

NEW UNDERSTANDING OF OROGENIC PROCESSES ARISING FROM EUROPROBE'S URALIDES PROJECT

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Since 1994 participants in EUROPROBE's Uralides Project have been involved in multidisciplinary studies that are helping to redefine the lithospheric-scale structure of the Uralides, and are providing new insights into Paleozoic collision orogenic processes. Two new seismic profiles have been acquired through the Uralide orogen; the multicomponent URSEIS profile in the southern Ural mountains and the ESRU profile in the middle Ural mountains. These, together with reprocessed Russian profiles, are providing new data on the crustal and mantle structure of the Uralides that includes a bivergent crustal architecture, a significant crustal root, and several mantle features. These profiles also provide a powerful framework for ongoing geological studies, particularly in tectonics, potential field data, geochemistry, and geochronology. The integration of potential field data, reflection seismics, and structural geology is demonstrating the importance of pre-existing crustal discontinuities on the development of the orogenic front. Volcanic arc development and subsequent arc-continent collision was an important process in the Uralides that led to significant crustal growth during the Late Paleozoic. A multidisciplinary study of the spectacularly preserved accretionary complex and volcanic arc in the south Ural mountains is providing new insights into processes of Paleozoic arc-continent collision. Geochemical, petrological, and geochronological studies of the vast granite belt are focusing on melt generation and pluton emplacement within an active tectonic setting.