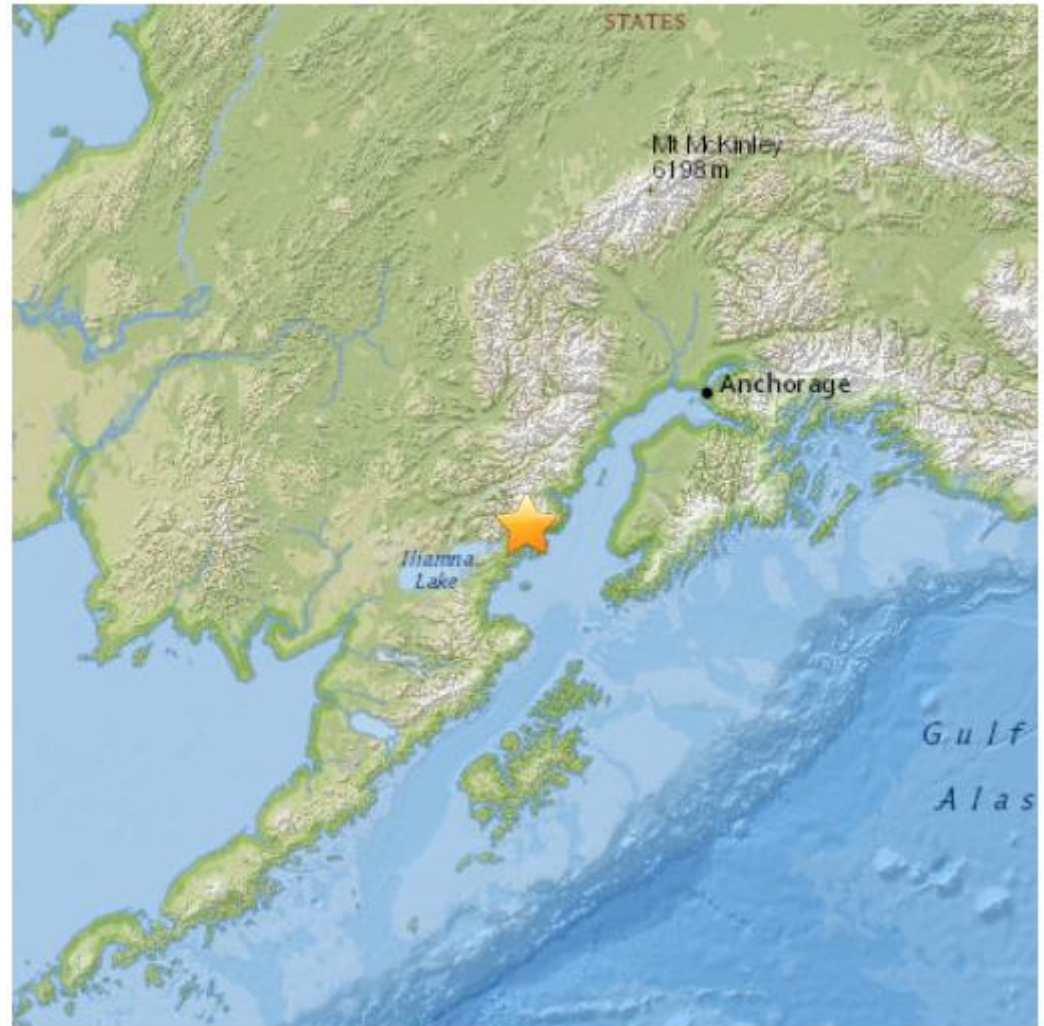


Magnitude 7.1 SOUTHERN ALASKA

Sunday, January 24, 2016 at 10:30:30 UTC

A magnitude-7.1 earthquake knocked items off shelves and walls in Alaska early Sunday. The earthquake was widely felt because it was close to Alaska's population centers. There were no reports of injuries, but four homes were lost to natural gas explosions or fire following the earthquake.

The earthquake struck at about 1:30 a.m. Alaska time and was centered 85 km (53 miles) west of Anchor Point in the Kenai Peninsula, which is about 261 km (162 miles) southwest of Anchorage. The earthquake occurred at a depth of 127.8 km (79.4 miles).



