



EAPS 10000 Y01

Online Course

Planet Earth

Prof. Lawrence Braile

Welcome to the EAPS 10000 Y01 online course
***Planet Earth** (also known as EAPS 100)!*

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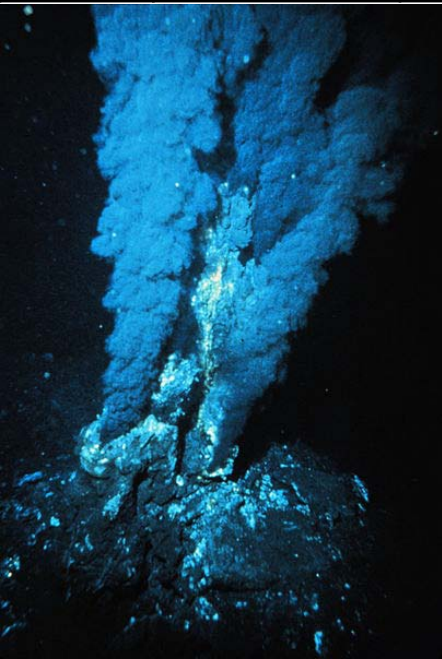
Earth
Atmospheric
Planetary
Sciences



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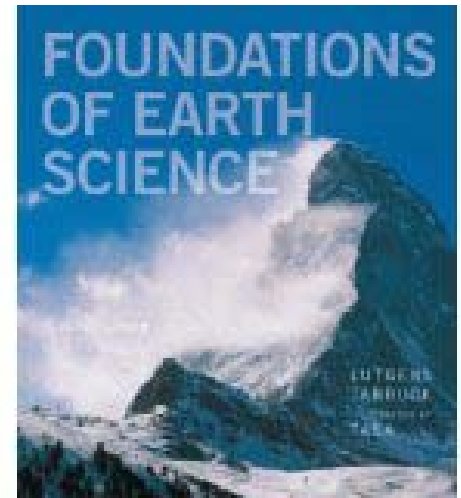
Week 5, Chapter 9 (pages 294-319, text)

Week	Chapter	Assigned Pages	Major Concepts	Important Terms
5	9 – Oceans	294 – 319	Composition of sea water, ocean bathymetry	Salinity, continental margins, deep sea trenches, continental shelf, abyssal plain, mid-ocean ridge, seamount, black smokers



Hydrothermal vents
(some are "black smokers")

Deep sea
drill ship



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Week 5, Chapter 9 (pages 294-319)

When you have finished reading Chapter 9 and viewing the weekly PowerPoint file for Chapter 9, take the chapter quiz (Quiz8; be sure to read the Syllabus for more information on quizzes). You can use your book, notes, etc. during the quiz.

The PPT files (converted to PDF files) are best viewed with the Full Screen view in browsers.

The following slides illustrate some of the important concepts and topics of Chapter 9:

