

Gathering Evidence Evidence of a large earthquake in the distant past did seem to exist along the coasts of Washington and Oregon. Much of the coast in that area had sunk, submerged-coastal forests and killing thousands of trees. However, dating the earthquake to a specific year would be difficult.

A Possible Solution One scientist, whose field of study was tree rings, thought he knew how the earthquake could be dated. He made an educated guess, called a **hypothesis**, that tree rings in the drowned trees could be used to determine when the earthquake occurred.

Reading Check What is a hypothesis?

The hypothesis was based on what scientists know about tree growth. Each year, a living tree makes a new ring of tissue in its trunk, called an annual growth ring. You can see the annual rings in the cross section of a tree trunk shown in **Figure 2**. Two groups of scientists analyzed the rings in drowned trees along the coast, like the remains of cedar trees shown in **Figure 3**. Their data showed that the trees had died or were damaged after August 1699 but before the spring growing season of 1700. That evidence put the date of the earthquake in the same time period as the tsunami on Honsu.

Importance of Solving the Mystery In addition to solving the mystery of what caused the tsunami, the tree rings also provided a warning for people living in the Pacific Northwest. Earthquakes much stronger than any that have occurred in modern times are possible. Scientists warn that it's only a matter of time until another huge quake occurs.



Figure 3 Growth rings from these and other trees linked a huge earthquake along the coast of Washington to a tsunami in Japan that occurred more than 300 years ago.

Figure 2 You can see the growth rings in this tree trunk. **Determine** How much time does each ring represent?

