

## **DIVISION IX & X WORKING GROUP ENCOURAGING THE INTERNATIONAL DEVELOPMENT OF ANTARCTIC ASTRONOMY**

**CHAIR**

**Michael Burton**

### **TRIENNIAL REPORT 2006-2009**

#### **1. Overview**

Two major astronomical experiments are underway at the US Amundsen-Scott South Pole Station. The first is the South Pole Telescope, a 10m sub-millimetre telescope designed to measure primary and secondary anisotropies in the CMBR, with the aim of placing constraints on the equation of state for dark energy. The second is the IceCube neutrino observatory, which will be a cubic kilometre array designed to image sources of high energy neutrinos.

The French-Italian Concordia station at Dome C is now complete and operating through the winter. Site testing is underway through the Concordia-astro program. At Dome A, the summit of the Antarctic plateau, China are establishing a new station, and deployed the Australian-built PLATO observatory there for the austral winter of 2008, obtaining the first site testing data from that location. This was a part of an International Polar Year program.

Japan started site evaluation at Dome F in 2007.

The long duration ballooning program run from the US McMurdo Station continues to grow, with multiple programs now able to fly balloons simultaneously.

SCAR, the Scientific Committee for Antarctic Research, have established astronomy as an official Scientific Research Program, one of five such designated scientific programs. The IAU's application to join SCAR was recognised at the Moscow meeting of SCAR delegates in July 2008, making the IAU now the 9th scientific union member of SCAR. SCAR coordinated the International Polar Year, which ran through 2007–08.

#### **2. Meetings Held**

- “Visit to the IRAIT Telescope”, September 12-13, 2006, University of Perugia, Italy. Progress, plans and launch for the IRAIT telescope for Dome C.
- “Large astronomical optical/IR infrastructures at Concordia. Prospects and constraints”, October 16-19, 2006, Roscoff, France. First ARENA Conference.
- “Telescope and instrument robotization at Dome C”, March 26-28, 2006. Puerto Santiago, Tenerife, Spain. Conditions for successful implementation and future operation of robotic telescopes and instrumentation at Dome C.
- “Site testing at Dome C”, June 11-13, 2007, Rome, Italy. Status of Antarctic site testing.
- “Submillimetre astronomy at Dome C”, June 25-27, 2007, Saclay, France. Plans for sub-millimetre astronomy at Dome C.

- “The astrophysical science cases at Dome C”, September 17-21, 2007, Potsdam, Germany. Second ARENA Conference.
- “Wide field telescopes”, March 26-27, 2007, University of Exeter, UK. Plans for wide-field astronomy in Antarctica.
- “Spectroscopy on Dome C: from UV to sub-millimetric wavelengths”, 16-18 April, 2008, University of Granada, Spain. Prospects for astronomical spectroscopy in Antarctica.
- SPIE Meeting, Astronomical Instrumentation: Conference 7012, Session 3: Site Testing in Antarctica and New Antarctic Facilities, June 23-28, 2008, Marseille, France.
- SCAR Meeting, Session 4.2: Astronomy in Antarctica, St Petersburg, Russia, July 8-11, 2008.
- “Time-series observations from Dome C”, September 17-19, 2008, Catania, Italy.
- “Interferometry at Concordia 2”, October 13-14, 2008, Garching-bei-Munchen, Germany.
- “A large astrophysical observatory at Dome C for the next decade”, May 11-14, 2009, Rome, Italy. Third ARENA Conference.

### 3. Major Publications

- “Report on interdivision IX/X working group on encouraging the international development of Antarctic astronomy”, business session at XXVI IAU General Assembly, Prague, August 23, 2006. Transactions of the IAU Vol. XXVI B. Ed. K.A. van der Hucht, in press.
- “Large Astronomical Infrastructures at CONCORDIA, prospect and constraints for Antarctic Optical/IR Astronomy”, proceedings of the 1st ARENA Conference, Roscoff, France, October 16-19, 2006. Editors N. Epchtein & M. Candidi, EAS Publication Series, Volume 25, 2007.
- “The Astrophysical Science Cases at Dome C”, proceedings of the 2nd ARENA Conference, Potsdam 17-21 September, 2007. Editors H. Zinnecker, H. Rauer & N. Epchtein. EAS Publication Series, 2008 (in press).

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*Chair of Working Group*