

Dr Craig Kulesa
University of Arizona
933 North Cherry Ave
Tucson, AZ 85721

5 June 2008

THE UNIVERSITY OF
NEW SOUTH WALES



School of
PHYSICS

Dear Craig

HEAT: A High Elevation Antarctic Terahertz telescope

This is to confirm that the Antarctic Group at the University of New South Wales is an enthusiastic and committed partner in the HEAT collaboration. The key Faculty personnel are:

- Professor Michael Ashley
- Professor Michael Burton
- Professor John Storey

In addition, postdoctoral fellow Dr Jon Lawrence and our postgraduate students Daniel Luong-Van and Colin Bonner will also contribute at various levels.

The outstanding success of the preHEAT experiment at Dome A, and the excellent three-way collaboration that has developed between the US, Australia and China, adds to the already compelling scientific case for the HEAT instrument. As a collaboration, we have shown that we can deploy an autonomous laboratory (PLATO) to Dome A, equip it with an impressive array of instrumentation (including preHEAT), and conduct astronomical observations over a period of months. Most importantly, the preHEAT instrument has shown that the site conditions at Dome A for terahertz astronomy are unrivalled.

In 2006 UNSW signed a Memorandum of Understanding with the Polar Research Institute of China and the National Astronomical Observatories of China, for Chinese deployment of our PLATO site-testing laboratory to Dome A as part of their "PANDA" IPY program in 2007 – 8. PLATO was duly commissioned at Dome A in January this year, and has been an outstanding success. As you know, it is currently operating well, returning a wealth of data every day via Iridium and storing yet more data on hard disc drives for retrieval during the next summer season.

An attractive option for HEAT would be to simply install it on this PLATO laboratory during the 2009 – 10 season. We will work with you to explore this option with the newly formed Chinese Center for Antarctic Astronomy. At the present time we do not have the financial resources to refurbish PLATO. New engines and supporting power systems will be required at an estimated cost of \$56k if we are to run PLATO for a further year. However, this is a much more cost-effective option than building an entirely new PLATO.

We could take delivery of the HEAT telescope and receiver from you in June 2009, and integrate it in our laboratory at UNSW during the following months. The complete facility would then be ready to deploy to Dome A during the 2009 – 10 season, for operation there throughout 2010 and beyond. I would like to take this opportunity to invite you, and other members of your team, to spend the northern summer periods of 2008 and 2009 at UNSW. This would be an excellent opportunity for us all to work together on any remaining technical issues prior to deployment.

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Although the Australian Antarctic Division's CASA 212 aircraft are not currently capable of flying to Dome A, we will also explore the possibility of obtaining some logistic support from Australia. This will probably be limited to shipping or flying material from Hobart to Davis Station. By far the best option to support work at Dome A would be a small number of NSF Twin Otter flights directly from South Pole. This would have the added advantage of allowing the HEAT team to acclimatise for a few days at South Pole before heading to the very high (4,500m pressure altitude) Dome A site.

Our site testing work over the past decade has led to the inescapable conclusion that the Antarctic plateau offers quite exceptional observing conditions, particularly in the far-infrared and sub-millimetre. Of all the potential sites, Dome A – which is the highest region of the plateau – will offer conditions that are unrivalled anywhere else on the planet. HEAT is an very well thought-out experiment that will take maximum advantage of the conditions, and deliver some very exciting science. We look forward to making an essential contribution to this project.

Sincerely,

A handwritten signature in black ink, appearing to read 'John Storey'. The signature is fluid and cursive, with the first name 'John' being larger and more prominent than the last name 'Storey'.

Professor John Storey

cc: Professor Richard Newbury, Head of School.