Astronomy Australia Ltd.

2010/11 Annual Report

Astronomy Australia Limited

Vision

Astronomers in Australia will have access to the best astronomical research infrastructure.

Mission

AAL will achieve its vision by:

1. Engaging with Australian astronomers to advance the national research infrastructure priorities of the Australian astronomy decadal plan.
2. Advising the Australian Government on future investments in national astronomical research infrastructure.
3. Managing investments in national astronomical research infrastructure as required.

Principles

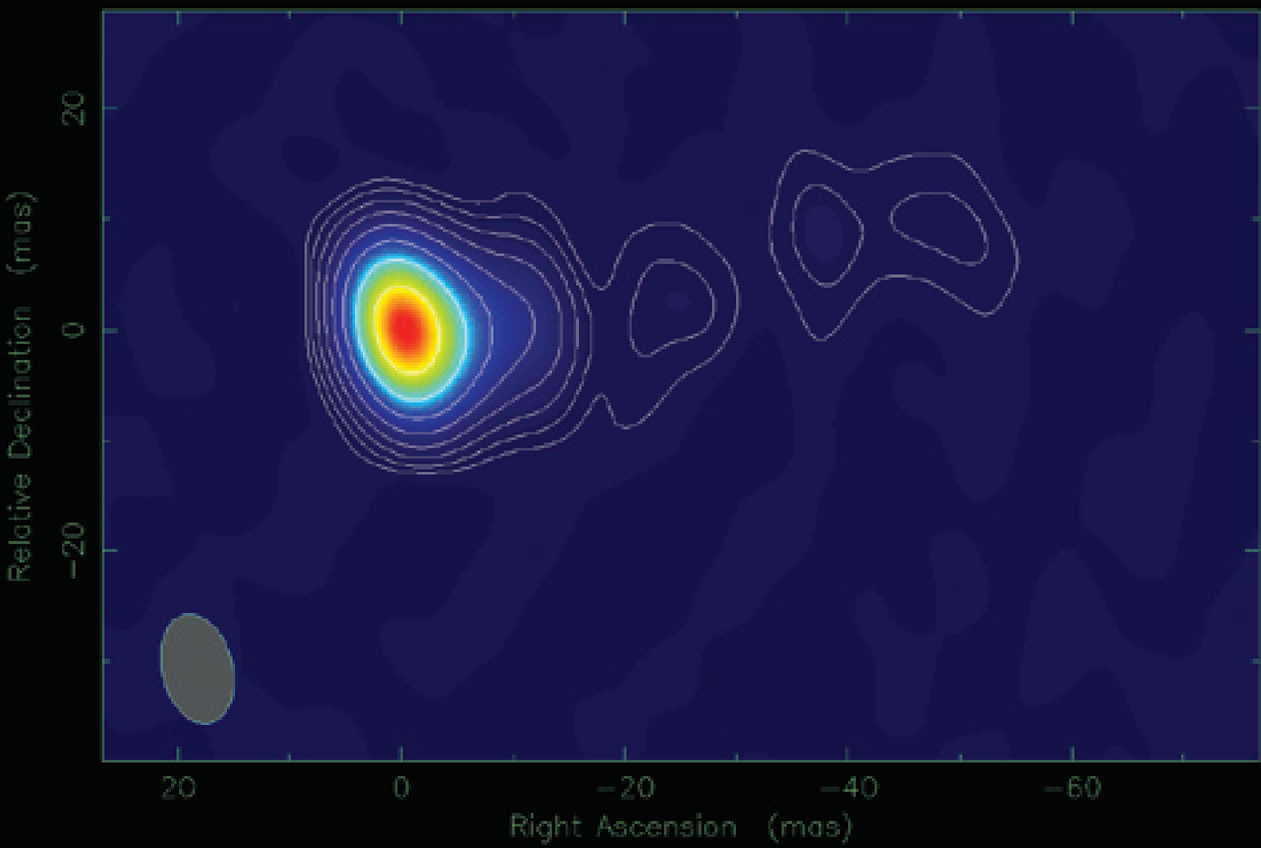
1. Access to major astronomical research infrastructure should be available to any Australian-based astronomer purely on scientific merit.
2. The concept of national astronomical research infrastructure includes Australian participation in international facilities.
3. The AAO and CSIRO are empowered by the Australian Government to provide a component of the national astronomical research infrastructure and there is no need for AAL to directly manage investments to upgrade or operate the AAT and ATNF.

Front cover image

The winning image from the 2010 Gemini School Astronomy Contest, organised by the Australian Gemini Office. The image, suggested by Astronomy Club of Sydney Girls High School, shows the collision between two galaxies NGC 6872 and IC 4970 (the smaller galaxy right of centre). Image credit: Sydney Girls High School Astronomy Club, Travis Rector (University of Alaska, Anchorage), Ángel López-Sánchez (Australian Astronomical Observatory/Macquarie University), and the Australian Gemini Office.

Background image

The Gemini South laser guide star “constellation” (upper left) is captured in this image by the lead of Gemini’s Optical Systems Group Maxime Boccas and Science Fellow Benoit Neichel. The image shows the 50-watt laser beam as it shines upward toward the atmospheric sodium layer about 90 kilometers above the earth’s surface to create a pattern of five artificial guide stars used to sample atmospheric turbulence for the Gemini Observatory’s GeMS adaptive optics system. This laser system is used in conjunction with the ANU-built Gemini South Adaptive Optics Imager (GSAOI) and will give Australian astronomers access to the world’s only multi-conjugate adaptive optics (MCAO) system, delivering uniformly high image quality over a much larger field than previously achievable. Image Credit: Gemini Observatory/AURA.



PKS 0637-752, observed at 1.4 GHz with the first e-VLBI observations to use the new ASKAP and Warkworth telescopes, and the NBN/CSIRO/NRN/AARNet fibre connection between the MRO and Perth. PKS 0637-752 is thought to harbour a binary supermassive black hole. Image credit: CASS and ICRAR VLBI and ASKAP teams.

Contents

11 A message from the Chair

This is my first message as Chair, having been elected to this position at the Annual General Meeting of AAL held in November 2010. I feel truly honoured to serve in this position, and to have the privilege of working with such a talented Board of Directors in taking AAL forward in both new directions as well as maintaining its core business of managing research infrastructure funding for Australian astronomy. I would also like to pay tribute to my predecessor, Dr Martin Cole, for his contributions and leadership in being Chair of AAL over its first four years.

In reflecting upon AAL's achievements and progress in the 2010/2011 financial year, that are documented in this Annual Report, one is reminded that a point in time has been reached which is very important for AAL in two respects: Firstly, it is evident that AAL is now a mature and well-established organization that has gained the respect of both government and universities/research institutions across Australia. Testament to this was its receipt of further new funding from government, in this case to pay for Australia's access to the 8m Gemini telescopes in the 2013-2015 period, maintaining its share at the current 6.2% level. In addition, AAL acquired a new member – the University of Adelaide – whom we warmly welcome. Secondly, 2010/2011 was the final year of NCRIS, thus bringing to an end the program that has largely funded AAL and its projects since its creation.

Motivated by these two points, the AAL Board held a strategy day in April to reassess AAL's vision, and to map out a set of objectives for achieving this vision. This resulted in a new, more simplified vision for AAL: to ensure Australian astronomers have access to the best astronomical research infrastructure. In setting this vision, the Board sees AAL having two key roles to play – to adhere to and implement the priorities and goals set out in the Australian Astronomy Decadal Plan, and to provide the government with prudent and timely advice on astronomy research infrastructure investments. Working within this framework and with the very recent Mid-Term Review of the Decadal Plan, the following clear set of objectives for AAL over the next few years have been laid out: to develop a compelling astronomy investment plan within the *2011 Strategic Roadmap for Australian Research Infrastructure*, to secure the funding for that plan, to work towards Australian membership of the European Southern Observatory, and to expand the strategic relationships held with international partners.