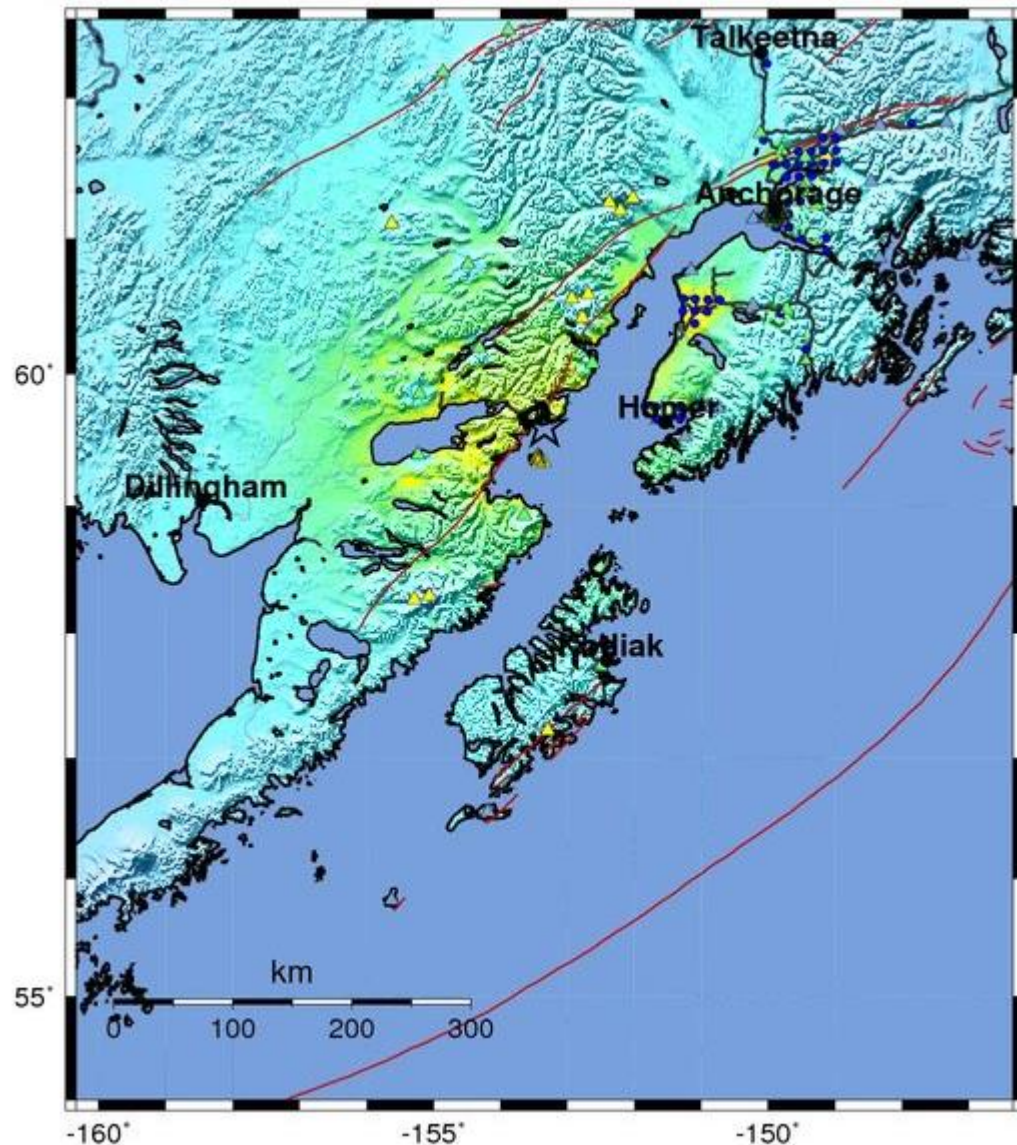
Magnitude 7.1 SOUTHERN ALASKA

Sunday, January 24, 2016 at 10:30:30 UTC

The Modified Mercalli Intensity (MMI) scale depicts shaking severity. Moderate to strong shaking was felt within 150 km of this earthquake.

Ground shaking would have been more severe if the earthquake had occurred at shallower depth.

Modified Mercalli Intensity	Perceived Shaking
X	Extreme
IX	Violent
VIII	Severe
VII	Very Strong
VI	Strong
V	Moderate
IV	Light
II-III	Weak
I	Not Felt

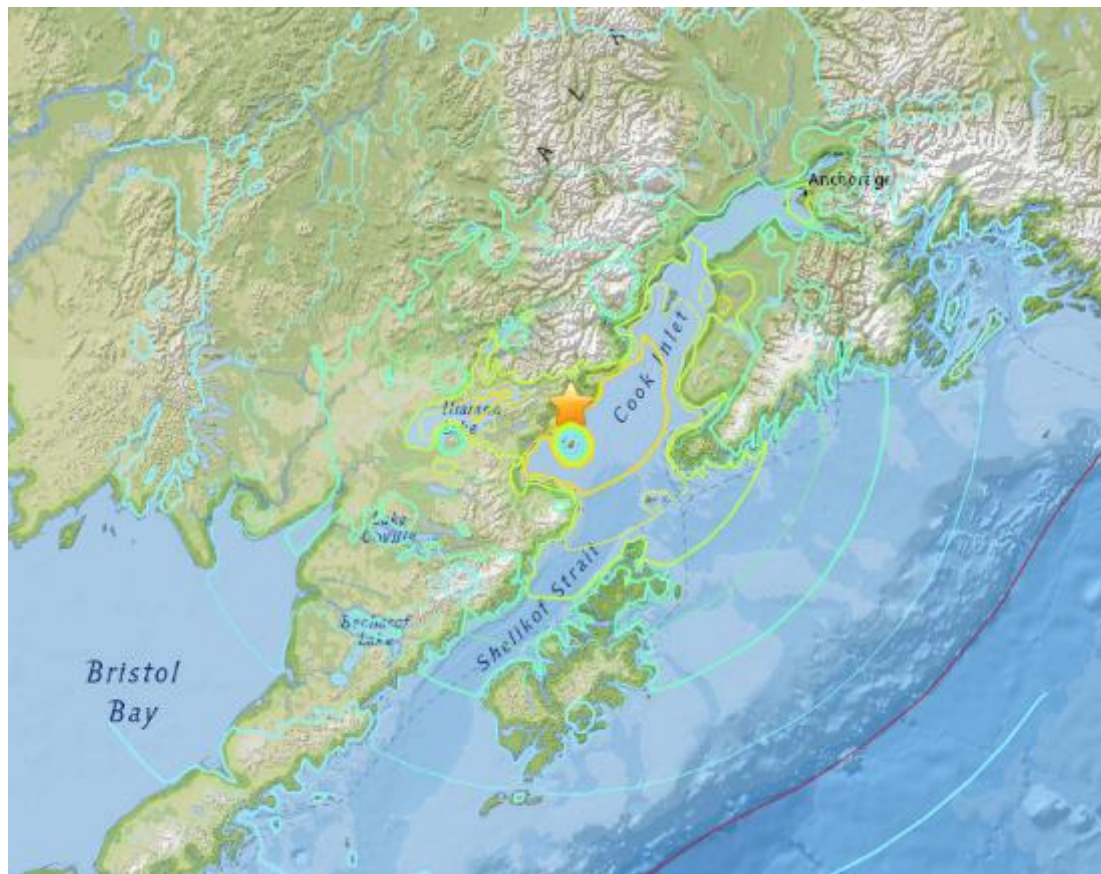


USGS Estimated shaking Intensity from M 7.1 Earthquake

The USGS PAGER map shows the population exposed to different Modified Mercalli Intensity (MMI) levels.

132,000 people in area felt strong shaking from this earthquake.

