Molecular Lines Observed with DRAO 2mm Reciever

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In the last winter, we performed the 2 millimeter-wave spectrun survey between 124 GHz and 161 GHz of the star-forming KL region of Orion at a resolution of 1 MHz and 0.25 MHz. About 78 molecular lines are identified such as CH_3OH, SO_2, SIO, CH_3CH_3OH, CH_2CN, etc. And some other lines have been onserved as a mirror image due to DSB mode. Observation was taken with integration time of about 800 seconds. With this survey, we could check the performance and stability of our 2 mm reciever.

An Analysis of Infrared Images of Jupiter Impacted by P/Shoemaker-Levy 9

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We analyze IR images of jupiter which were obtained at McDonald Observatory, Texas, U.S.A. during impacts and about week follwing the last impact. The IR images were i\on the 2.7 m telescope using NICMOS array (Rokcam) with filter to isolate the 1.5 μm NH_4 band, the 2.12μm $H_2S(O)$ pressure induced dipole absorpiton and the continuum at 1.58μm and short K-band. All imags exept those with the 1.58 μm continuum filter show bright impact site against the relatively dark Jovian disk at the impact latitude of 45° S. This implys that dusts orginated from the impacts reflect the solar radiation at high altitude before absorbed by stratospheric methan, ammonia or H_2. The impact sites observed with the 2.3 μm filter are most conspicuously bright against a very dark background deu to strong absorption of stratospheric methan. The morphology of impact sites, G, L, and H in images with the 2.3 and 2.12 μm filters shows clearly an asymmetric structure toward the incident direction of the comet fragments, in ageement with studies of visible impact images obtained with Hubble Space Telescope. We compare the morphology of the impact sites among the images taken at different times after the impacts, and find that the impact dusts were spreading significantly in the direction of the tropospheric latitudial sheer over 10-20 days. We quantify the brightness of impact sites relative to Io's in the same images in order to effective albedoes of the impact sites. By applying a simple radiative trasfer model in which the solar radiation is reflected by a dust layer located in the stratoshpere, we derive optical depths of the impact sites, which can constrain total mass of dusts produced by each impact of the comet fragments. The altitude level of the impact dust layer will be estimated from the radiative trasfer model fit to the observed IR images with various filters.