Plates, Plumes, and Planetary Processes

GSA Special Paper in preparation

Editors: Gillian R. Foulger & Donna M. Jurdy

Foulger, Gillian R. & Donna M. Jurdy, Preface

Plates & Plumes

1. Foulger, Gillian R., The "Plate" model for the genesis of melting anomalies
2. Sleep, Norman H., Origins of the plume hypothesis and some of its implications
3. Anderson, Don L., The Eclogite Engine: Chemical geodynamics as a Galileo thermometer
4. Morgan, W. Jason & J. Phipps Morgan, Plate velocities in the hotspot reference frame

Mantle convection & seismology

5. Garnero, Edward J., T. Lay and A. McNamara, Implications of lower mantle structural heterogeneity for existence and nature of whole mantle plumes
6. King, Scott D. & H.L. Redmond, The structure of thermal plumes and geophysical observations
7. Deuss, Arwen, Seismic observations of transition zone discontinuities beneath hotspot locations
8. Matyska, Ctirad & D.A. Yuen, Lower mantle material properties and convection models of multiscale plumes
9. Yamamoto, Michiko, W.J. Morgan & J. Phipps Morgan, Global plume-fed asthenosphere flow: (1) motivation and model development
10. Yamamoto, Michiko, W.J. Morgan & J. Phipps Morgan, Global plume-fed asthenosphere flow: (2) Application to the geochemical segmentation of mid-ocean ridges
11. Laske, Gabriele, J. Phipps Morgan & J.A. Orcutt, The Hawaiian SWELL pilot experiment - evidence for lithosphere rejuvenation from ocean bottom surface wave data

Heat & temperature

12. Falloon, Trevor, D.H. Green & L.V. Danyushevsky, Crystallization temperatures of tholeiite parental liquids: Implications for the existence of thermally driven mantle plumes
13. Stein, Carol A. & R.P. Von Herzen, Potential effects of hydrothermal circulation and magmatism on heat flow at hotspot swells
14. Kumar, P. Senthil, R. Menon & G. K. Reddy, Crustal geotherm in southern Deccan Basalt Province, India: The Moho is as cold as adjoining cratons

Geochronology, hotspot fixity & reference frames

15. Baksi, Ajoy K., A quantitative tool for detecting alteration in undisturbed rocks and minerals – I: water, chemical weathering and atmospheric argon
16. Baksi, Ajoy K., A quantitative tool for detecting alteration in undisturbed rocks and minerals – II: application to argon ages related to hotspots
17. Sager, William W., Divergence between paleomagnetic and hotspot model predicted polar wander for the Pacific plate with implications for hotspot fixity
18. Cuffaro, Marco & C. Doglioni, Global kinematics in the deep vs. shallow hotspot reference frames
19. Beutel, Erin & D.L. Anderson, Ridge-crossing seamount chains; a non-thermal approach

Oceanic melting anomalies

20. Fitton, J. Godfrey, The OIB paradox
21. Natland, James H., ΔNb and the role of magma mixing at the East Pacific Rise and Iceland
22. Norton, Ian O., Speculations on Cretaceous tectonic history of the Northwest Pacific and a tectonic origin for the Hawaii hotspot
23. Smith, Alan, A plate model for Jurassic to Recent intraplate volcanism in the Pacific Ocean basin
24. Stuart, William D., G.R. Foulger & M. Barall, Propagation of the Hawaiian-Emperor volcano chain by Pacific plate cooling stress
25. Sallares, Valenti & A. Calahorrano, Geophysical characterization of mantle melting anomalies: A crustal view
26. Meyer, Romain, J. van Wijk & L. Gernigon, North Atlantic Igneous Province: A review of models for its formation
27. Vogt, Peter R. & W.-Y. Jung, Origin of the Bermuda volcanoes and Bermuda Rise: History, observations, models, and puzzles

Continental melting anomalies

28. Sears, James, Lithospheric control of Gondwana breakup: Implications of a trans-Gondwana icosahedral fracture system
29. Comin-Chiaramonti, Piero, A. Marzoli, C. de Barros Gomes, V.F. Velásquez, M.M.S. Mantovani, A. Milan, P. Renne, C. Riccomini, C.C.G. Tassinari & P.M. Vasconcelos, Post Paleozoic magmatism from eastern Paraguay
30. Hooper, Peter R., V. Camp, S. Reidel & M. Ross, The origin of the Columbia River flood basalt province: Plume versus nonplume models
31. Ivanov, Alexei, Evaluation of different models for the origin of the Siberian traps
32. Keskin, Mehmet, Eastern Anatolia: a hot spot in a collision zone without a mantle plume
33. Lustrino, Michele & E. Carminati, Phantom plumes in Europe and the circum-Mediterranean region

34. Geoffroy, Laurent, C. Aubourg, J.-P. Callot & J.-A. Barrat, Mechanisms of crustal growth in large igneous provinces: the North-Atlantic Province as a case study
35. Sharma, Kamal K., K-T magmatism and basin tectonism in western Rajasthan, India, results from extensional tectonics and not from Reunion plume activity
36. Sheth, Hetu C., Plume-related regional pre-volcanic uplift in the Deccan Traps: Absence of evidence, evidence of absence
37. Srivastava, Rajesh & A.K. Sinha, Nd and Sr isotope systematics and geochemistry of plume related early Cretaceous alkaline-mafic-ultramafic igneous complex from Jasra, Shillong Plateau, Northeastern India
38. Sensarma, Sarajit, A bimodal LIP and the plume debate: The Palaeoproterozoic Dongargarh Group, central India
39. Xu, Yi-gang, B. He & D. Zhu, Thick and high velocity crust in the Emeishan large igneous province, SW China: Evidence for crustal growth by magmatic underplating/intraplating

Planetary evolution

40. Jurdy, Donna & P.R. Stoddard, Venus' Coronae: Impact, plume or other origin?
41. Hamilton, Warren, An alternative Venus
42. Reese, Chris, V.S. Solomatov & C.P. Orth, Interaction between local magma ocean evolution and mantle dynamics on Mars

Education

43. Jordan, Brennan, The mantle plume debate in undergraduate geoscience education: Overview, history, and recommendations

Platonics & Plumacy

44. Holden, John C. and P.R. Vogt, Graphic solutions to the problems of plumacy
45. Vogt, Peter R. and J.C. Holden, Plumacy reprise