These new objectives do not of course encompass all of AAL's activities as it heads into the next financial year. AAL will have a $10M EIF grant to manage, that in turn will fund nine quite diverse and exciting infrastructure projects that will provide new capabilities for Australian astronomers.

It will also continue to manage its overseas funding commitments and responsibilities associated with Australia's access to the Gemini and Magellan telescopes and engagement in the Giant Magellan Telescope project.

In terms of the operation of AAL, the Board also strives to improve the company's performance so that its runs more efficiently and effectively, and delivers greater benefits to its stakeholders. One area that has been put at high priority over this last year has been to further develop and improve AAL's lines of communication with its stakeholders.

Receiving the best possible advice is also critical to AAL's effectiveness, and to this end two new advisory committees were created at the beginning of 2011: the Radio Telescopes Advisory Committee (RTAC, with Prof Anne Green its inaugural Chair), and the Astronomy eResearch Advisory Committee (AeRAC, with Dr Darren Croton its inaugural Chair). The former fills an important hole, given that AAL has, up until now, never had a formal radio advisory committee. The latter recognizes the fast emerging importance of eResearch within Australian astronomy and hence AAL's portfolio. I also note that the AAL Board has recognized that the issue of gender balance on its advisory committees needs to be addressed, and has adopted a target that 25% of the members of such committees be female.

Finally, I am very pleased to report one other important operational change, and that is the elevation of Mark McAuley from Chief Operating Officer to Chief Executive Officer of AAL. This reflects both AAL having matured and developed to the point where the Board sees it necessary that it now have a CEO, as well as the Board having every confidence in Mark's abilities to take on the CEO role, given his outstanding performance as COO. Together with the Board, I very much look forward to working with Mark as AAL carries out its mission over the coming years.

Prof Warrick Couch
Chair

11 A message from the CEO

I am delighted to report that AAL has concluded yet another productive year, with new astronomy investments secured from the Australian Government and progress made with many AAL funded projects. Highlights for the year include: the completion of the automated observing platform PLATO-F, built by the University of New South Wales, and deployed by the Japanese National Institute for Solar Research to Dome Fuji in Antarctica; securing ongoing Australian access to fifteen nights per year on the Magellan telescopes until mid-2013; and, the appointment of two support personnel at the Australian National University and Swinburne University of Technology to assist the Australian astronomical community in the use of national supercomputer facilities. AAL also secured an additional three million dollars from the ARC during 2010/11 for access to Gemini: along with an almost one million dollar contribution from the Australian Astronomical Observatory, Australia is now funded to remain as a 6.2% partner in Gemini when the International Gemini Partnership Agreement is extended until 31st December 2015.

The 2010/11 financial year marked the formal completion of the Radio and Optical Astronomy NCRIS grant, the programme which triggered the creation of AAL. By the 30th June 2011 the vast majority of the NCRIS grant had been spent, with the few remaining investments to be made agreed with the Australian Government. The projects which received the majority of the NCRIS funding were: Australian access to the Gemini and Magellan telescopes; contributions to Australian SKA Pathfinder and Murchison Widefield Array construction at the Murchison Radio-astronomy Observatory; and, refurbishment of, and a new instrument for, the Anglo-Australian Telescope. Some NCRIS funding was also allocated to Antarctic astronomy, an investigation into the federation of national astronomy datasets (to be conducted during 2011/12), and to the Giant Magellan Telescope Design and Development Phase. (See pages 6-10 for a summary of the NCRIS programme.)

As AAL moves beyond the end of NCRIS it has new challenges and opportunities to explore. Specifically, AAL has prepared for the start of the Astronomy EIF grant, a ten million dollar programme of nine discrete projects that begins in July 2011. The Astronomy EIF Funding Agreement is already in place between AAL and the Department of Innovation, Industry, Science and Research (DIISR), and contractual arrangements have been made for seven of the nine projects. The first new Astronomy EIF facility to be available will be gSTAR, a GPU-based supercomputer hosted by Swinburne University of Technology and dedicated to astronomical research. gSTAR will be available to the astronomy community from late-2011.

Australian Government investments in research infrastructure for the next five years will be greatly influenced by the research infrastructure roadmap being produced by DIISR. I was grateful to have the opportunity to address DIISR's Frontier Technologies Expert Working Group in February 2011 on this subject, and AAL subsequently made a major submission to DIISR and their expert working group in May 2011. Our submission included a position paper on Australian membership of the European Southern Observatory (ESO), and I was delighted to note that the draft research infrastructure roadmap published in June 2011 referenced the ESO option.

The release of the Australian Academy of Science's Mid-Term Review of the 2006-2015 Australian Astronomy Decadal Plan will guide AAL as we seek to engage with the Australian Government during 2011/12 on ESO and other astronomy research infrastructure priorities.

Mr Mark McAuley
CEO

Radio and optical astronomy NCRIS programme – a history

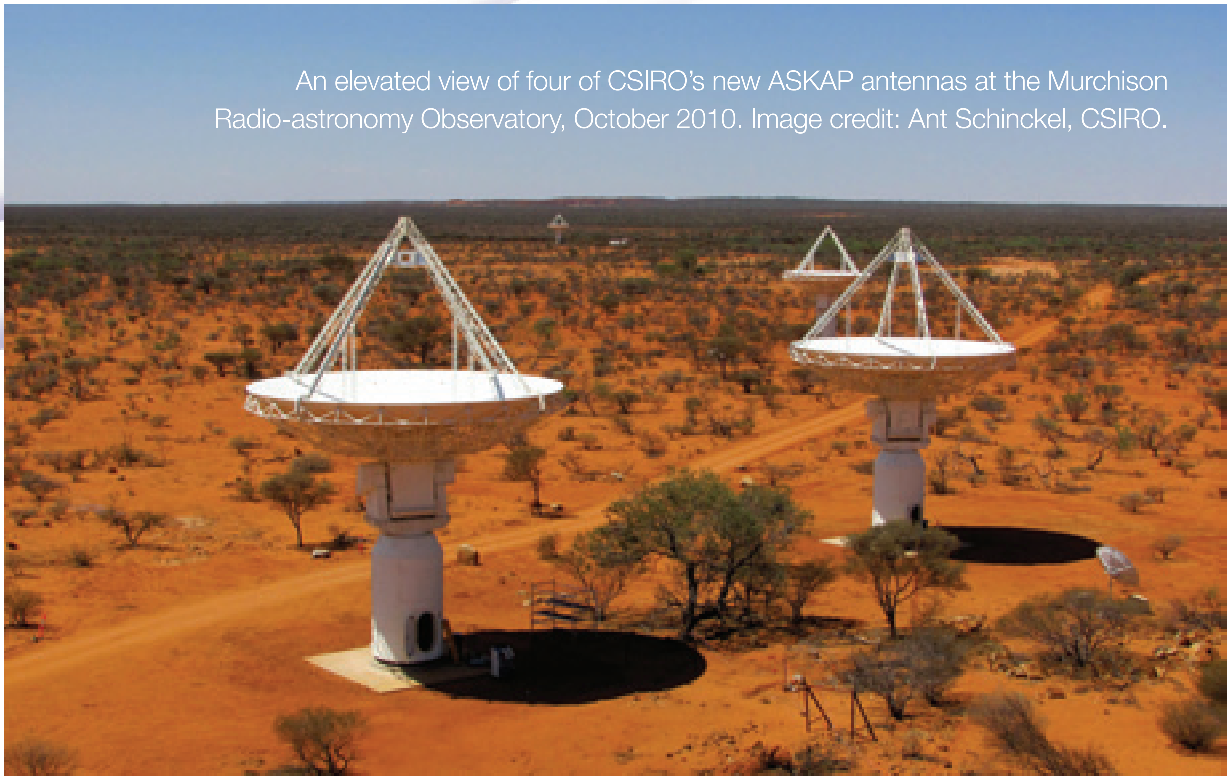
The radio and optical astronomy NCRIS programme officially ended on 30th June 2011. Below is a brief history of the programme.

