Biogeography. Lecture 7

Alexey Shipunov

Minot State University

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Outline

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Palaeogeography

Plate tectonics

History of Life

The Really Short History of Life

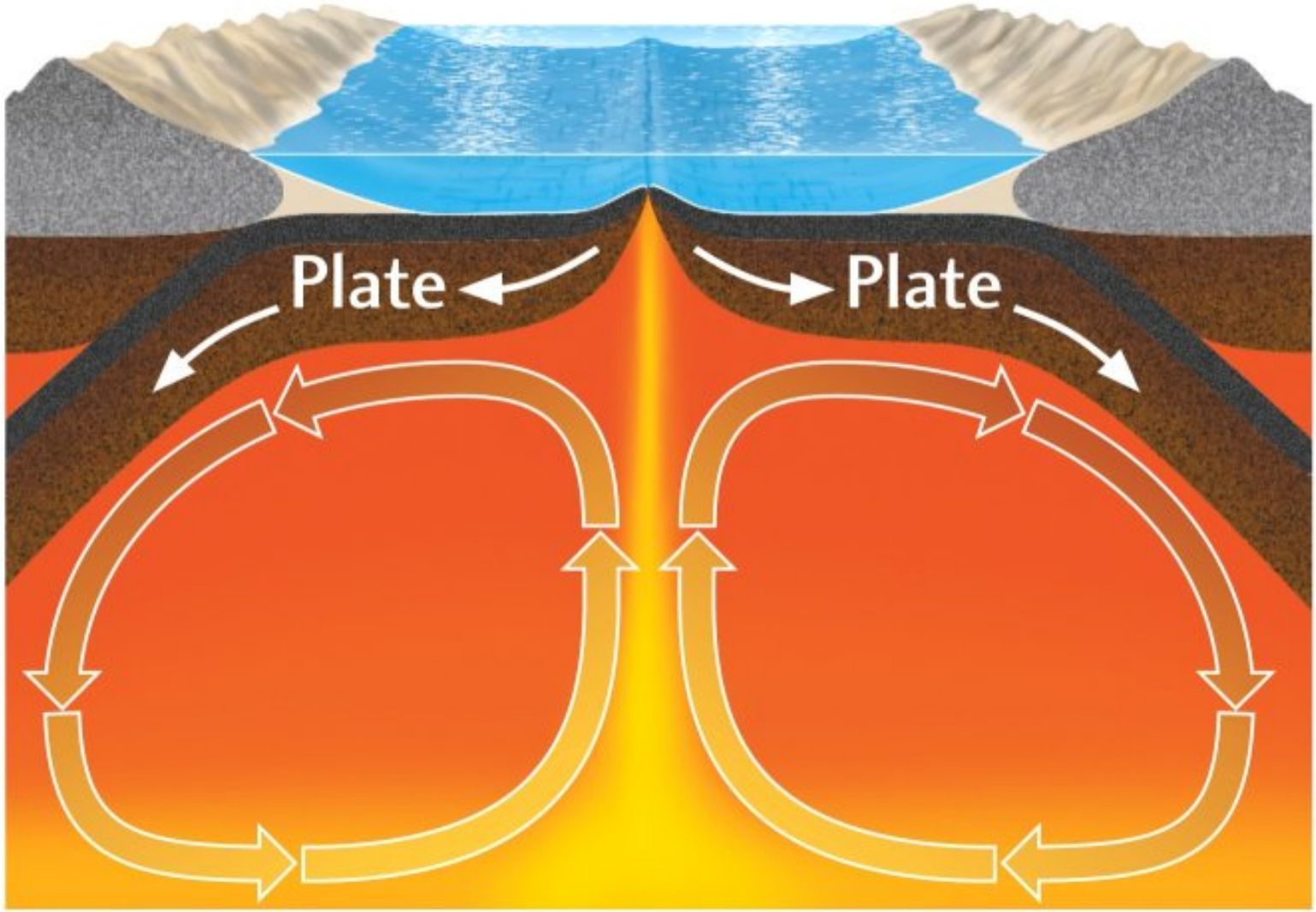
Palaeogeography

