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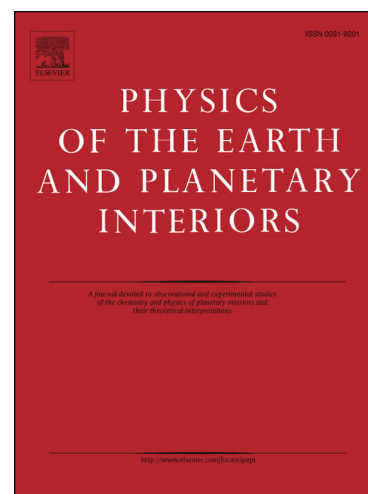
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Linking lowermost mantle structure, core-mantle boundary heat flux and mantle plume formation

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Highlights

- 1 The lowermost mantle structure, CMB heat flux and plume formation are coupled
- 2 The morphology of piles is significantly affected by the formation of mantle plumes
- 3 The CMB heat flux is significantly affected by the morphologic changes of piles
- 4 The periodic variation of CMB heat flux can be induced by formation of plumes
- 5 The density anomalies within thermochemical piles are heterogeneous

Keywords: CMB heat flux, mantle plume, thermochemical piles, large igneous provinces, geomagnetic superchrons

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