Ocean Waters – Relative proportions of water and dissolved salts in seawater

Figure 9.3, text

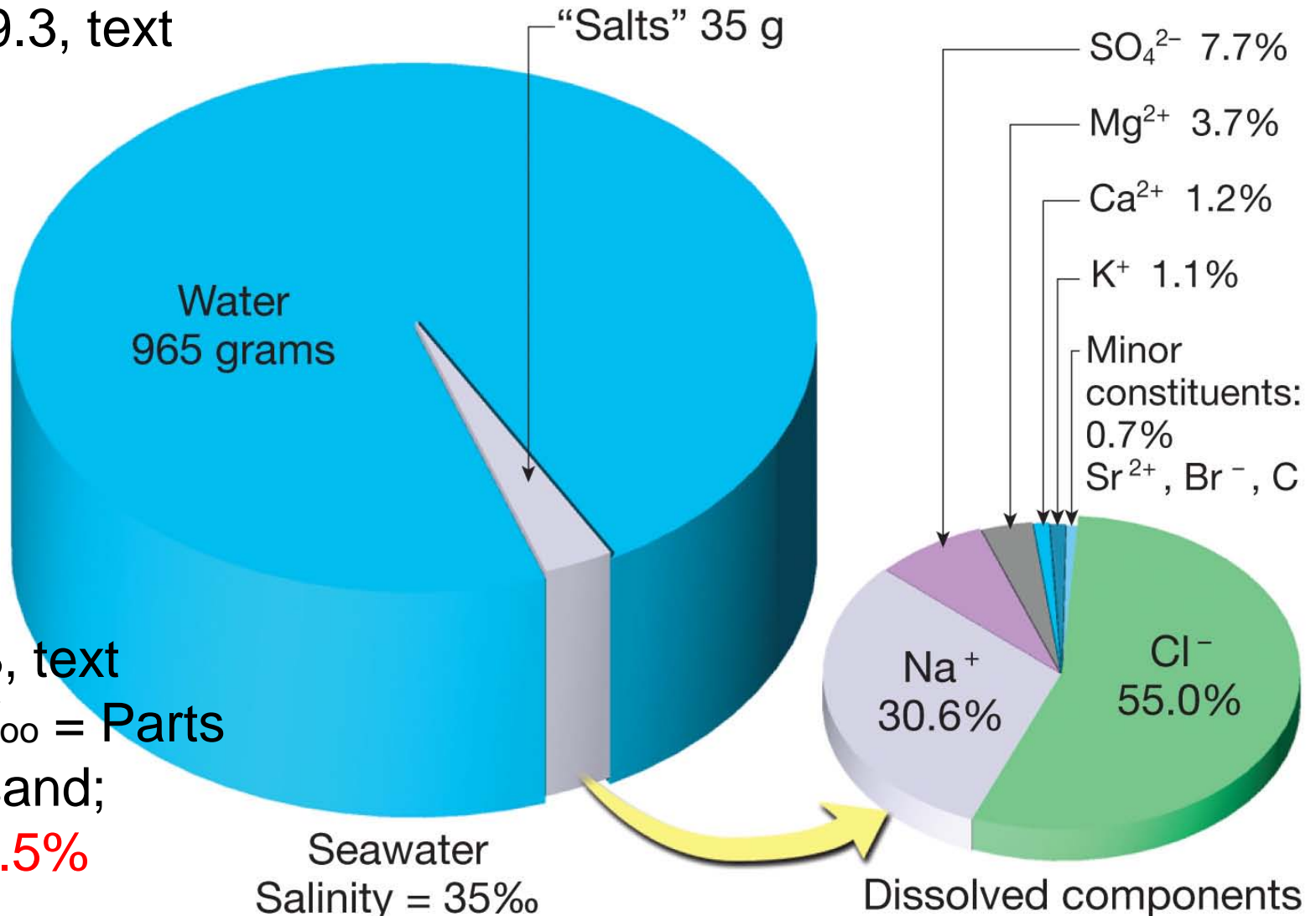
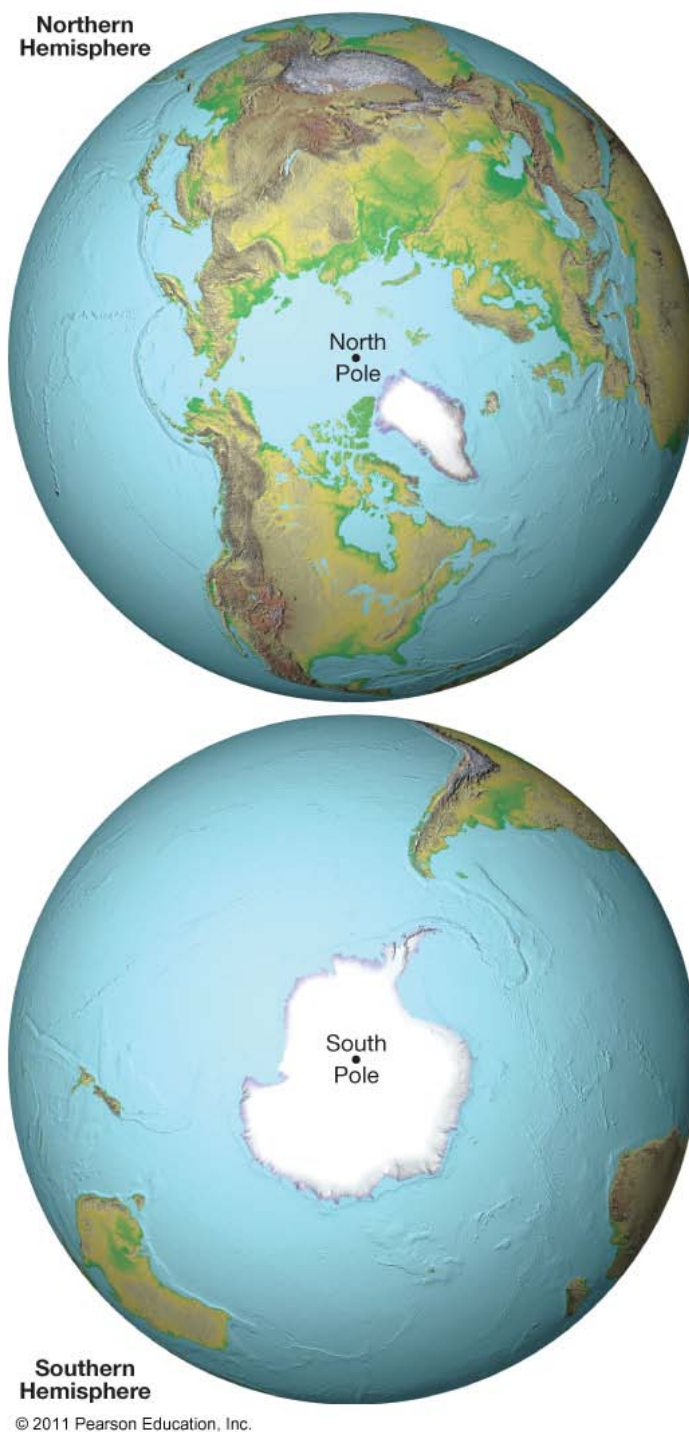


