

THE ALMA ORION BAND 6 SCIENCE VERIFICATION DATA SPECTRAL LINE SURVEY - CONTENT AND DISCOVERY AVAILABLE FOR ALL SCIENCE

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This presentation will provide an overview of the ALMA Science Verification observations taken toward the Orion KL region - the most massive star forming region to the Solar System at a distance of ~ 450 pc - in a 30 GHz total bandwidth spectral survey in ALMA Band 6 from 214 - 246 GHz frequency range (lower 2/3 of the total frequency coverage available in ALMA Band 6). In total, over 70000 spectral channels were observed over the 30 GHz of bandwidth. To make a fully cleaned image of these ~ 70000 channels would require (at the very least) several thousand unique clean boxes for the molecular emission. This is because the molecular emission is not uniformly distributed but rather concentrated toward several distinct regions and these regions all contain distinct chemistry which lead to unique molecular emission features toward each site. A rough approximation of the spectrum taken toward the Orion "hot core" pointing position gives ~ 20 lines per 200 MHz of bandwidth above a signal-to-noise ratio of 5 (the noise level in the maps is ~ 50 mJy/beam) for a total of ~ 4000 spectral features. To date these data have resulted in 9 referred publications since 2012. In just over an hour, ALMA has collected more interferometric data toward the Orion KL region at 1mm wavelengths than all other arrays