In November 2005 the National Committee for Astronomy of the Australian Academy of Science published ‘New Horizons: A Decadal Plan for Australian Astronomy 2006 – 2015’. Three months later the Australian Government published its ‘National Collaborative Research Infrastructure Strategy (NCRIS) Strategic Roadmap’. Both of these publications informed an infrastructure investment planning process facilitated by Dr Brian Boyle (CSIRO). In November 2006 this process resulted in the Australian Government agreeing to fund a forty-five million dollar ‘Radio and Optical Astronomy Investment Plan’.

During the facilitation process Mr Mark McAuley (CSIRO) was engaged to assist with governance and finance matters. The model agreed with the astronomy community was to create a company, Astronomy Australia Limited (AAL), to manage the astronomy NCRIS grant and potentially future research infrastructure grants. Following Australian Government support for the Investment Plan, AAL was incorporated on 18th April 2007. By 30th June 2007 AAL had signed the astronomy NCRIS funding agreement with the Australian Government and received the first ten million dollars under that agreement. The astronomy NCRIS programme had started.

Four years later, on 30th June 2011, the astronomy NCRIS programme is nearing completion. During those four years AAL has invested approximately fifty-three million dollars into astronomical research infrastructure. This investment was mostly funded by NCRIS, but also by ARC LIEF and MNRF grants, and substantial interest earnings.

AAL’s strategy over the NCRIS programme has been informed by the priorities of the National Committee for Astronomy’s Decadal Plan. The highest optical astronomy priorities from the Decadal Plan were to maintain and enhance access to 8 metre class telescopes, to advance Australia’s interest in Extremely Large Telescopes, and to maintain the capability of the Anglo-Australian Telescope for the forthcoming decade. The highest radio astronomy priority was to enhance Australia’s engagement in the international SKA project through the development of pathfinder infrastructure at Australia’s proposed core site for the SKA.



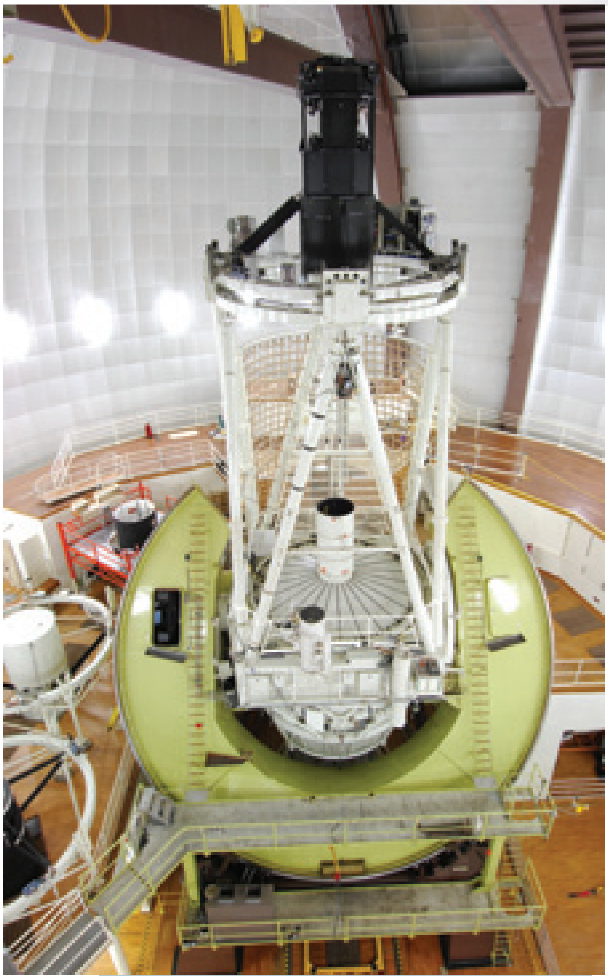
An elevated view of four of CSIRO's new ASKAP antennas at the Murchison Radio-astronomy Observatory, October 2010. Image credit: Ant Schinckel, CSIRO.

Murchison Radio-astronomy Observatory (MRO) ($19,210,000):

AAL made its largest investment in Australian SKA pathfinders at the MRO in Western Australia. The majority of this investment was contracted to CSIRO to advance ASKAP's Digital Systems. The digital systems consist of the beamformers and the central correlator, making it one of the primary enabling technologies for ASKAP. AAL also invested substantially in the Murchison Widefield Array (MWA) via Curtin University. Major science programmes are scheduled to commence in 2013 on both ASKAP and MWA. Updates on the SKA pathfinders can be found on pages 20-21.

Anglo-Australian Telescope (AAT) ($11,520,000):

When NCRIS started the future of the AAT looked uncertain due to the planned UK withdrawal from the Observatory. Despite this uncertainty, and guided by the strong support received for the AAT in the Decadal Plan, AAL invested in a new instrument for the AAT, and a major refurbishment of the AAT dome and auxiliary equipment.



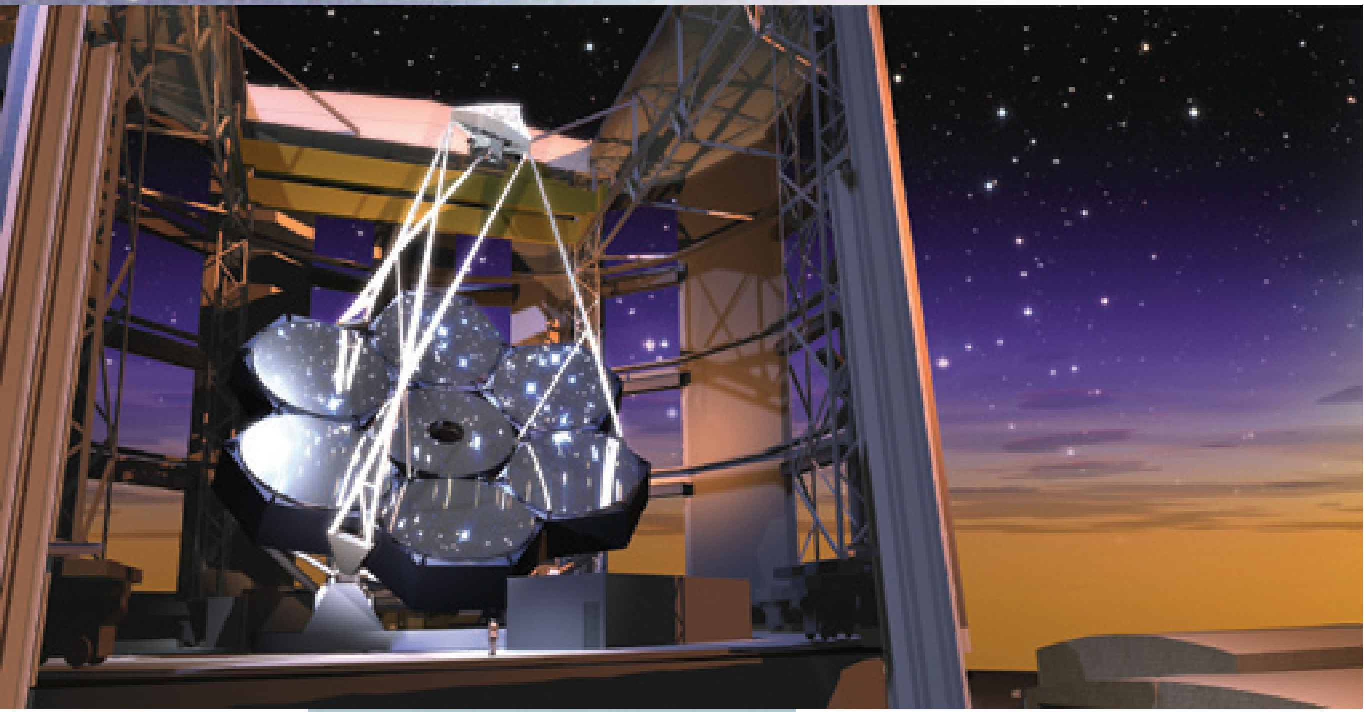
The 3.9m Anglo-Australian Telescope. Image credit: Fred Kamphues.

