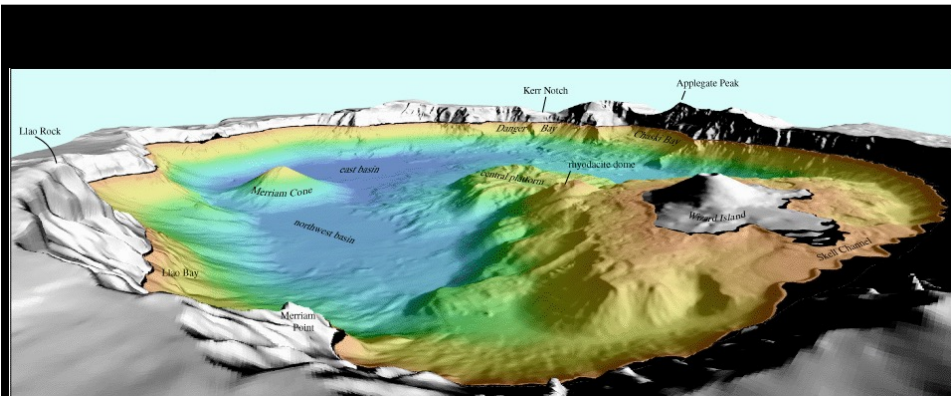


1



2



- oblique view into Crater Lake from side-scan sonar mapping
- note emergent volcanic cone & submergent cone
 - technically a “**caldera**” lake formed by a catastrophic eruption 7700 years ago

3



Mount Mazama stratovolcano began growing
~420,000 years ago during Ice Age glaciation

4



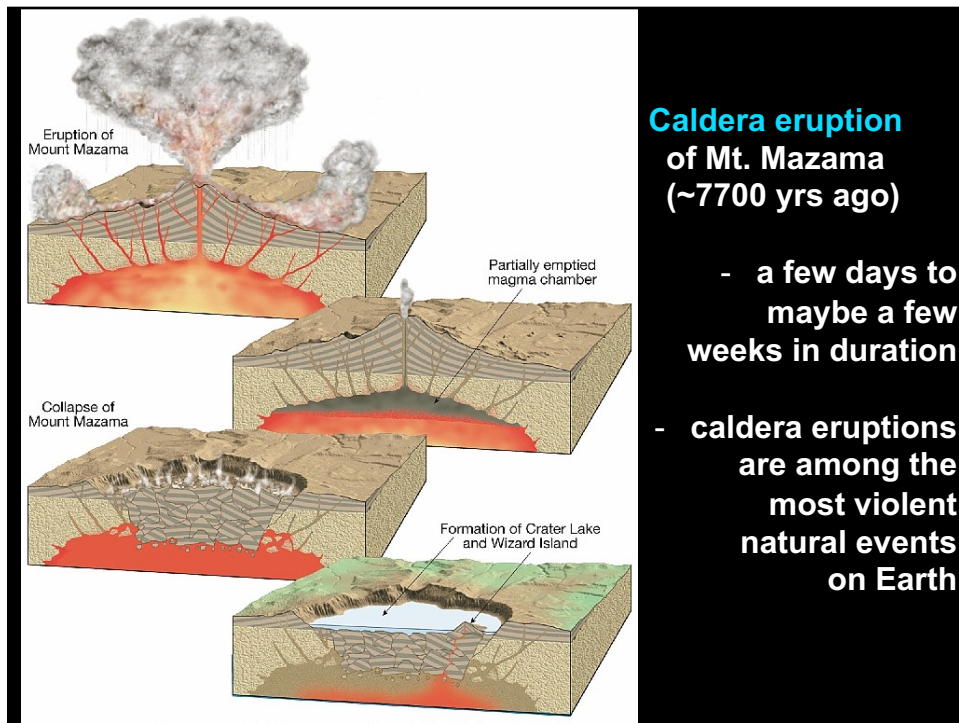
The walls of Crater Lake reveal the interior of Mazama and permit geologists to piece together its growth and evolution prior to the eruption of 7700 years ago.