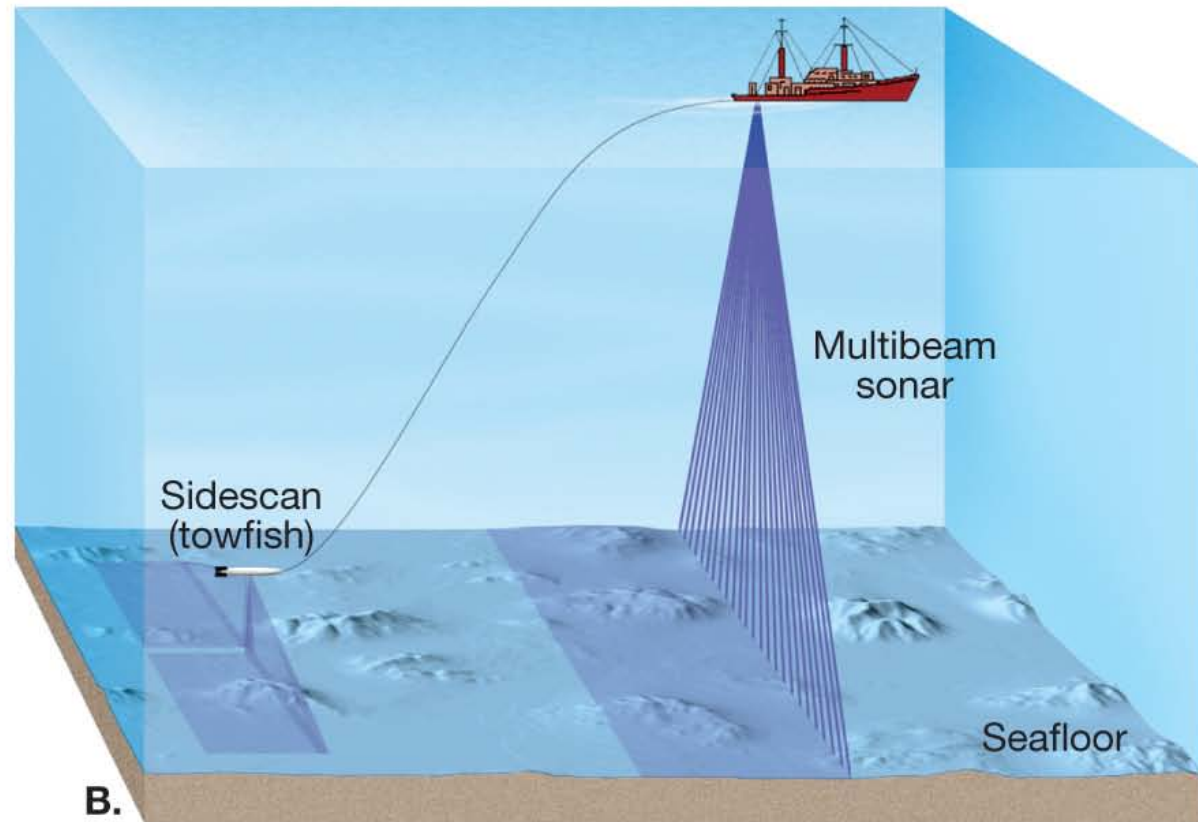
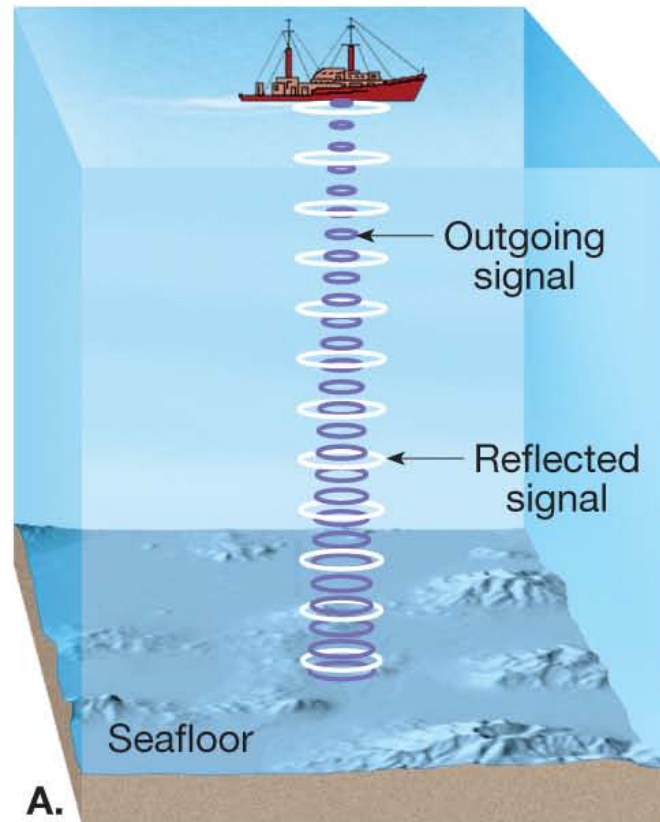
Figure 9.3, text
Salinity: ‰ = Parts
per Thousand;
35 ‰ = 3.5%

