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Progress Report of Antarctic 30cm submm telescope

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We have developed a 30-cm submm telescope which was designed to be operated in Antarctica (Ishii et al. 2014). We are planning to transport the telescope to Dome Fuji in Antarctic plateau to make a survey of the Galactic plane in CO(J=4-3) and $[C\text{I}](^3P_1 - ^3P_0)$. $[C\text{I}](^3P_1 - ^3P_0)$ is a good tracer of diffuse molecular gas, while CO(J=4-3) is a good tracer of warm and dense molecular gas associated with star forming regions. Since the beam size is $\sim 9'$ which is comparable to that of the Columbia-CfA 1.2m survey in CO(J=1-0), we can make direct comparisons with the lower excitation CO line to investigate the physical condition of molecular gas. We are updating the 500 GHz SIS receiver using state of the art SIS mixer developed by ATC of NAOJ. The mixer enables us to observe the two lines simultaneously. We also have developed an optical pointing system which can be used in summer of Antarctica, that is, daytime. We will apply for general observational research of National Institute of Polar Research of Japan.

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