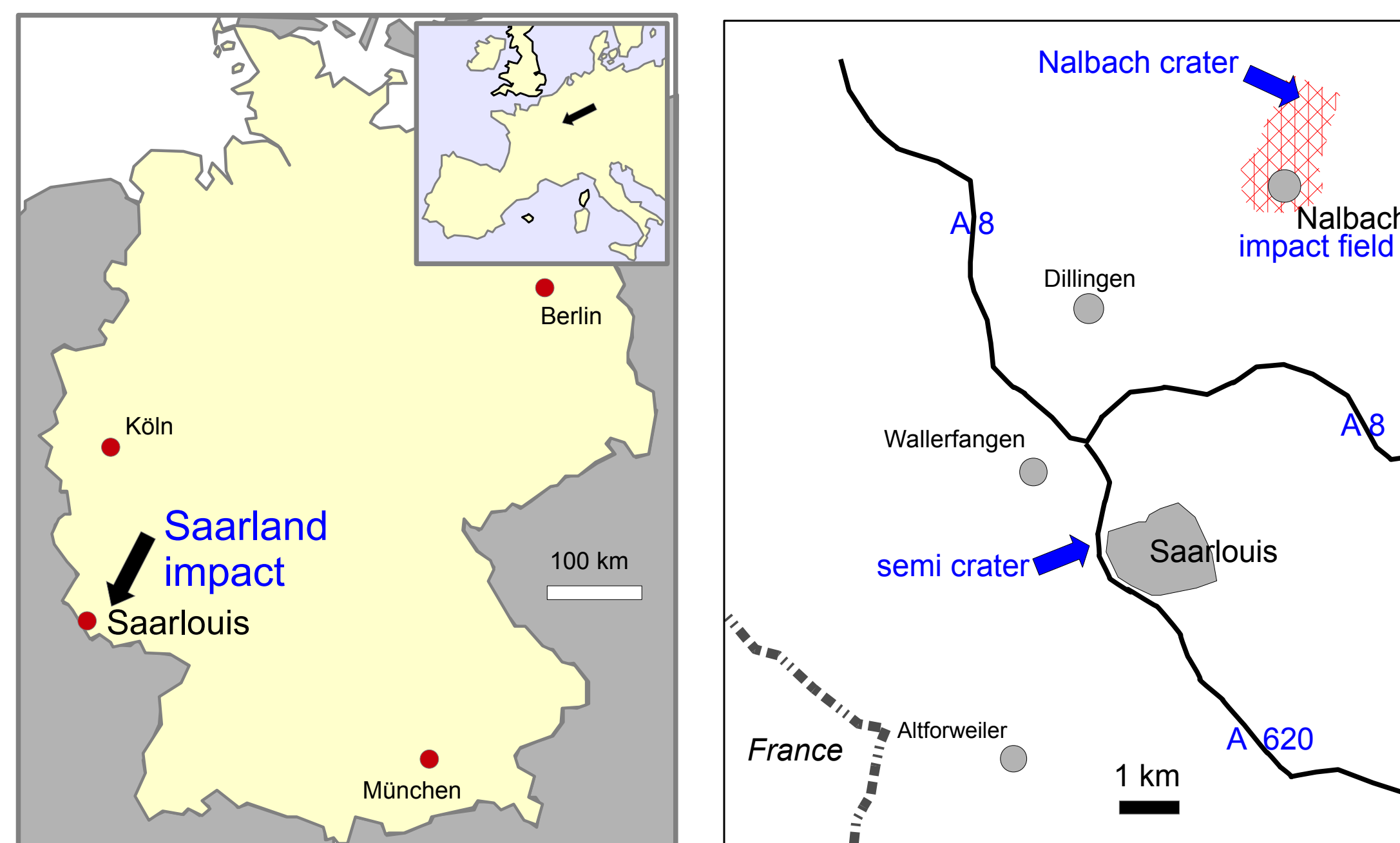


THE SAARLOUIS SEMI CRATER STRUCTURE: NOTABLE INSIGHT INTO THE SAARLAND (GERMANY) METEORITE IMPACT EVENT ACHIEVED

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