

1. Thermo-physical structure of the continental and oceanic crust

Main Readings

Books:

- Artemieva, 2001, Seismic Structure of the lithosphere (Chapter 3), The lithosphere an interdisciplinary approach.
- Kearey, Klepeis, and Vine, 2015, The Interior of the Earth (Chapter 2), Global Tectonics.
- Kearey, Klepeis, and Vine, 2015, Precambrian tectonics and the supercontinent cycle (Chapter 11), Global Tectonics.
- Frisch, Meschede, Blakey, 2011, Early Precambrian plate tectonics, (Chapter 10), Plate Tectonics.
- Mooney, 2009, Crust and Lithospheric Structure – Global Crustal Structure, Treatise of Geophysics, Vol. 1 (Seismology and Structure of the Earth).

Articles:

- Tesauro et al., 2008, EuCRUST-07: A new reference model for the European crust, GRL, Vol. 35.
- Tesauro et al., 2014, NACr14: A 3D model for the crustal structure of the North American Continent Tectonophysics, 631, 65-86.
- Christensen and Mooney, 1995. Seismic velocity structure and composition of the continental crust: A global view, JGR, 100, B7.

Further Readings:

- Rudnick and Gao, 2003, Treatise on Geochemistry, Vol. 3.
- Christensen, 1996, Poisson's ratio and crustal seismology JGR, 101, B2, 3139-3156.
- Darbyshire, 2000, Structure of the crust and uppermost mantle of Iceland from a combined seismic and gravity study, , EPSL, 181, 409-428.
- Darbyshire, et al., 1998, Crustal structure above the Iceland mantle plume imaged by the ICEMELT refraction profile, GJI, 135, 1131-1149.
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2. Thermo-physical structure of the continental lithosphere

Main Readings:

Books:

- Artemieva, 2001, Seismic Structure of the lithosphere (Chapter 3), The lithosphere an interdisciplinary approach.
- Jaupart and Mareshal, 2009, Heat Flow and Thermal Structure of the Lithosphere, Treatise of Geophysics, Volume 6, Crust and Lithosphere Dynamics.
- Kearey, Klepeis, and Vine, 2015, Precambrian tectonics and the supercontinent cycle (Chapter 11), Global Tectonics.
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Articles:

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- Silver et al., 2004, Seismic anisotropy, mantle fabric, and the magmatic evolution of Precambrian southern Africa, S. Afr. J. Geol., 107, 45-58.
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Further Readings:

- Artemieva, 2009, The continental lithosphere: Reconciling thermal, seismic, and petrologic data, Lithos, 109, 23–46.
- Artemieva and Mooney, 2001, Thermal thickness and evolution of Precambrian lithosphere: A global study, J. Geophys. Res. 106B, 16387-16414.
- Aulbach et al., 2017, Origins of cratonic mantle discontinuities: A view from petrology, geochemistry and thermodynamic models, Lithos, 268–271.
- Gerya, 2014, Precambrian geodynamics: Concepts and models, Gondwana Research, 25, 442–463.
- Griffin et al., 2003, The origin and evolution of Archean lithospheric mantle, Precambrian Research, 127, 19–41.
- Hasterok and Webb, 2017, On the radiogenic heat production of igneous rocks, GeoscienceFrontiers, 8, 919-940.
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- Mareschal and Jaupart, 2013, Radiogenic heat production, thermal regime and evolution of continental crust, *Tectonophysics*, 609, 524–534.
- Obrebski et al., 2012, Shear wave tomography of China using joint inversion of body and surface wave constraints, *JGR*, 117, B01311.
- Porritt et al., 2014, Seismic imaging east of the Rocky Mountains with USArray, *EPSL*, 402, 16-25.
- Scafeffer and Lebedev, 2013, Imaging the North American continent using waveform inversion of global and USArray data, *Geophys. J. Int.*, 194, 417–449.
- Simmons et al., 2009, Joint seismic, geodynamic and mineral physical constraints on three-dimensional mantle heterogeneity: Implications for the relative importance of thermal versus compositional heterogeneity, *Geophys. J. Int.*, 177, 1284–1304.
- Youssof et al., 2013, Moho depth and crustal composition in Southern Africa, *Tectonophysics*, 609, 267–287.

3. Thermo-physical structure of the oceanic lithosphere and oceanic ridges

Main Readings

Books:

- Kearey, Klepeis, and Vine, 2015, Sea floor spreading and transform faults (Chapter 4), *Global Tectonics*.
- Kearey, Klepeis, and Vine, 2015, Ocean ridges (Chapter 6), *Global Tectonics*.
- Frisch, Meschede, Blakey, 2011, Mid-ocean ridges (Chapter 5), *Plate Tectonics*.
- Frisch, Meschede, Blakey, 2011, Transform Faults, (Chapter 8), *Plate Tectonics*.

4. Strength and effective elastic thickness of the lithosphere

Main Readings

Books:

- Stuwe, 2007, Kinematics: Morphology and Deformation (Chapter 4), *Geodynamics of the Lithosphere*, Springer.

- Stuwe, 2007, Mechanics: Force and Rheology (Chapter 5), Geodynamics of the Lithosphere, Springer.
- Burov, 2009, Plate Rheology and Mechanics, Treatise of Geophysics, vol. 6.
- Gerya, 2010, Stress and strain (Chapter 4), Introduction to numerical geodynamic modelling.

