

## CHAPTER OVERVIEW

### 55: Earth Rotation

You already know that the Earth rotates on its axis once every 24 hours. But if you look at the rotational motion in detail, you find that it's more complicated than that. Slight redistributions in the Earth's mass cause changes in the moment of inertia, which are reflected in slight changes in the rotation rate. These mass redistributions may be seasonal, or unpredictable one-time events like mass shifts due to earthquakes or tsunamis. Even the construction of a dam can cause tiny, measurable changes in the Earth's rotation rate. And besides these short-term events, there a long-term slowing of the Earth's rotation due to tidal friction, so that days are becoming gradually slower over the long term.

In addition, the direction of the Earth's axis itself is moving around in a complicated way; the resulting motions of the axis, called precession and nutation, will be described here.

[55.1: Precession](#)

[55.2: Nutation](#)

[55.3: Polar Motion](#)

[55.4: Rotation Rate](#)

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