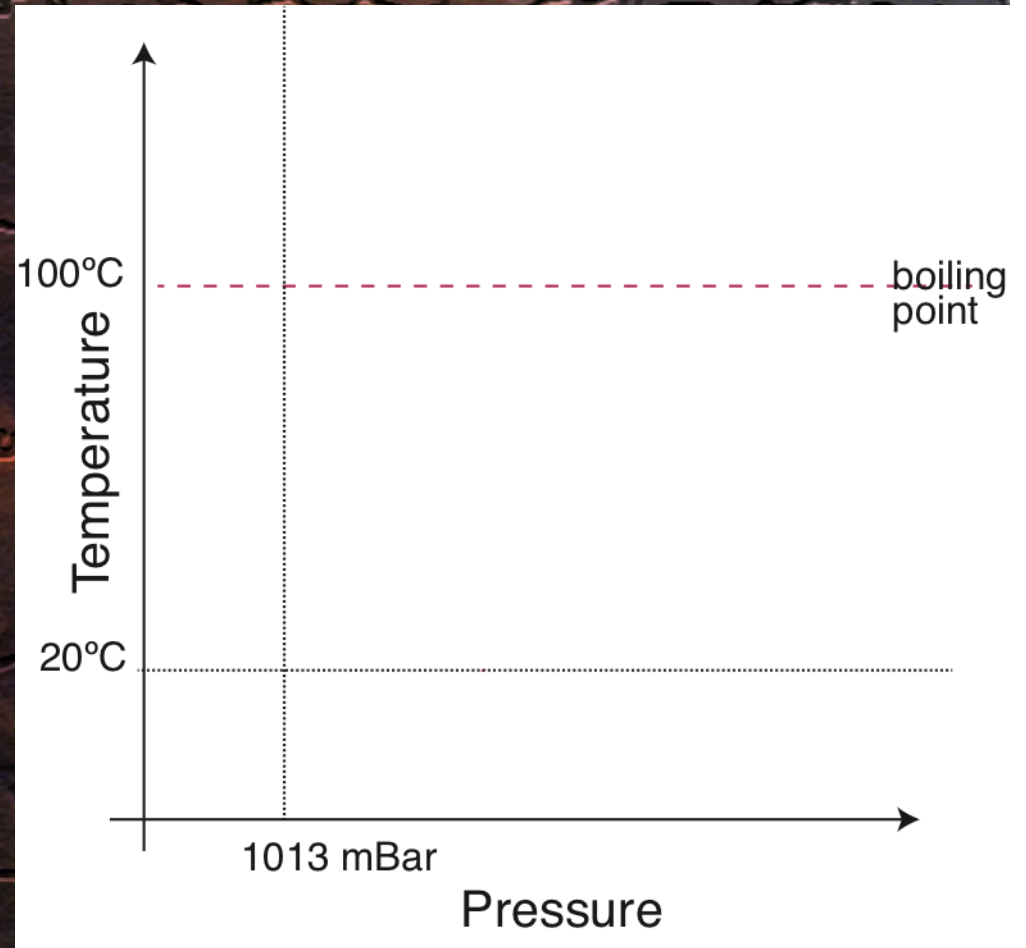


# Melting Curves – Phase Changes – Boiling Point



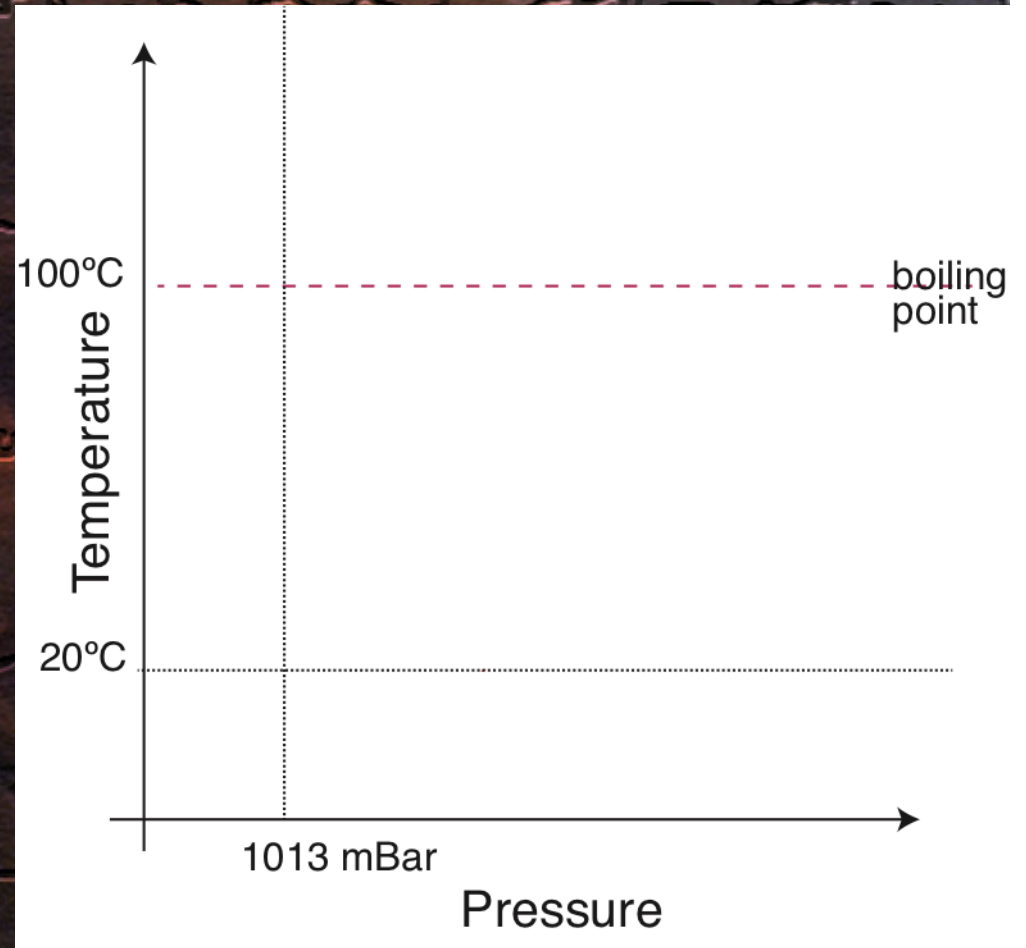
Image: U.S. Geological Survey

# Melting Curves – Phase Changes – Boiling Point



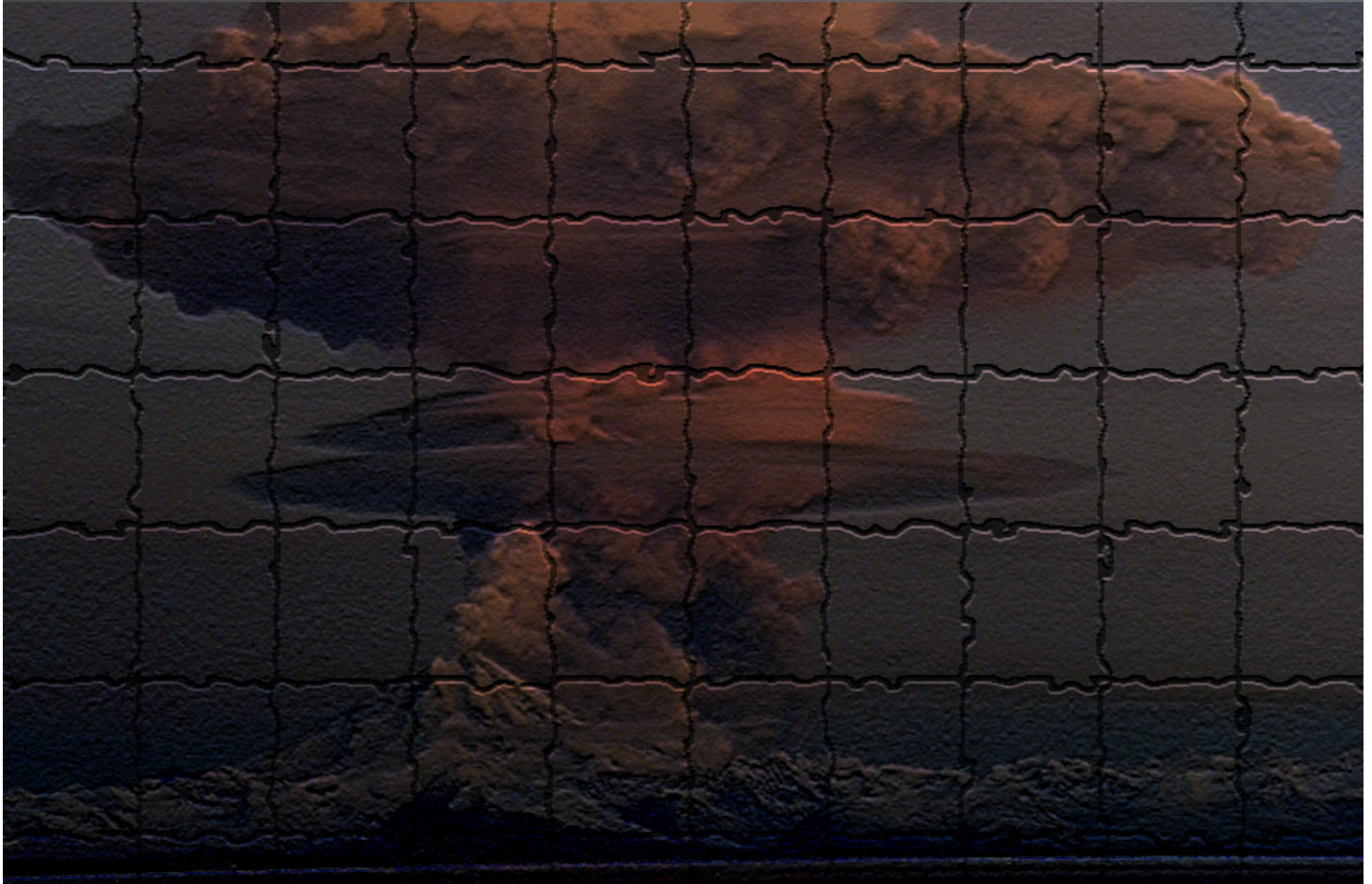


