

Springer Geophysics

Amir Khan · Frédéric Deschamps *Editors*

## The Earth's Heterogeneous Mantle

A Geophysical, Geodynamical, and Geochemical Perspective

This book highlights and discusses recent developments that have contributed to an improved understanding of observed mantle heterogeneities and their relation to the thermo-chemical state of Earth's mantle, which ultimately holds the key to unlocking the secrets of the evolution of our planet. This series of topical reviews and original contributions address 4 themes. Theme 1 covers topics in geophysics, including global and regional seismic tomography, electrical conductivity and seismic imaging of mantle discontinuities and heterogeneities in the upper mantle, transition zone, and lower mantle. Theme 2 addresses geochemical views of the mantle including lithospheric evolution from analysis of mantle xenoliths, composition of the deep Earth, and the effect of water on subduction-zone processes. Theme 3 discusses geodynamical perspectives on the global thermo-chemical structure of the deep mantle. Theme 4 covers application of mineral physics data and phase equilibrium computations to infer the regional-scale thermo-chemical structure of the mantle.

Earth Sciences



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