The RECONS 25 Parsec Database

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The REsearch Consortium On Nearby Stars (RECONS, *www.recons.org*) Team has been mapping the solar neighborhood since 1994. Nearby stars provide the fundamental framework upon which all of stellar astronomy is based, both for individual stars and stellar populations. The nearest stars are also the primary targets for extrasolar planet searches, and will undoubtedly play key roles in understanding the prevalence and structure of solar systems, and ultimately, in our search for life elsewhere.

We have built the RECONS 25 Parsec Database to encourage and enable exploration of the Sun's nearest neighbors. The Database, slated for public release in 2015, contains 3088 stars, brown dwarfs, and exoplanets in 2184 systems as of October 1, 2014. All of these systems have accurate trigonometric parallaxes in the refereed literature placing them closer than 25.0 parsecs, i.e., parallaxes greater than 40 mas with errors less than 10 mas. Carefully vetted astrometric, photometric, and spectroscopic data are incorporated into the Database from reliable sources, including significant original data collected by members of the RECONS team.

Current exploration of the solar neighborhood by RECONS, enabled by the Database, focuses on the ubiquitous red dwarfs, including: assessing the stellar companion population of ~1200 red dwarfs (Winters), investigating the astrophysical causes that spread red dwarfs of similar temperatures by a factor of 16 in luminosity (Pewett), and canvassing ~3000 red dwarfs for excess emission due to unseen companions and dust (Silverstein). In addition, a decade long astrometric survey of ~500 red dwarfs in the southern sky has begun, in an effort to understand the stellar, brown dwarf, and planetary companion populations for the stars that make up at least 75% of all stars in the Universe.