MMI	Shaking	Pop.
I	Not Felt	--*
II-III	Weak	112k*
IV	Light	68k
V	Moderate	283k
VI	Strong	132k
VII	Very Strong	0k



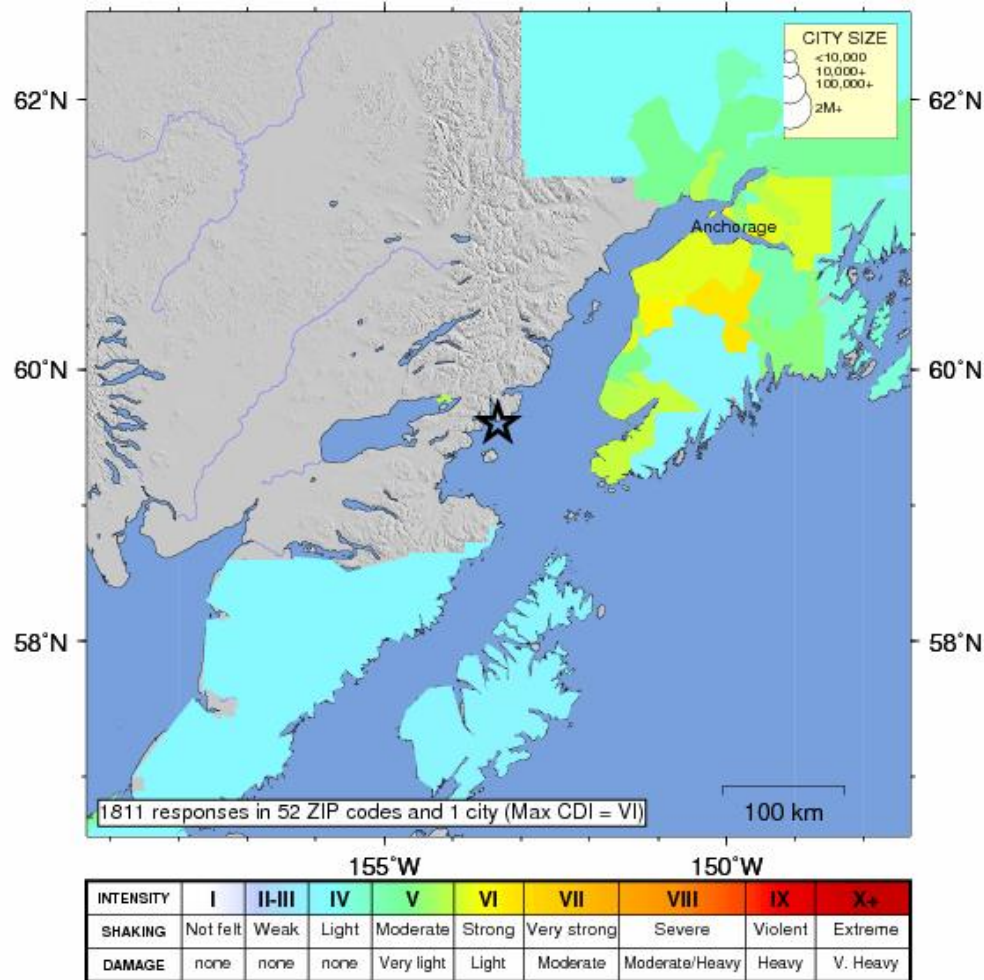
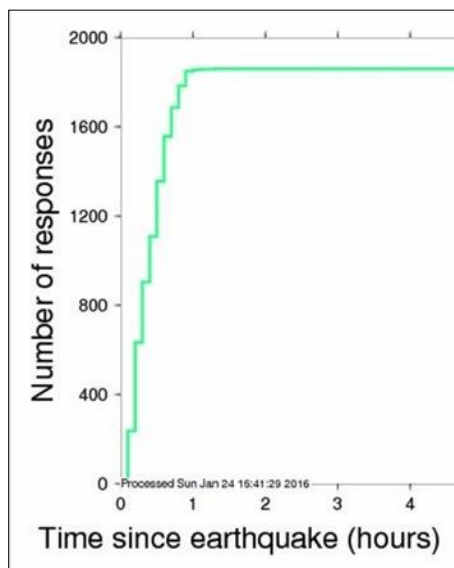
The color coded contour lines outline regions of MMI intensity. The total population exposure to a given MMI value is obtained by summing the population between the contour lines. The estimated population exposure to each MMI Intensity is shown in the table.

USGS Impact Response to Earthquake Shaking

The USGS IMPACT map shows the population that responded to the USGS site “Did You Feel It”.

“Did You Feel It?” allows the public to provide information about ground shaking via an on-line questionnaire.

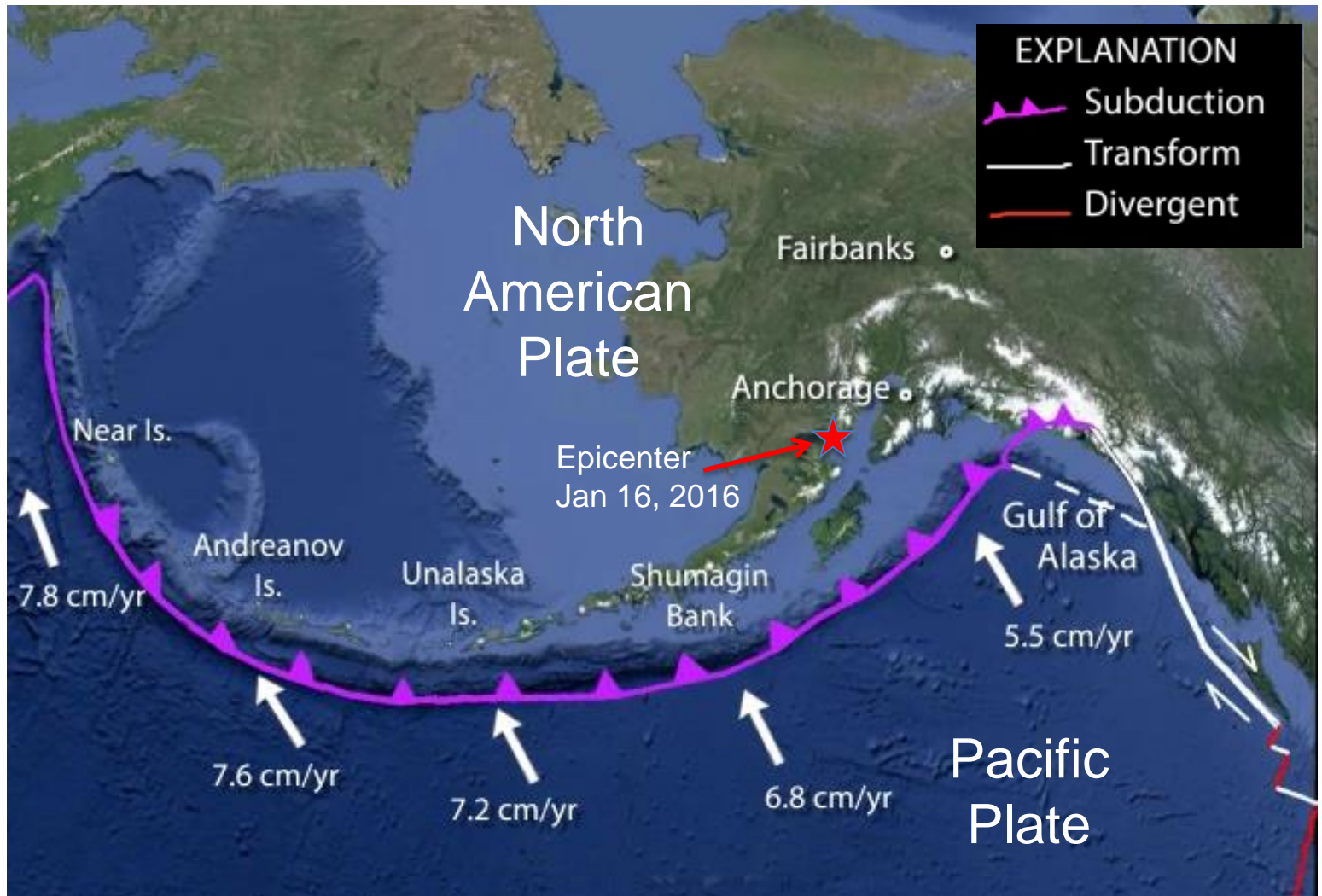
The graph on the right shows that about 1900 people logged into the site within an hour of the earthquake.