**Polar views
contrasting
areas covered
by oceans**

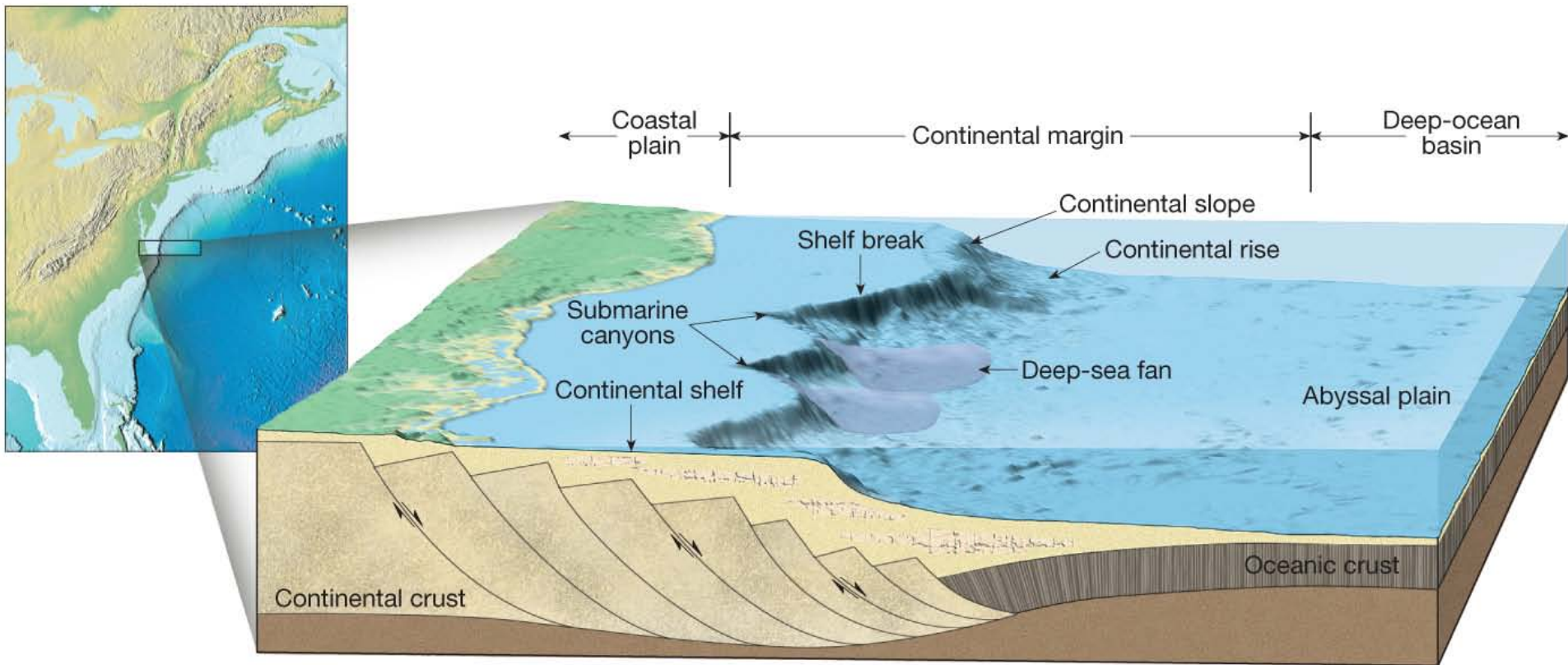
Figure 9.1, text



Echo Sounding measures the depth (bathymetry) and shape of the ocean floor, Figure 9.11, 9.12, text.

