

Lost in the Cosmos

What else is out there, beyond the solar system? Well, nothing and a great deal, depending on how you look at it.

In the short term, it's nothing. The most perfect vacuum ever created by humans is not as empty as the emptiness of interstellar space. And there is a great deal of this nothingness until you get to the next bit of something. Our nearest neighbour in the cosmos, Proxima Centauri, which is part of the three-star cluster known as Alpha Centauri, is 4.3 light years away, a sissy skip in galactic terms, but still a hundred million times further than a trip to the Moon. To reach it by spaceship would take at least 25,000 years, and even if you made the trip you still wouldn't be anywhere except at a lonely clutch of stars in the middle of a vast nowhere. To reach the next landmark of consequence, Sirius, would involve another 4.6 light years of travel.

Space is enormous. The average distance between stars out there is over 30 million kilometers. Even at speeds approaching those of light, these are fantastically challenging distances for any travelling individual. Of course, it is possible that alien beings travel billions of miles to amuse themselves by planting crop circles in Wiltshire or frightening the daylights out of some poor guy in a pickup truck on a lonely road in Arizona, but it does seem unlikely.

Still, statistically the probability that there are other thinking beings out there is good.

In the 1960s, a professor at Cornell named Frank Drake worked out a famous equation designed to calculate the chances of advanced life existing in the cosmos, based on a series of diminishing probabilities.

Under Drake's equation you divide the number of stars in a selected portion of the universe by the number of stars that are likely to have planetary systems; divide that by the number of planetary systems that could theoretically support life; divide that by the number on which life, having arisen, advances to a state of intelligence; and so on. At each such division, the number shrinks colossally – yet even with the most conservative inputs the number of advanced civilizations just in the Milky Way always works out to be somewhere in the millions.

What an interesting and exciting thought. We may be only one of millions of advanced civilizations.