



## **Petrogenesis and Geodynamic Significance of Late Precambrian–Early Paleozoic Metagranites in Istranca (Strandja) Zone, NW Pontides, Turkey**

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The existence of Cadomian arc magmatism in Istranca Zone within the Western part of the Pontides was determined according to new zircon U–Pb dating and whole-rock geochemical analysis of the Çatalca and İhsaniye metagranites. Magmatic evolution of the Late Precambrian–Early Paleozoic metagranites in Istranca Zone related to the Cadomian orogeny along the northern Gondwana margin.

The Istranca zone is composed of metamorphic basement intruded by large granitic bodies and overlain by a Paleozoic–Mesozoic meta-sedimentary cover. The metamorphic rocks of the Istranca zone extend from Bulgaria, Istranca Mountains to NW Turkey and reach the area near Istanbul (Çatalca region). The Çatalca and İhsaniye metagranites have a subalkaline, high-K calc-alkaline and peraluminous character. Trace element geochemistry displays decreasing normalized concentrations from large-ion lithophile (LIL) elements to high field strength (HFSE) elements and from light (LREE) to heavy rare earth elements (HREE). A negative Eu anomaly is both types of metagranites. On tectonic discrimination diagrams, the samples from both metagranites plot in the subduction-related fields.

The SHRIMP-II U–Pb zircon ages of the Çatalca metagranite range from  $534.5 \pm 4.7$  Ma to  $546.0 \pm 3.9$  Ma and LA-ICP-MS U–Pb zircon dating yields  $535.5 \pm 3.6$  Ma age for the İhsaniye metagranite. The new ages together with the geochemical constraints allow a new geodynamic interpretation for the Istranca zone and we compare these metagranites with other Upper Ediacaran to Lower Cambrian granitoids of Turkey and Alpine–Himalayan orogenic belt. We deduce an origin of these elements from the northern Gondwana–Land margin.