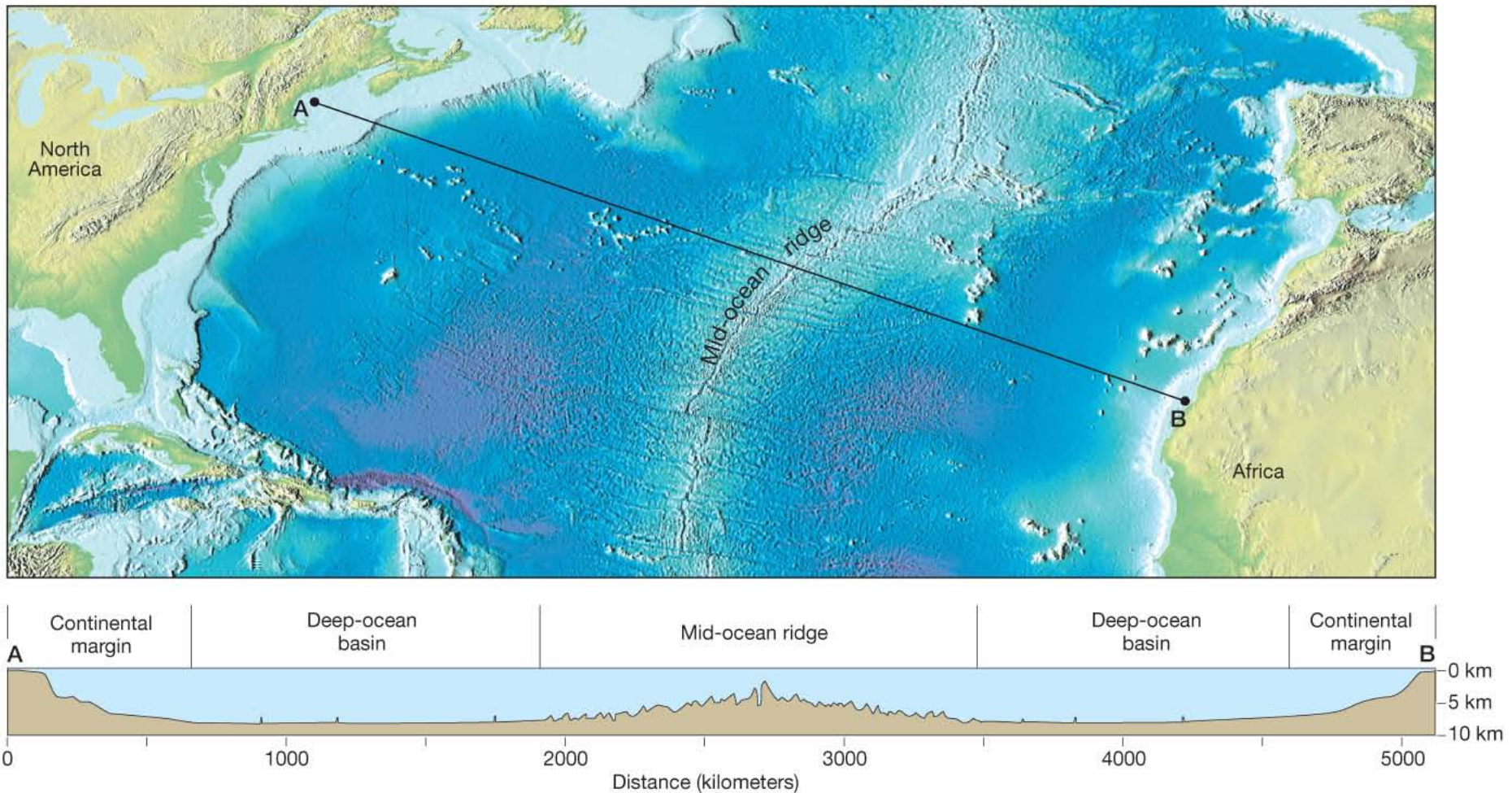


Continental Margin and ocean bathymetry -- continental shelf (part of continental crust), continental slope (transition to oceanic crust), abyssal plain. (Mid-ocean ridge not seen here).



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Figure 9.17, text



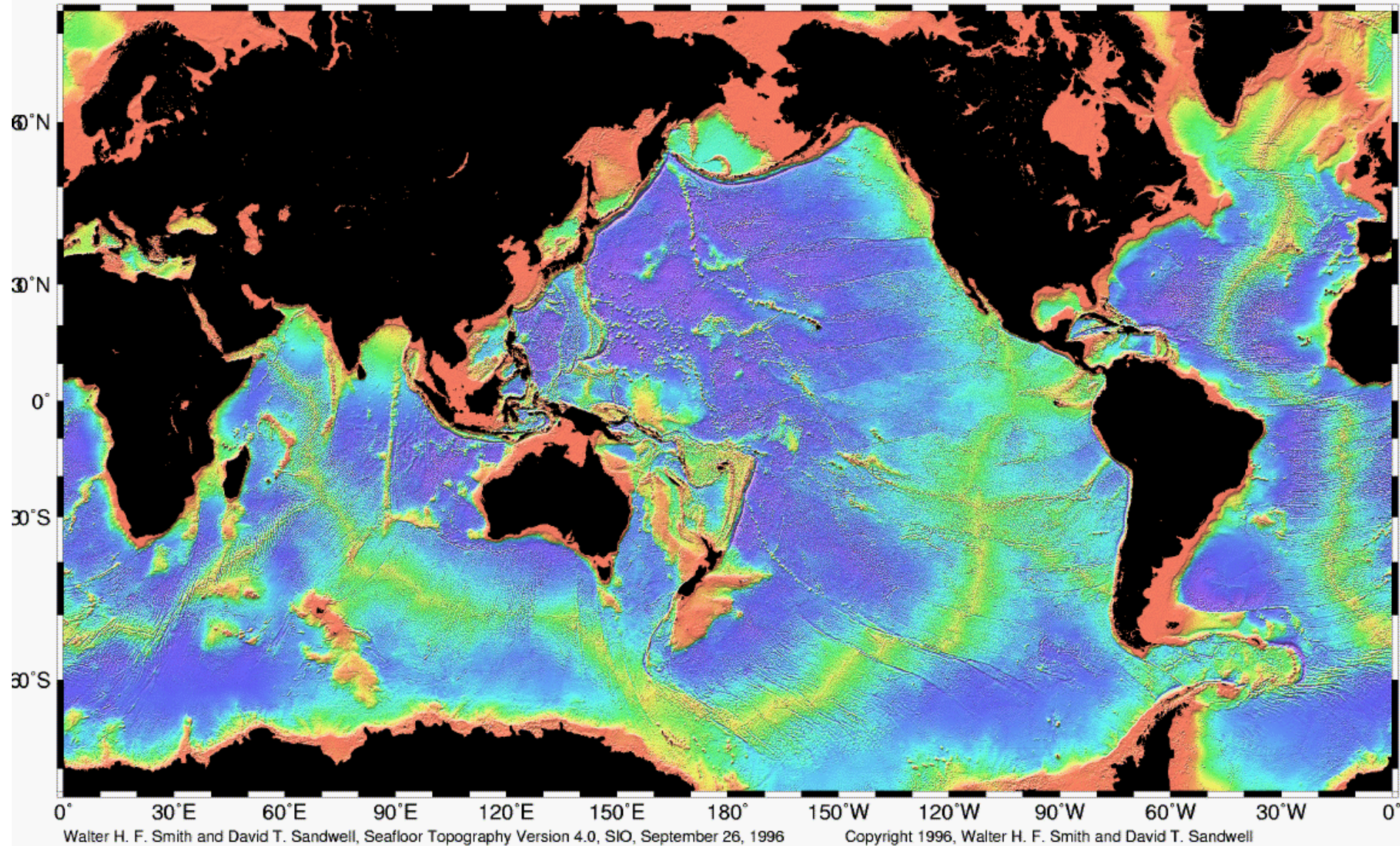
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Bathymetric profile (ocean depth) across the Atlantic Ocean (ocean depth profile is vertically exaggerated making the slopes look much greater than they actually are), deep ocean basin is *abyssal plain*, Figure 9.15, text.

Deep sea drilling ship for scientific research (Figure p. 294-295). Cores recovered from research ships provide information on composition and age of sediments and the oceanic crust .