Gemini and Magellan ($15,973,923):

During the life of the NCRIS programme AAL became responsible for managing all of the funding used for national access to overseas optical telescopes. AAL's investments have funded Gemini access from 2008 until 2012 inclusive, and Magellan access from 2009 until mid-2011 inclusive. Australian access to the Gemini and Magellan telescopes is the premier optical telescope access granted as part of Australia's national astronomy programme. Although beyond the scope of this summary, it is also worth noting that AAL has secured additional grants to fund Gemini and Magellan access beyond the above dates. Updates on Gemini and Magellan can be found on pages 14-17.

During 2008/09 AAL also supported AAT operations to help compensate for reductions in the AAT's operating budget. It is therefore reassuring to reach the end of NCRIS in the knowledge that the AAT's future is secure, and its new instrument, HERMES, is scheduled to commence science programmes in 2013. Updates on the AAT refurbishment and HERMES can be found on pages 12-13.

Star trails over Gemini North. Image credit: Gemini Observatory/AURA.



Artist's Impression of the GMT at Las Campanas. Image credit: GMTO Corporation.

Extremely Large Telescopes (ELTs) ($4,827,848):

In 2008 AAL published, 'Australian National Astronomy Facilities: A guide for decision-makers'. This publication included a strategy for Australian participation in ELTs: "The global landscape for large optical telescopes presents options on how to achieve Australia's goals. Therefore the Australian Government should explore joining the European Southern Observatory (ESO), which would also provide access to large optical telescopes. This would position Australia to choose between two possibilities [ESO and GMT/Gemini/Magellan] for access to large optical telescopes". To advance this strategy, AAL invested in the Giant Magellan Telescope (GMT) Organisation at a level to secure a five percent share in the project at the end of its Design and Development Phase in late-2012. AAL has also developed a position paper on Australian membership of ESO. More work is required in future years to ensure Australia has appropriate national access to Extremely Large Telescopes. An update on GMT can be found on pages 18-19.

PLATO at Dome A.
Image credit: Zhenzi Zhu, Purple Mountain Observatory.

Antarctic astronomy: ($1,370,000):

In support of the Decadal Plan, AAL invested in a concept design study for a 2.5 metre optical/infra-red telescope (PILOT) at Dome C in Antarctica. Following an independent expert review AAL saw significant merit in ongoing Antarctic activities but found the PILOT project beyond the scope of available funding.

AAL instead has maintained Australia's strategic position in Antarctic astronomy by investing in more affordable projects. AAL invested NCRIS funds into two PLATOs (Antarctic robotic observatories) constructed by UNSW. An update on PLATOs can be found on page 22.

Project Reports

Assembly of gSTAR racks in the Swinburne Data Centre.
Image credit: Gin Tan, Swinburne ITS.

AAT Upgrade

The NCRIS funded project to refurbish the Anglo-Australian Telescope (AAT) has made significant progress this year with a number of large projects either underway or completed. Described below are the main two projects: the dome cranes upgrade, and the shutter brakes installation. Other projects undertaken this year include: the completion of the replacement of the 40-year old standby generator; the completion of the upgrade to the three lifts in the AAT building; and the start of work, in conjunction with the ANU, to replace the aging high voltage switchgear.

Dome Cranes

The 7- and 46-tonne cranes mounted on the dome arch girders are a vital part of the operation of the AAT and are in regular use, carrying out top-end instrument changes three or four times a month.

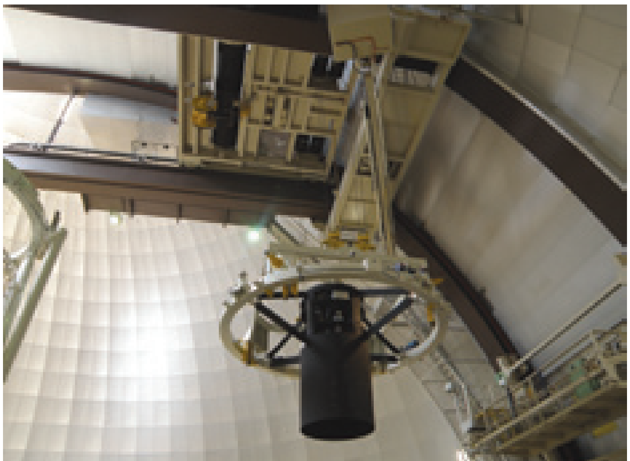
The 46-tonne crane is used for the delicate operation of removing and replacing the telescope primary mirror for its essential annual re-aluminising. The control systems for both cranes are in a poor state of repair, posing a fire hazard as well as becoming unreliable in recent years. After a competitive tender exercise, a contract to replace the control systems for both cranes was awarded to Demag Cranes, who are scheduled to commence in September 2011.

Shutter Brakes

The largest single project of the AAT upgrade is the installation of emergency brakes for the dome main shutter. The main shutter of the AAT dome is a 17-tonne structure designed to protect the telescope from the adverse effects of weather. During fine weather the shutter is raised over the dome to expose the telescope to the night sky, and closed at the end of the night.

The shutter was originally designed to have two emergency brakes, one either side, to prevent the shutter falling to the ground in the event of a drive system failure. The emergency brakes have proven unreliable over the years with one of them being removed shortly after commissioning in the late 1970s. The design of the AAT shutter is largely based on similar dome shutters on 4 metre telescopes located at Kitt Peak in Arizona and Cerro Tololo in Chile. Both of those shutters have at various times fallen, resulting in structural damage.

A conceptual design has been developed by the AAO for a replacement emergency brake system. After a competitive tender exercise, a contract to develop the concept to a design stage and install the system was awarded to PM Designs, an engineering company based in Geelong. Work has started on the design with the installation expected to be completed by May 2012.



The f/36 top-end being craned onto the telescope.
Image credit: Steve Chapman.

HERMES

HERMES is a multi-object, fibre-fed spectrograph under development at the AAO, partially funded by NCRIS. Progress with HERMES this year has been good, with a number of major milestones being achieved and some technical challenges being solved.

Final Design Review

In December, the HERMES Final Design Review (FDR) was conducted at AAO Epping. The review found the project needed to resolve outstanding issues with the VPH gratings, and complete the spectrograph base frame design.

Since then the AAO has found two vendors that can meet the technical requirements for the VPH gratings, meaning this issue is now largely resolved. The AAO has also completed testing of its VPH grating prototypes and a contract has been awarded to a vendor to purchase the VPH grating glass.

In response to the second FDR issue, the AAO has added external resources to assist in the completion of the spectrograph base frame design.

Component Procurement

To date, 85% of the camera lenses for HERMES have been cut, ground and polished. The remainder of the camera lenses and barrels are scheduled to be received by February 2012. Of the 82 required fibre optical cable bundles, 21 have been manufactured and tested. In addition the collimator mirror and its mount have been manufactured, and the mirror is awaiting coating.

Inside the new integration lab with FDR reviewers (from right to left)
Dr Gordon Robertson (U.Sydney),
Professor Matthew Colless (AAO's Director),
Professor Joss Bland-Hawthorn (U.Sydney),
Dr Sam Barden (NOAO),
David Orr (AAO),
Mark Bowen (CSIRO),
Dr Pascal Xavier (AAO),
Ross Forsyth (CSIRO),
Anthony Heng (AAO's HERMES Project Manager).
Image credit: AAO HERMES Project.

