

Book of abstracts

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This is the final published booklet containing all abstracts accepted for Themes 1 – 8, as of 20th June 2025. The update to version 4 indicates which abstracts have been retracted at the last minute.

It is ordered by session, and includes the programme number, date, location and time, and type of presentation.

[6.1.19] Six million years long Bayesian chronology of VEI 7+ eruptions recorded by a tephra sequence on the Detroit Seamount, NW Pacific

Monday - 30.06.25 ; Room: Poster Hall [13] (16:30 - 18:30) ; Poster

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Explosive eruptions are among the most dangerous natural disasters. They are rare and highly irregular in time. Long continuous records of eruptions are needed to elucidate the temporal structure and driving forces of explosive volcanism. In the NW Pacific, the longest eruption records come from tephra sequences of the three cores on the Detroit Seamount, ~700 km downwind of Kamchatka (Ocean Drilling Project Sites 882 and 884 and WEPAMA core MD01-2416). These cores had well-developed age-depth models, which we were able to merge into a single Bayesian age model through geochemical fingerprinting and correlation of tephra layers. A total of 119 tephras recording VEI 7+ eruptions over the last 6.2 Ma have been identified and dated to an accuracy of better than 70 ka (median error 7.5 ka). Fractal analysis of ash-falls timeline indicates a multiscale grouping (correlation dimension $D_c = 0.74$) with no dominating frequencies. Even for the last 700 ka, a period of the most pronounced glaciations, Milankovitch cycles are indiscernible in the power spectrum of ash-falls timeline. Of the total 119 tephras, each individual core contains sixty-five or fewer, indicating that the combination of several closely spaced cores is needed to provide a more complete record of ashfalls in the area. Evident incompleteness of individual tephra records raises a question of signal interference between the volcanism itself and ash transport and deposition. The research was supported by the Russian Science Foundation grant #22-17-00074.