# Melting Curves – Phase Changes – Boiling Point



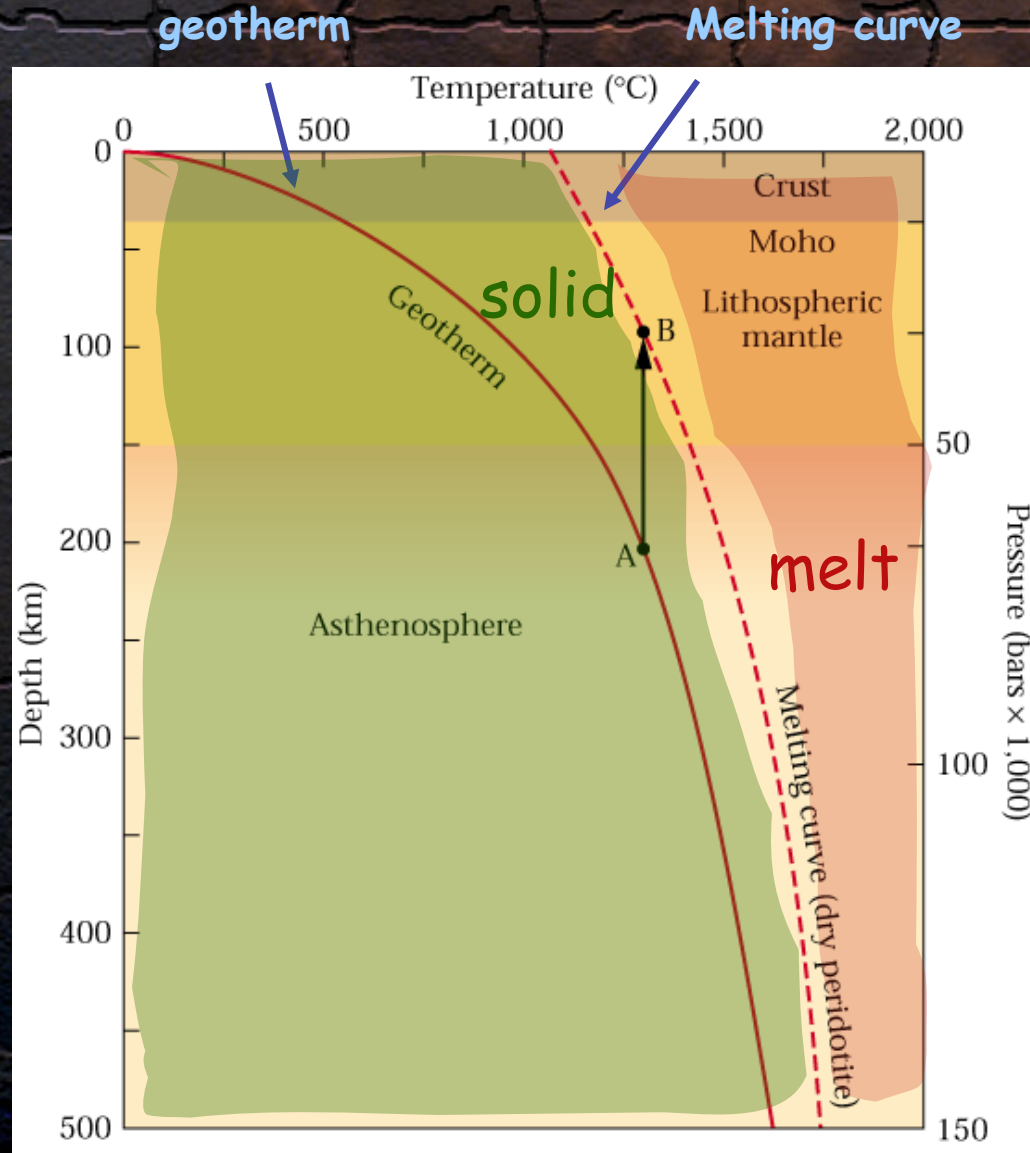


# Melting Curves – Phase Changes – Boiling Point





# Rock Melting Curve - The Geotherm



P-T curve of Earth

T: Temperature  
P: Pressure

