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Sediment plates (lacquer peels) as a dissemination and vulgarization tool for volcanic research

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Sediment plates (lacquer peels) are cross-sections of loose sediments that are artificially hardened in the field so that a thin slice of the outcrop is extracted and transported in the lab. An epoxy resin applied to the surface of an outcrop is sucked into the sediment by capillary forces. The differential uptake driven by the grain size of individual laminae highlights lamination and cross stratification to a degree not otherwise observable, and the original organization of grains is preserved. This permits fine scale, fundamental research on boundary layer and PDC sedimentation, but also represents a unique opportunity for outreach and illustration of real PDC deposits to people that would otherwise not have access to field outcrops.

A set of sediment plates was produced in the cross-stratified deposits of the 2006 pyroclastic density currents from Tungurahua volcano (Ecuador). Twelve sections of 3 m length were extracted from 5 dune bedforms, representing about 50 m² of outcrops. Individual plates are 50 cm wide, between 1 and 2 m high, and 0,5 cm thick. The plates were consolidated and prepared for exhibition in Munich.

The sediment plates were used in various occasions for communication and vulgarization:

- An afternoon was devoted to their observation and scientific analysis during a volcanology short-course in Munich (MELTS, GLASSES, MAGMAS),
- The plates were used to illustrate volcanology classes with bachelor students, and
- The plates are exposed as a special exhibition in the mineralogy museum "Reich der Kristalle" in Munich during the summer 2016.

We present our feedbacks on the value of such a dataset for science dissemination, the method to produce them, and open a discussion on how to improve their use. The sediment plates from Tungurahua are available for presentation, and we encourage other researchers, museums and teachers to contact us about further possibilities for synergy.