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Late Archean-early Proterozoic mafic magmatism in the Aravalli Craton:New age constraints from NW India on the early supercontinet reconstructions

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The Columbia/Nuna supercontinet is consided as the oldest known supercontinent that was formed during the Paleoproterozoic to Mesoproterozoic.Reconsruction of this supercontinent thus could provide significant insights into the evolution of earth during the Proterozoic.One of the remaining issues in the configuration of the Nuna supercontinent is the paleoposition of the Indian and South China Block and their relationship.Considering the similar sedimentation occurred at Paleoproterozoic in the NW india,the lesser Himalaya and the Cathaysia Block of South China,these terranes have been considered to be closely linked in the Nuna supercontinent.However,sedimentary provenance studied based on detrital minerals like zircon could provide multiple results as zircon can be recycled for many times during the sedimentary processes.In contrast, mafic rocks are sensitive to their magma source and tectonic setting,thus are useful in constraining the geological background .This study focus on the Paleoproterozoic mafic rocks in the NW india.in combination with published data from the Lesser Himalaya and the Cathaysia Block of South China,mafic rocks are simultaneously formed in these areas.Besides,these mafic rocks show similar geochemical signatures,analogous to those formed in intraplate setting. Taking associated granitic rocks and rift-related sedimentation together,these igenous rocks may represnt the fragmentation of these terranes after the assembly of Nuna supercontinent.These results confirm the close linkage among NW india,the Lseeser Himalaya and the Cathaysia Block of South China during Paleoproterozoic and shed significant new insight into the reconstruction of the Nuna supercontinent.