Norwegian Research School for Dynamics and Evolution of Earth and Planets (DEEP),
Centre for Earth Evolution and dynamics (CEED) and Natural History Museum, University of Oslo

Zoom-based PhD-course (GEO-DEEP 9200)

Earth and planetary materials and dynamics

March 20-24 and May 8-12, 2023. Daily Zoom-sessions: 1500-1830, Central European Time (in March) and Central European Summer Time (in May). **Further information on page 2.**

Main topics

Composition and structure of the solar system

Terrestrial planet accretion, core segregation and magma ocean differentiation

Seismological constraints on Earth's structure

Experimental and theoretical methods in mineral physics

Phase relations of silicates, oxides, peridotite and basalt under mantle conditions

Phase relations of Fe-Ni-dominated alloys in cores

Adiabats, melting curves, solid-melt Fe-Mg partitioning and the basal magma ocean (BMO)

Core-BMO exchange with implications for the structure and composition of the lower mantle and core

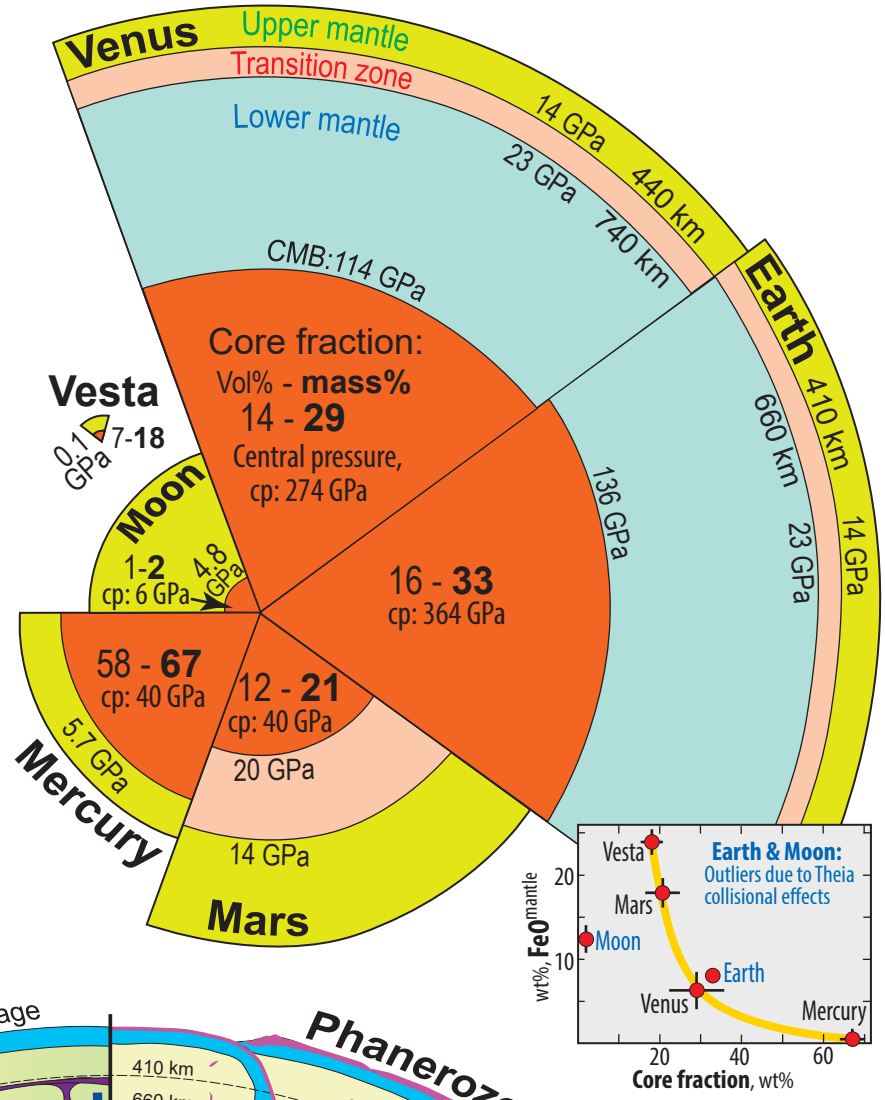
Isotope geochemical signatures of mantle and core reservoirs

