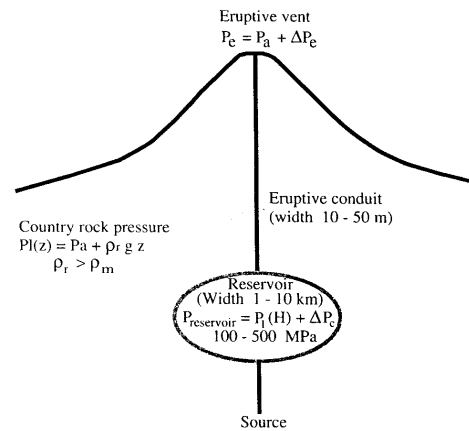


Volcanic Plumbing

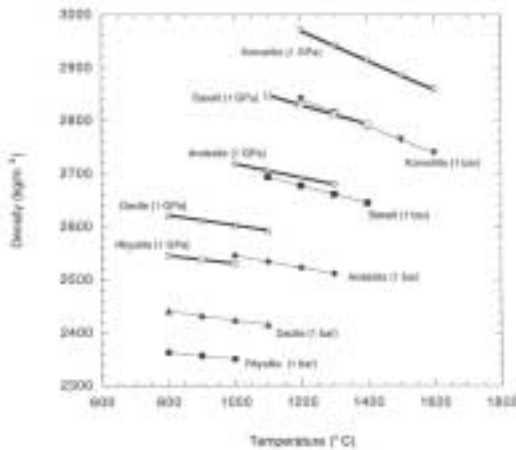
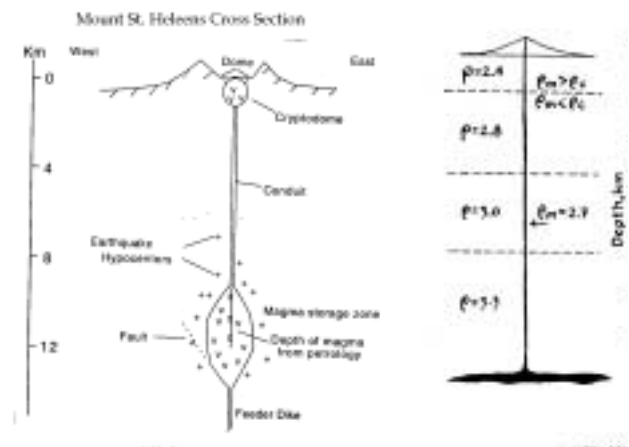
References:

Encyclopedia of Volcanology: pp. 219-248



Parts of the System

- Magma chamber
- Conduit
- Vent



What Drives Explosive Eruptions?

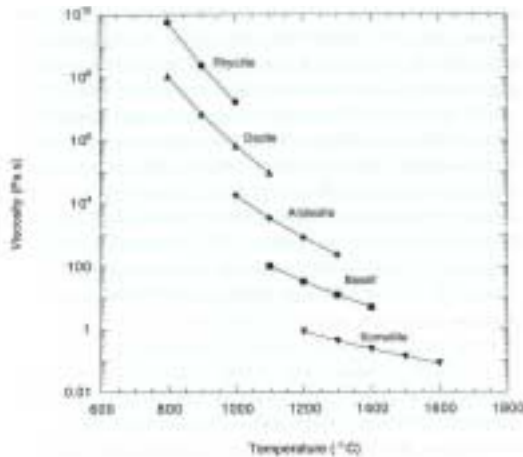
- Formation of bubbles
- Volatile content
- Melt viscosity
- Pressure gradient/change
- Temperature gradient/change
- Degree of crystallization

How do Controlling Factors Change?

- Evidence from variation in eruption style with time
- Data from erupted products
- How do we use the data to formulate a hypothesis on the eruptive mechanism?

