

The Central Iapetus magmatic province: An updated review and link with the ca. 580 Ma Gaskiers glaciation

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Large igneous provinces and associated silicic magmatism can have a significant global climatic effect, so we explored the relationship between the large igneous province record and the ca. 580 Ma Gaskiers glaciation. The late Ediacaran glaciation exists on at least 14 different paleocontinental blocks, and assuming synchronicity, this Gaskiers glaciation was likely of short duration, with estimates ranging from 1.6 m.y. to 340 k.y. The Central Iapetus magmatic province event found in Laurentia, Baltica, and West Africa consists of multiple pulses in the range 620–520 Ma, with the ca. 580 Ma pulse particularly well developed in North Africa. Based on the age matches of 580–570 Ma Central Iapetus magmatic province pulses and the Gaskiers glaciation, and taking into consideration that there is no robust evidence for a major meteorite impact at the time of the Gaskiers onset, we propose that: (1) the initial silicic ca. 580 Ma pulse of the Ouarzazate event (Anti-Atlas of Morocco) helped to trigger the Gaskiers glaciation, and (2) global warming associated with the subsequent ca. 579–570 Ma continental flood basalts, marking the second stage of the Ouarzazate event, helped to end the ice age.