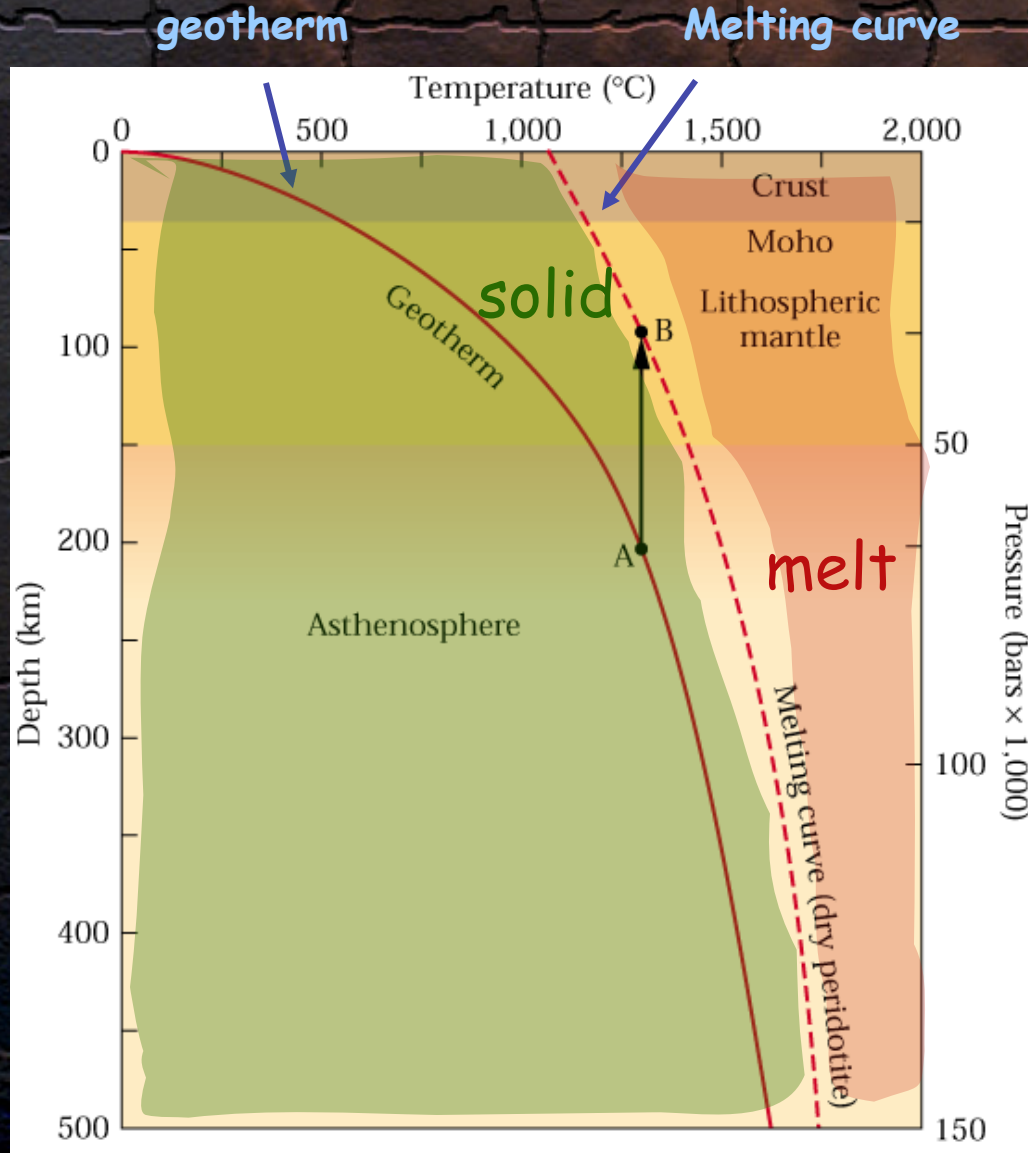
Melting Curve

P-T conditions when  
mantle rock melts  
to left: rock solid  
to right: rock molten

Image: S. Marshak "Earth, Portrait of a Planet"

SG15: Topic 9 - volcanoes and Plate boundaries