Processed: Sun Jan 24 16:41:23 2016

Magnitude 7.1 SOUTHERN ALASKA

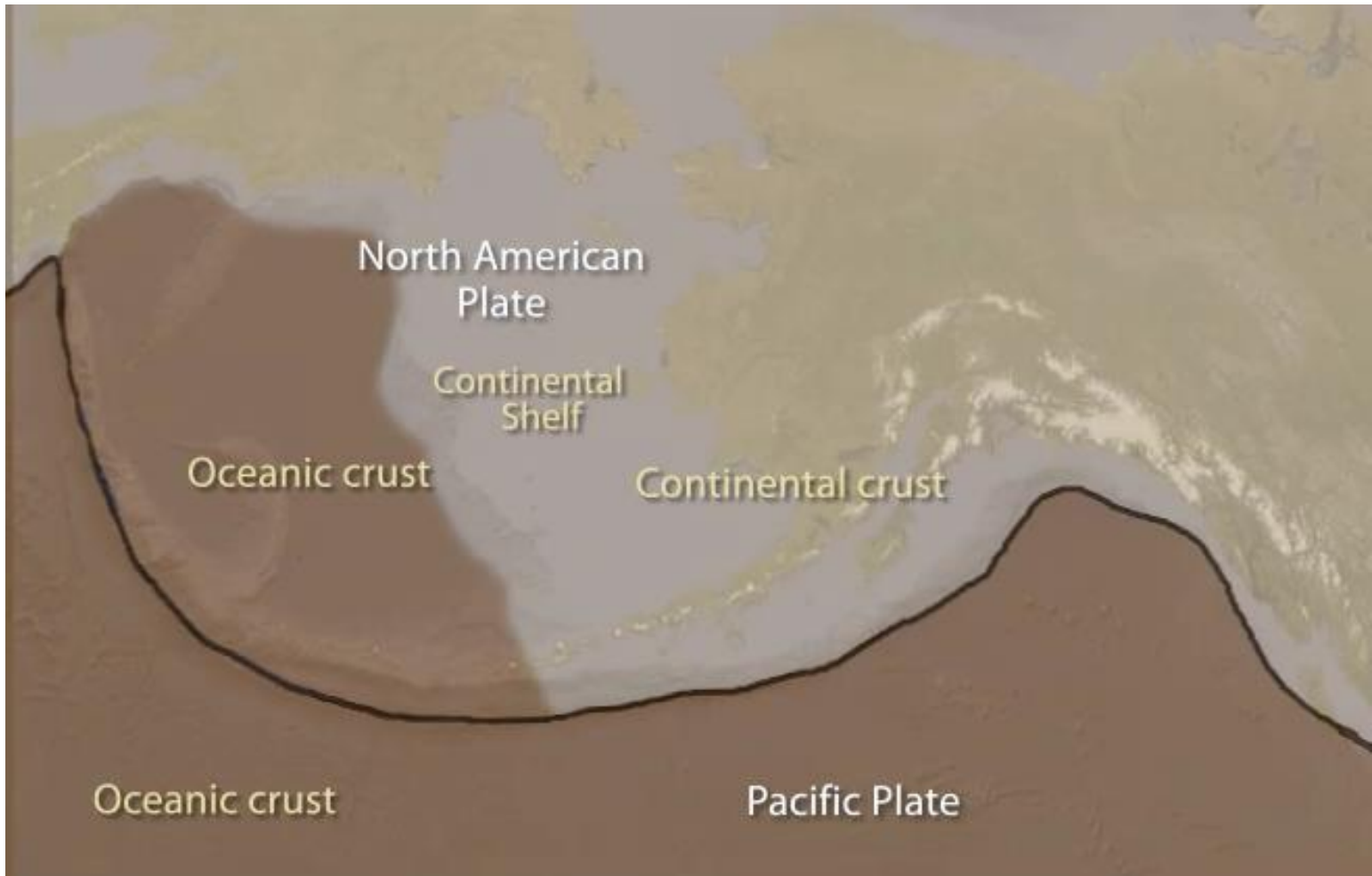
Sunday, January 24, 2016 at 10:30:30 UTC



The Pacific Plate converges with and subducts beneath the North American Plate and begins its decent into the mantle at the Alaska-Aleutian Trench almost 400 km to the southeast of this earthquake. The rates of relative plate motion range from 5.5 cm/yr in the Gulf of Alaska to 7.8 cm/yr at the western end of the Aleutian Island chain. The rate of subduction in the location of this earthquake is about 6.0 cm/yr.

