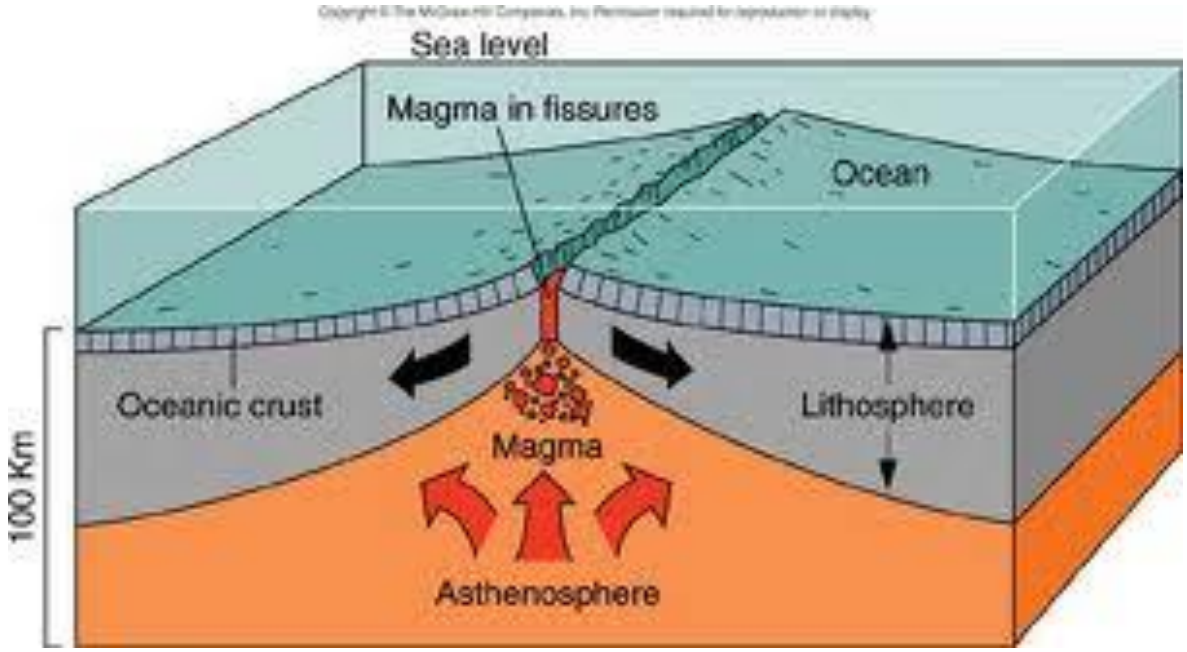


Summary of a Divergent margin (Mid-ocean ridge)

- **Origin of magma**: Partial melting of ultramafic peridotite in the Asthenosphere.
- **Magma composition**: Mafic (Basaltic lavas)
- **Magma properties**: Low viscosity, effusive, high melting temperature (1000ºC to 1200ºC) (45% - 52% Silica)
- **Processes that occur to magma:** - As the material is uplifted by rising currents the pressure reduces.
  as the crust above is stretched and thinned the pressure is also reduced (rock melts at a lower temperature).
  -The temperature increases due to the hot rising convection currents.