# Decompression Melting



ascending rock melts  
upon crossing the melting curve

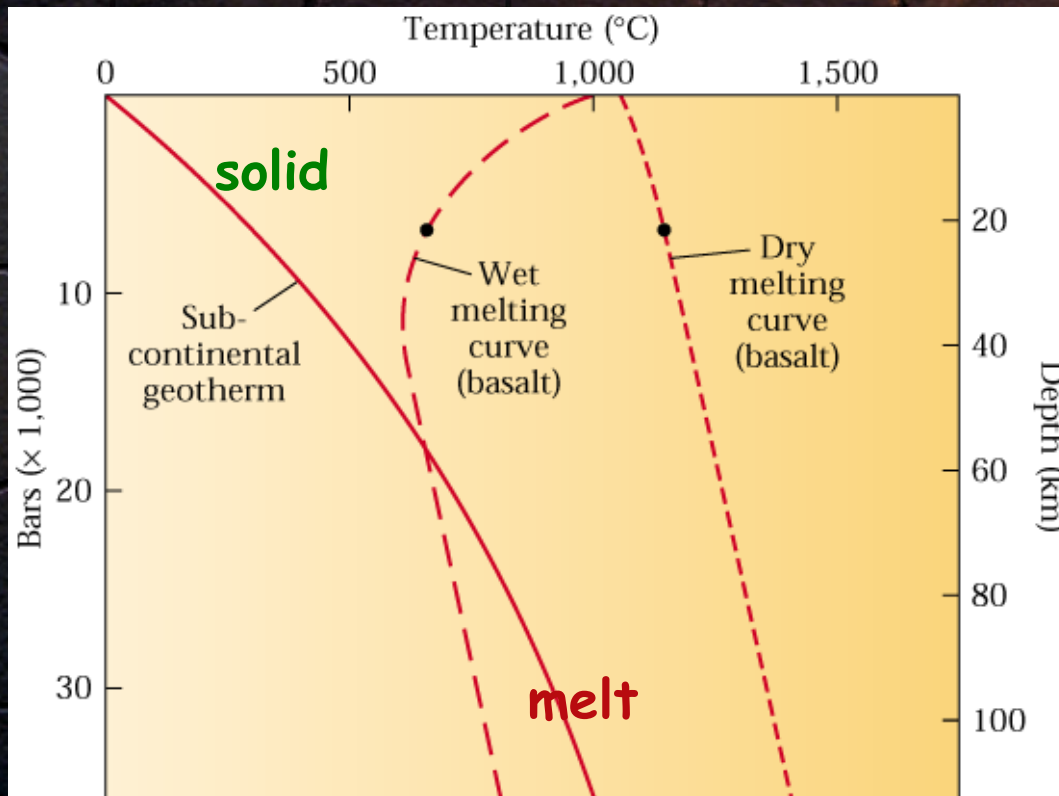
- mid-ocean ridges
- continental rifts
- hotspots

Image: S. Marshak "Earth, Portrait of a Planet"

SIG 15: Topic 9 - volcanoes and Plate Boundaries



# Injection of Volatiles



volatiles lower the melting temperature

- subduction zones

Image: S. Marshak "Earth, Portrait of a Planet"

# The Two Principal Melting Mechanisms

- Decompression (mid-ocean ridges)
- Addition of Volatiles (subduction zones)

