



The search for extraterrestrial life

Some of our SciBar participants prepared this glossary, independently of Professor Morison. You may find it helpful to consider these concepts and visit these websites in your own time. Your comments on this experiment are most welcome.

The water hole is a frequency band where there is minimum background galactic radio noise. Includes the spectral line of atomic hydrogen at 1420 MHz (21 cm) and of OH at 1662 MHz (18 cm), frequencies which will be known to other civilisations.

The wow signal is a possible ET signal in 1977 at the Big Ear radio telescope in Ohio.

The Drake equation provides a rough estimate of the number of intelligent civilisations in our galaxy that would be expected to have the technology to communicate with us.

Hot Jupiters are massive planets near their Sun – the only exoplanets we can detect at the moment. Not likely to be suitable for life.

SETI is the Search for Extraterrestrial Intelligence.

Optical SETI seeks to detect bright laser pulsed signals that would temporarily outshine a star.

Arecibo Observatory is a large radio telescope, in Puerto Rico, still used in SETI@home

Project Phoenix is privately funded. It took over NASA's SETI project. It looked for nearby Sun-like stars. Jodrell Bank helped Arecibo eliminate false detections. Ended in 2004.

Project SERENDIP (Search for Extra Terrestrial Radio Emissions from Nearby Intelligent Populations) analyses Arecibo data.

Very Large Array (VLA) has 27 antennas arranged in a huge Y pattern in New Mexico.

Allen Telescope Array is an array of 350 small radio telescopes being built in California, funded by Paul Allen (Microsoft).

Square kilometre array is a 2020 plan for an array of several thousand small radio dishes to make a very sensitive detector.

Biosignature A sign which would give evidence for life. Could be organic molecules (such as amino acids), or chemical 'fingerprints' from the spectrum of a planet's emitted light.

Extremophile An organism that thrives in conditions that would be extreme for human existence. For example, microorganisms living in extreme heat or cold, or without oxygen.

Habitable zone (sometimes called the **Goldilocks zone**) is the region round a star where conditions on planets and moons could be just right for the existence of liquid water and conceivably life.

Terrestrial Planet Finder missions proposed space telescope project to detect Earth-like planets orbiting nearby stars.

Useful weblinks:: SETI at Jodrell Bank www.jb.man.ac.uk/research/seti/ SETI institute www.seti.org
 SETI@home <http://setiathome.ssl.berkeley.edu/> NASA's Kepler telescope <http://kepler.nasa.gov/>
 Drake Equation www.pbs.org/lifebeyondearth/listening/drake.html

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