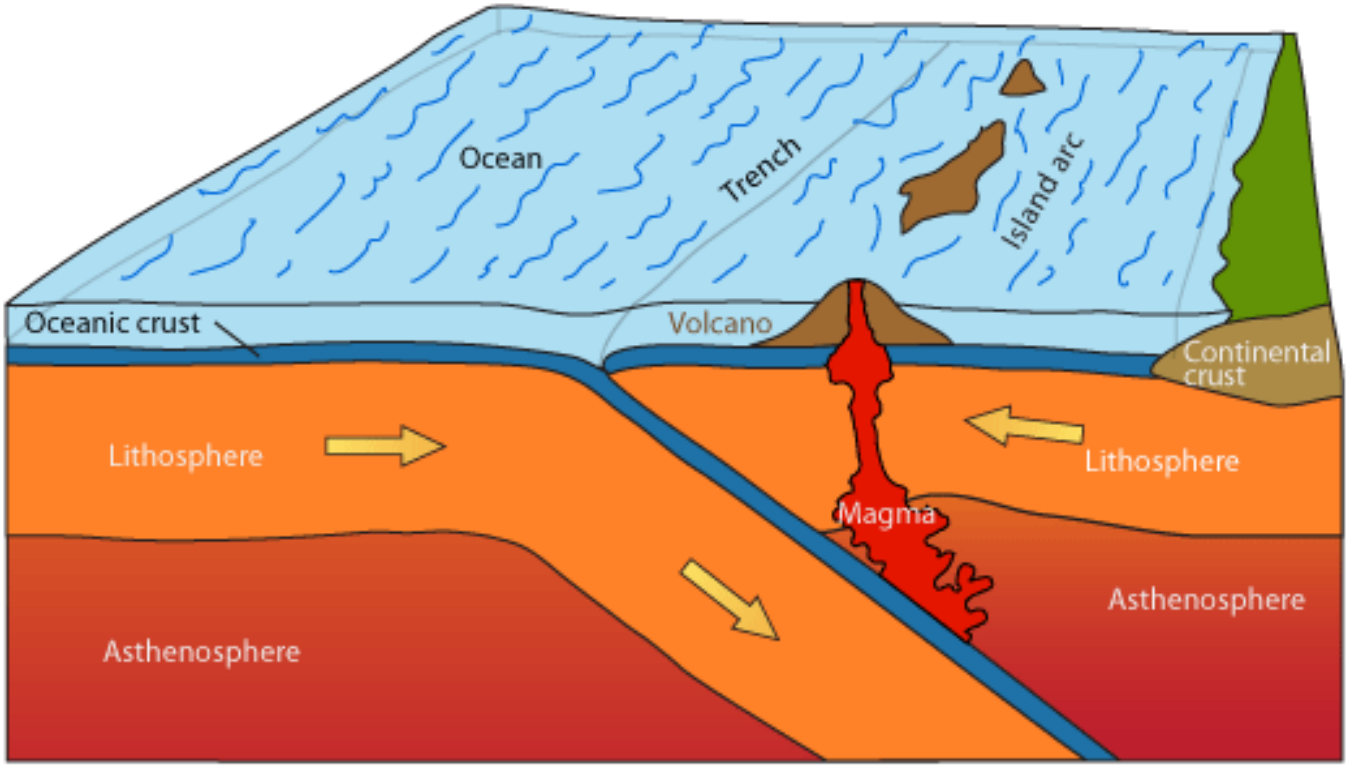
- **Extrusive volcanic activity**: - Frequent eruptions submarine, fissure or shield.
  - Mainly non-viscous basaltic lava, few pyro clasts.
  -Effusive non-violent eruptions

- **Intrusive activity**: - Dolerite dykes and sills below volcanoes

Summary of a Convergent margin (Oceanic-Oceanic margin)

- **Origin of magma**: Partial melting of the oldest/densest and coldest mafic oceanic sub ducting plate.
- **Magma composition**: Mafic to intermediate
- **Magma properties**: Fairly viscous, melting temperature (800ºC to 1000ºC) (45% - 66% Silica)
- **Processes that occur to magma:** - Temperature gradient increases with depth to melt densest oceanic plate.
  -As mafic magma rises through overlying mantle it becomes more saturated in silica and turns to mafic/intermediate magma.
- **Extrusive volcanic activity**: - Regular but infrequent eruptions, lots of basalt lava with some pyroclastics and Andesite. Lavas mainly andesites.
  -Eruptions are fairly violent (basic to intermediate magma fairly viscous)
  -Less silicic intermediate magmas are not as viscous so reach the surface. The cool ocean rapidly solidifies them to form an island arc.
  -