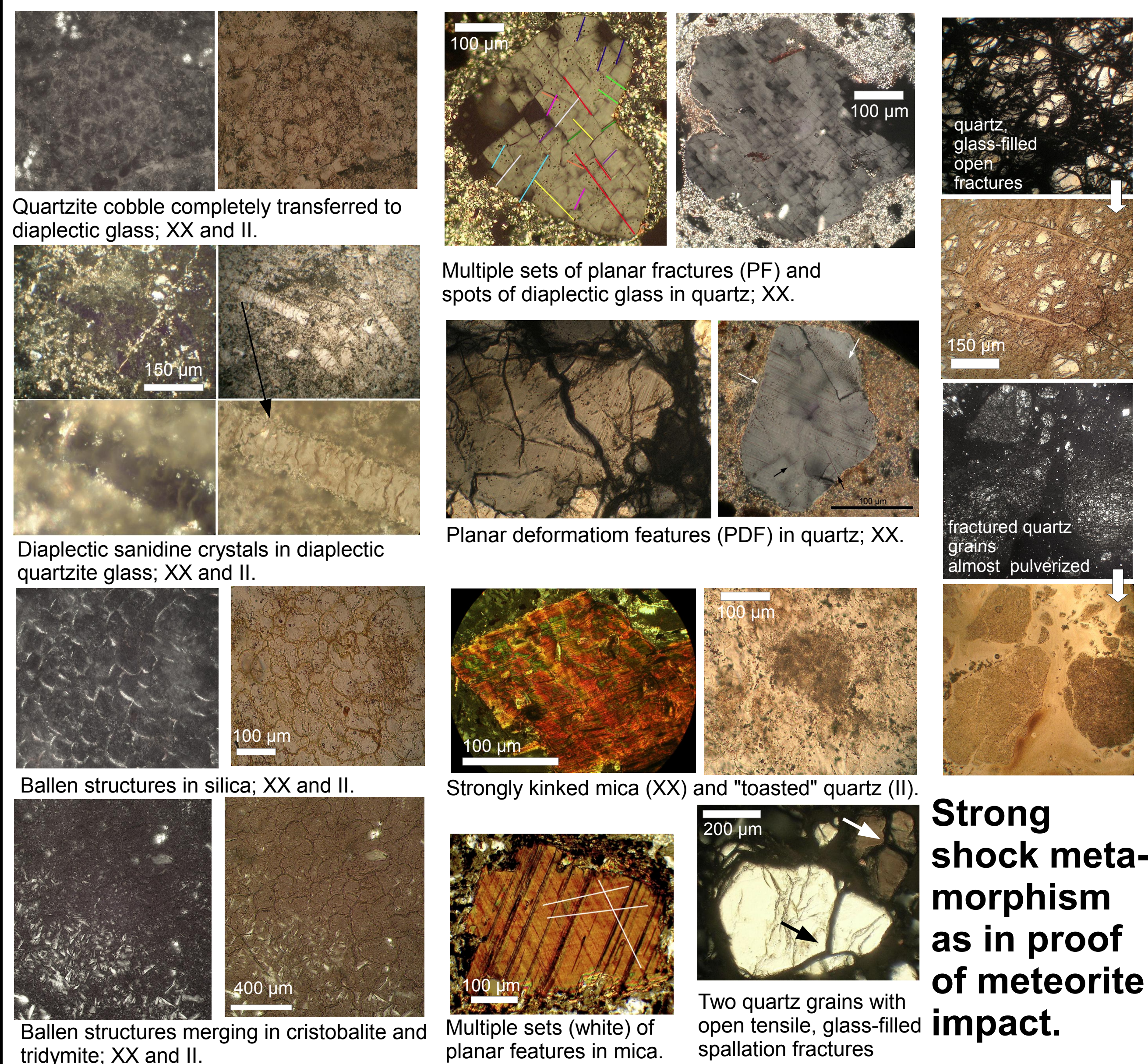
The Nalbach impactite strewn field and crater



Location map for the Saarland 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).