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5. Plate tectonics and boundary forces

Main Readings

Books:

- Kearey, Klepeis, and Vine, 2015, The framework of plate tectonics (Chapter 5), Global Tectonics.
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- Schellart and Rawlinson, 2010, Convergent plate margin dynamics: New perspectives from structural geology, geophysics and geodynamic modelling, *Tectonophysics*, 483, 4–19.

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6. Hot spots, plumes, and convection

Main Readings

Books:

- Kearey, Klepeis, and Vine, 2015, The mechanism of plate tectonics, (Chapter 12), *Global Tectonics*.
- Frisch, Meschede, Blakey, 2011, Hot Spots (Chapter 6), *Plate Tectonics*.
- Davies, 1999, The Plume Mode (Chapter 11), *Dynamic Earth Plates, Plumes and Mantle Convection*, Cambridge and University Press.
- Davies, 1999, Convection (Chapter 8), Cambridge and University Press.
- Allen and Allen, 2014, Effects of mantle dynamics (Chapter 5), *Basin Analysis*.

Articles:

- Schoonman et al., 2017, Radial viscous fingering of hot asthenosphere within the Icelandic plume beneath the North Atlantic Ocean, *Earth and Planetary Science Letters* 468, 51–61.
- Burov and Cloetingh, 2009, Controls of mantle plumes and lithospheric folding on modes of intraplate continental tectonics: differences and similarities, *Geophys. J. Int.*, 178, 1691–1722.
- Sobolev et al., 2011, Linking mantle plumes, large igneous provinces and environmental catastrophes, *Nature*, 477.

Further Readings:

- Koptev et al., 2015, Dual continental rift systems generated by plume–lithosphere interaction, *Nature Geoscience*, vol. 8.
- Rogozhina et al., 2016, Melting at the base of the Greenland ice sheet explained by Iceland hotspot history, *Nature Geoscience*, vol. 9.

7. Subduction zones systems

Main Readings

Books:

- Kearey, Klepeis, and Vine, 2015, Subduction zones (Chapter 9), *Global Tectonics*.
- Frisch, Meschede, Blakey, 2011, Subduction zones, island arcs and active continental margins (Chapter 7), *Plate Tectonics*.
- Wortel et al., 2009, Continental collision and the STEP-wise evolution of convergent plate boundaries: from structure to dynamics, 47-59, *Subduction Zone Geodynamics*, Lallemand and F. Funiciello, eds.
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- Rupke et al., 2004, Serpentine and the subduction zone water cycle, *EPSL*, 223, 17-34.
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8. Orogens formation and evolution

Main Readings

Books:

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- Kearey, Klepeis, and Vine, 2015, Orogenic belts (Chapter 10), *Global Tectonics*.
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Further Readings:

- Agius and Lebedev, 2013, Tibetan and Indian lithospheres in the upper mantle beneath Tibet: Evidence from broadband surface-wave dispersion, *G3*, 14.
- Singh et al., 2015, A review of crust and upper mantle structure beneath the Indian subcontinent, *Tectonophysics*, 644-645, 1-21.
- Xie et al., 2016, Crustal electrical structures and deep processes of the eastern Lhasa terrane in the south Tibetan plateau as revealed by magnetotelluric data *Tectonophysics*, 675, 168-180.
- Deng and Tesauro et al., 2016, Lithospheric 1 strength variations in Mainland China: tectonic implications, *Tectonics*, 35.
- Mey et al., 2016, Glacial isostatic uplift of the European Alps, *Nature Communications*, 7-13382.
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- Lippitsch et al. 2003, *JGR*, Upper mantle structure beneath the Alpine orogen from high-resolution teleseismic tomography, 108, B8, 2376.
- Teixell et al., 2018, Crustal structure and evolution of the Pyrenean-Cantabrian belt: A review and new interpretations from recent concepts and data *Tectonophysics*, 724-725, 146-170.
- Vogt et al., 2017, Crustal mechanics control the geometry of mountain belts. Insights from numerical modelling, *EPSL*, 460, 12-21.

9. Sedimentary basins formation and evolution

Main Readings

Books:

- Cloetingh and Ziegler, 2009, Tectonic Models for the Evolution of Sedimentary Basins, *Treatise of Geophysics*, vol. 6.

- Kearey, Klepeis, and Vine, 2015, Continental rifts and rifted margins (Chapter 7), *Global Tectonics*.
- Frisch, Meschede, Blakey, 2011, Continental graben structures (Chapter 3), *Plate Tectonics*.
- Allen and Allen, 2014, Basins due to lithospheric stretching (Chapter 3), *Basin Analysis*.
- Stuwe, 2007, Dynamic Processes (Chapter 6), *Geodynamics of the Lithosphere*, Springer.

Articles:

- François et al., 2018, Plume-lithosphere interactions in rifted margin tectonic settings: Inferences from thermo-mechanical modelling, *Tectonophysics*, in press.
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Further Readings:

- Kaban et al., 2010, An integrated gravity model for Europe's crust and upper mantle, *EPSL*, 296, 195–209.
- Xie and Heller, 2009, Plate tectonics and basin subsidence history, *GSA Bull.*, 121, 55-64.
- Kaus et al., 2005, Effect of mineral phase transitions on sedimentary basin subsidence and uplift, *EPSL*, 233, 213-228.
- Cacace and Scheck-Wenderoth, Why intracontinental basins subside longer: 3-D feedback effects of lithospheric cooling and sedimentation on the flexural strength of the lithosphere, *JGR*, 121, 3742–3761.
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