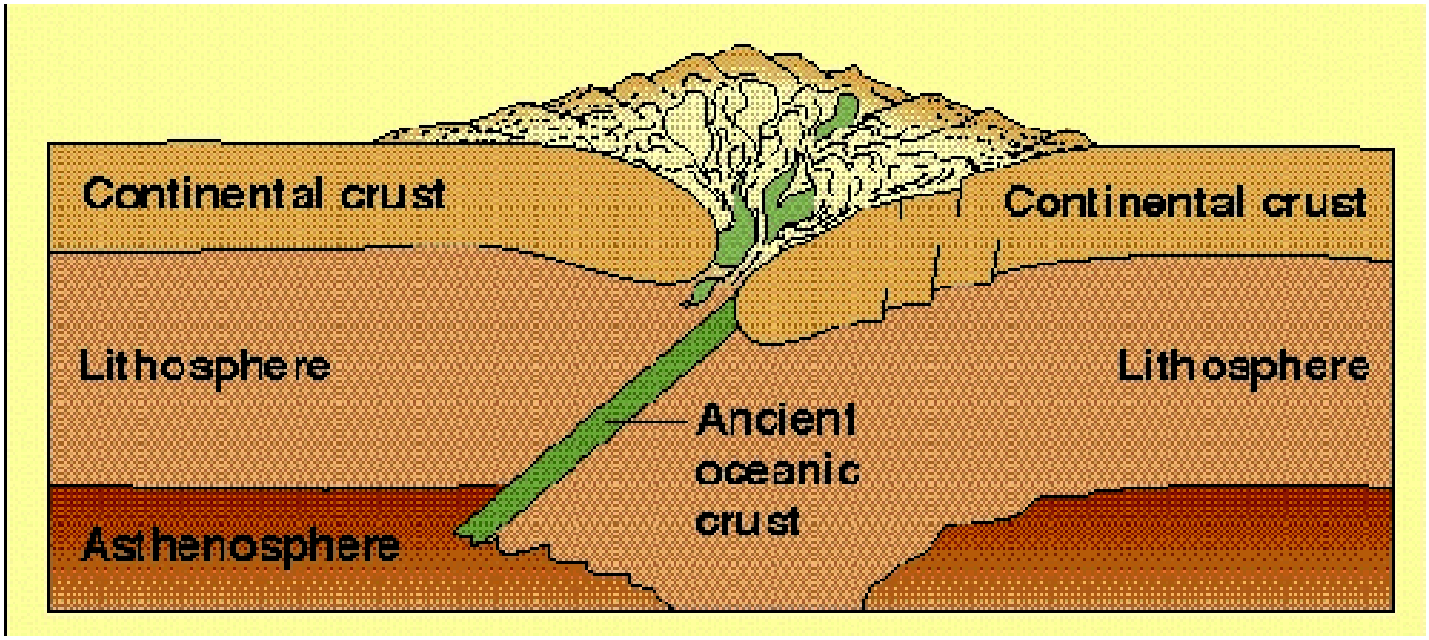
Intrusive activity: - Dolerite dykes and sills below volcanoes -
-Deep plutonic intrusions of diorite.



Summary of a Convergent margin (Continental-Continental margin)

- **Origin of magma**: Partial melting of the base of a continental crust forms silicic magma.
- **Magma composition**: Acidic/Silicic
- **Magma properties**: Very viscous, melting temperature (650ºC to 800ºC) (66% - 75% Silica)
- **Processes that occur to magma:** - High pressure/weights of sediments of ancient ocean crust force form fold mountains that force down base of continental crust.
  - Crust is so thick, it is below 750C geothermal gradient so it is only just hot enough to melt.
- **Extrusive volcanic activity**: - None

- **Intrusive activity**: - More silica magma is viscous and rises to form granite intrusions – batholiths
  - Hypabyssal of medium grained acidic and basic rocks (microgranite and granite)



Summary of a Convergent margin (Oceanic-Continental margin)

- **Origin of magma**: Partial melting of mafic oceanic sub ducting plate. Partial mixing of mafic magma and acidic continental material to form intermediate magmas.
- **Magma composition**: Intermediate and silicic
- **Magma properties**: Fairly viscous, melting temperature (800ºC to 1000ºC) (<52% - 66% Silica)
- **Processes that occur to magma:** - Temperature gradient increases with depth to melt oceanic plate.
  -Hot mafic magma melts and combines with silica material to form intermediate or acidic magma.
  -More silica magma is viscous and rises to form plutonic zoned intrusions.
- **Extrusive volcanic activity**: - Irregular and infrequent eruptions, strata volcanoes and domes.
  -Little lava, mainly andesite and rhyolite, magma is viscous and very pyroclastic so violent.
- **Intrusive activity**: - Dolerite dykes and sills below volcanoes
  -More silica magma is viscous and rises to form plutonic zoned intrusions. Basic at the margin and acid and intermediate in the core. (Granite, diorite, gabbro)

  - Hypabyssal of medium grained acidic and basic rocks (microgranite and dolerite) batholiths