Other parts of the system have also been advanced; the Bonn system shutters are in their testing phase and will sent to AAO in September; two of the beam-splitters have been received and are currently undergoing testing before being sent out for coating; testing of the blue engineering-grade and one science-grade detectors is in progress; the fibre optic cable bundle has been prototyped and tested; and a prototype button prism has been tested and the results have exceeded specification.

Gemini

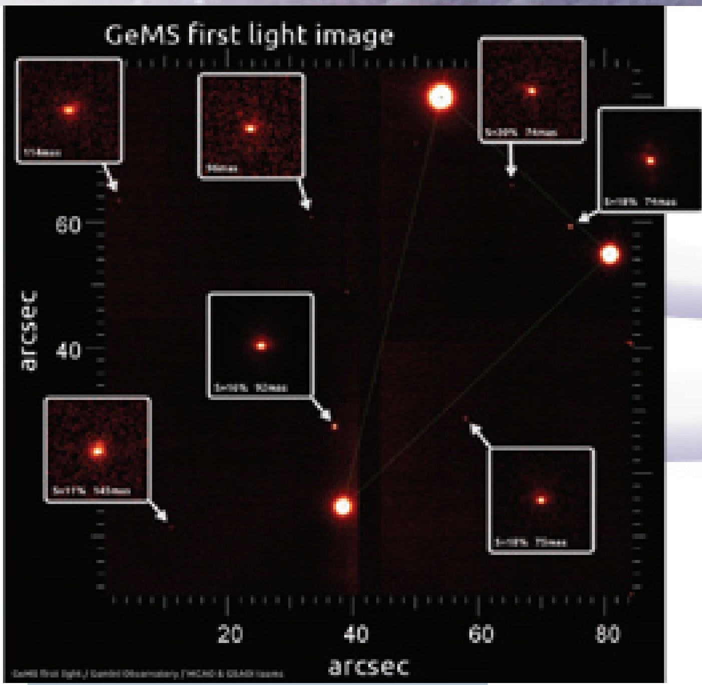


Image credit: Gemini Observatory/ MCAO & GSAOI teams.

Australia has a 6.19% share of time on the twin 8.1 metre telescopes on Mauna Kea in Hawaii and Cerro Pachon in Chile operated by the Gemini Observatory, an international partnership which currently also includes the USA, UK, Canada, Argentina, Brazil, and Chile. Australian membership of the Gemini Observatory is funded jointly by the Australian Research Council and by NCRIS funds administered by AAL.

Australia plays an important role in providing instrumentation for the Gemini telescopes. On 6 May 2011, the Gemini Observatory issued a Request for Proposals for Conceptual Design Studies for a Gemini High-resolution Optical Spectrograph (GHOS). A team led by Dr Michael Ireland from AAO/Macquarie University with involvement from AAO and RSAA, as well as KiwiStar Optics in New Zealand has submitted a bid for a concept design study, building upon the AAO's experience with the CYCLOPS image slicer and fibre-feed for UCLES, as well as HERMES and the multi-object fibre positioner MANIFEST for GMT.

The Gemini Multi-Conjugate Adaptive Optics System (GeMS) consisting of the Canopus optical bench, a 50 W laser to produce a "constellation" of five laser guide stars over an 85" field, and the Gemini South Adaptive Optics Imager (GSAOI), built by RSAA at ANU, has been undergoing commissioning in five-night blocks each month throughout Semester 2011A. While initial results are promising, much work remains to be done to tune the full system and the many control loops which must operate to correct for atmospheric turbulence across the full field of view. The image shown here is an "engineering first light" image from GeMS taken on 19 April 2011 and demonstrates that already the system can deliver remarkably uniform images across most of the GSAOI field.

Gemini Science Highlight

The Near-infrared Integral Field Spectrograph (NIFS) instrument, built by RSAA at ANU, is routinely used with both the natural and the laser guide star adaptive optics systems on Gemini North.

Jeremy Bailey (UNSW) has obtained observations of Saturn's moon, Titan, in the J, H, and K bands using the NIFS and the ALTAIR adaptive optics system to carry out a new analysis of Titan's spectrum. Reconstructed images of Titan extracted from the K-band spectral cube at three wavelengths are shown in the figure. The spectrum is dominated by a series of absorption band systems due to methane. Until recently it has been impossible to model the spectrum of Titan in the wavelength regions below ~2.1 microns, because the methane line lists were inadequate. Recently new laboratory data on the methane spectrum has become available. Bailey et al. (2011, Icarus, 213, 218) have used this data in conjunction with measurements of Titan's aerosol properties, surface albedo and atmospheric structure from the Huygens lander, to construct a new radiative transfer model for Titan's atmosphere. The model predicts a spectrum from 1.3–2.4 microns that is in good agreement with the observation. Once the methane lines are fitted, the absorption due to other trace constituents can be easily seen, and the data used to measure the CO abundance, and D/H ratio from features in the 1.55 micron window region. Bailey et al. have identified a series of lines in the 2 micron region with previously unrecognised bands of CH_3D.

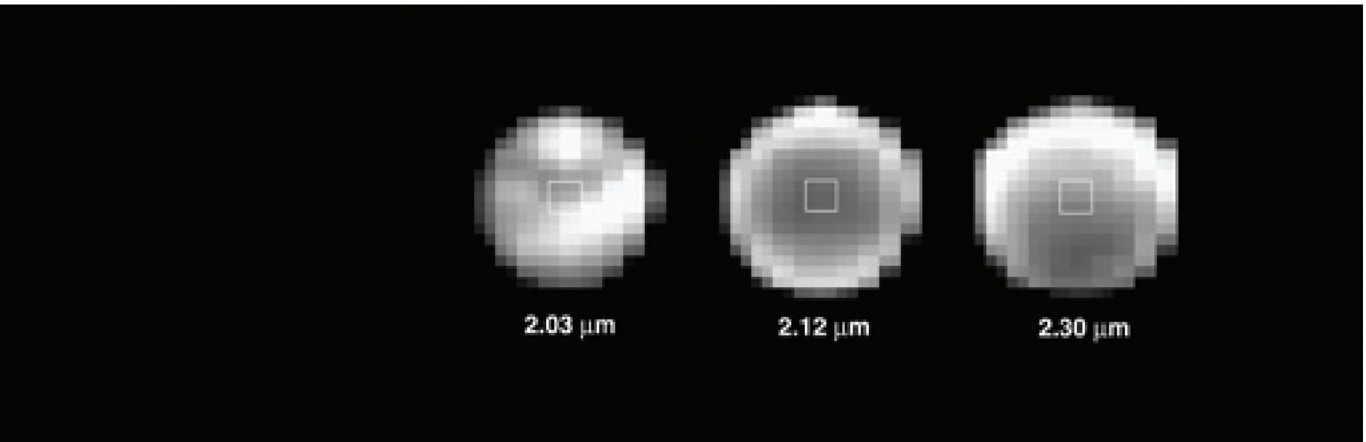
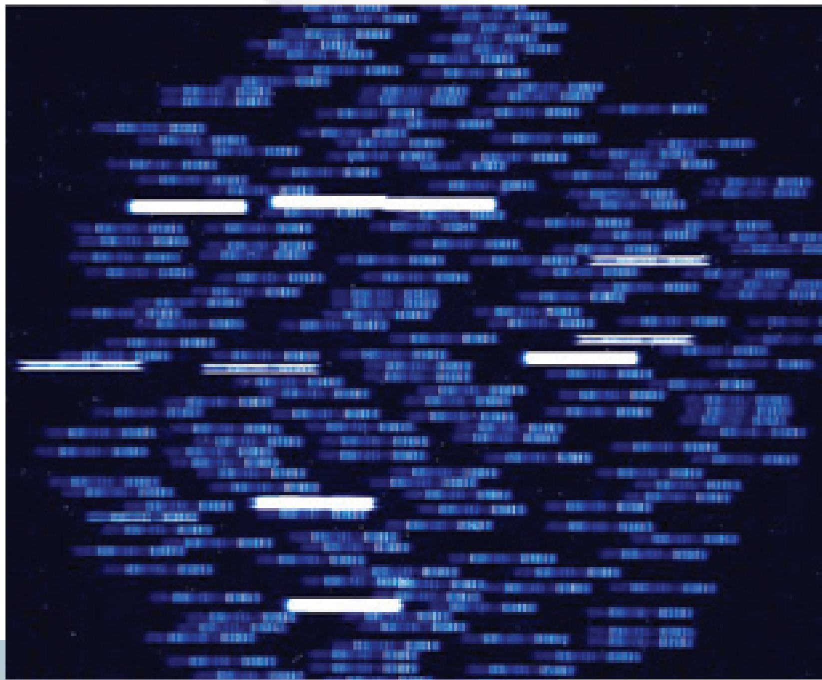


Image credit: Jeremy Bailey, UNSW.