Plate tectonics

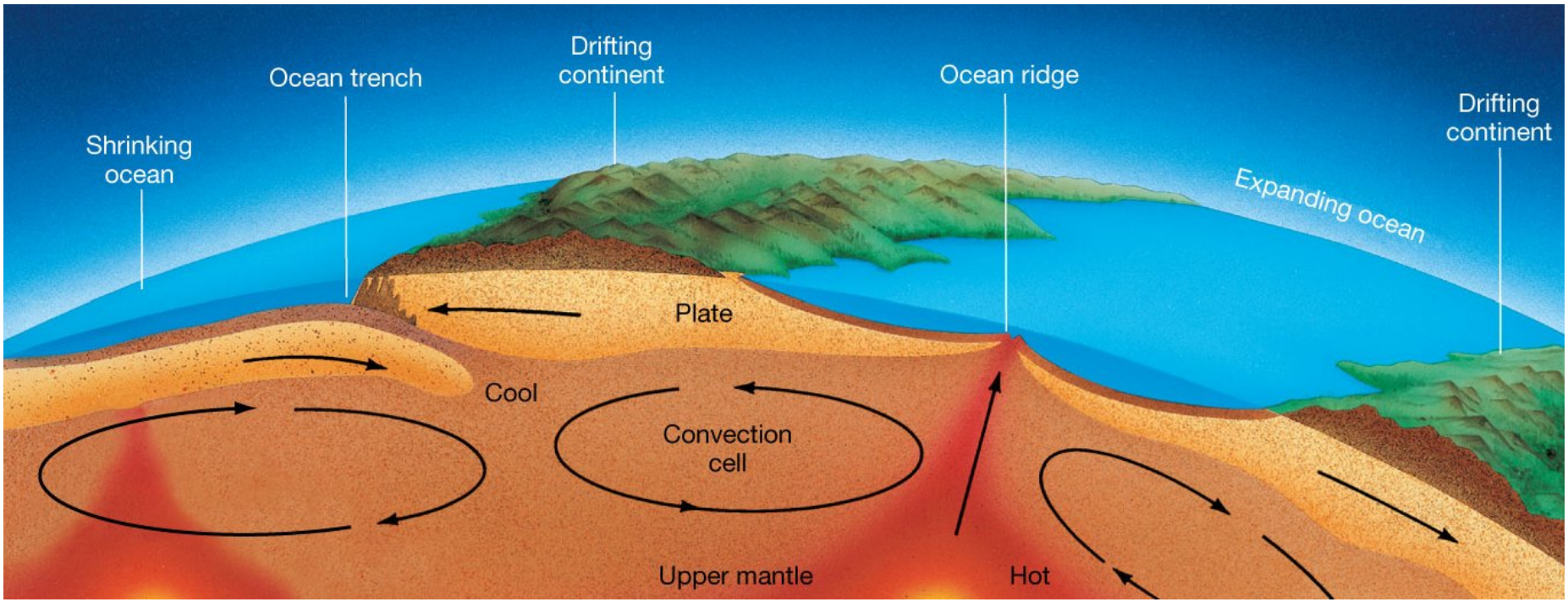
Mantle convection

- The driving force of floating continents is a **mantle convection**
- In ocean ridges, new ocean cortex is constantly forming and expanding
- In ocean trenches and continental ridges, different plates are colliding and often forming mountains

