Earthquakes

At 3:01 on the morning of August 17, 1999, people living in Izmit, Turkey, were awakened by a terrible fright. An earthquake rocked the area. It registered 7.4 on the Richter scale, which measures quake strength on a scale of 1 to 9 with 9 being the strongest. By the time the quake and its aftershocks—quakes that strike after the first quake—finished, 17,000 people were dead. More than 120,000 houses were demolished (see background picture) and the roads and railroad system were destroyed.

Quakes, also called temblors, are fairly common in this part of the country, but not all of them are equally destructive. Just three months later, on November 12, and 62 miles (100 km) to the east, a quake measuring 7.2 hit Duzce, Turkey. This temblor was similar in intensity to the Izmit quake. Yet, while still tragic, its end result was significantly less destructive. At least 700 people were killed and more than 675 buildings collapsed.

Interestingly, both quakes struck in different places along the same fault line, or fracture in the earth's crust. Like most earthquakes, these two were caused by a sudden release of pressure along a fault line. The release shifted adjacent blocks of rock under the earth, called tectonic plates, past each other. As a result, waves of energy pushed the land both under and above ground.

The difference between the two Turkish quakes is where they struck. The exact location of a quake's epicenter—the point on the earth's surface directly above a quake's underground beginning—has a major effect on the damage an earthquake causes. The Izmit quake was centered in an industrial city filled with concrete buildings. The Duzce quake struck a hilly, farming region, which had fewer buildings and less people.

Predictions of where and when an earthquake will strike are impossible to make. There is still a lot of mystery that surrounds the invisible waves that begin underground and force changes on the earth's surface. With each quake, scientists move closer to understanding these earthshaking events.

KEY

plate boundary

plate direction

Quakes are common in Turkey. The country is being squeezed sideways to the west as the Arabian plate pushes into the Eurasian plate.

Eurasian Plate

EUROPE

Black Sea

Duzce

Istanbul   Izmit

TURKEY

Mediterranean Sea

Arabian Plate

AFRICA

Area enlarged above

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