

Media Release

Australian Astronomers Reach the South Pole!

UNSW astronomers have made the first measurements of the infrared emission from the sky above the South Pole. This is the first step towards the construction of an international astronomical observatory on the high Antarctic plateau, most of which lies within the Australian Antarctic Territory.

The unique combination of cold, dry and tenuous air makes the Antarctic Plateau the premier location on the Earth for the observation of light from distant stars and galaxies. The harsh Antarctic environment has till now prevented astronomers from utilising the great potential that the Plateau offers for the advancement of our knowledge of the Universe.

A group from the Department of Astrophysics at UNSW (Professor John Storey, Drs. Michael Ashley and Michael Burton, and graduate students Jamie Lloyd and Rodney Marks) have recently accepted the challenge to bring astronomy to Antarctica. They have designed two experiments to quantify the conditions which affect the conduct of astronomical observations.

The first measures the brightness of the sky at infrared wavelengths; the second measures the 'seeing', or the amount of twinkling of the stars due to the Earth's atmosphere. They are being conducting in collaboration with a US group, the 'Center for Astrophysical Research in Antarctica' (CARA), and with the Université de Nice in France.

In January and February this year two astronomers from UNSW, Jamie Lloyd and Michael Burton, made the expedition to the South Pole to initiate these experiments. Working in temperatures that dropped beneath 40 degrees below zero, they were successfully installed. One involved working on a tower over 25 metres tall for several hours!

These experiments are designed to operate over the coming Antarctic winter, under the supervision of a CARA scientist, John Briggs. They are even capable of being controlled directly by computers from the UNSW Sydney laboratories.

They are the first steps in international moves to develop an astronomical observatory on the highest part of the Antarctic Plateau. Their object is to gather critical information pertinent to the operation of such an observatory, including how to tackle the supreme technological and engineering challenge it provides. With their successful implementation we have demonstrated that Australian scientists have the necessary expertise to play a leading role in what promises to be one of the major scientific endeavours of the next century.

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Dr. Burton is a lecturer in physics and astronomy at UNSW. He is a specialist in infrared astronomy, researching in the fields of star formation and the interstellar medium. He is chair of the Australian Working Group for Antarctic Astronomy, which recently produced a detailed report on the scientific potential of the Antarctic Plateau for astronomy. He has recently returned from the South Pole, where he installed the first Australian astronomical experiments on the Plateau.