Zirconology of UHP-ultramafic rocks and eclogites from the Maksyutovo complex (South Urals, Russia)

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The U-Pb SHRIMP age of zircons was specified for the UHP-ultramafic rocks (Fo+En+Mgs+Ti-Chu) and jadeite eclogites (Jd+Grs-Alm+Rt±Ph) from the Maksyutovo eclogite-glaucophane schist complex.

The zircon age comprise a range of more than 2 Ga. The most ancient age of 2350±35 Ma corresponds to the primary mantle protolith. The ages of 1644±10, 1492±16 and 1294±64 Ma characterize the different stages of evolution of this mantle protolithe.

The Lower Cambrian age of the most crystals from ultramafic rock and eclogite is similar (545.3±5.8 Ma [1] and 533±4.6, respectively). The validity of this age is confirmed by variations of U (113–332 ppm) and Th (41–281 ppm) contents and U/Th ratio (0.43–0.92) that corresponds to the age of the UHP-metamorphism (P ≥ 4.4 GPa, T ≥ 700 °C). The ultramafic rocks and jadeite eclogites represent the UHP metamorphouzed tectonic mantle-crustal blocks in quarzite-shists of the first unit of the complex.

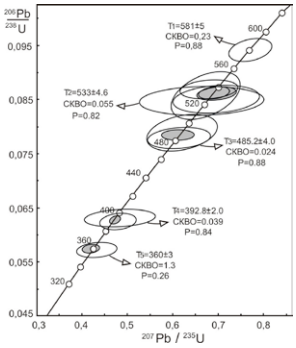

Fig.1 The U-Pb age of zircons from jadeite eclogite.

The Late Devonian (365.3±4.2–360±3 Ma) is the next important stage in the evolution of zircons and rocks. This zircon group is significantly distinct in U content and are characterized by typically magmatic U and Th distribution, which may be interpreted as an index of the progressive stage of HP-metamorphism (P ≥ 1.1–2.2 GPa, T ≥ 450–550 °C). This stage of HP-metamorphism is manifested in all rock associations from the first unit of this complex.

The Early Permian last stage (284.9±7.3 Ma), recording the final transformations of previous generations and appearance of newly formed zircon, was caused by the late shear deformations.

[1] Valizer *et al*. (2011) *Dokl Earth Sci* **441**, 1645–1648.

First results from the Northeast Greenland Ice Stream drilling site

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The Northeast Greenland Ice Stream (NEGIS) is a fast-flowing outlet stream approximately 1000 km in length, with 4 main glaciers terminating in the Greenland Sea. Radar and seismic surveys were conducted in summer 2012, as well as the drilling of a 70 m firn core at the NEGIS site (75 37.61 N, 35 56.49W). DiElectric Profiling (DEP) analysis was conducted in the field, while density and Electrical Conductivity Measurements (ECM) were conducted after the NEGIS core was transported to Copenhagen for analysis. DEP and ECM measurements were consistent and allowed the identification of several volcanic strata commonly found in Greenland shallow cores. Stable water isotopes have been determined, and allow an evaluation of past variability in deposition and temperature at the site. Continuous Flow Analysis (CFA) measurements comprised of dust particle concentrations, electrolytic conductivity, sodium and ammonium concentrations. Annual cycles were observed for all parameters, allowing the establishment of a seasonally resolved chronology covering the past 400 years.

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