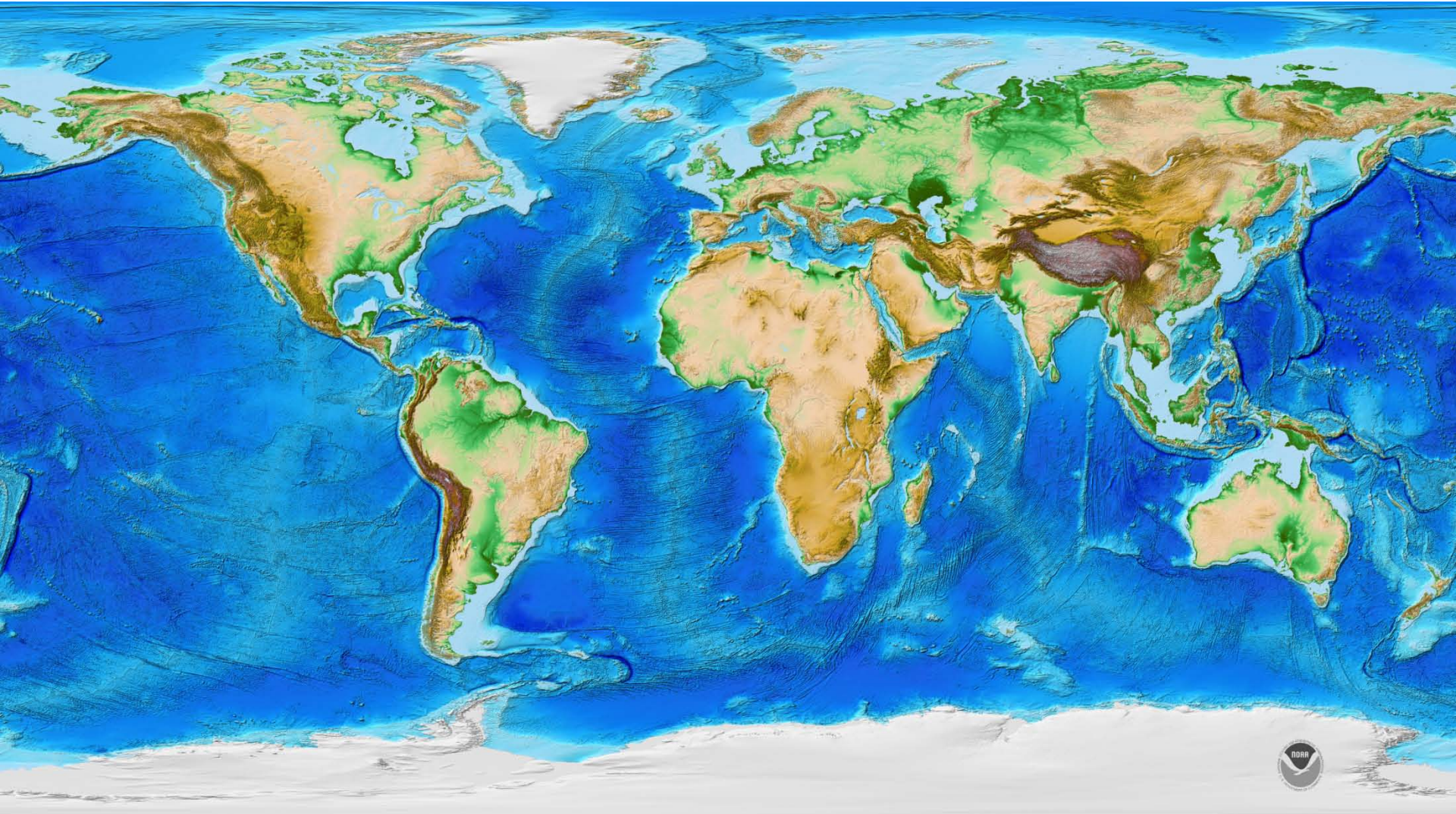


Online image of ocean bathymetry (topography of the ocean floor)