Magellan

AAL funding has enabled the continuation of an agreement with the Carnegie Institution for Science until July 2013. This agreement is to purchase 15 nights per year on the twin 6.5 metre Magellan telescopes at the Las Campanas Observatory in Chile that provide complementary instrumentation to that offered by Gemini.

The Magellan Fellows, Dr Francesco Di Mille and Dr Shane Walsh, are based in Chile, and after two years each conducting research with and providing operational support to the Magellan telescopes, will spend a third year of research during 2012 at the University of Sydney, and Curtin University, respectively.



Example of the high multiplex possible with LDSS3, packing spectra for 200 objects within an 8' field-of-view using a narrow-band filter to isolate the [O II] line at a redshift of 1. Image credit: David Gilbank (South African Astronomical Observatory) & Karl Glazebrook.

Magellan Science Highlight

Karl Glazebrook (Swinburne), Tornado Li (formerly Swinburne), and David Gilbank (University of Waterloo) have used the LDSS3 instrument in multi-slit mode on Magellan to carry out the first spectroscopic measurement of star formation in low-mass galaxies (log M<10) at z~1 as part of the ROLES survey. The star-formation rate is primarily measured from the [O II] emission line and uses a mass-dependent extinction correction calibrated from low mass galaxies in the SDSS. The evolution of the star formation rate density in the universe is found to increase similarly at all galaxy stellar masses with look back time. For more information see Gilbank et al. (2010, MNRAS, 405, 2419) and Li et al. (2011, MNRAS, 411, 1869).

The Australian Gemini Office

The Australian Gemini Office (AusGO) operated by the AAO under contract to AAL coordinates Australia's usage of Gemini and Magellan time by issuing calls for proposals, acting as first point of contact for prospective Australian applicants, technically assessing proposals on behalf of the Australian Time Assignment Committee, assisting successful Australian Principal Investigators with preparing their programs, providing guidance in how to reduce and analyse new and archival data, and helping promote Australian science from Gemini and Magellan to the media and general public. AusGO now comprises five astronomers: the Australian Gemini Scientist Dr Stuart Ryder, and Deputy Gemini Scientist Dr Simon O'Toole, both based at the AAO; Deputy Gemini Scientist Dr Christopher Onken based at RSAA; and two Magellan Fellows.

AusGO coordinates the Australian Gemini Undergraduate Summer Studentship (AGUSS) program sponsored by AAL. Under this scheme, two Australian undergraduate students spend ten weeks working at the Gemini South headquarters in La Serena, Chile on a research project supervised by Gemini staff.

In addition, AusGO runs an annual Gemini School Astronomy Contest for Australian high school students to win one hour of time on the Gemini South telescope to observe an object suggested by them on scientific and aesthetic grounds. The winner of the 2010 contest, the Astronomy Club of Sydney Girls High School, proposed imaging the collision between these two galaxies NGC 6872 and IC 4970. This image was featured internationally as "Astronomy Picture of the Day" for 3 April 2011. The image can be found on the front cover of this report.

AGUSS student Ms Courtney Jones, a 3rd year undergraduate at the University of Tasmania, on a visit to the Magellan 6.5m telescopes at the Las Campanas Observatory in Chile.
Image credit: Courtney Jones.

Giant Magellan Telescope

The Giant Magellan Telescope (GMT) is a next generation Extremely Large Telescope (ELT) to be located at the existing Las Campanas observatory site in Chile. The GMT design combines seven 8.4 metre primary mirror segments resulting in an equivalent 24.5 metre telescope. Headquartered in Pasadena California, USA, the Giant Magellan Telescope Organisation (GMTO) is a non-profit organisation founded to design, build and operate the GMT on behalf of, and funded by, an international partnership that includes the Australian National University and Astronomy Australia Ltd.

GMT Prime Project status

The GMT prime project is continuing in its Design Development Phase with the Preliminary Design Review (PDR) planned for November 2012. In the last year the GMTO has recruited a professional project manager, Mr Keith Raybould, with part of his work being to rebaseline the project cost, with an expected outcome in late 2011. The GMTO Project team now consists of 25 specialist personnel and is still growing. As a result, the project office will move to new premises in August 2011 to allow expansion to an expected 30 to 35 personnel.

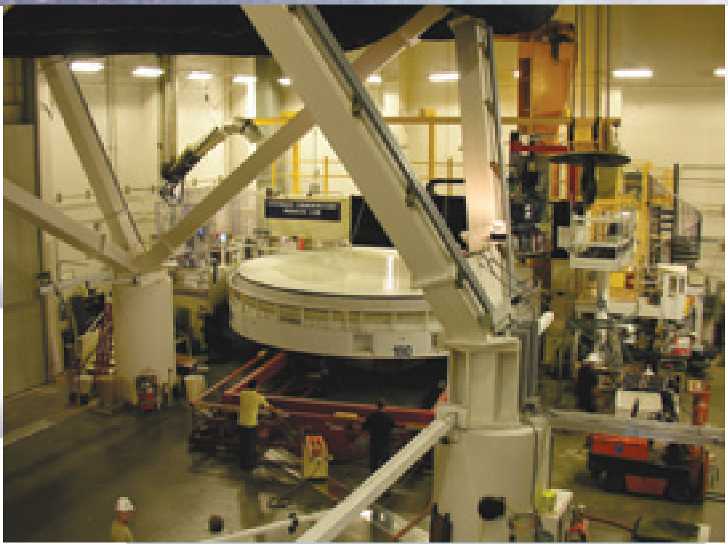
The first mirror, GMT-1, is nearing completion and its RMS surface profile error is now converging well below 100nm. A better understanding of the characterisation of the lapping process indicates that 50nm RMS could be achieved. GMT-1 is due for completion in late 2011 and GMT-2 production will begin in January 2012. Production of glass stock for GMT-2 has been secured through an advance purchase contract with the supplier.

GMT first light instruments

First light instrument definition is well advanced, with Quarter 4 reviews being held in mid June 2011. The instrument Concept of Design Review (CoDR) is due in late September 2011 and the down-select expected in December 2011. Furthermore, instrument and AO System PDRs are due in mid July 2012, with the telescope system PDR scheduled for November 2012.

The GMTIFS (GMT Integral Field Spectrograph) instrument from the ANU has been chosen as one of six GMT first-light instruments for which Conceptual Design Studies are being undertaken. GMTIFS will be used with GMT's Laser Tomography Adaptive Optics system and the primary instrument is an adaptive-optics-corrected near-infrared integral-field spectrograph. GMTIFS will also contain an adaptive optics imager that is matched to the ~20x20 arcsec field corrected by the LTAO system. The imager will also serve as the acquisition camera for the IFS. The GMTIFS instrument team is on track to deliver the CoDR Report in September 2011.

