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Nota di contenuto	Long-wavelength mantle structure : geophysical constraints and dynamical models / Maxwell L. Rudolph, Diogo L. Louren, Pritwiraj Moulik, and Vedran Lekic -- Experimental deformation of lower mantle rocks and minerals / Lowell Miyagi -- Seismic wave velocities in Earth's mantle from mineral elasticity / Johannes Buchen -- From mantle convection to seismic observations : quantifying the uncertainties related to anelasticity / Bernhard S.A. Schuberth, Tobias Bigalke -- Geochemical diversity in the mantle / Takeshi Hanyu and Li-Hui Chen -- Tracking the evolution of magmas from heterogeneous mantle sources to eruption / A. Mallik, S. Lambart, and E.J. Chin -- Super-deep diamonds : emerging deep mantle insights from the past decade / Evan M. Smith and Fabrizio Nestola -- Seismic and mineral physics constraints on the D" layer / Jennifer M. Jackson, Christine Thomas -- Towards consistent seismological models of the core-mantle boundary landscape / Paula Koelemeijer -- Dynamics of the upper mantle in light of seismic anisotropy / Thorsten W. Becker and Sergei Lebedev -- Mantle convection in subduction zones : Insights from seismic

anisotropy tomography / Zhouchuan Huang and Dapeng Zhao -- The cycling of subducted oceanic crust in the Earth's deep mantle / Mingming Li -- Towards imaging flow at the base of the mantle with seismic, mineral physics and geodynamic constraints / Andy Nowacki and Sanne Cottaar -- Seismic imaging of deep mantle plumes / Jeroen Ritsema, Ross Maguire, Laura Cobden, and Saskia Goes -- Observational estimates of dynamic topography through space and time / Mark Hoggard, Jacqueline Austermann, Cody Randel, and Simon Stephenson -- Connecting the deep earth and the atmosphere / Trond H. Torsvik, Henrik H. Svensen, Bernhard Steinberger, Dana L. Royer, Dougal A. Jerram, Morgan T. Jones, and Mathew Domeier -- Mercury, Moon, Mars : surface expressions of mantle convection and interior evolution of stagnant-lid bodies / N. Tosi and S. Padovan.

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#### Sommario/riassunto

"A multidisciplinary perspective on the dynamic processes occurring in Earth's mantle The convective motion of material in Earth's mantle, powered by heat from the deep interior of our planet, drives plate tectonics at the surface, generating earthquakes and volcanic activity. It shapes our familiar surface landscapes, and also stabilizes the oceans and atmosphere on geologic timescales. Mantle Convection and Surface Expressions brings together perspectives from observational geophysics, numerical modelling, geochemistry, and mineral physics to build a holistic picture of the deep Earth. It explores the dynamic processes occurring in the mantle as well as the associated heat and material cycles. Volume highlights include: Perspectives from different scientific disciplines with an emphasis on exploring synergies Current state of the mantle, its physical properties, compositional structure, and dynamic evolution Transport of heat and material through the mantle as constrained by geophysical observations, geochemical data and geodynamic model predictions Surface expressions of mantle dynamics and its control on planetary evolution and habitability The American Geophysical Union promotes discovery in Earth and space science for the benefit of humanity. Its publications disseminate scientific knowledge and provide resources for researchers, students, and professionals"--

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