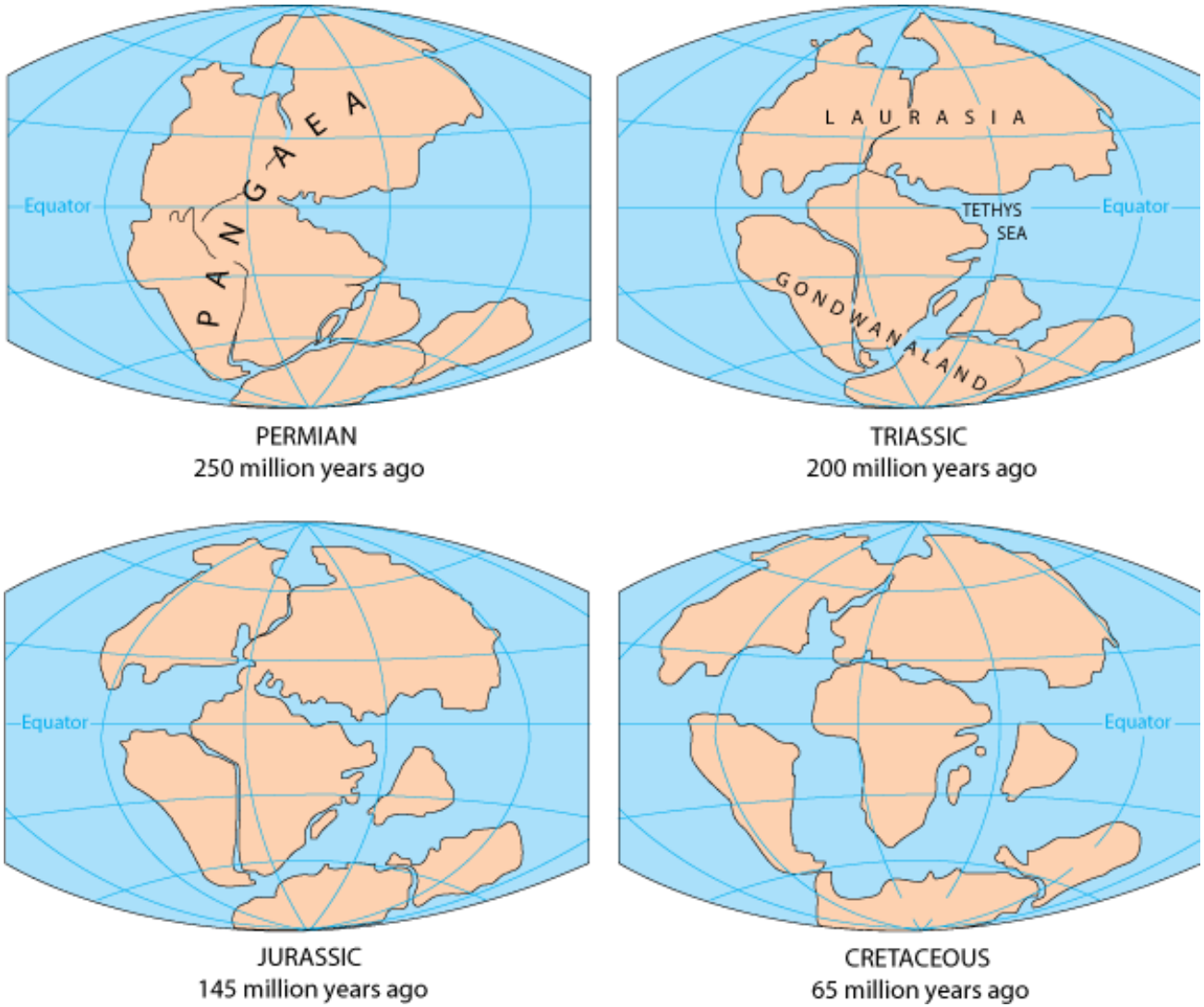
Mantle convection



