

**LAYERED TEKTITES AND ADJACENT SOILS FROM SE THAILAND.**

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**Introduction:** During a fieldtrip to SE Thailand in Feb. 2005 we recovered a large mass of layered tektites from an area south-east of Ubon Ratchathani along the Thai-Cambodian-Laotian border. The main purpose of the expedition was to recover tektites and soils from known localities near and far from a small volcanic locality. Several soil profiles were taken for detailed studies on the soil chemistry and mineralogy and to permit a chemical and isotopic comparison with the nearby layered tektites. The goal was to test the hypothesis that the layered tektites are parts of a melt sheet formed when soils were melted [1]. Besides the chemical analysis the soil and tektite samples will be analyzed for Sr and Nd isotopic variations by K. Mezger and T. Kleine and for <sup>10</sup>Be by G. Herzog.

**Analytical technique:** We used instrumental neutron activation analysis (INAA) to determine the major and trace element contents of tektites and soils. Tektites were sawn in solid slabs of ~3 mm thickness, whereas 300-500mg of soil samples were filled in polyethylene vials. Samples along with standard reference material were irradiated and counted in four cycles using high-resolution gamma-ray detectors. These data were combined with INAA data from previous runs [2] including a basalt sample from Ban Kaset Sombun. We then further prepared the soil samples with a 315 µm sieve and made grain mounts to permit characterization with the optical microscope.

**Results and Discussion:** One special focus was laid on the influence of local basaltic material from near Ban Kaset Sombun in order to attempt to determine whether there were parallel variations in tektite and soil compositions, as expected if the tektites formed at their present locations. Past studies have revealed an ultramafic component mixed within the layered tektites as described by [2-3] and also found in microtektites by [4]. Their influence on the soils is clearly visible by a distinct reddish coloring of local material. We included the westernmost layered tektite at Ban Song and a soil profile from the proximate Ban Ta Kao. From there following the major and trace element distribution of the tektites towards the NE (region near Ban Huai Sai we can clearly distinguish the samples from the basalt-rich area as being high in Co, Fe, Ba, Sc and Sr and low in Ca, As, Hf and to a minor extent in Na and Ga. The other elements show either high variations within (Ir, Au) are quite uniform such as the REE, Ta and U.

For some of the layered tektites we could distinguish between the top and bottom surface. Vertical thin sections of the whole tektites reveal their internal structures and layering. The compositional differences in dark layers of 10-300 µm thickness show distinct enrichments in the elements Fe, Mg, Mn and Ca compared to the lighter glass. These layers do not correlate with the bubble rich and bubble poor layers.

**References:** [1] Wasson J.T. 2003. *Astrobiology* 3:163-179. [2] Wasson J.T. 1991. *Earth Planet. Sci. Letters* 102:95-109. [3] Huber and Wasson. 2004. *35<sup>th</sup> Lunar Planet Sci Conf. Abstract #2110* [3] Glass et al. 2004. *Geochim. Cosmochim. Acta* 68:3971-4006.