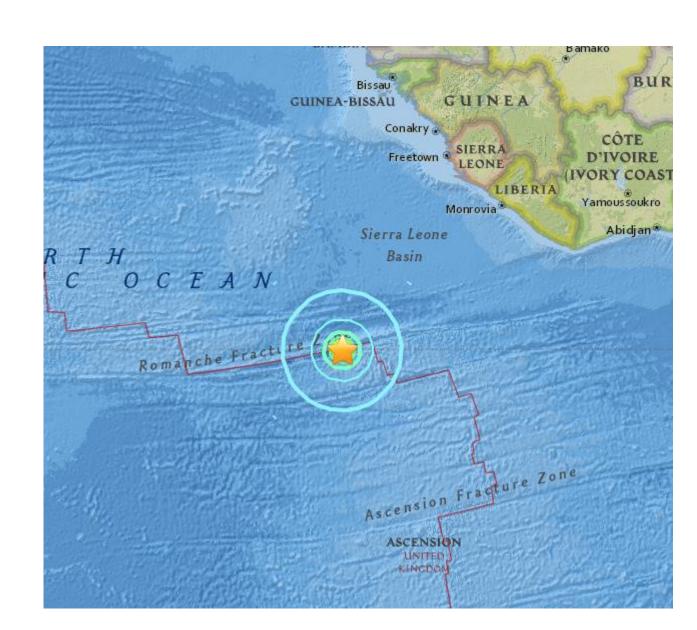A magnitude 7.1 earthquake has occurred 975 km (605 miles) northwest of Ascension Island in the Atlantic Ocean at a depth of 10 km (6 miles).

There are no reports of damage or injuries, and no tsunami warnings issued.

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

This earthquake occurred in a remote region.

MMI	Shaking	Pop.
I	Not Felt	--*
II-III	Weak	--*
IV	Light	0 k
V	Moderate	0 k
VI	Strong	0 k
VII	Very Strong	0 k
VIII	Severe	0 k
IX	Violent	0 k
X	Extreme	0 k

USGS PAGER
Population Exposed to Earthquake Shaking

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.

Image courtesy of the US Geological Survey

Magnitude 7.1 NORTH OF ASCENSION ISLAND
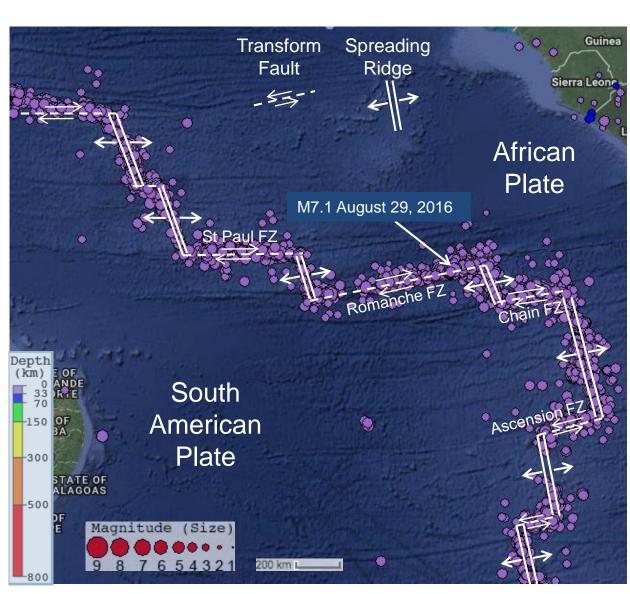## Monday, August 29, 2016 at 04:29:57 UTC

The epicenter of the August 29, 2016 earthquake is labeled on this seismicity map showing earthquakes in the central Atlantic Ocean over the past 25 years.

Segments of the Mid-Atlantic Ridge are shown by double solid lines while transform faults are shown by dashed lines. The rate of spreading between the South American and African Plates in this region is about 3 cm/yr.

This earthquake occurred on the active right-lateral transform fault portion of the Romanche Fracture Zone.

Most earthquakes on the Mid-Atlantic Ridge system have magnitude less than 7.0. This M7.1 earthquake is the largest to occur on the Romanche Fracture Zone over the past 25 years.

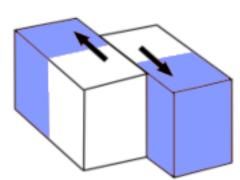*Map created with the IRIS Earthquake Browser*

The focal mechanism is how seismologists plot the 3-D stress orientations of an earthquake. Shaded areas show quadrants of the focal sphere in which P-wave first-motions were away from the source, and unshaded areas show quadrants in which P-wave first-motions were toward the source.
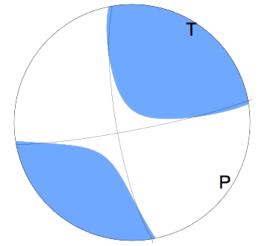**P** indicates the axis of maximum compressional strain while **T** indicates the axis of maximum extensional strain.

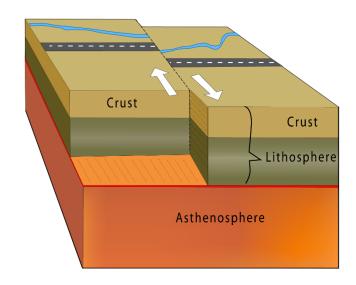*USGS W-phase Moment Tensor Solution*

Translated to a block diagram, the focal mechanism is illustrating classic strike slip motion with quadrants of compression and extension. In the block diagram, the shaded regions experience compression during fault motion while the unshaded regions experience extension.