Magnitude 7.1 SOUTHERN ALASKA

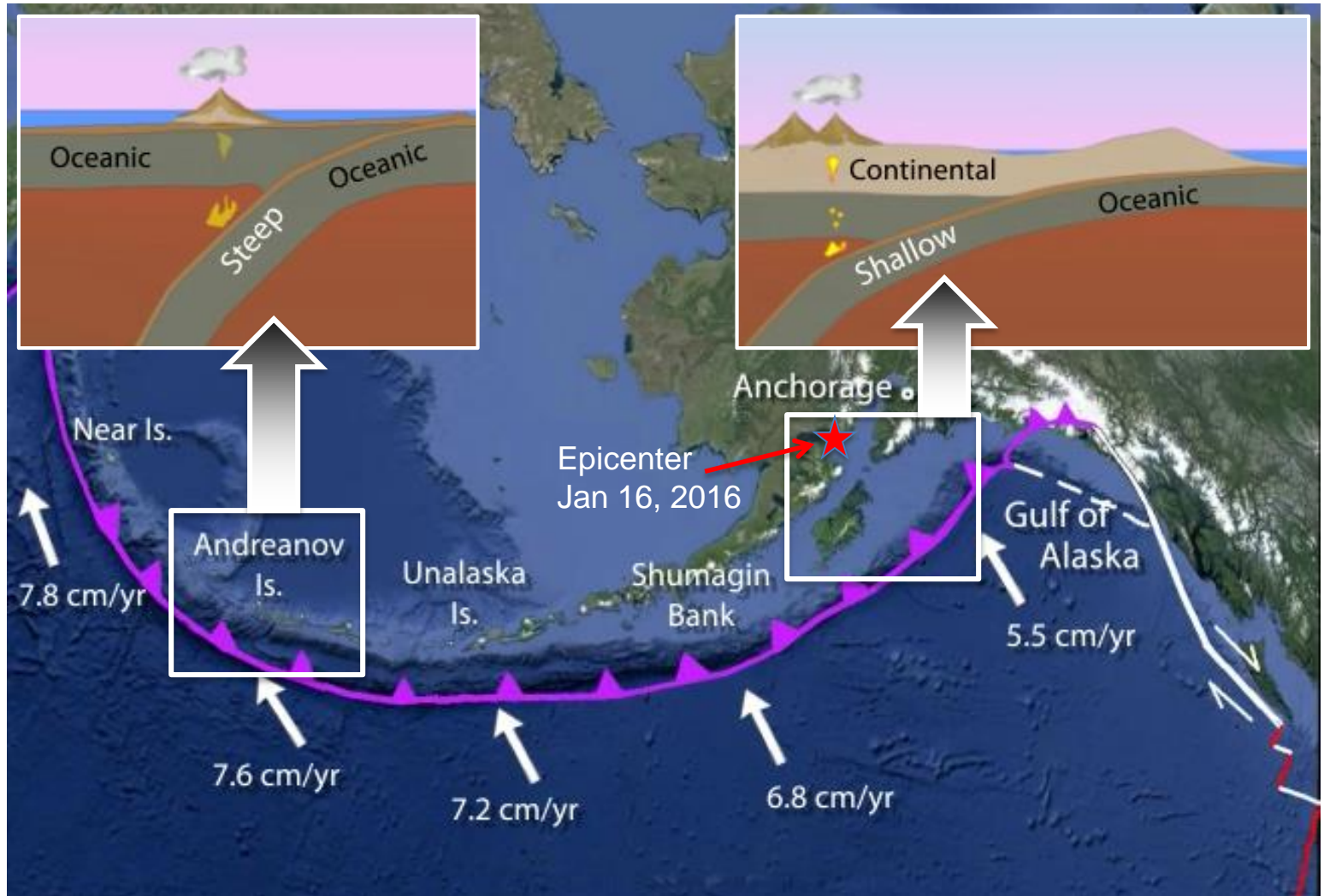
Sunday, January 24, 2016 at 10:30:30 UTC



- Two widely misunderstood features of the North American Plate are illustrated above:
- (1) the North American Plate includes eastern Siberia and the Kamchatka Peninsula;
 - (2) the North American Plate in the western Bering Sea area is capped by oceanic crust.