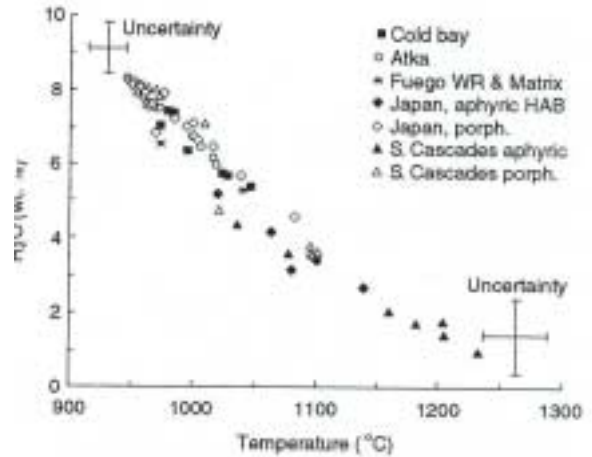
Magma Constituents

- Crystals
- Volatile phase
- Liquid phase



Magma Reservoir

- Compositional gradients
- Volatile content
- Introduction of fresh magma



Magma Chambers

- Depth
- Size
- Shape
- Composition
- Physical conditions

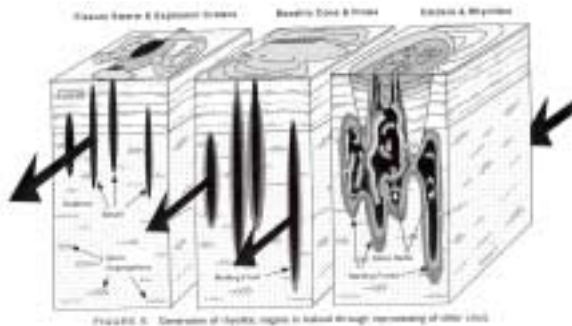


FIGURE 12. Generation of silicic magmas in island through reprocessing of other rocks.

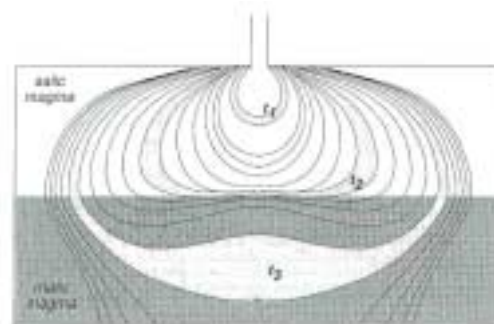
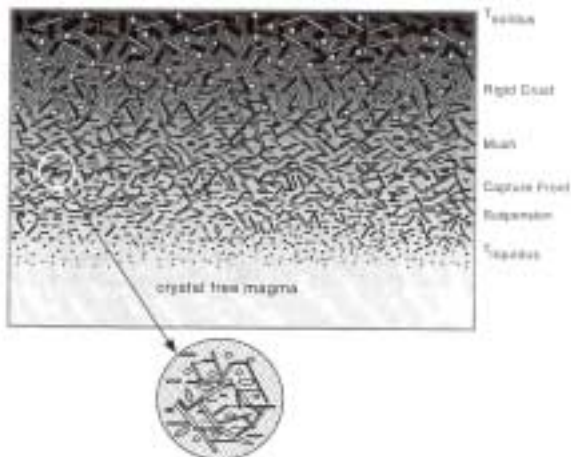
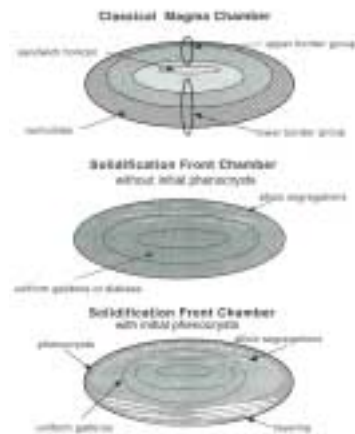


FIGURE 13 Extraction isochrons from a magma chamber

Large Silicic Complexes

- Large calderas only in continental crust
- Basaltic under plating
- Silicic magmas rise towards the surface
- Mixed magmas are evidence
- Marginal basaltic eruptions
- Zoned magma chambers
- Sequential tapping