The offset direction of a strike-slip fault is the direction a feature is displaced when you cross the fault. The road is displaced to the right, so this is a "right-lateral" strike-slip fault.
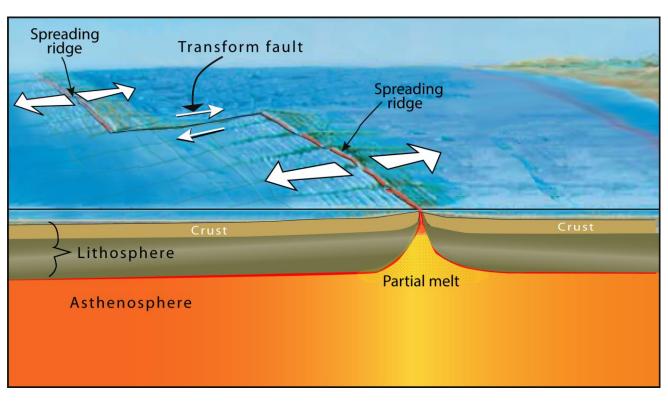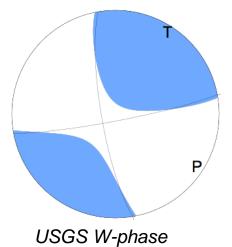
This diagram illustrates how two spreading ridge segments are offset by a transform fault, just as the Romanche transform offsets spreading segments of the Mid-Atlantic Ridge.
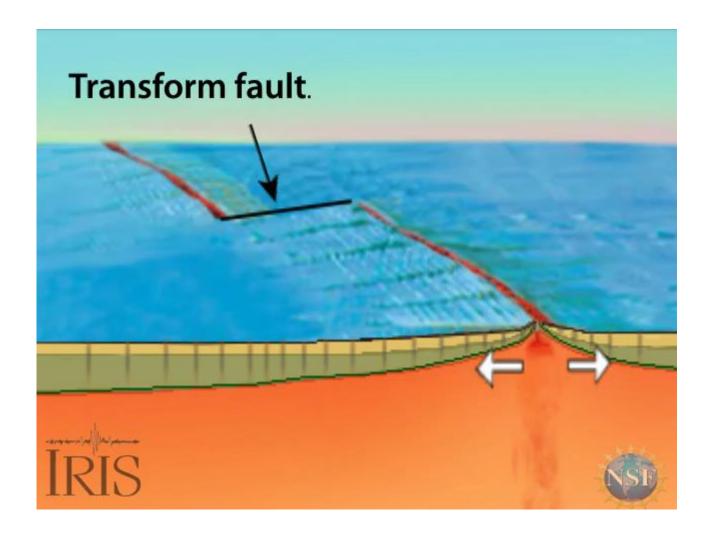

USGS W-phase Moment Tensor Solution

This focal mechanism for the August 29, 2016 earthquake is consistent with right-lateral strike-slip faulting on a near-vertical fault. Along with the location, it helps define this earthquake as having occurred as the result of right-lateral strike-slip faulting on a transform fault.
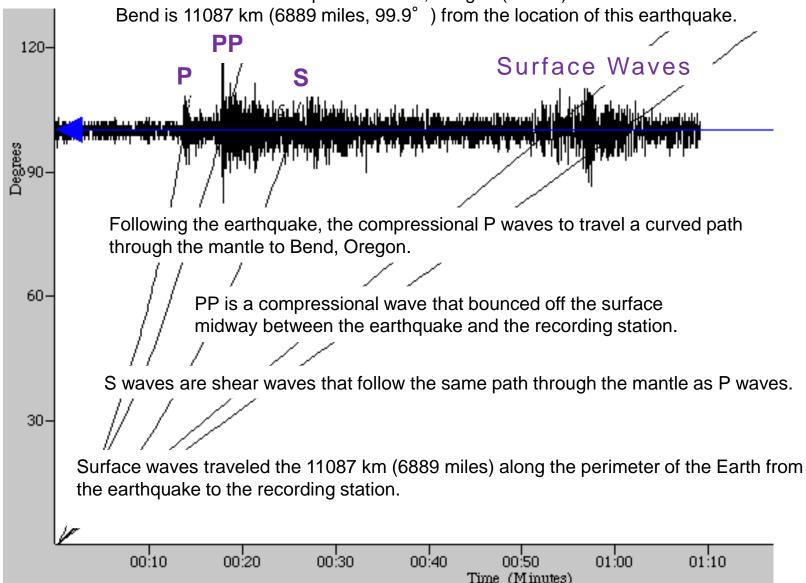
Animation of how transform faults offset mid-ocean ridges

The record of the earthquake in Bend, Oregon (BNOR) is illustrated below.
Bend is 11087 km (6889 miles, 99.9°) from the location of this earthquake.

Following the earthquake, the compressional P waves to travel a curved path
through the mantle to Bend, Oregon.

PP is a compressional wave that bounced off the surface
midway between the earthquake and the recording station.

S waves are shear waves that follow the same path through the mantle as P waves.

Surface waves traveled the 11087 km (6889 miles) along the perimeter of the Earth from
the earthquake to the recording station.

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