Magnitude 7.1 SOUTHERN ALASKA

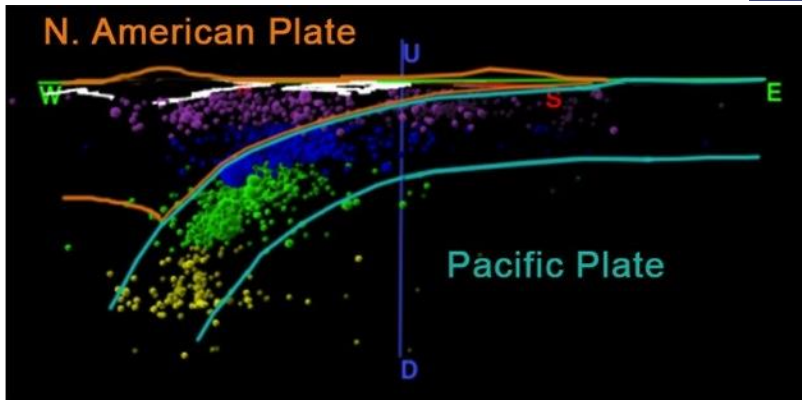
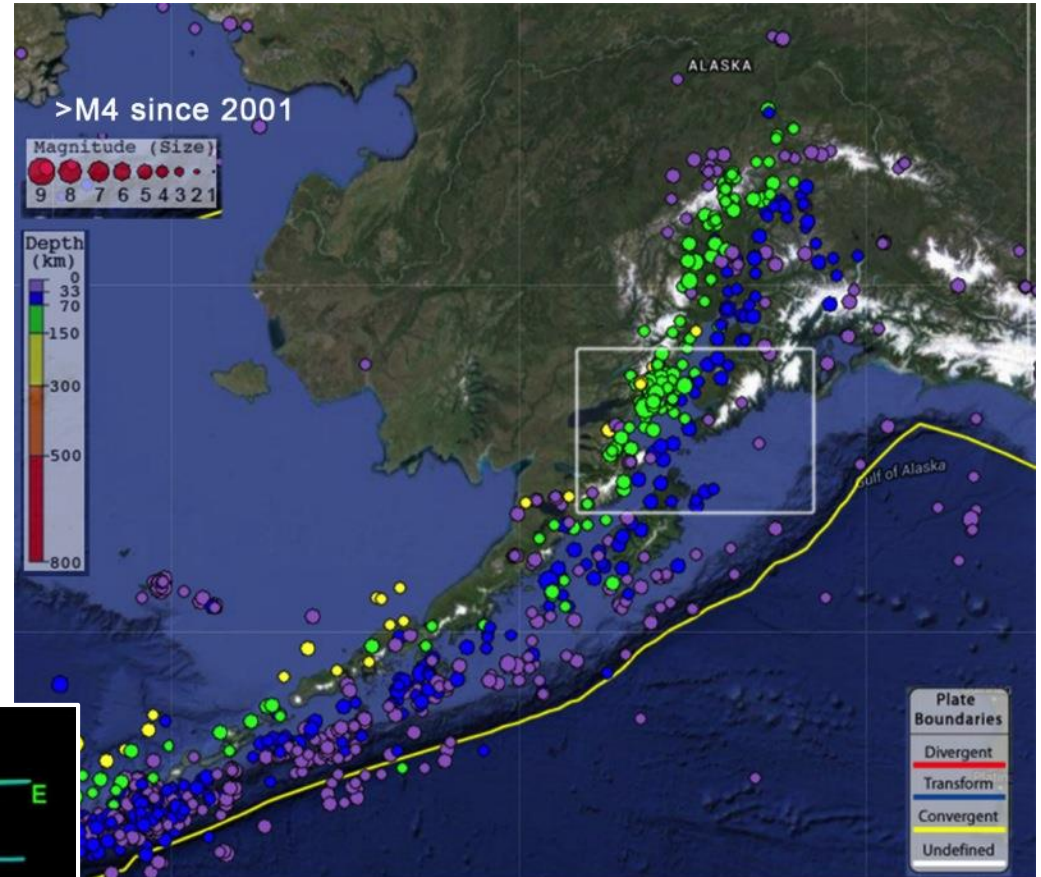
Sunday, January 24, 2016 at 10:30:30 UTC



Under the western Aleutian Islands where the crust of the North American Plate is oceanic, the Pacific Plate subducts at a steep angle as shown on the inset diagram. The Pacific Plate subducts at a shallower angle beneath the North American Plate in the Gulf of Alaska region where the North American Plate is capped by thicker continental crust.

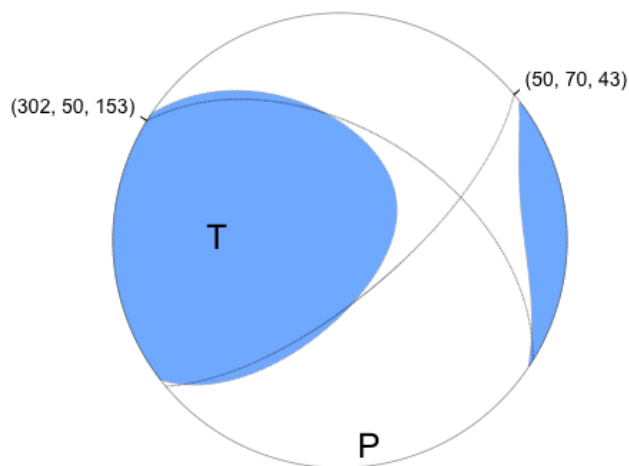
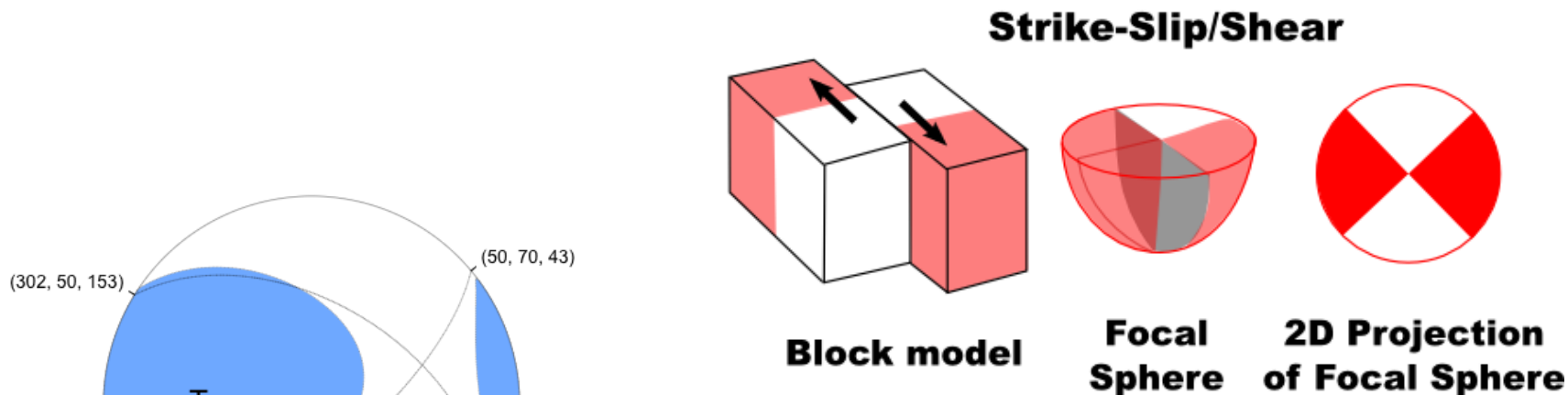
Epicenters are shown on a map of regional historic seismicity for earthquakes greater than magnitude 4 since 2001.

On the cross section below, intermediate and deep earthquakes within the Pacific Plate illustrate its angle of subduction beneath the North American Plate.



Map generated using Interactive
IRIS Earthquake Browser
(<http://ds.iris.edu/ieb/>)

According to the USGS, this earthquake occurred as the result of strike-slip faulting at intermediate depths, within the subducted lithosphere of the Pacific Plate. The mechanism and depth of the earthquake are consistent with its occurrence within the interior of the subducted Pacific Plate, rather than on the shallower plate boundary thrust, thus a different process than the 1964 Great Alaska earthquake.

