

44th SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The
Next Steps (A4)
SETI 1: SETI Science and Technology (1)

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ON THE ABUNDANCE OF EXTRA TERRESTRIAL LIFE AFTER KEPLER

Abstract

Combining the recent results of the Kepler mission on the abundance of small planets within the Habitable Zone with a Drake equation formalism I derive the space density of biotic planets as a function of the (yet unknown) probability for the evolution of biotic life. I suggest that it may be estimated by future spectral observations of exoplanet biomarkers and that a biotic planet may be expected within 10 to 100 light years from Earth. Similarly I derive expressions for the distance to putative neighbor civilizations in terms of the probability for the evolution of a civilization and its average longevity. For optimistic probability values and broadcasting longevity of a few thousand years, the likely distance to the nearest civilizations detectable by SETI is of the order of a few thousand light years. The probability of detecting intelligent signals with present and future radio telescopes is calculated as a function of the Drake parameters.