

## SUBDUCTION TECTONIC EROSION (STE) AND POST-SUBDUCTION MAGMATISM (PSM): NEW LIGHT ON IAPETUS CLOSURE TECTONICS AND SYNTHESIS

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A study of circum-Pacific examples indicates that STE can rapidly undercut, at shallow depth, the forearc, arc and behind-arc areas of ensimatic and continental margins to distances of several hundred kilometres. The resulting type of margin has wide implications for the tectonics of collision orogens, particularly if STE had undercut both margins. The margins may imbricate and/or overthrust one another extensively, with back-thrusting in the final stage. The study also shows that syn-subduction magmatism (SSM) is usually inhibited during active STE but, when subduction ceases, material at the subduction interface can cause widespread PSM and crustal heating for up to 30Ma.... These processes permit an intricate synthesis of Iapetus closure in the British Isles. Conclusions include the following. From here to Finnmark Iapetus was a 2-branched, 2-aged ocean. Iapetus A had closed by the Tremadoc near to the Great Glen-Leannan Fault Line by SE-wards subduction, producing finally the Tay Nappe back-fold, with PSM in Wales. By late Arenig Iapetus B was opening fast along the Southern Uplands line. Arenig-Llandeilo subduction beneath its SE margin caused major STE and Caradoc-Ashgill PSM. Closure switched to the NW margin in mid-Llandeilo. This ceased in latest Wenlock, causing widespread PSM in Scotland (420-390Ma). Finally the Southern Uplands was back-thrust over its Silurian arc in Cockburnland.... In Scandinavia the Scandian nappes contain a similar story, but much greater STE under the Baltica margin controlled the eventual tectonics. In Newfoundland the SE margin, from the Dover Fault to Grand Lake, overthrusts and obscures much of NW margin history. Such concealment seems to increase southward along the orogen.