

# VOLCANIC SCALE

<u>SCALE</u>	<u>EXPLOSIVITY</u> VEI	<u>EXAMPLES</u>	<u>FREQUENCY</u>	<u>MAGMA TYPE</u>	<u>PLATE SETTING</u>
LOCAL	Tephra 0-1 or less 0.1 km <sup>3</sup>	MAUNA LOA	every year or two	BASALTIC NON VISCOUS LOW IN SILICA	Constructive plate boundary and hot spots oceanic 50% silica
REGIONAL	5 1 km <sup>3</sup>	MT ST HELENS	50-100 yrs	INCREASING SILICA ↓ DECREASING TEMPERATURE	Destructive plate boundary subduction, CONTINENTAL HOT SPOT 65% silica
GLOBAL	6 10 km <sup>3</sup>	MT PINATUBO	500 yrs		
	7 100 km <sup>3</sup>	MT TAM BORA 1815	5000 yrs		
	8 1000 km <sup>3</sup>	YELLOWSTONE (SUPERVOLCANO)	700,000 yr		

## GLOBAL IMPACTS

YELLOWSTONE - up to -10°C temp fall for up to 10 yrs

TAM BORA - 1816, year without a summer, up to -30°C fall - famine, disease

PINATUBO - -1°C fall in temperature 1-2 yrs.

ST HELENS - None global (local + regional impact)

MAUNA LOA - NONE

### REASONS

- Ash in upper atmosphere circulating globe
- SO<sub>2</sub> aerosols and sulphuric acid in atmosphere
- Both block incoming solar radiation