The ANU is also contracted to develop the GMT LTAO system concept. A mid-term review of all GMT AO subsystems was held in June 2011 and the ANU team is expecting to be contracted by GMTO to prepare a fully costed concept of design by July 2012. The



GMT-1 at the Steward Observatory Mirror Laboratory. Image credit: Roger Franzen.

ANU will seek collaboration from Australian industry and the AAO as part of its ongoing AO activities.

The AAO proposed MANIFEST (MANy-Instrument FibrE SysTem) is a general-purpose fibre-positioning system, to feed the GMT instruments such as GMACS (the proposed optical imaging spectrograph), NIRMOS (the proposed near-infrared imaging spectrograph) and G-Clef (high resolution optical spectrograph). MANIFEST allows the spectrographs to observe more objects over the full GMT 20' field of view. Together, these at least double the speed of GMT for survey spectroscopy, making it the fastest of the proposed ELTs. The concept design study has been completed and a final report generated.

Australian GMT Project Office

The Australian GMT Project Office (AGMT PO) is now staffed and operational. The AGMT PO is located at Mt Stromlo Observatory in Canberra and is responsible for managing Australia's participation in the GMT project. The AGMT PO manages a Technical Program at Mt Stromlo comprising some 25 engineering and scientific specialists involved in the design and development of the GMTIFS and GMT AO systems. A Science and Industry Working Group (S&IWG) provides the AGMT Project Office with technical advice on GMT project, explores opportunities for Australian participation in the international GMT project, liaises with the scientific community and explores, develops funding opportunities and industrial participation in the GMT project. The AGMT PO notifies the local industry about GMT work packages through the Industry Capability Network (ICN – project Gateway) and a comprehensive list of industry contacts. ANU has also entered into a joint venture with EOS Ltd (Australia) to develop an experimental telescope and platform to demonstrate Adaptive Optics systems and Laser Guide Star systems. This telescope is located at the EOS facilities at Mt Stromlo.

Advanced Instrumentation and Technology Centre (AITC)

The second phase of development of the Advanced Instrumentation and Technology Centre (AITC) at Mt Stromlo began in August 2010 with a ground-breaking ceremony occurring in December 2010. The new facilities will include a very large clean room, two optical laboratories, a process laboratory, offices and environmental test facilities AITC stage 2 construction progress is well advanced with occupancy clearance expected by late September 2011 and formal commissioning expected by late October 2011.

The first full-size ASKAP Phased Array Feed was installed on the Parkes 12 metre test antenna in July 2011. Image credit: John Sarkissian, CASS.

SKA Precursor: ASKAP

The past 12 months have been pivotal for the Australian SKA Pathfinder (ASKAP) with the project achieving a number of significant milestones.

In late 2010, CSIRO undertook a public tender process for the construction of infrastructure at the Murchison Radio-astronomy Observatory (MRO), the host site for ASKAP and the MWA, and which forms the core of the Australian site for the SKA bid. This contract was awarded to McConnell Dowell Constructors (Australia) Pty Ltd, and work commenced on site in early 2011. Eleven antenna foundations have been completed and the primary access road, antenna access tracks, and fibre and power distribution are well underway. The central control building (largely fabricated off-site and trucked to the MRO) is also under construction.

Late 2010 also saw the assembly of the next five antennas by the manufacturer (CETC54). These have all passed their site acceptance testing, exceeding the design specification by nearly a factor of two. (1.0 mm surface accuracy RMS specification, 0.55 mm average measured). In May 2011 assembly of the remaining 30 antennas commenced and construction will run continuously until early 2012.

The critical Phased Array Feed (PAF) based “radio camera” receiver system also successfully passed several important milestones. The first full size (188 elements) pre-production Mark I version was completed and deployed on schedule to the Parkes Test Facility (PTF). Ground based testing confirmed the performance model, with sub-50 degree receiver temperatures recorded. The PAF has since been installed on the 12 metre PTF and astronomical testing will commence in July 2011. The second PAF unit, destined for ASKAP at the MRO, is currently at the MATES system integration and test facility in Sydney.

The FPGA based digital backend system components passed their respective critical design reviews. The digital backend consists of beamformers, filter-banks and correlators. Production systems have been delivered for the first six antennas, which forms the BETA test array.

The fibre optic network cable linking the MRO to Geraldton, with onward connection the Perth and the world via the National Broadband Network (NBN) was also completed with the first 1 GB/sec tests successfully passed. eVLBI (electronic Very Long Baseline Interferometry) was performed between the ASKAP antenna at the MRO and five telescopes (three in NSW, one in Tasmania and one in New Zealand, producing 5500 km baselines) using the NBN link in June 2011.

SKA Precursor: MWA

The last 12 months has seen continued success in preparations for the Murchison Widefield Array (MWA) final deployment, as well as significant evolution in the scope of the project.

The procurement of antennas and beamformers is currently being planned and the first of the final receivers has been delivered to the MWA by industry partner Poseidon Scientific Instruments. Antennas, beamformers and receivers are scheduled to be deployed to the Murchison Radio-astronomy Observatory (MRO) starting in early 2012.

Plans for the transport of MWA data from the MRO to the Pawsey HPC Centre for SKA Science using an AARNet/CSIRO/NRN 10 Gbps network link, and provision for a multi-petabyte data store at the Pawsey Centre, were advanced during 2010/11. Science and engineering data continued to be collected from the 32 antenna prototype system (32T) in 2010/11.

128T

At the end of 2010, a proposal to the US National Science Foundation was submitted by the US MWA partners, to support the build-out of the MWA to 512 antennas and early Epoch of Reionisation science. This proposal was unsuccessful. As a contingency position, the MWA project prepared a case to build a de-scoped instrument of 128 antennas, using only the remaining available funds in Australia and India. A corresponding science case was prepared by the MWA team and endorsed by AAL's Radio Telescopes Advisory Committee. The contingency position was approved by the AAL Board and the US, Australian, and Indian MWA collaboration is now pursuing the 128 antenna instrument. In June 2011, a New Zealand MWA consortium was formed and was awarded funds by the New Zealand government, to contribute to the build-out and early science phase of the instrument. New Zealand has now been approved as a new a member of the MWA consortium by the MWA Board.

The handover of the first of the final MWA receivers by Poseidon Scientific Instruments, a local Western Australian SME. The receiver is designed to be environmentally controlled and RFI tight. As of June 2011, the receiver was being taken through the final stages of acceptance testing. Image credit: ICRAR.

PLATOs

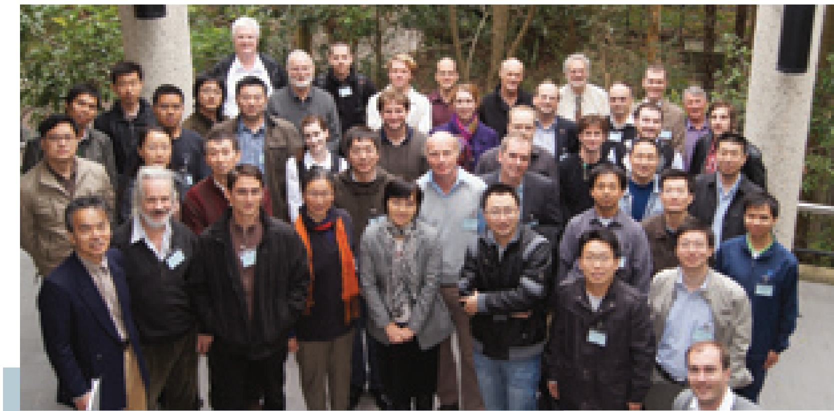
The University of New South Wales (UNSW) has pioneered the use of unmanned robotic observatories for Antarctica. At the beginning of 2008, the Chinese Antarctic program deployed UNSW's PLATO (for "Plateau Observatory") to Dome A, the highest point on the plateau. Currently PLATO supports the four Chinese CSTAR telescopes that are investigating time-varying stars by imaging a 4.5 x 4.5 degree field centred on the South Celestial Pole.