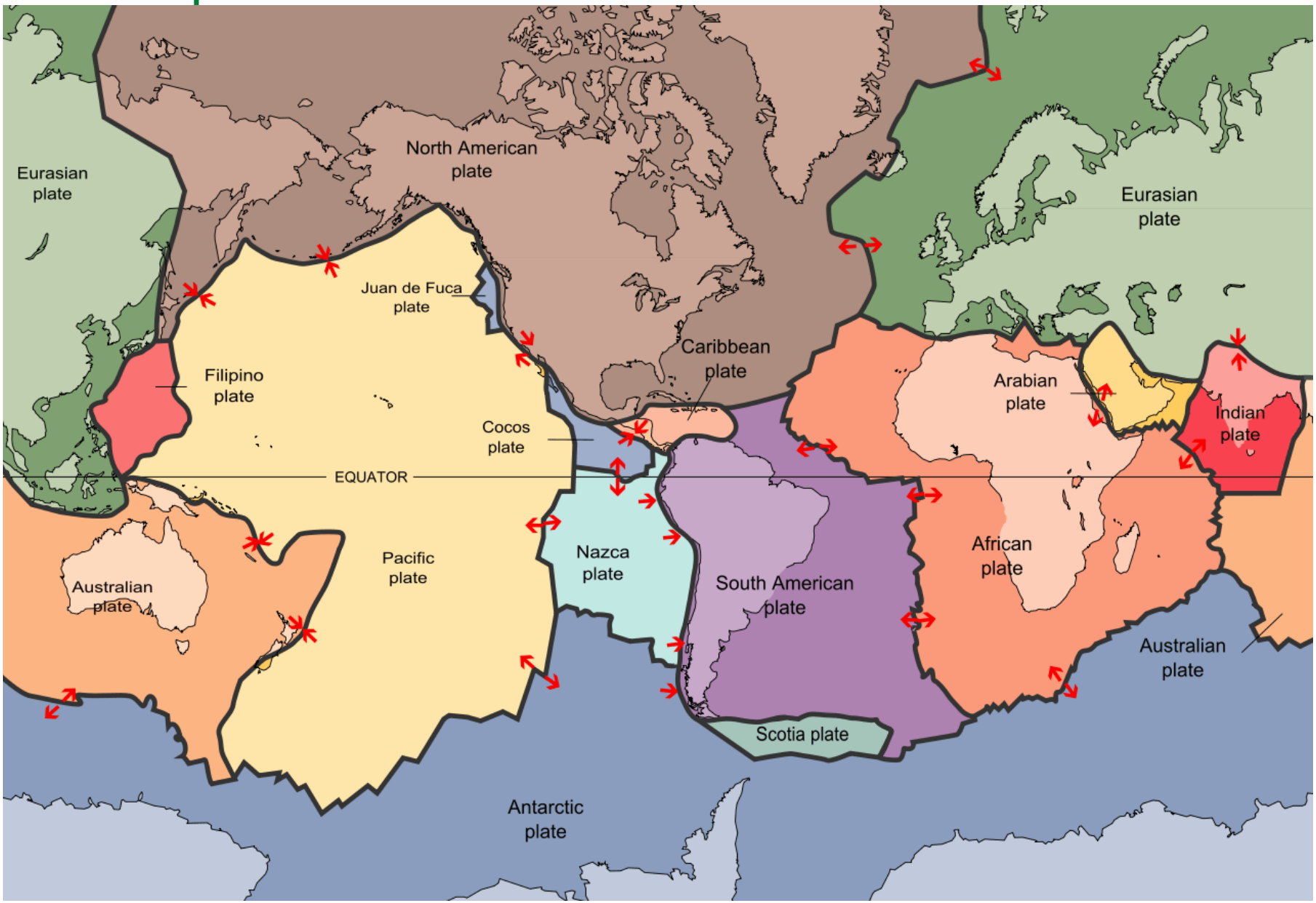
Ridges and trenches



The result of mantle convection