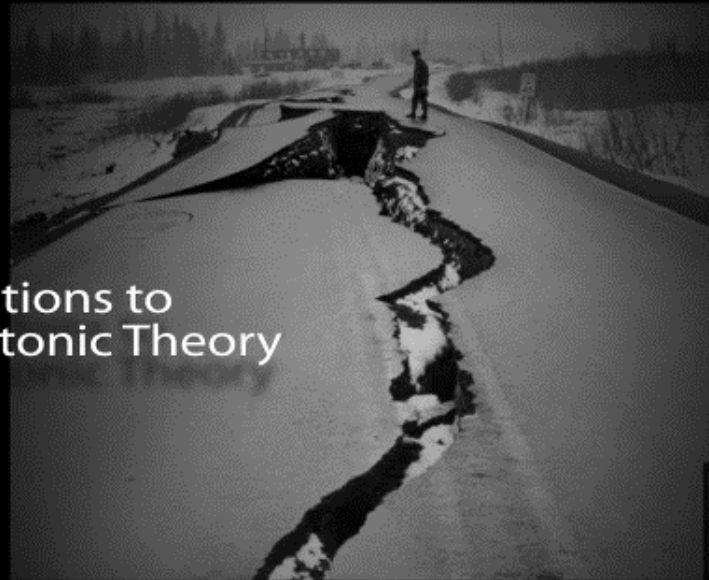


Centroid Moment Tensor Solution

Shaded areas show quadrants of the focal sphere in which the P-wave first-motions are away from the source, and unshaded areas show quadrants in which the P-wave first-motions are toward the source. The letters represent the axis of maximum compressional strain (P) and the axis of maximum extensional strain (T) resulting from the earthquake.

The 1964 Great Alaska Earthquake

What happened & why

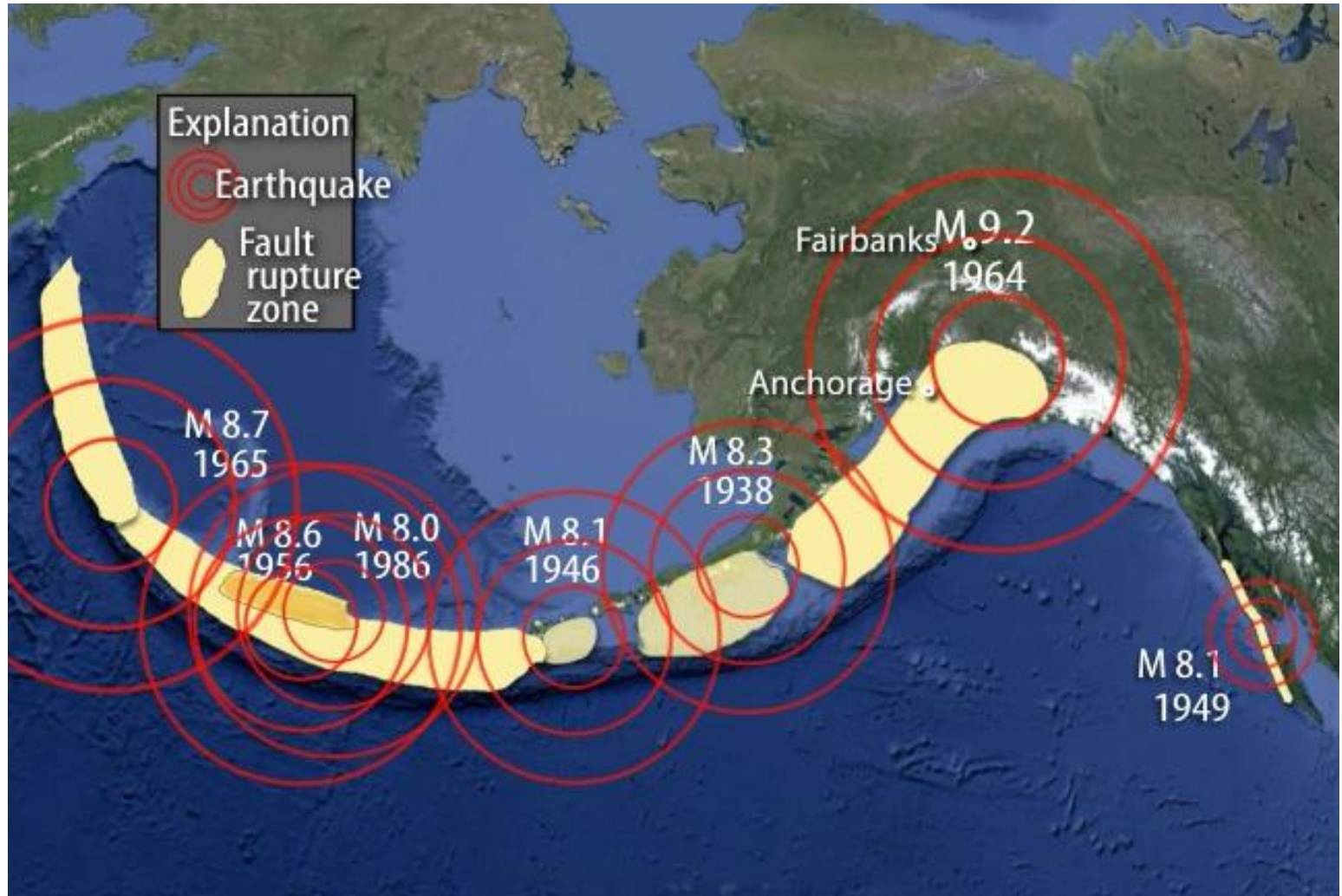


Contributions to
Plate Tectonic Theory

The 1964 Great Alaska Earthquake was the second largest earthquake ever recorded by seismometers.

