THE GBT PRIMOS PROJECT - REPORT FROM THE FIRST YEAR OF OBSERVATIONS

ANTHONY J. REMIJAN, *National Radio Astronomy Observatory, 520 Edgemont Road, Charlottesville, VA 22903*; J. M. HOLLIS, *NASA's Goddard Space Flight Center, Computational and Information Sciences and Technology Office, Greenbelt, MD, 20771*; P. R. JEWELL, *National Radio Astronomy Observatory, 520 Edgemont Road, Charlottesville, VA 22903*; F. J. LOVAS, *NIST, Optical Technology Division, 100 Bureau Drive, Gaithersburg, MD 20899*.

The inventory of interstellar molecules presently stands at ∼144 different species. In the last several years, teams using the GBT have detected 10 new interstellar molecules including large (6 to 11 atoms) organics, carbon chains and anions. The reason for this unprecedented success is three-fold: The GBT is very sensitive with substantial beam efficiency in the range of 300 MHz to 50 GHz; the rotational transitions between low-energy levels of most large molecules fall in the range of 300 MHz to 50 GHz; and the GBT beam couples well to prototypical molecule sources (e.g., SgrB2[N-LMH] and TMC-1) which are found to be very cold (∼10 K) and spatially extended. Thus, in the Fall of 2007 we began observations to conduct a GBT legacy spectroscopic survey of SgrB2(N-LMH) in order to provide a complete inventory of known and unidentified species in the range of 300 MHz to 50 GHz. This survey will be the deepest spectral line survey to date toward this source at these frequencies and the data will be provided to the astronomical community on a quarterly basis (as available) as data accumulate in order to facilitate the identification of new interstellar species and deduce likely molecular formation chemistry. To date, we were awarded 20 sessions to obtain data. In order to provide the community with a large as sample of data as possible, to investigate the spectra of various frontends that are rarely used for spectral line observations, and to accommodate weather constraints, we obtained data from every available front end tuning to at least 4 different IFs in each band. In this presentation, I will summarize these observations and illustrate how researchers can obtain and analyze the spectral line data available at: http://www.cv.nrao.edu/ aremijan/PRIMOS/