630

THE FORECAST FOR HEAT ON DOME A: THE HIGH ELEVATION ANTARCTIC TERAHERTZ TELESCOPE

C. K. Walker, C. Kulesa, J. W. V. Storey

[1]University of Arizona, Tucson, Arizona, United States, [2]University of New South Wales, Sydney, Australia

HEAT, the High Elevation Antarctic Terahertz Telescope, is a multi-national project to deploy an automated 0.5 meter far-infrared telescope at the summit of Dome A, the highest point on the Antarctic plateau. HEAT will operate in the atmospheric windows between 150 and 400 microns, in which the most crucial astrophysical spectral diagnostics of the formation of galaxies, stars, planets, and life are found. At these wavelengths, HEAT will have excellent atmospheric transmission most of the year. The primary instrument on HEAT will be a heterodyne receiver system optimized to observe the pivotal J=7-6 line of CO, the J=2-1 line of atomic carbon, and the far-infrared fine structure lines of N+ and C+, the brightest emission lines in the Milky Way. HEAT will be the most powerful instrument for reconstructing the history of star formation in our Galaxy. In our presentation we will discuss the design and logistics of HEAT and how they address the project's scientific objectives.