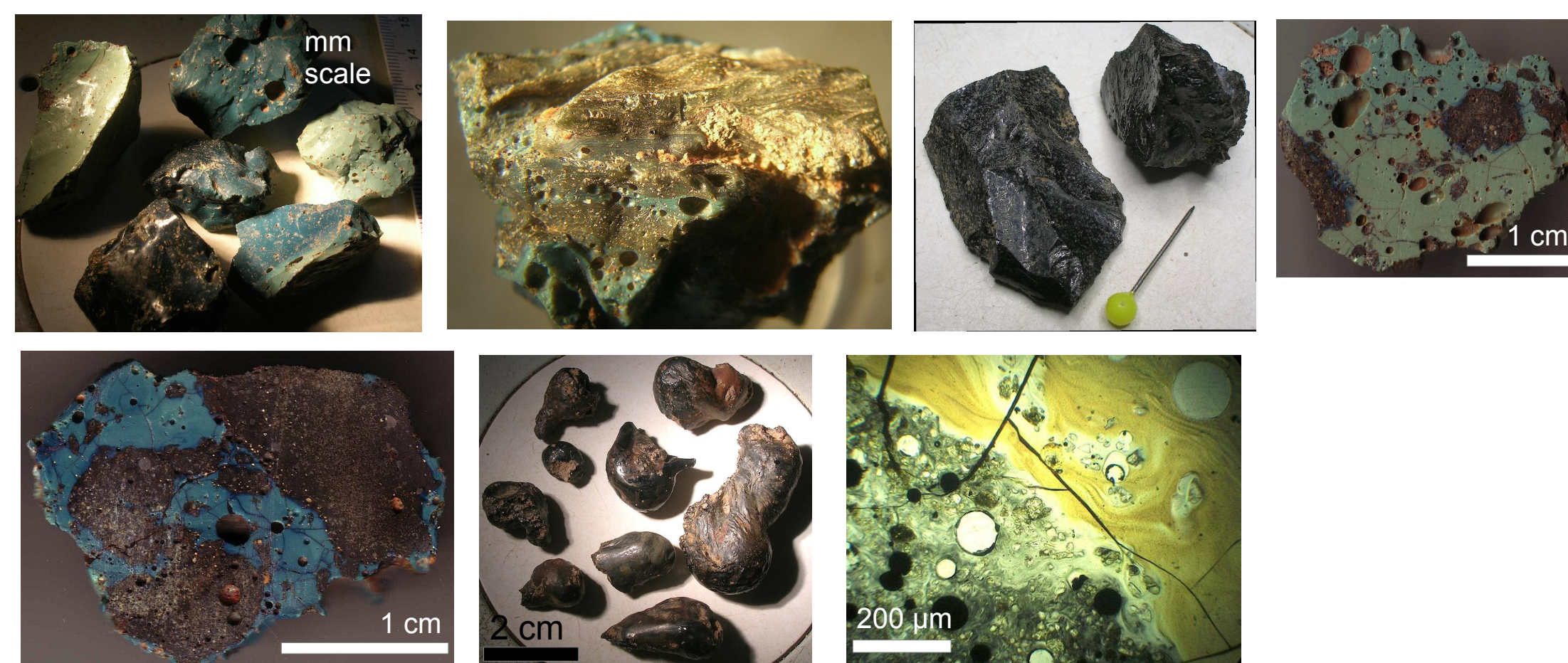
Shock metamorphism, melt rocks and glasses in the Nalbach impactite strewn field

