

**Alone in the Universe:
New Indications of our Probable Solitude**

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Recent results in extrasolar planet detection highlight the tremendous variety of planetary systems that can exist in nature – a diverse range of strange environments that is considerably broader than had been imagined before the first one was discovered only about fifteen years ago. Although *Earth-like* planets have so far fallen below the detection threshold, those planets we have discovered (including Earth-sized ones) make it possible to improve the estimates of how many might planets in our neighborhood might be suitable and stable enough to nurture life as it evolves perhaps to become intelligent. The indication is: not many.

The results indicate that we are alone in the universe “for all practical purposes” -- that is, we are not likely to make contact with an alien intelligence, or even to know if one exists, for at least 100 human generations and perhaps for very much longer. This time frame defines a volume of the cosmos available for communication, the number of stellar systems within it, and the consequent probabilities. A smaller search volume shortens the wait but reduces the chances; a bigger volume improves the odds, but the wait time until we find out goes up as well.

The conclusion has fundamental implications for our self-perception, and for environmental, ethical, and religious behavior. Since the discovery of extrasolar planets in the last decade, theologians and philosophers have asked about the religious implications of discovering intelligent species elsewhere in the cosmos and what their presence says about salvation and the human role in a cosmic plan (if any). These are misleading questions. A more relevant question is what their *absence* says about humanity and our purpose. The answers to it may be disconcerting to a public that believes in the Copernican principle of mediocrity, and is comfortable in thinking of itself as cosmically irrelevant and free of any grand responsibility. But human beings are not an insignificant cosmic species – we are rare and precious, and the Earth is also exceptional. We must rely on ourselves. The “Misanthropic Principle” is the observation that, in a universe whose physical parameters are amazingly well suited for intelligent life (the “Anthropic Principle”), the environments and situations necessary for intelligence to develop are extraordinarily rare. A Jewish perspective on the Misanthropic Principle offers some insights into humility, accountability, the social / environmental imperative, and even a cosmic role for humanity.