EXOPLANET PRESENTATION: Vocabulary List

Astrobiology	Study of the origin, evolution, distribution, and future of life in the universe
Astronomical Unit (AU)	Distance from the sun to the Earth (about 150 million kilometers, or 93 million miles); a little over 8 light-minutes
Astrosphere	A star's radiation zone consisting of neutral and ionized atoms, molecules, and electromagnetic radiation
Copernican Revolution	Concept that Earth and planets orbit the sun (heliocentric), and that humans are not privileged observers of the universe
ESA	*Acronym* : European Space Agency
Exoplanet	**Extrasolar planet** that orbits a star other than the Sun. Over 2000 exoplanets have been discovered since 1988 (~3,000 candidates)
Extraterrestrial Intelligence (ETI)	Intelligent life that does not originate on Earth, but on another celestial body
Extraterrestrial Life (ET)	Life that does not originate from Earth, but on another celestial body
Habitable Planet	Exoplanet that is capable of supporting life in some form
Habitable ("Goldilocks") Zone (HZ)	Regions around a star where its radiation allows orbiting planets with sufficient atmosphere to support surface liquid water
Intelligent Life	Life having or showing the ability to easily learn or understand things or to deal with new or difficult situations
Kepler Satellite	An observatory launched 3/7/2009 by NASA to discover Earth-like planets orbiting other stars
Main Sequence Stars	Band of stars catagorized as O, B, A, F, G, K, M (excludes giants & dwarfs), from 0.1 to 100 X sun radius & ~0.01 to 10,000 X sun luminosity
Mediocrity Principle	Life and intelligence are common throughout the universe
NASA	*Acronym* : National Aeronautics and Space Administration
SETI	*Acronym* : Search for Extraterrestrial Intelligence
SETI Institute	A non-profit research organization whose mission is to explore, understand, and explain the origin and nature of life in the universe

Habitable Zone: Is It Limited To Liquid Water?

Publication "**Astrosphere Habitable Zones Display Fine-Tuned Characteristics** " July 7, 2014, Hugh Ross describes seven other HZ's; all Zones must overlap for advanced life to exist.

1. Water habitable zone (usually just called HZ): planets whose surface supports liquid water
2. Ultraviolet habitable zone: planets with just-right UV radiation levels for life
3. Photosynthetic habitable zone: planets with correct light wavelengths and intensities needed to activate chlorophyll, publication pending
4. Ozone habitable zone: planets with ozone layer to protect life from stellar wind radiation; subject to O_2/ UV Paradox. publication pending
5. Planetary rotation rate habitable zone: planets require just-right atmospheric mixing and must be at correct distance from star to effect rotation rate; publication pending
6. Planetary obliquity habitable zone: planet's tilt as it orbits its star is important; impacts climate & agricultural for advanced civilization; publication pending
7. Tidal habitable zone: 90% of stars <1/2 sun's mass so their planets must orbit so close that they become tidally lock
8. Astrosphere habitable zone: star's "wind" (particles, electromagnetic radiation) intensity must be just right in order to avoid high doses of radiation
9. NEW DISCOVERY—Electric Field habitable zone: planets must locate where star's UV won't dissociate too much H2O into H+ and O-, resulting in Oxygen loss to space; publication pending

Note: Other types of HZs are being discovered: e.g. Galactic HZs