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

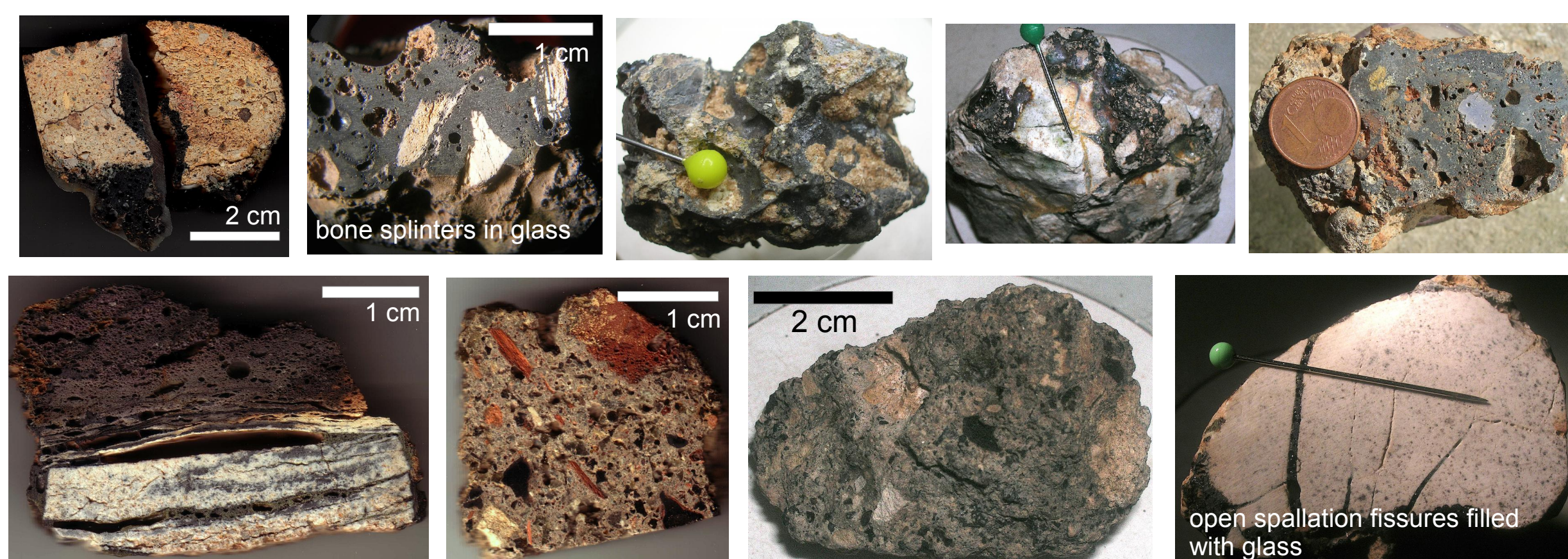


Strong shock metamorphism as in proof of meteorite impact.

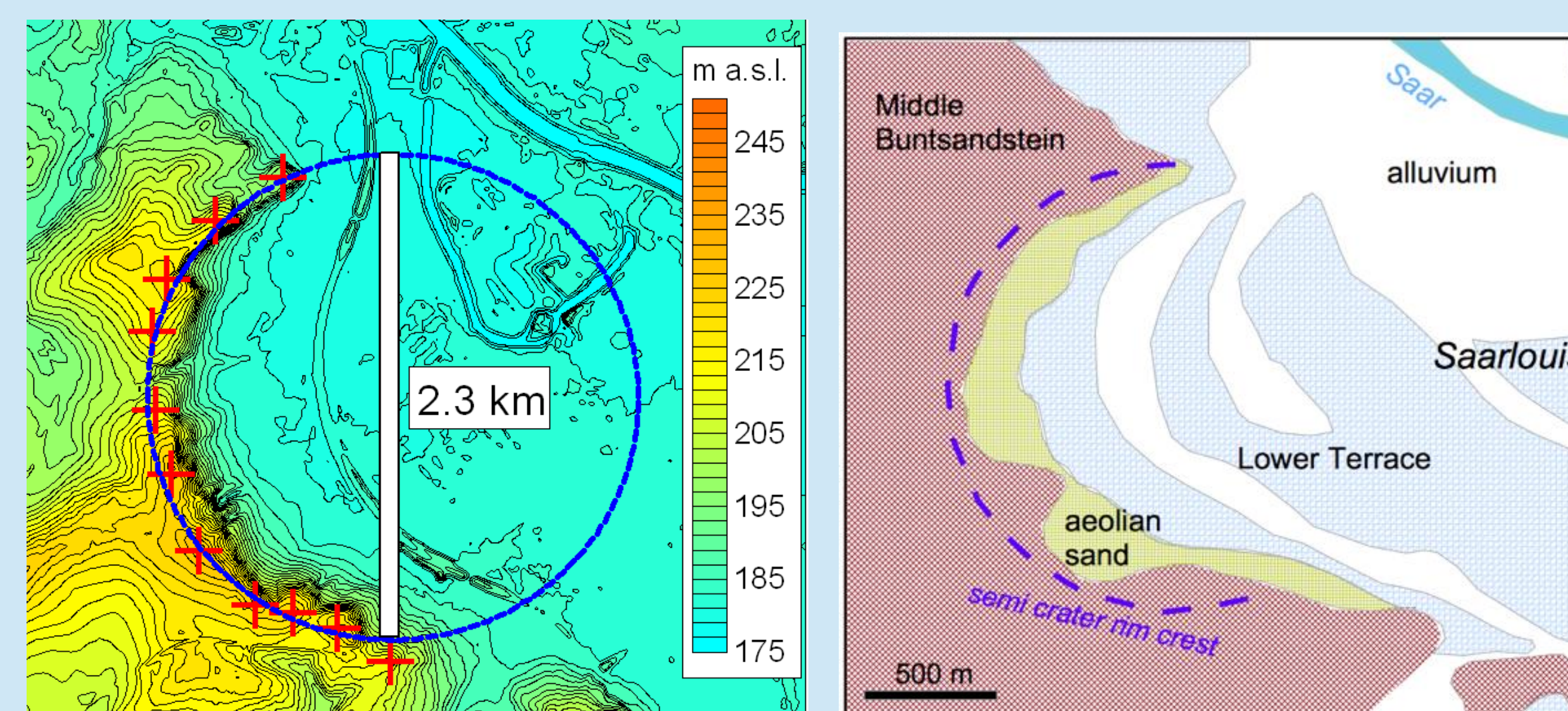
Impact glasses in the Nalbach strewn field



