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Advantage of Space Debris Observation in Antarctica

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Increasing space debris has seriously threatened the safety of spacecraft of various countries. The Pole regions are the most densely distributed regions of Low-Earth orbit space debris, and are ideal sites for observing LEO space debris. Investigating Antarctica as a window to the skies for satellite traffic management has been identified as an important goal for Antarctic Astronomy in the proposal of ASTRO Sciences to SCAR. For the first step, we systematically evaluated the performance of space debris observation at Kunlun Station in Antarctica by revisiting archived data taken in polar night, yielding high detection capability and efficiency in comparison with and numerical simulations. In this year, we plan to deploy small telescope array and carry on small scale survey of space debris as further experiment at Zhongshan Station in Antarctica. In this talk, we will also report the preliminary results of site testing taken at Taishan Station, which is almost in halfway from Zhongshan to Kunlun Station, and the development of logistics in CHINARE.

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