

The Array of Search Strategies

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At least ten strategies for detecting extraterrestrial intelligence are now discussed in the literature. In order to detect evidence of ETI many light-years from us, astronomers can search for radio signals, optical signals, other incoming signals (such as neutrinos or viruses), or signs of advanced technology such as an astroengineering project or a Dyson sphere. Scientists could also broadcast a radio message asking distant ETI to respond.

Additional strategies arise because any civilizations in our galaxy are likely much older than us and have therefore developed highly advanced technology. They could likely send small smart probes to explore our solar system. An alien probe in our solar system (far from Earth) might be detected by normal ongoing space exploration and astronomy, or by a dedicated search for evidence of a probe. If a probe has reached Earth, it might be detected by routine military/intelligence monitoring, by an invitation to ETI on the World Wide Web, by achieving peace or some other threshold that the probe requires before contact, or by using rigorous new research designs to study anomalous phenomena.

This paper compares eleven search strategies on three dimensions: (a) which strategies are most likely to detect ETI, (b) which strategies (if successful) will likely contribute a wealth of new knowledge, and (c) the current status of actual projects.