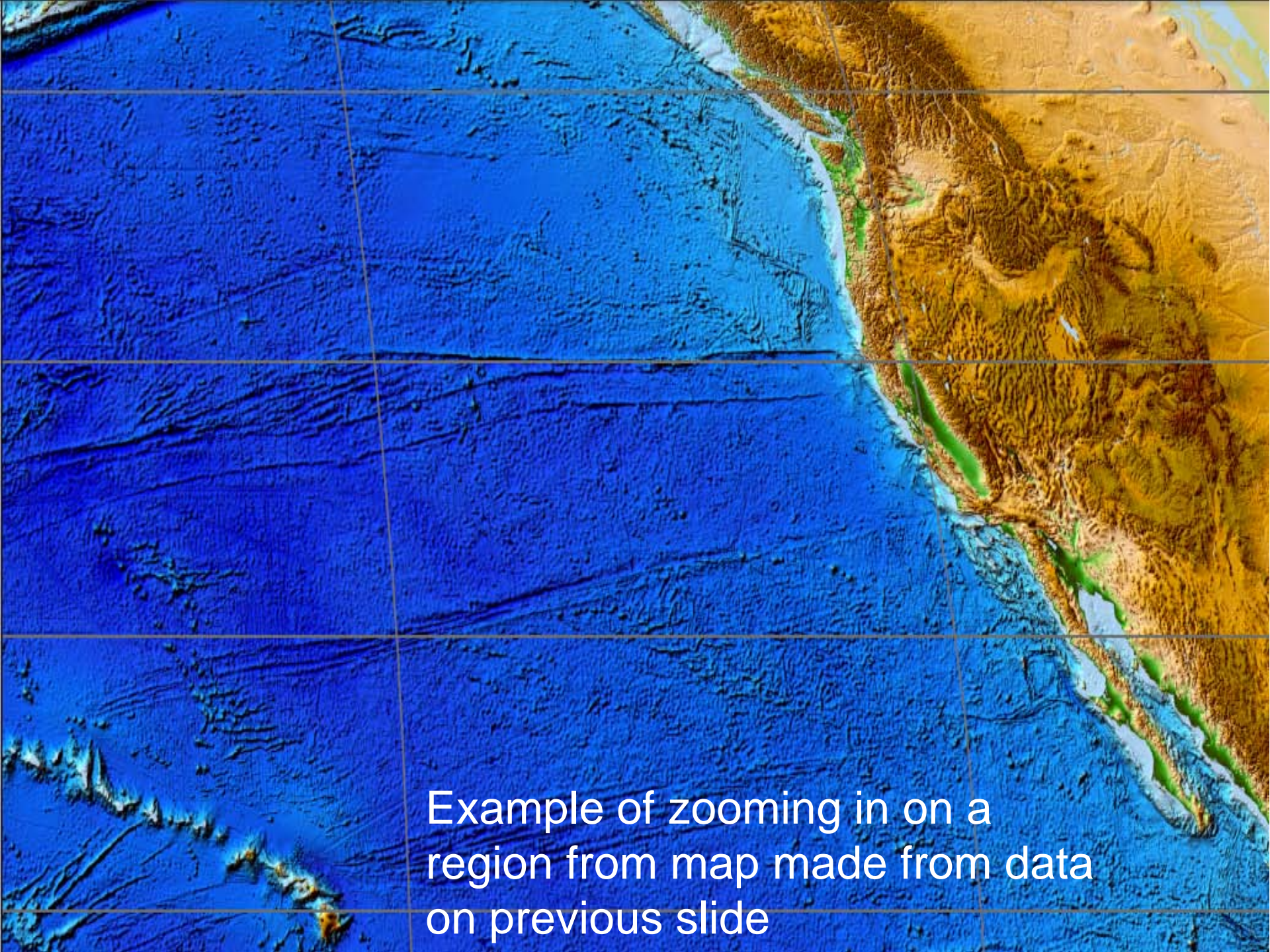


http://www.ngdc.noaa.gov/mgg/image/global_topo_large.gif

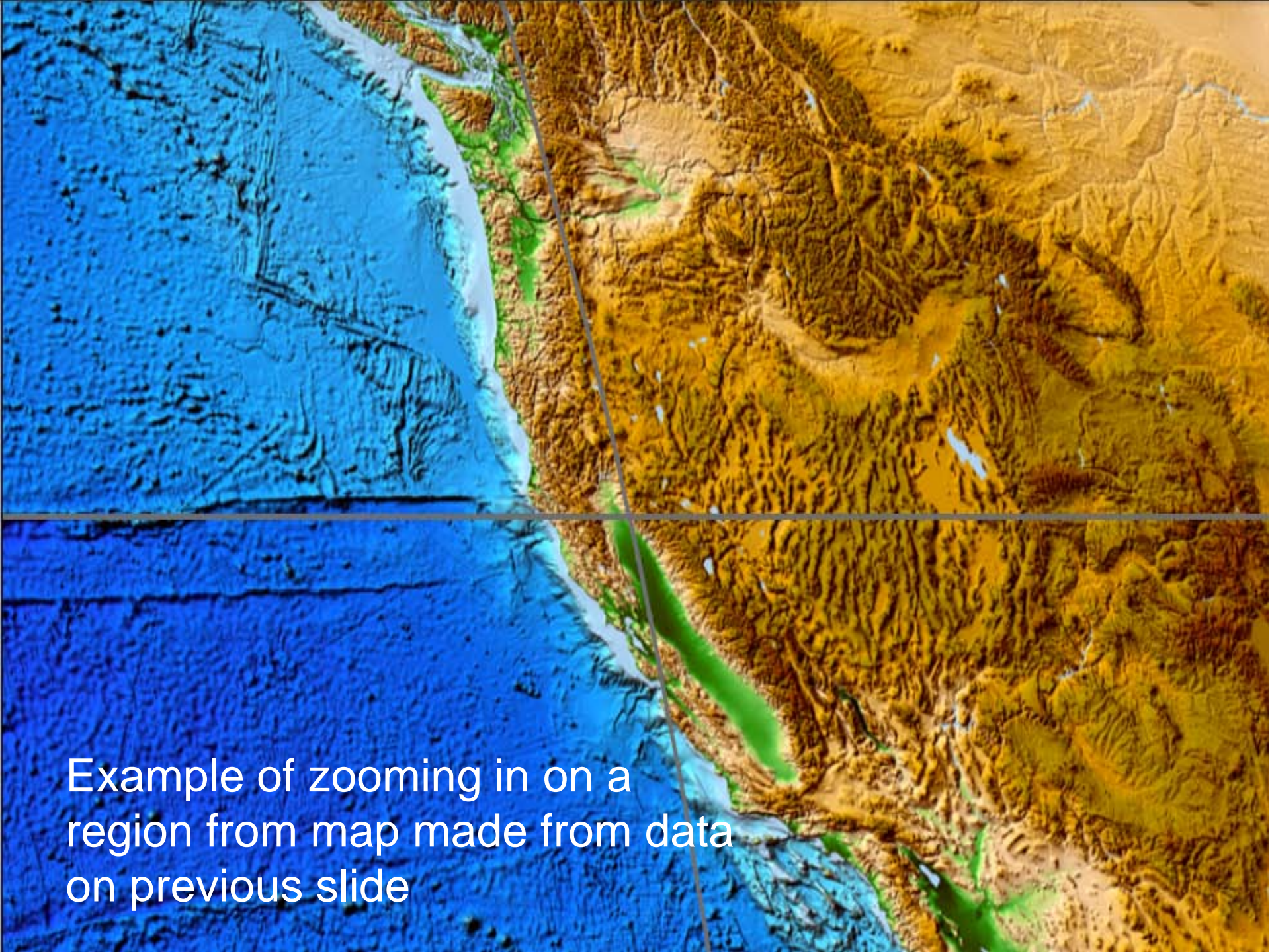
Online image of Earth topography (also see Figure 9.14, text)