5

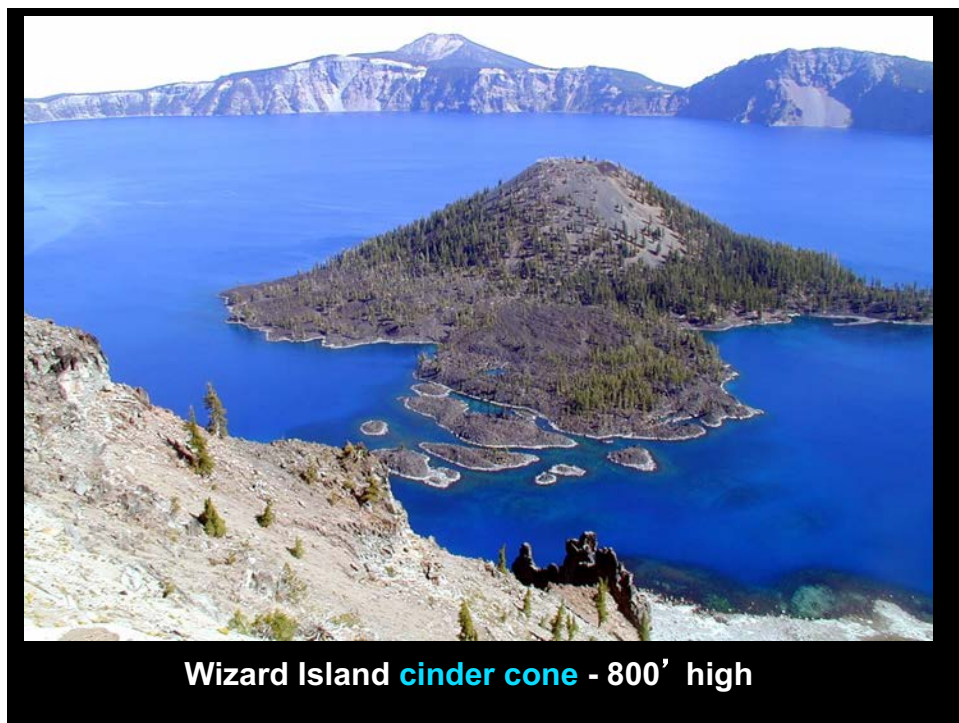


Crater Lake is the remnant of a cataclysmic eruption of Mount Mazama 7700 years ago (~5700 BCE)

6



7

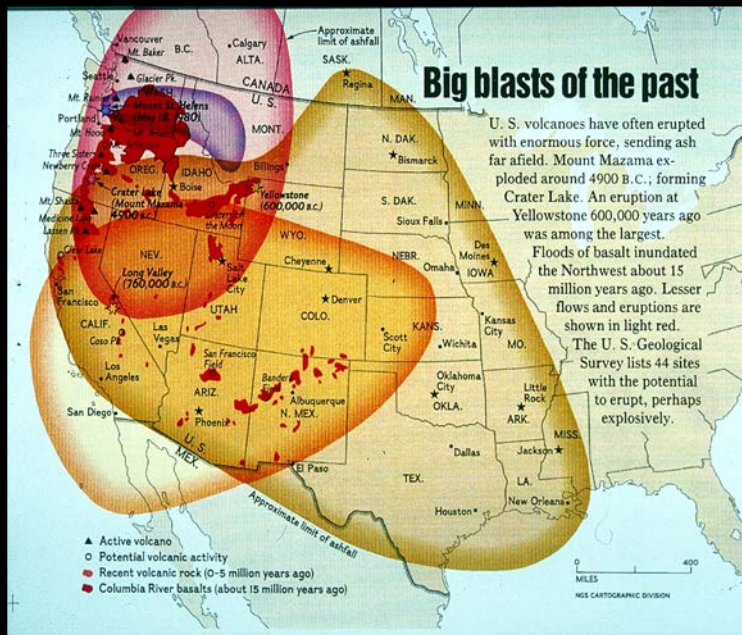


8

pyroclastic fall deposit

~12 mi³ of
pyroclastic
material
erupted
(~0.5 mi³
from Mt. St.
Helens)

Ash several
hundred feet
thick near
park, thinning
to a few
inches at
distal edge