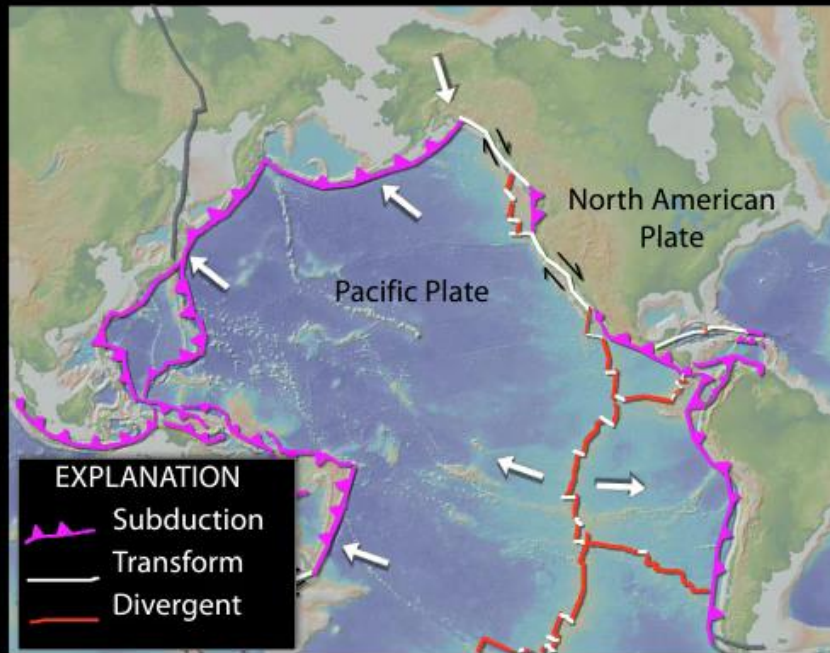
Magnitude 7.1 SOUTHERN ALASKA

Sunday, January 24, 2016 at 10:30:30 UTC



Since 1900, six $M \geq 8$ great megathrust earthquakes have occurred on the Pacific – North America subduction zone boundary. Several of these megathrust earthquakes generated destructive tsunamis. In addition, a great M 8.1 strike-slip earthquake occurred on the Queen Charlotte Transform Fault in 1949.

ALASKA—Tectonics & Earthquakes



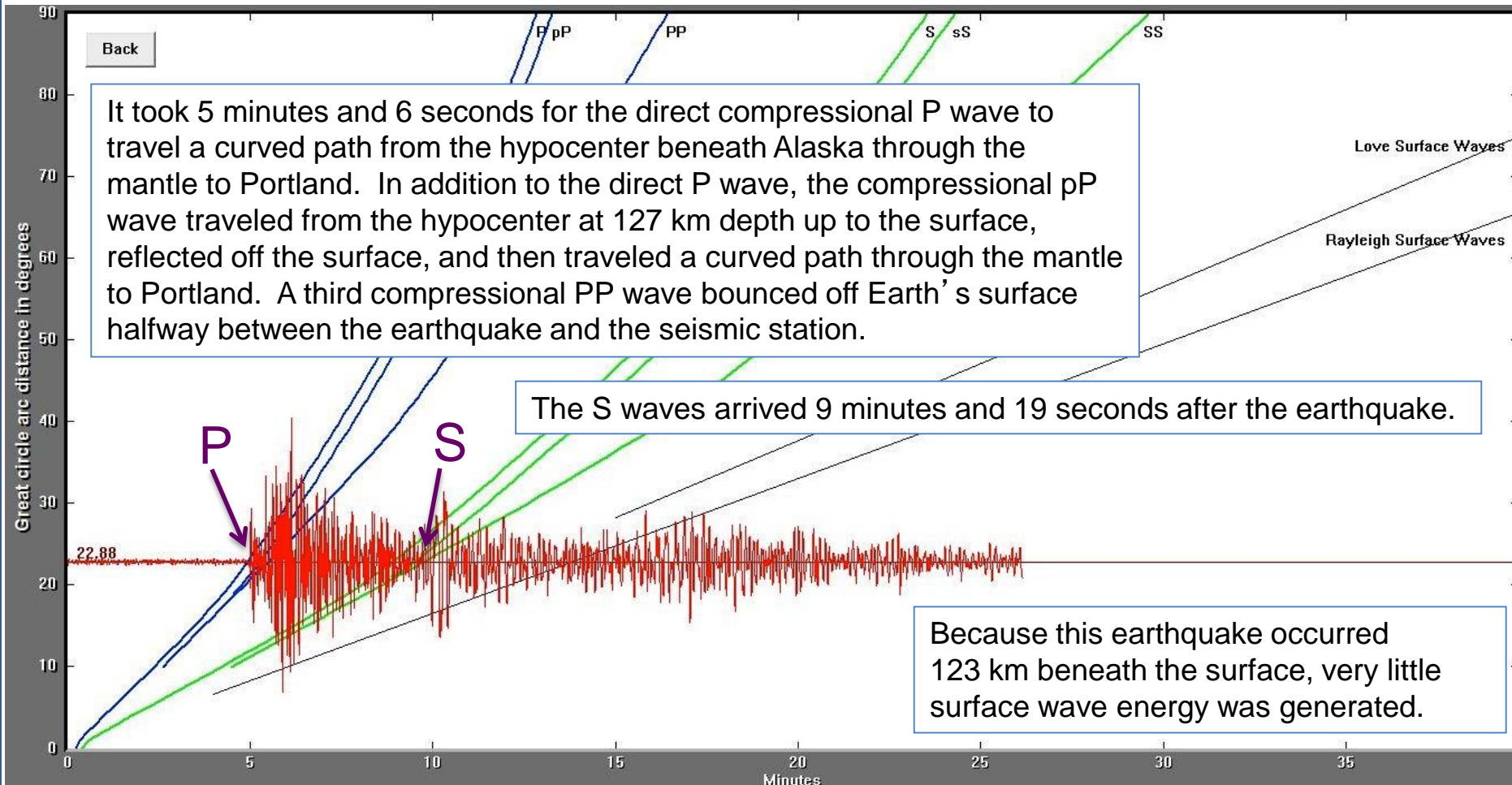
Active tectonics & earthquake hazards in Alaska... more than just plate boundaries

Alaskan tectonics are dominated by the Pacific-North American Plates. This animation discusses historic earthquakes, and the range of regional tectonic activity from megathrust earthquakes to accretion of geologic terranes.

Magnitude 7.1 SOUTHERN ALASKA

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The record of the January 24 earthquake on the University of Portland seismometer (UPOR) is illustrated below. Portland is about 2553 km (1586 miles, 23.0°) from the location of this earthquake.



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