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THE BREAKTHROUGH LISTEN SEARCH FOR INTELLIGENT LIFE: PUBLIC DATA, FORMATS, REDUCTION AND ARCHIVING

Abstract

Breakthrough Listen is the most comprehensive and sensitive Search for Extraterrestrial Intelligence to date. Large data volumes involve several challenges: collection, reduction, archival, and then making data products available to the public. Much of the effort during the first three years of the program has focused on pointed observations of nearby stars. Since 2016 stars from this sample have been observed by the Breakthrough Listen instruments at both Green Bank Observatory and Parkes.

We aim to make as much of our data publicly available as possible, and our public archives continue to grow, but we also seek to define milestone data releases that correspond to public datasets that are relatively homogeneous and complete. We will describe data formats, processing pipelines and archival strategy for Breakthrough Listen Data Release 1.0 (BLDR 1.0), consisting of radio spectrograms for the nearby stars from Green Bank Telescope (L- and S-band receivers) and Parkes (10 cm receiver), optical spectra for stars observed by Automated Planet Finder, and raw radio data and spectrograms from observations of fast radio bursts.