San Andreas Fault

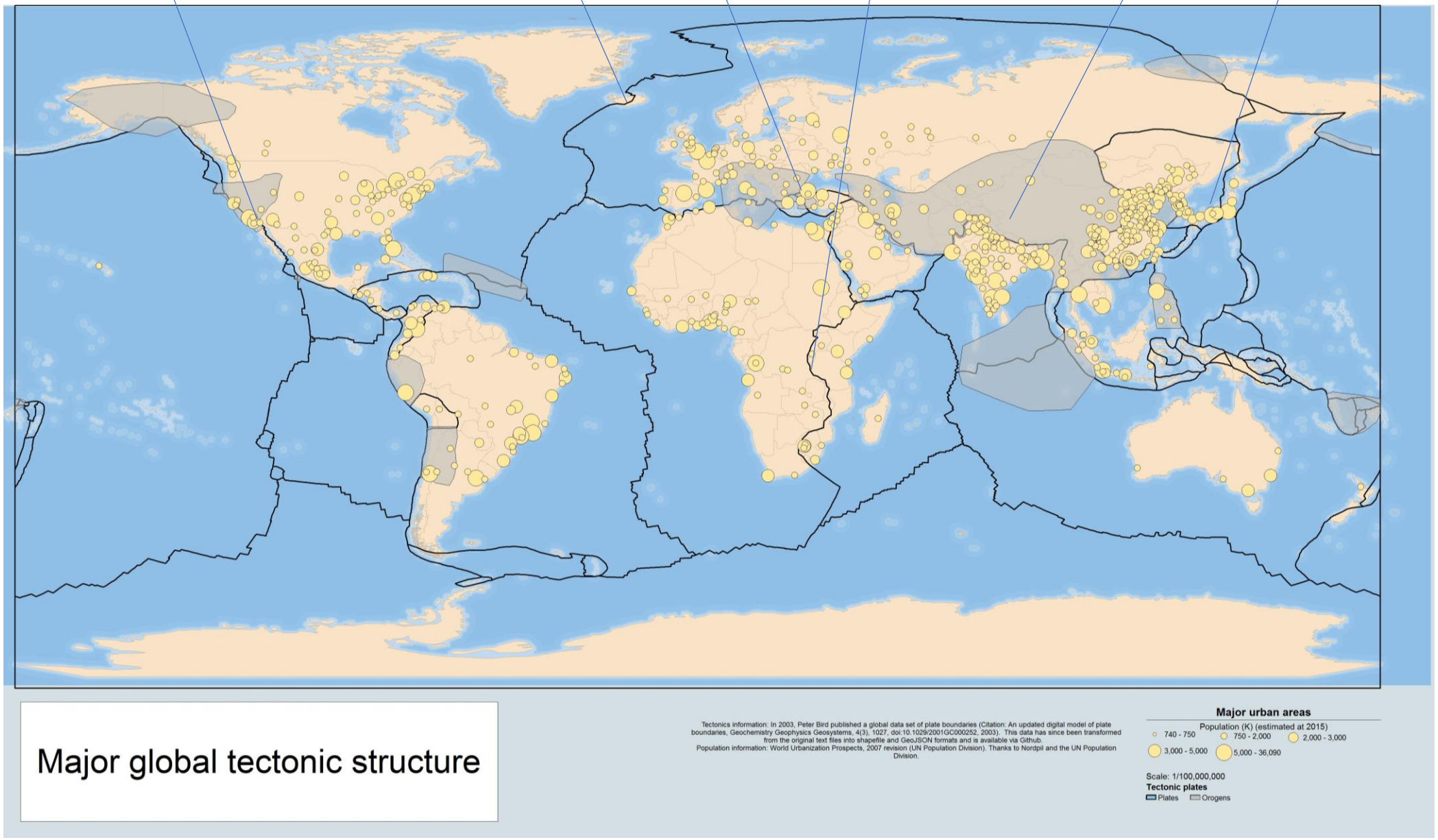
Thingvellir

Istanbul

East African Rift Valley

Himalayas

Tokyo



The Earth is covered in enormous and irregular shaped rocks (known as tectonic plates) that are part of Earth's lithosphere (crust and mantle). Major plates tend to be greater than 20 million km2 in area. There are also minor and micro plates. This map shows only the biggest plates.

The juxtaposition and forces driving these major plates produces spectacular, awe-inspiring, and sometimes catastrophic effects. The **San Andreas** fault has been responsible for many tremors and quakes, with the most notable (so far) being in 1906, which destroyed much of San Francisco. The City has been rebuilt, and modern construction technology has reduced the potential for loss of life and buildings.

Tokyo has a huge population, and is close to major tectonic boundaries. Sudden tectonic slippage has been responsible for devastating seismic events in the region, including the major tsunami of 2011. Because of these dangers modern Tokyo has been built as one of the most 'earthquake-proof' cities on the planet. This contrasts with **Istanbul**, which is also located on and near major tectonic boundaries, but has many ancient buildings and a large population; a large earthquake in this area could have devastating effects in terms of loss of life and buildings.

Tectonic activity is most destructive when the scale of an event is compacted into a very small time period. Generally, major tectonic movement can only be gauged over millions of years, and is responsible for producing extraordinary features: the **Himalayas** are in an 'orogen'- an area where tectonic plates push together to produce a 'crumple zone' of mountains over millions of years.

The **East African Rift Valley** is on a mind-blowing scale. In Iceland you can walk through the **Thingvellir National Park**, and stand *between* continents.

Our planet is a dangerous but beautiful place.