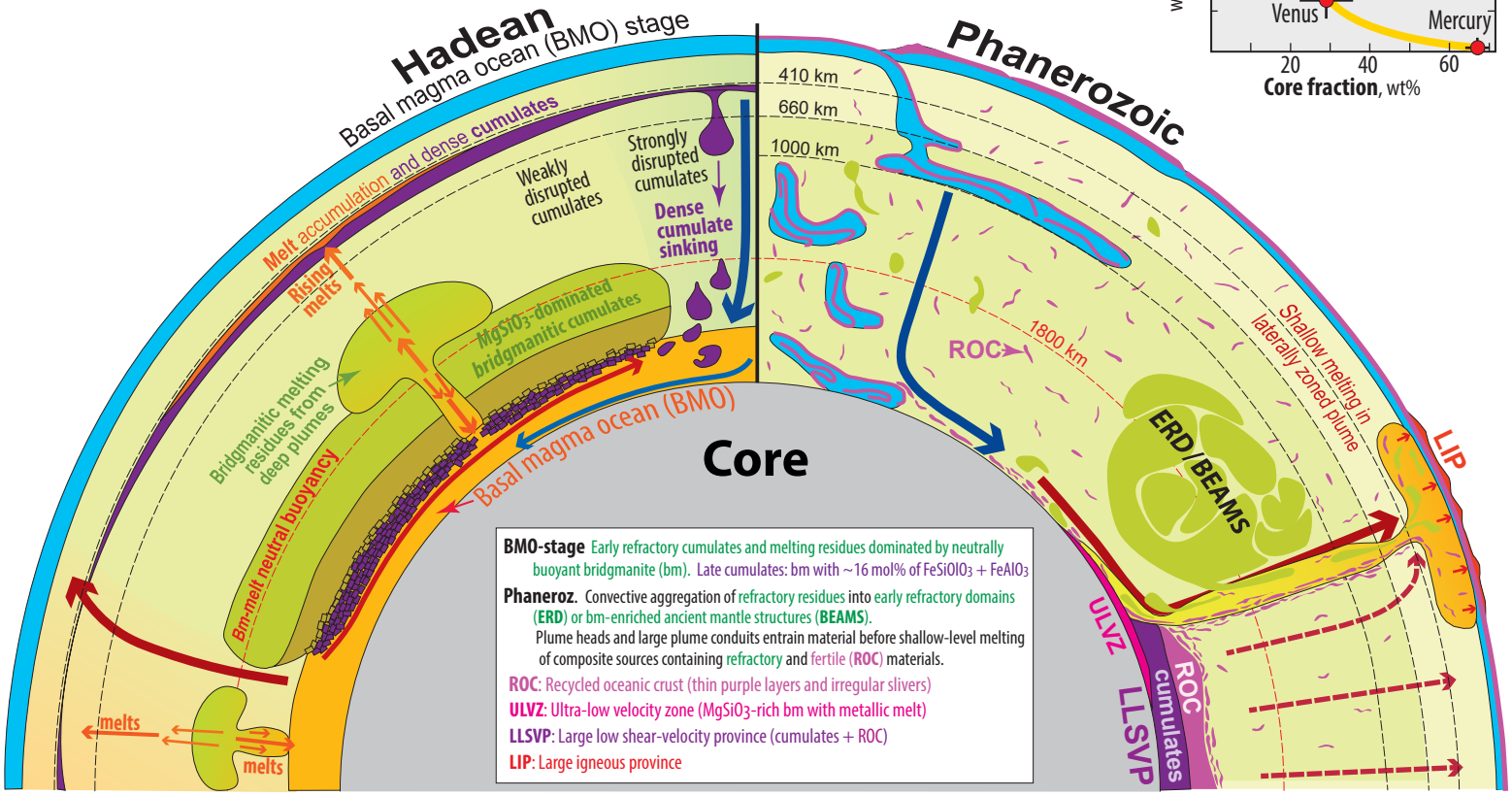
Comparative planetology - the roles of plume and plate tectonics

Learning outcome

The course will provide basic insights in:

- the processes governing Earth and planetary differentiation, evolution and convective dynamics
- phase relations, mineral physics and isotope geochemistry of Earth and planetary materials
- the structure and properties of the Earth, derived from mineral physics and seismology
- heat transfer, convective flow and secular cooling





Course contact and instructor

Reidar G. Trønnes, Centre for Earth Evolution and Dynamics (CEED) and Natural History Museum, Univ. of Oslo
E-mail address: rtronnes@uio.no or: r.g.tronnes@nhm.uio.no
www.nhm.uio.no/om/organisasjon/forskning-samlinger/personer/rtronnes/index.html
www.mn.uio.no/ceed/english/

Course site

www.nhm.uio.no/english/about/organization/research-collections/people/rtronnes/1/epmd/course-info.pdf
www.nhm.uio.no/english/about/organization/research-collections/people/rtronnes/1/epmd/

Daily Zoom-sessions at 1500-1900, Central European Time during March 20-24 and Central European Summer Time, during May 8-12.

Universal time (UTC), March 20-24: 1400-1800 and May 8-12: 1300-1700.
Ottawa and Washington, March 20-24: 1000-1400 and May 8-12: 0900-1300.
Vancouver and Los Angeles, March 20-24: 0700-1100 and May 8-12: 0600-1000.

Student presentations

The 10 min student presentations will be on topics closely integrated with the main course themes. A list of selectable presentation topics, each with a few key references, will be available by March 1. The presentations will mostly be scheduled as a first introduction to specific topics, which will be expanded on in the later lectures. The time limit of 10 minutes needs to be strict, but questions and discussions will be encouraged after the presentations and lectures. We will also run a few simple exercise sessions on equilibrium thermodynamics and phase equilibria of planetary materials.

The course registration is now closed.