CSO BROADBAND MOLECULAR LINE SURVEYS II: INTIAL CORRELATION ANALYSIS RESULTS FOR COMPLEX ORGANIC MOLECULES

JAMES L. SANDERS III, MARY L. RADHUBER, JACOB C. LAAS, BRIAN M. HAYS, DAREK C. LIS and SUSANNA L. WIDICUS WEAVER, *Emory University, Department of Chemistry, Atlanta, Georgia 30322*.

As was presented in the previous talk, we have conducted 25 broadband line surveys of interstellar sources in the λ=1.3 mm band using the Caltech Submillimeter Observatory. Using the results from the spectral analysis of these observations, the influence of physical environment on molecular complexity can be examined. Our broader research goal is to improve astrochemical models to the point where accurate predictions of complex molecular inventory can be made based on the physical and chemical environment of a given source. The CSO observations include a statistically-significant sample of sources, cover a range of physical environments, and target selected frequency windows containing transitions from a set of known complex organic molecules. We are now analyzing these line surveys to search for correlations between the relative abundances of organic molecules and the physical properties of the source (i.e. temperature, density, mass, etc.), as well as correlations between sets of molecules. Here we present the results from the initial quantitative analysis of these surveys, as well as chemical trends that have been determiend. The implications of these results for astrochemical models will also be discussed.