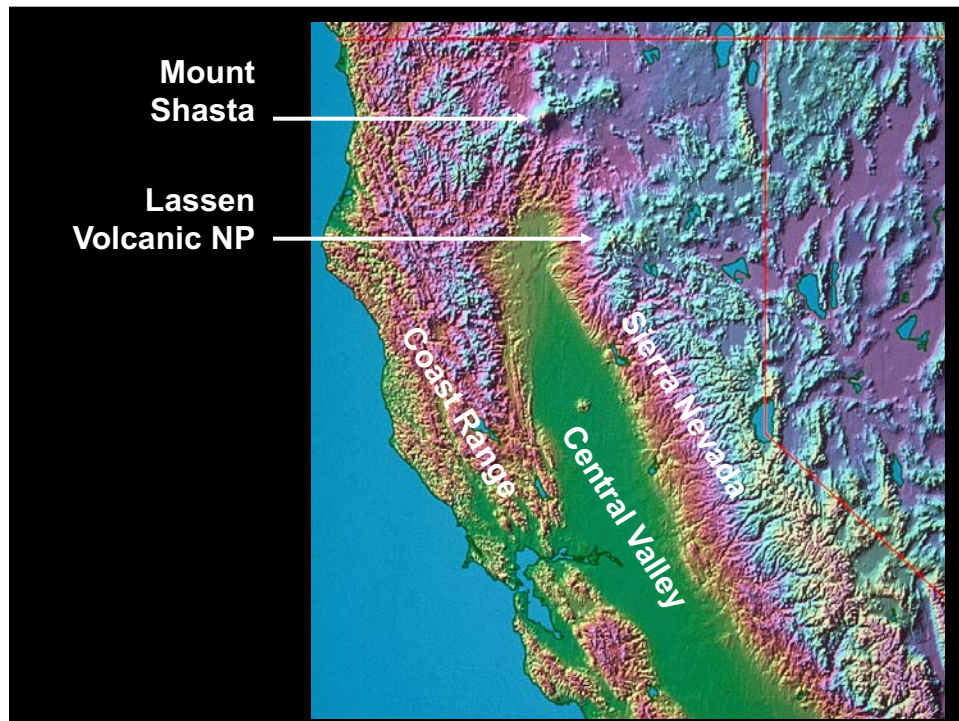
ice cores, temp decrease, neolithic cultures

9



Chances of an eruption today at Crater Lake?

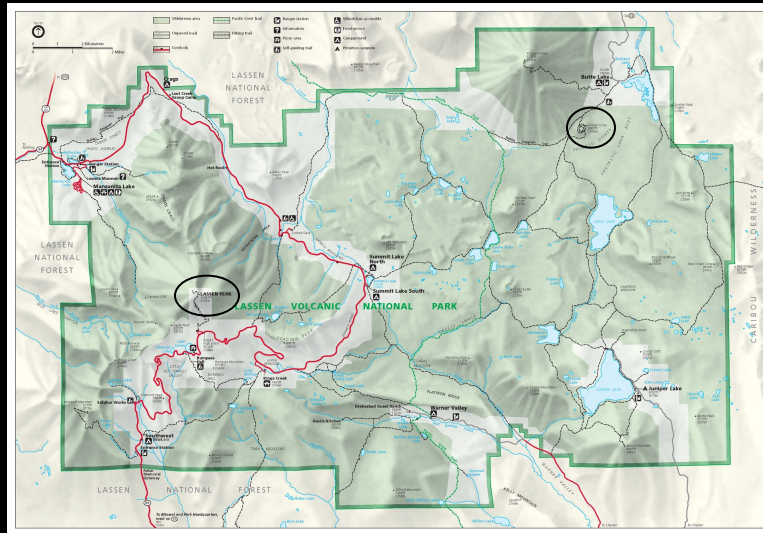
10



11



12



west side:

- Lassen Peak
- volcanic highlands
- main roadway

east side:

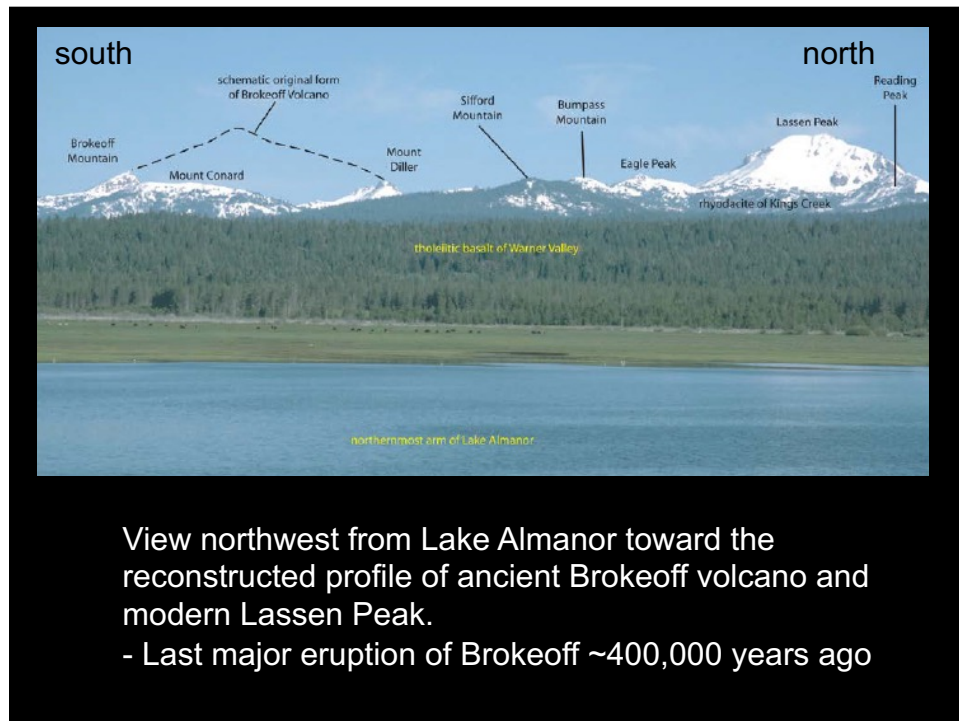
- volcanic hills & plateaus
- lakes
- Cinder Cone