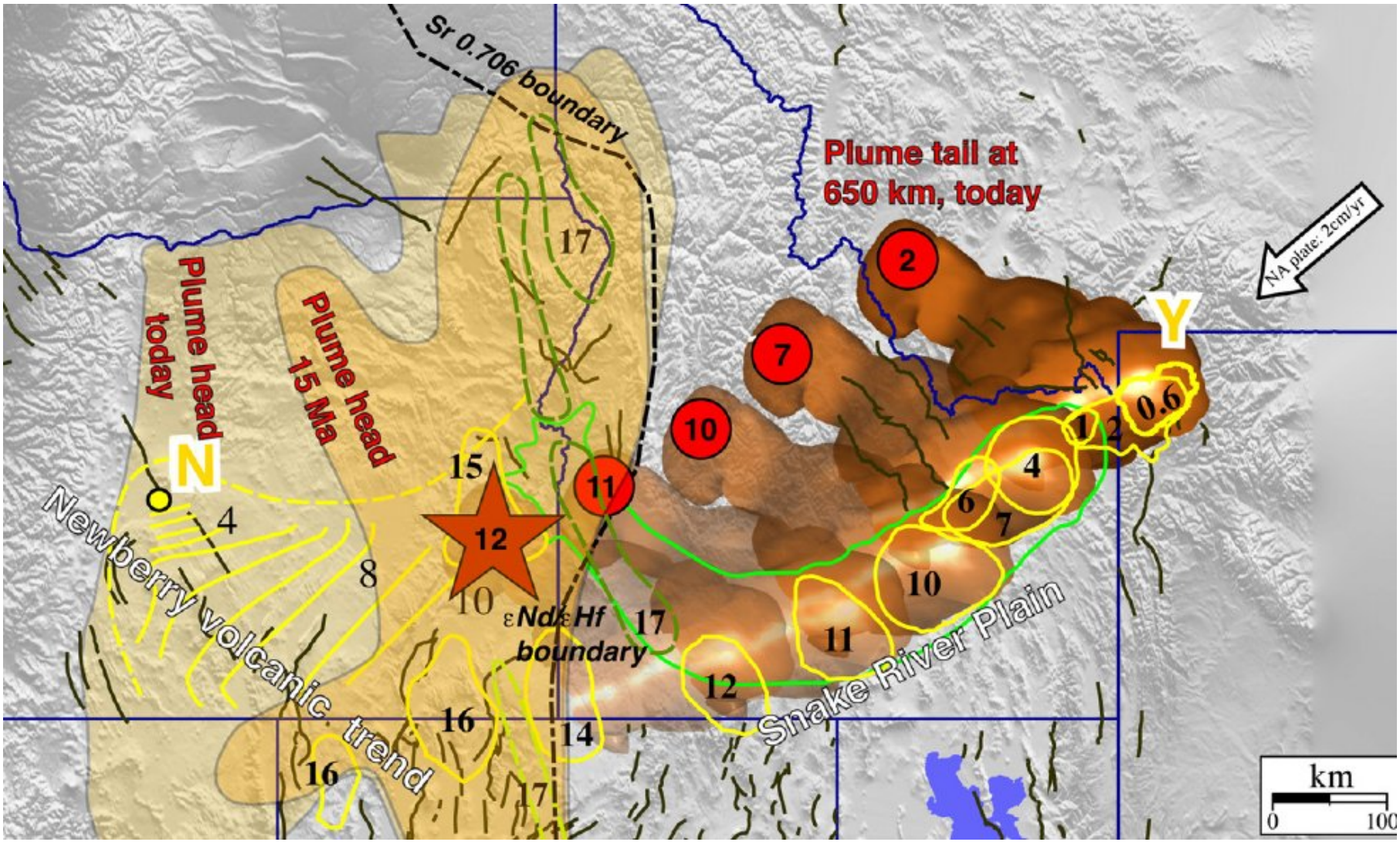
Tectonic plates



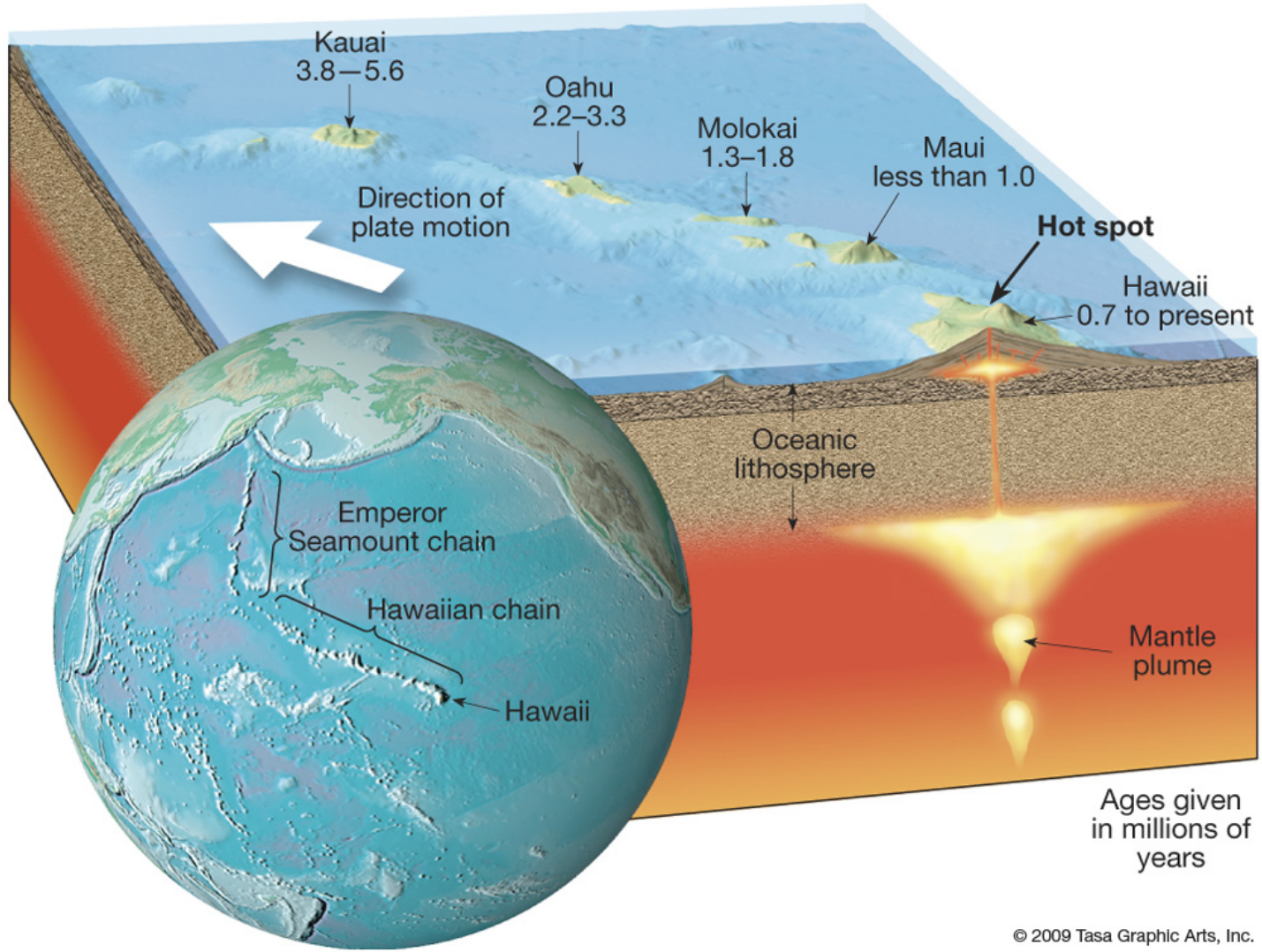
Two living examples of continental drift on U.S. territory

