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volcanic chains; 2.5.5 Extinct flood basalt provinces lacking volcanic chains; 2.5.6 Vertical motions without flood basalt magmatism; 2.6 Plume variants; 2.7 Discussion
2.8 Exercises for the student3: Volcanism; 3.1 Introduction; 3.1.1 Flood basalts and oceanic plateaus; 3.1.2 Normal or anomalous?; 3.2 Predictions of the Plume hypothesis; 3.3 Predictions of the Plate hypothesis; 3.4 Comparison of the predictions of the Plate and Plume hypotheses; 3.5 Observations; 3.5.1 Classifying melting anomalies; 3.5.2 Large-volume, sustained volcanism; 3.5.3 Large-volume, brief volcanism; 3.5.4 Small-volume, sustained volcanism; 3.5.5 Small-volume, brief volcanism; 3.6 Plume variants; 3.7 Discussion; 3.8 Exercises for the student
4: Time progressions and relative fixity of melting anomalies4.1 Introduction; 4.2 Methods; 4.2.1 Radiometric dating; 4.2.2 Earth's palaeomagnetic and spin axes; 4.2.3 True polar wander; 4.3 Predictions of the Plume hypothesis; 4.4 Predictions of the Plate hypothesis; 4.5 Observations; 4.5.1 Melting anomalies without tracks; 4.5.2 Short-lived melting anomalies; 4.5.3 Melting anomalies with long chains that are not time-progressive; 4.5.4 Melting anomalies with long, time-progressive tracks; 4.6 Hotspot reference frames; 4.7 Plume variants; 4.7.1 "Mantle wind"; 4.7.2 Other variants
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5.5.3 Structure beneath extinct melting anomalies, and elsewhere

Sommario/riassunto

Since the advent of the mantle plume hypothesis in 1971, scientists have been faced with the problem that its predictions are not confirmed by observation. For thirty years, the usual reaction has been to adapt the hypothesis in numerous ways. As a result, the multitude of current plume variants now amounts to an unfalsifiable hypothesis. In the early 21st century demand became relentless for a theory that can explain melting anomalies in a way that fits the observations naturally and is forward-predictive. From this the Plate hypothesis emerged-the exact inverse of the Plume hypothesis. The