One arc-minute (one 60th of a degree) topographic grid – you can zoom in (and find other files and views) using the link:
<http://www.ngdc.noaa.gov/mgg/global/global.html>

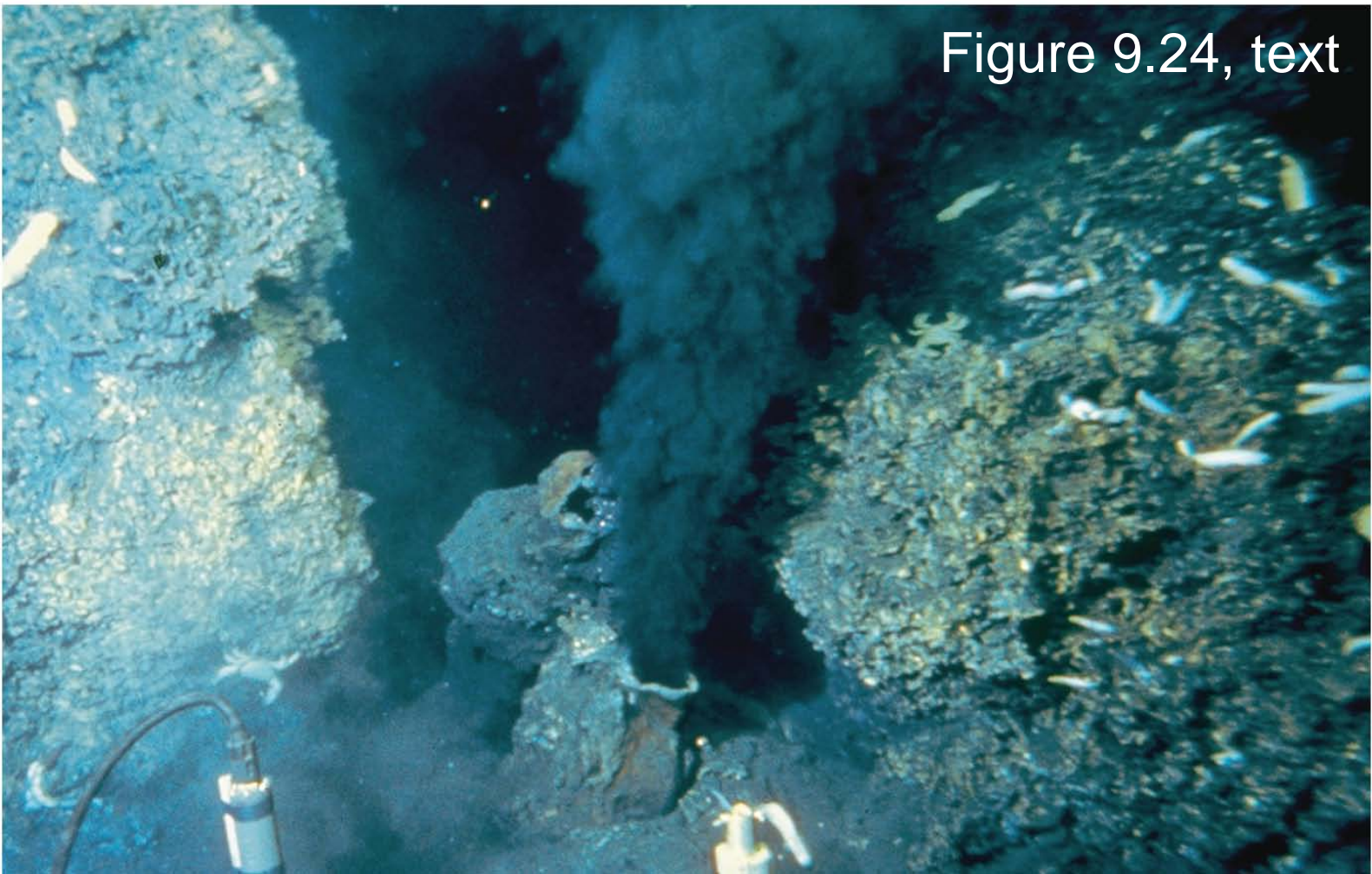


Example of zooming in on a region from map made from data on previous slide



Example of zooming in on a region from map made from data on previous slide

Figure 9.24, text



Black smokers are hydrothermal vents along the mid-ocean ridges where hot waters (up to 300 degrees C) with dissolved minerals flow from vents. The minerals precipitate upon cooling at the vent creating the black “smoke.” A fascinating array of marine life (crabs, eels, lobsters, tube worms) thrives in this environment that is normally toxic to life. Minerals, such as manganese nodules, form on the ocean bottom.

Black smokers
(http://en.wikipedia.org/wiki/Black_smoker#Black_smokers_and_white_smokers)

Please watch the YouTube video on underwater volcanoes and vents. It is 2 minutes and 35 seconds long and includes audio:

<http://www.youtube.com/watch?v=ao20W5dgSy0>

