

Zircon age constraints on sediment provenance in the Caspian region

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Abstract: Sensitive high-resolution ion microprobe (SHRIMP) U–Pb ages for detrital zircons from the Caspian region reveal the age ranges of basement terrains that supplied the sediment. One sample from the modern Volga river has groupings at *c.* 340–370 Ma, *c.* 900–1300 Ma and *c.* 1450–1800 Ma, with a small number of older zircons. This is consistent with derivation from the Precambrian basement of the East European Craton, and Palaeozoic arcs in the Urals. Mid- and Late Proterozoic components may be derived from beyond the present Volga drainage basin, such as the Sveconorwegian orogen. A Bajocian sandstone from the Greater Caucasus has 73% zircons that post-date 350 Ma. Ages cluster at *c.* 165–185 Ma, *c.* 220–260 Ma, *c.* 280–360 Ma and *c.* 440–460 Ma. This pattern suggests derivation from Palaeozoic basement of the Greater Caucasus itself and/or the Scythian Platform, and igneous rocks generated at a Jurassic arc in the Lesser Caucasus. Four samples from the Lower Pliocene Productive Series of the South Caspian Basin have common Phanerozoic grains, and groups between *c.* 900–1300 Ma and 1500–2000 Ma. Each sample contains zircons dated to *c.* 2700 Ma. The overall age patterns in the Productive Series samples suggest a combination of East European Craton and Greater Caucasus source components.