13

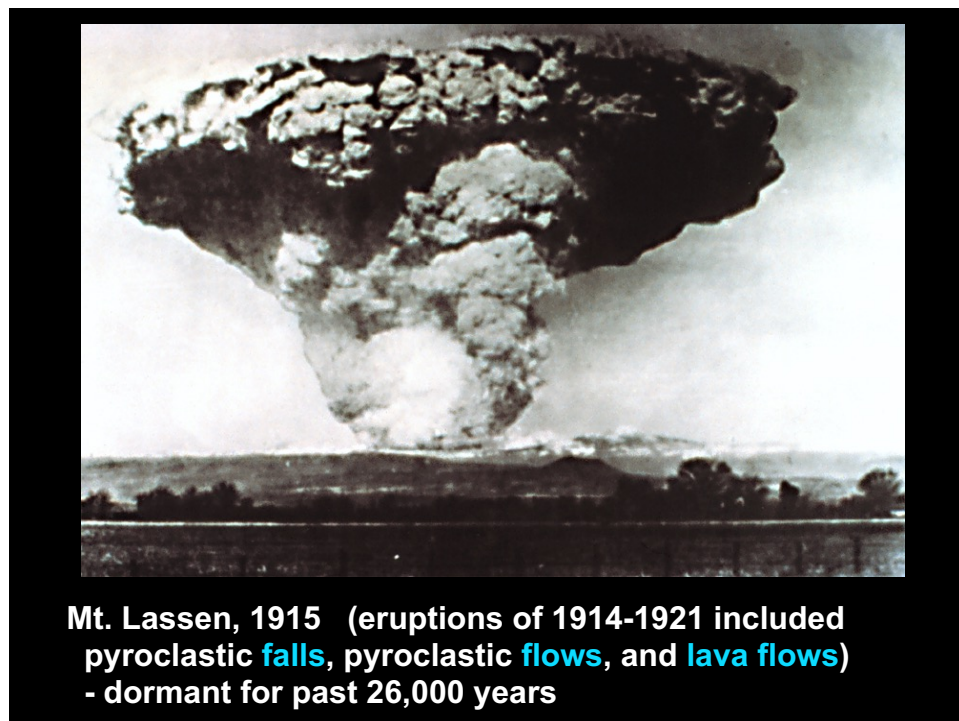


Outline of Brokeoff stratovolcano, a precursor to the Lassen Peak volcanic dome

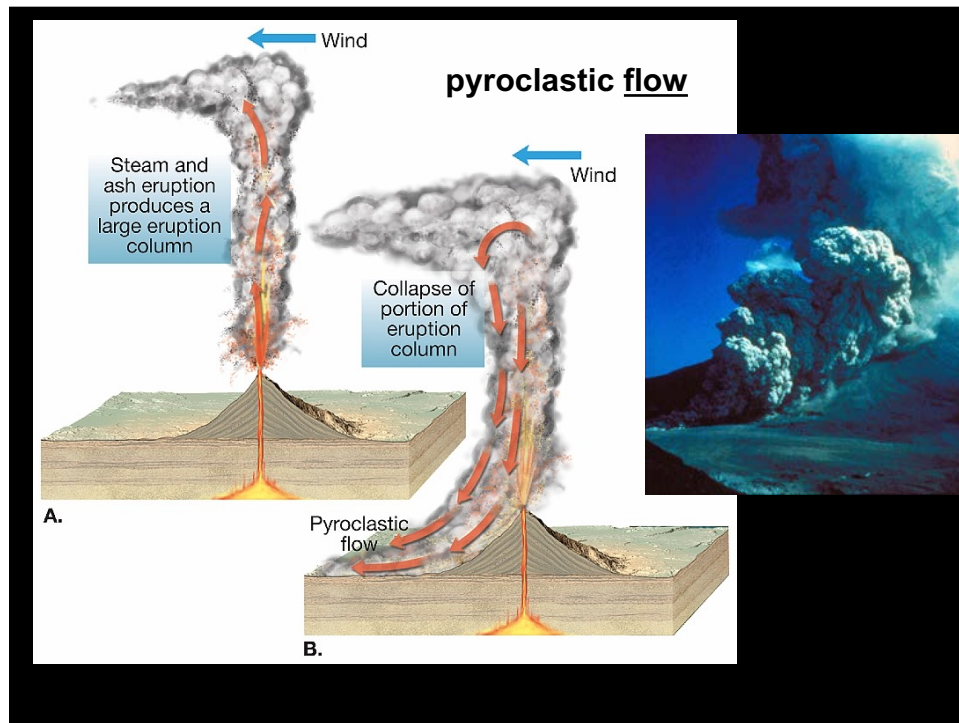
14



15



16



17



18



Mt. Pinatubo, Philippines, 1991, pyroclastic flow
- may travel for 10' s of km . . .

19



- no deaths, only local property damage
- 0.007 mi³ erupted in 1915 event
- youngest rocks in California

20



Cinder Cone, located in the northeast corner of the park

- **created in 1666** (likely over only a few months)

(date determined from radiocarbon dating of carbonized trees trapped in cinders)

21



**Strombolian eruptions
form cinder cones**



22



Lava flows emanate from the base of Cinder Cone, damming creeks to form lakes

23



Bumpass Hell **hydrothermal** area – hot springs & fumaroles

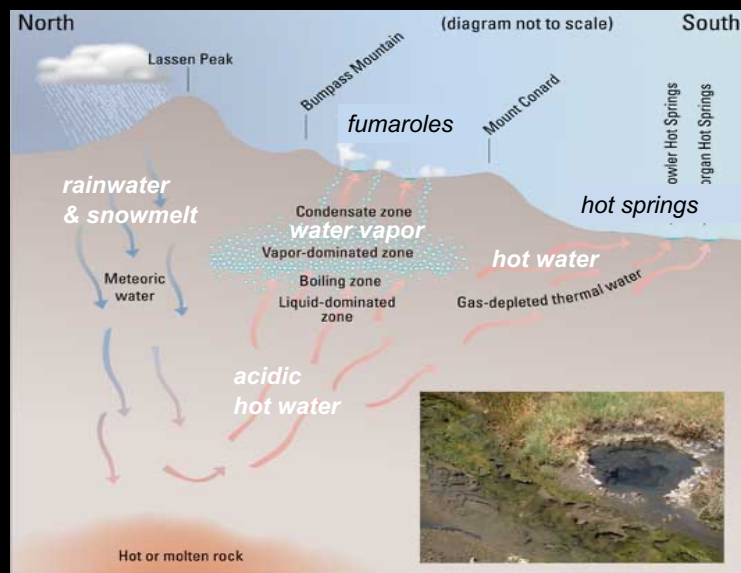
- light-colored clays formed by in-place alteration of volcanic rock by hot, acidic groundwater

24



Hot spring pools in foreground ($\sim 200^{\circ}\text{F}$),
Big Boiler fumarole (322°F) in background, Bumpass Hell.

25



Lassen hydrothermal system: snowmelt and rainwater percolate downward where they are heated by magmatic heat before buoyantly rising back to the surface

26



The trail to the top of Lassen Peak rises
~2000' over 2.5 mi of distance.










27

NorCal - Oregon Tour de Volcanoes

- Roads to take
- Places to visit and things to do
 - Lassen Volcanic NP
 - McArthur-Burney Falls SP
 - Mount Shasta
 - Lava Beds NM
 - Crater Lake NP
 - Newberry Craters

In Files > Hikes & Articles on
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Name ▲

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