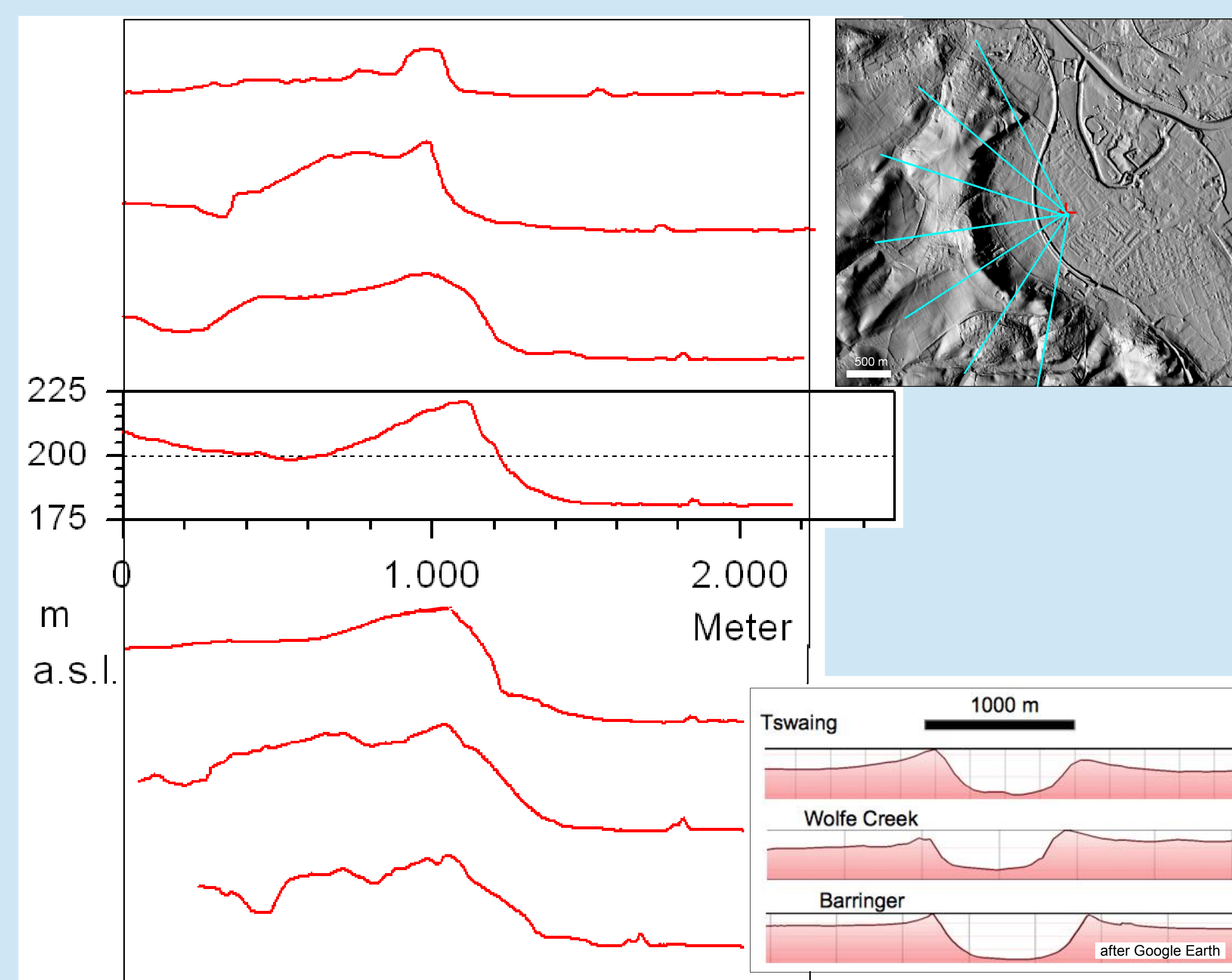
Impact melt rocks in the Nalbach strewn field



