6.11: The Circumstellar Habitable Zone

The area around a star within which a planet or planets with sufficient mass and atmospheric pressure can support liquid water at the planet's surface is called the **circumstellar habitable zone** ; also called the **Goldilocks Zone**. First theorized in 1953, numerous exoplanets have been discovered within this Zone. Not all biologists and astronomers agree that a planet must exist in the circumstellar habitable zone to support life or even intelligent life; many point to **extremophiles** found on Earth; organisms which flourish in extreme Earth conditions that would be harmful to most life.

It appears that one in five stars have an Earth-sized planet in a circumstellar habitable zone. There could be as many as 40 billion circumstellar habitable zone planets in the Milky Way Galaxy.

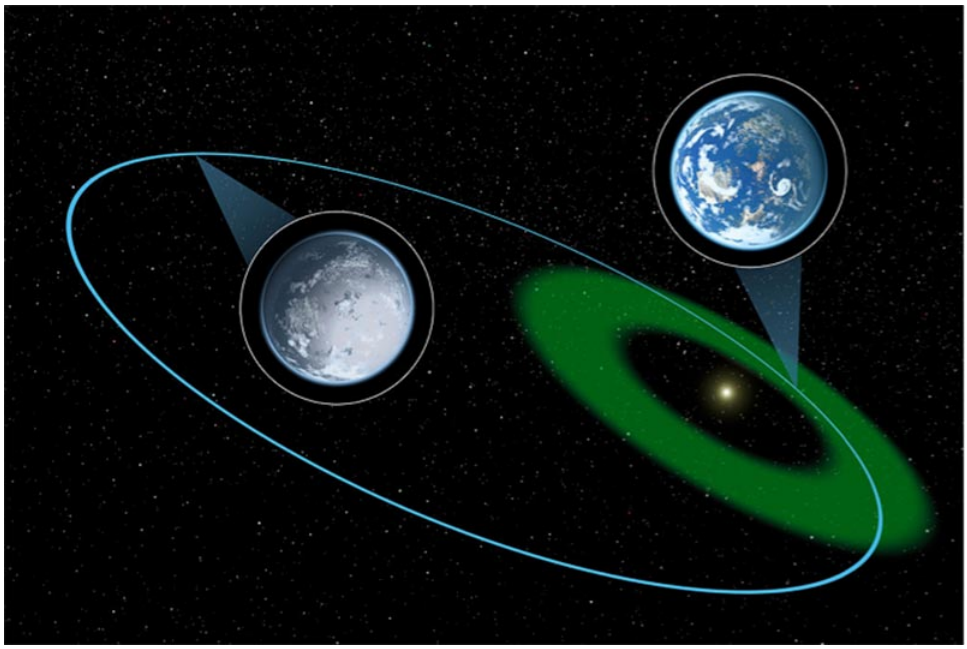

Image courtesy of NASA/JPL-CaltechThe image above shows an Eccentric Habitable Zone – a planet with a very-elliptical orbit that goes from a circumstellar habitable zone on the right to what would be considered uninhabitable during most of its orbit.