Evidence of Plate Motion

**Hot Spots**

Some Volcanoes are found in the middle of plates (not at convergent or divergent boundaries). It is theorized these volcanoes are caused by mantle plumes which start at the core as “super plumes”:

**Diagram**

These plumes are thought to be created by excess radioactivity that cause immense heat convection at a particular location.

As the plates of the lithosphere travel on top of the hot spot, it creates a string of volcanoes, ex. Hawaii.

Diagram

Isostatic Adjustment/Rebound

When more mass is added to the lithosphere is drops, as mass is removed from the lithosphere it rises on the asthenosphere. This adjustment is slow as the asthenosphere is viscous and thick, but proves the existence of the asthenophere

Eg.

As new volcano deposits new magma, the plate sinks

As land based ice melts and drains to the ocean, the continental plate rises, the ocean plate sinks

**Diagram:**

Terranes:

As continental plates collide with oceanic plates, the continental plate adds land masses called **terranes** in a process called **accretion**

Banff Alberta used to be on the West coast of North America. But as the North American Plate moved West towards the Pacific it added land masses. Most recently BC added a terrane called Wrangell which contains Vancouver Island.

**Diagram:**