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THE GATTINI ASTRONOMICAL SITE TESTING INSTRUMENTS FOR DOME C, ANTARCTICA

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The Gattini instruments will study the quality of the night sky above the high altitude site of Dome C, Antarctica, to investigate the viability of future visible astronomy at the site. The instruments were funded by INAF:Arcetri Observatory and the University of New South Wales, Australia and form part of the IRAIT project, an Italian project based at the University of Perugia. The Gattini instruments have been made possible only through substantial international collaboration, including logistical support from PNRA and IPEV.

The Gattini cameras are two site testing cameras for the measurement of optical sky brightness, large area cloud cover and auroral detection. The cameras are transit in nature and are virtually identical, both adopting Apogee Alta CCD detectors. The camera called Gattino-SBC images a 6 degree field centred on the South Pole. The camera takes repeated images of the same 6 degree field in a standard astronomical filter band. By adopting a lens with long enough focal length one can integrate the sky background photons and directly compare to the measured magnitude of the stars within the field. The second camera, called Gattini-allsky, incorporates a fish-eye lens and images ~110 degree field centred on local zenith. By taking frequent images of the night sky we aim to obtain long term cloud cover statistics and directly measure the spatial extent of bright aurora if present and when they occur.

An overview of the project will be presented together with a summary of the science possible with such instruments, in particular the long term photometric study of variable stars with the field of view of the Gattino-SBC camera.