- Yellowstone hotspot
- Hawaiian hotspot

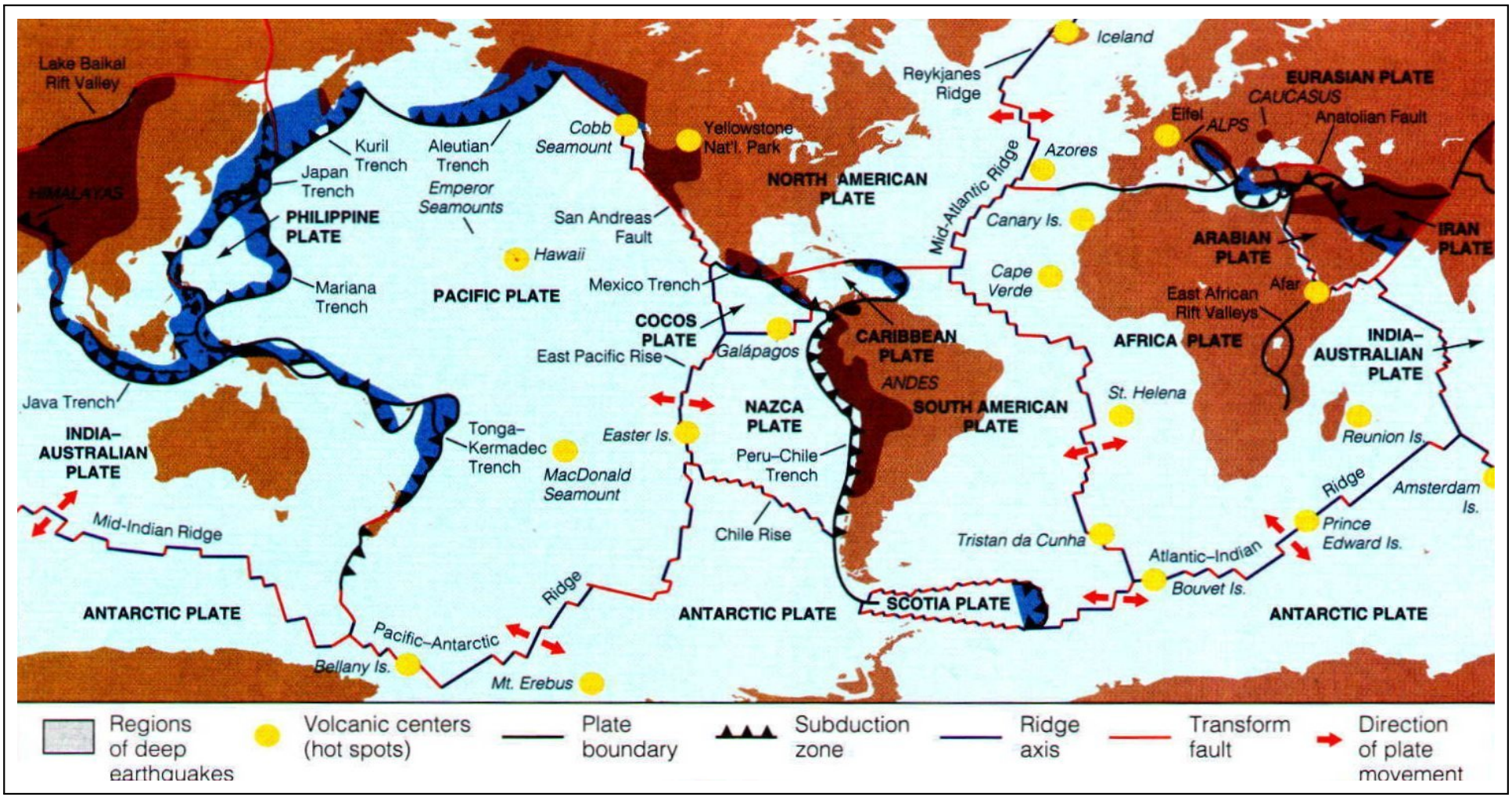
Yellowstone hotspot



Hawaiian hotspot



Hotspots, trenches, ridges and plates



History of Life

The Really Short History of Life

Introduction to Biogegraphy and Tropical Biology

http://ashipunov.info/shipunov/school/biol_330/intr_biogeogr_trop_biol/intr_biogeogr_trop_biol.pdf

Summary

- Continents of Earth are constantly changing their position due to the mantle convection (“plate tectonics”)
- From Cryogenian to Ordovician, super-continent Rodinia broke and climate on Earth became milder
- Most of water-inhabiting animal groups appeared by Ordovician
- At the end of Permian, all continents formed equatorial super-continent Pangaea
- Jurassic period was a peak of dinosaur diversity
- Impact theories are mentally attractive but do not explain slow and “blurred” extinction as well as existence of “untouchable” groups like plants and insects.
- Ecological palaeontology states that most mass extinctions were results of **biological crises**. The nature of these crises is internal.

For Further Reading

A. Shipunov.
Biogeography [Electronic resource].
2014—onwards.
Mode of access:
http://ashipunov.info/shipunov/school/biol_330

A. Shipunov.
Introduction to Biogegraphy and Tropical Biology [Electronic resource].
2017—onwards.
Mode of access: http://ashipunov.info/shipunov/school/biol_330/intr_biogeogr_trop_biol/intr_biogeogr_trop_biol.pdf