The Saarlouis semi crater

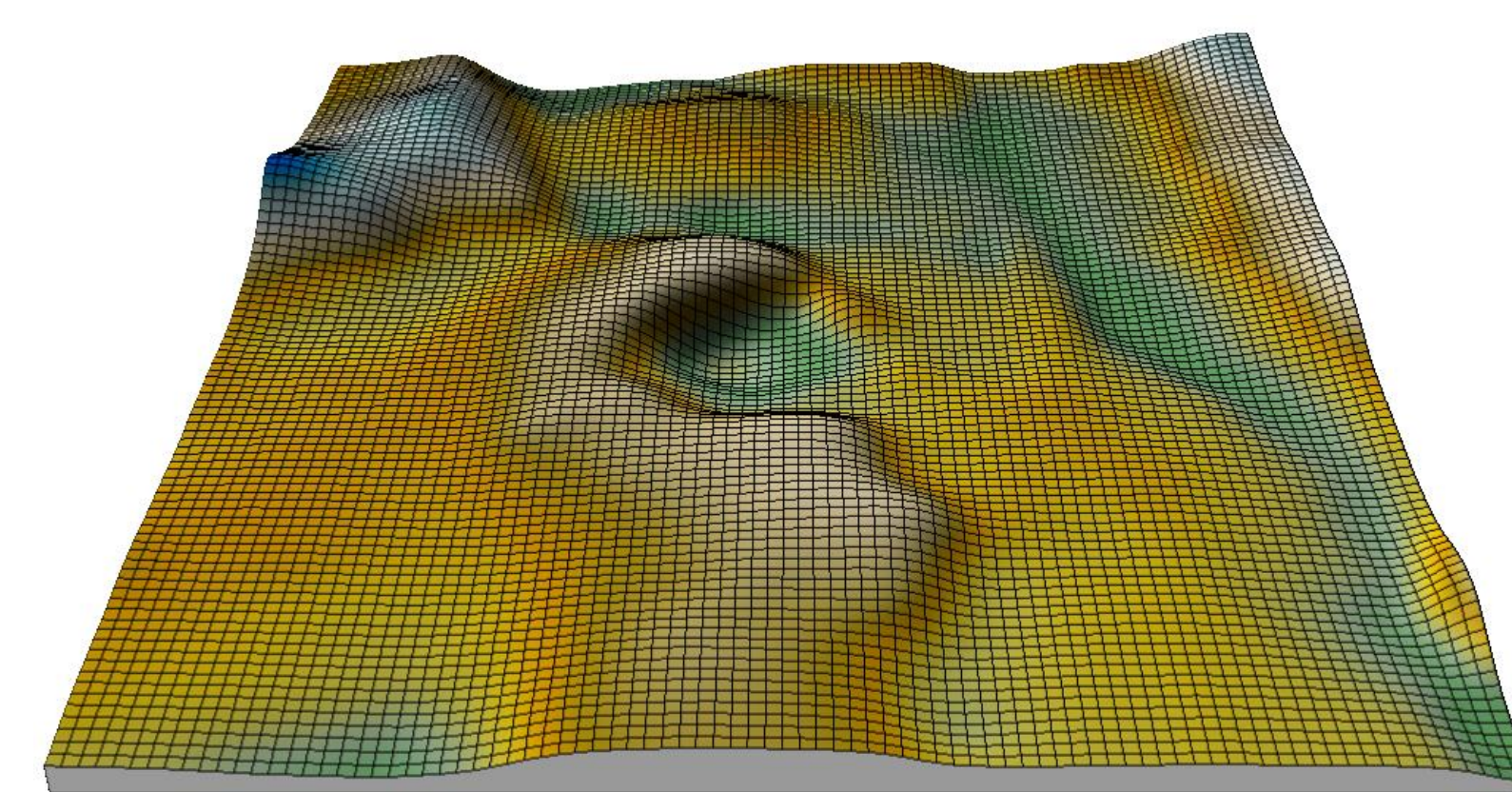
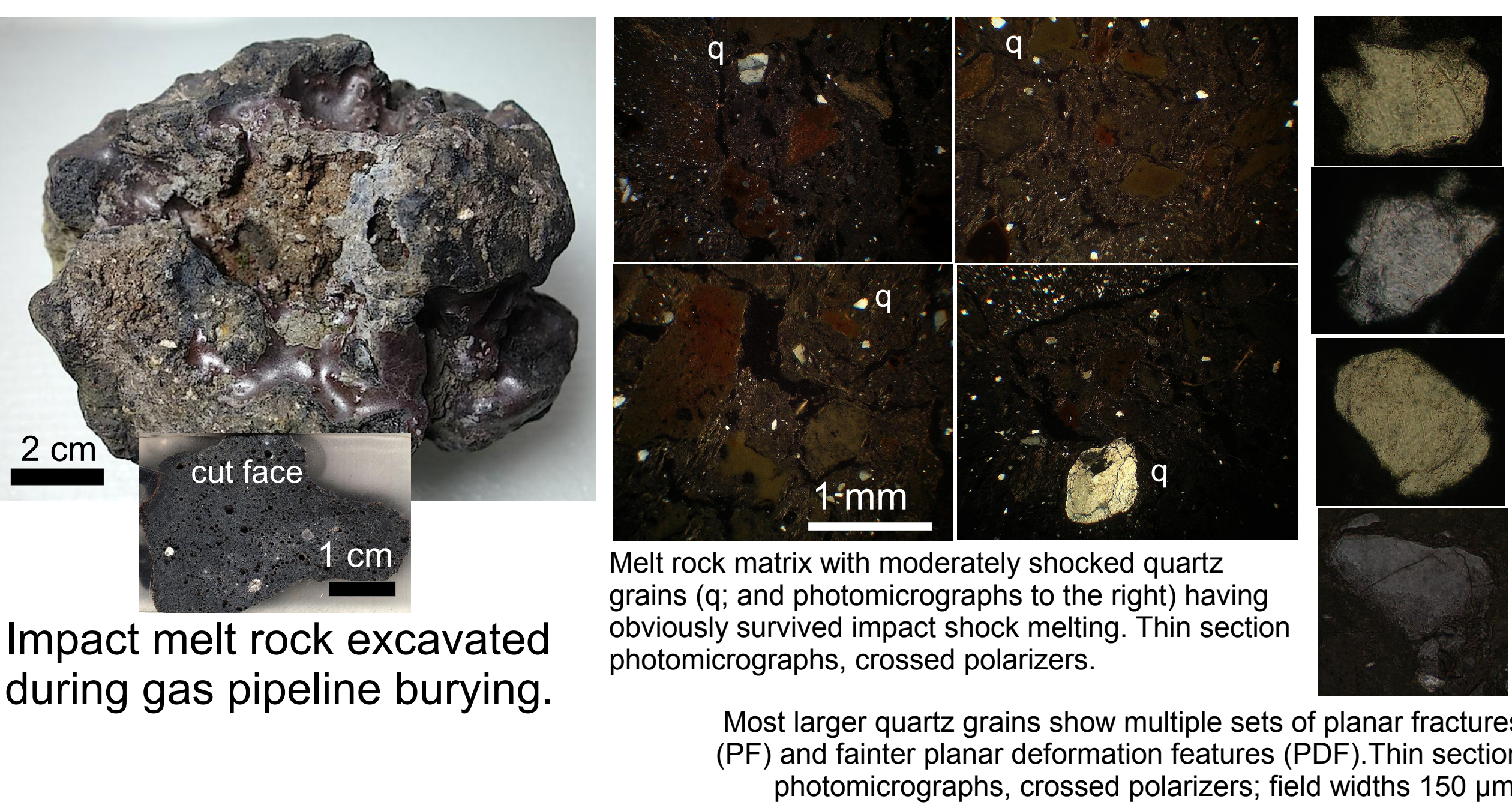
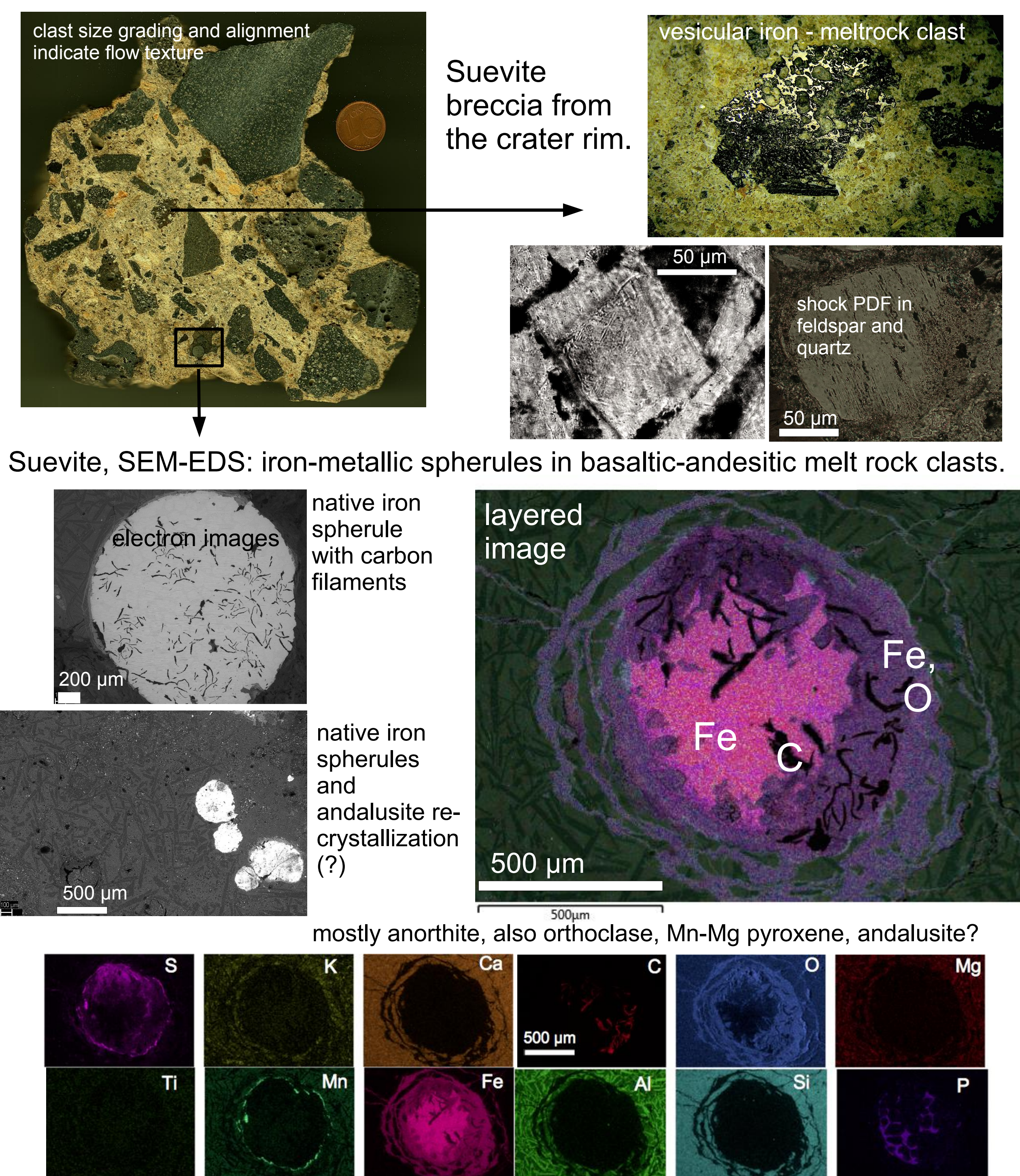


The Saarlouis semi crater: The rim wall crest (+) is forming a segment of a nearly perfect 2.3 km-diameter circle (to the left). Geological map; simplified from Geoportal.saarland.de (to the right).



Map of shaded relief of the Digital Terrain Model (DTM) and profiles across the rim wall. For comparison other typical crater profiles are shown. DTM data from LVGL Saarland.

The Saarlouis semi crater - meteorite impact evidence



Digital Terrain Model (DGM 1): The 200 m-diameter (rim crest) Nalbach crater.



Archeological excavation and find of impactites below foundations of a Romanesque church.

The Saarland impact event - 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.

Reference: Buchner, E. et al. (2011) *74th Ann. Meteoritical Soc. Meeting*, Abstract #5048. Schmieder, M. et al. (2011). *74th Ann. Meteoritical Soc. Meeting*. Abstract #5059. Ernstson, K. et al. (2013) *Meteoritics & Planet. Sci.*, 48, s1, Abstract #5058. Berger, N. (2014) *Diploma thesis*, University of Trier. Berger, N. et al. (2015) 46th LPSC, Abstract #1255.