TIMING OF ARC-CONTINENT COLLISION USING FISSION-TRACK AGES OF DETRITAL ZIRCON FROM THE LESNAYA GROUP, KAMCHATKA PENINSULA, RUSSIA

[1]Soloviev, A.V., [2]Garver, J.I., [3]Shapiro, M.N. [1]Institute of the Lithosphere RAS, Moscow, Russia; [2]Union College, Schenectady, USA; [3]Joint Institute of Physics of the Earth, Moscow, Russia.

The collision zone between the far-travelled Cretaceous-Paleogene Olutorsky island arc (Olutorsky terrane) and the forearc to the continental arc build on the Eurasian margin is marked by the Vatyna thrust which can be traced for 700 km in northern Kamchatka. Lower plate rocks consist of the Ukelayat flysch (correlated to Lesnaya Gp.) which represent forearc basin strata to an active continental arc (Okhotsk-Chukotka and West Kamchatka - Koryak Volcanic belt). This study is concentrated in the Kamchatka Isthmus area where the Lesnaya thrust is inferred to be the southern continuation of the Vatyna thrust. Deformation in the upper plate is marked by west vergent asymmetrical folds in greenschist facies blastomylonites. Lower plate rocks are dominated by westward overturned folds with north-northeast fold axes parallel to the thrust front.

Populations of fission-track ages of unreset detrital zircon grains from 6 sandstone samples from Lesnaya Gp. (lower plate) are between ~45 to 180 Ma and represent cooling ages in the source. The youngest population of grain ages in all samples, which occurs between 45 and 60 Ma, represent contemporaneous volcanic detritus and therefore approximates depositional age. Thus, these ages provide the lower limit of the timing of collision. In this area, the suture zone is inferred to be overlain by gently deformed volcanic rocks of the poorly dated Eocene Kinkil Gp.