PALAEOPROTEROZOIC SVECOFENNIAN METASEDIMENTS: IMPLICATIONS FOR THE EVOLUTION OF THE SVECOFENNIAN OROGENY

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The central part of the Fennoscandian Shield in Finland is composed of the Palaeoproterozoic Svecofennian domain, divided into central and southern parts, and the Archaean Karelian craton with a Palaeoproterozoic allochthonous and autochthonous cover. Archaean crust and 2.0-1.92 low-K bimodal rocks from a primitive island arc are the proposed source for the allochthonous cover rocks (Western Kaleva, about 1.92 Ga). A foredeep origin associated with subsidence during initial collision is favoured and orogenic detritus from the same oblique collision zone is proposed. The central Svecofennian sedimentary rocks can be divided into local arc-derived rocks (1.89 Ga) and older (1.91 Ga) rocks from a mixture of Western Kaleva sources and a 2.0-1.91 Ga mature island arc/active continental margin source. Rifting followed by increased subsidence during initial collision in the NE and subsequent arc reversal caused rapid erosion from the mountain belt and deposition into an oblique hinterland basin further developing into a subduction related foredeep. Mature greywackes from the southern Svecofennian resemble passive margin sediments. Less mature rocks also occur and had sources dominated either by island arc/active continental margin rocks or local picritic rocks. The difference between southern and central Svecofennian domains is also seen in distinctive Proterozoic detrital zircon age population maxima 2.1-2.0 Ga and 2.0-1.9 Ga, respectively.