PLATO-F and PLATO-R

During 2010 a second facility, PLATO-F, was constructed at UNSW and trucked to Fremantle. PLATO-F was then loaded onto the Japanese *Shirase* icebreaker on 26 November 2010, and arrived at Dome Fuji, Antarctica, on 13 January 2011 where it was commissioned by the 52th Japanese Antarctic Expedition. PLATO-F hosts a suite of instruments from UNSW, the National Astronomical Observatory of Japan, and Tohoku University. For the next six months PLATO-F ran continuously, returning a wealth of scientific data via the Iridium OpenPort satellite network.

PLATO-F is one of two "second generation" PLATO facilities; the other, appropriately called PLATO-A, being destined for Dome A. PLATO-A is currently under construction at UNSW and scheduled for deployment in November 2011. Like PLATO-F, PLATO-A takes advantage of newer technologies such as LiFePO4 batteries and direct-drive brushless motor/generators.

The success of the PLATO program has led to funding becoming available via EIF for yet another robotic observatory, PLATO-R. This will be a smaller, lightweight version of the earlier PLATO units, and is designed for deployment to the hitherto unexplored site of "Ridge A", via Twin Otter aircraft in collaboration with the University of Arizona and the US National Science Foundation. PLATO-R will support a terahertz observatory called HEAT, which will map the southern sky in [CI] and carbon monoxide at 810 GHz.



Fifty-one people from eight countries attended the SCAR AAA kick-off meeting at Sydney's Taronga Zoo in June 2011.
Image credit: Tony Travouillon.

SCAR Meeting

At the end of June 2011, AAL co-sponsored a three-day meeting on Antarctic astronomy at Sydney's Taronga Zoo. This was the "kick-off" meeting of the Scientific Committee on Antarctic Research's (SCAR) newest Scientific Research Program – Astronomy and Astrophysics from Antarctica. Some 51 people from eight countries attended and 26 contributed talks were given, including reports from each of the Antarctic sites and from the Arctic, recent scientific results, and ambitious proposals for new research facilities.

Scientific Publications

Kristin Fiergert (AAO fibre senior technician) shows off one of the completed HERMES fibre optic bundles. Image credit: AAO HERMES Project.

Gemini

Papers published in refereed journals in the last year that have been based on Gemini data and involve Australian authors (shown in bold face).

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Gemini and Magellan – number of papers published involving Australian authors

Year	Gemini	Magellan
2010/11	22	7
2009/10	17	6
2008/09	26	6
2007/08	21	2

Murchison Widefield Array

(Australian authors shown in bold face. 'MWA collaboration/team' includes Australian authors).

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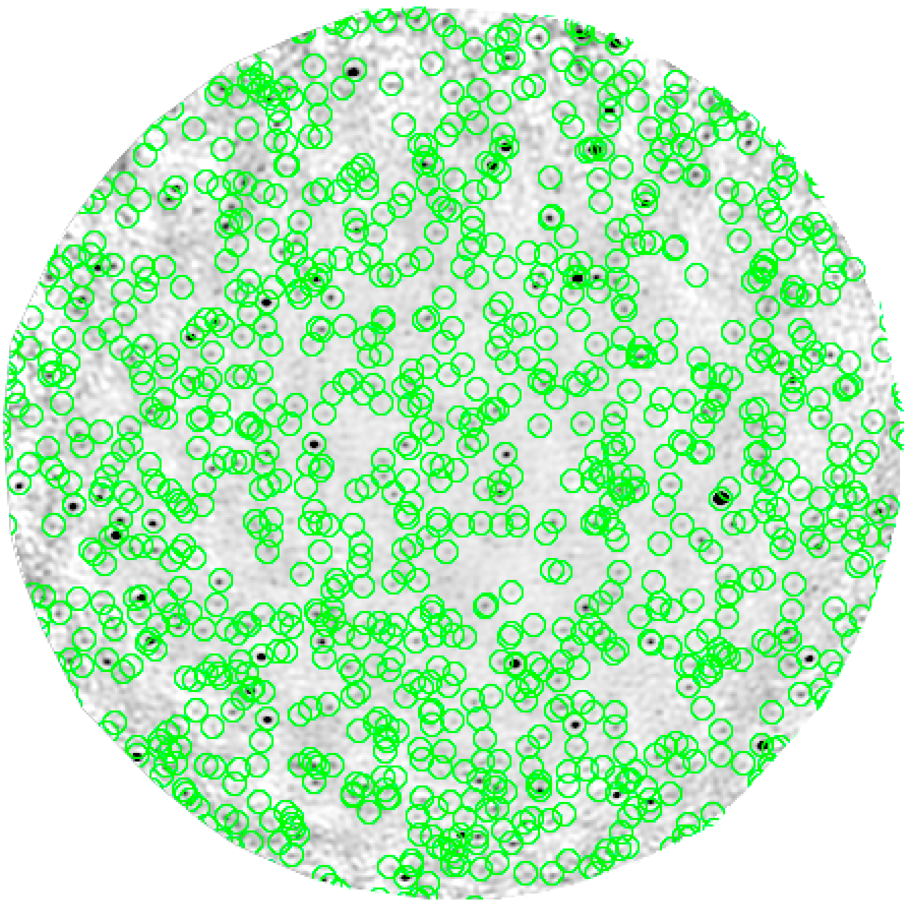
Colin S. Bonner, **Michael C. B. Ashley**, Stuart G. Bradley, Xiangqun Cui, LongLong Feng, Xuefei Gong, **Jon S. Lawrence**, **Daniel M. Luong-Van**, Zhaohui Shang, **John W. V. Storey**, Lifan Wang, Huigen Yang, Ji Yang, Xu Zhou, and Zhenxi Zhu, Snodar: 2009 performance at Dome A, Antarctica, Proc. *SPIE*, **7733**, (2010), 77334A – 77334A-6.

AAL in 2010/11



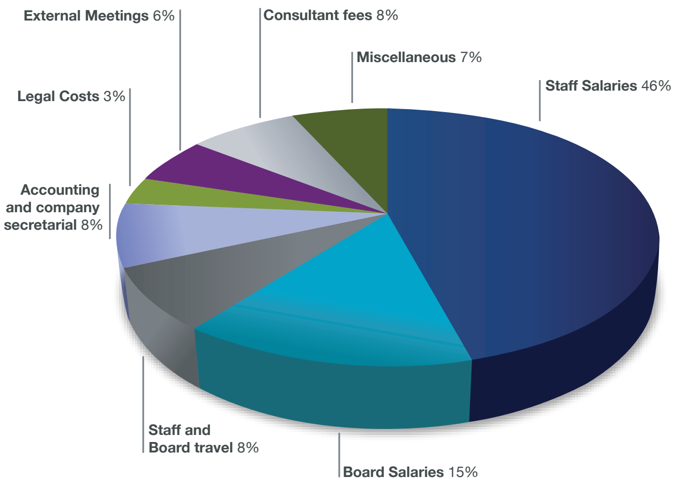
An image of one of the MWA EoR fields made with the 32T prototype system. The grayscale is the MWA image and the green circles are the locations of known sources from the Molonglo Reference Catalog (MRC), showing a high degree of coincidence between the objects detected in the MRC and the MWA images. Image credit: Mr Chris Williams, MIT Kavli.

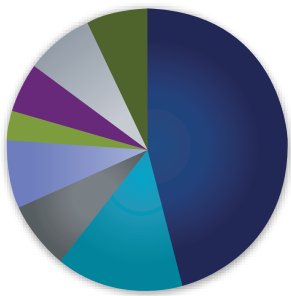
11 Financial summary

The following summary highlights the key financial transactions (GST exclusive) for the 2010/11 financial year, specifically: the cost of running AAL; the Government grants received and awarded to projects; and, the balance of grants and reserves held by AAL on 30th June 2011. The financial accounts are available on pages 41-86 of this report.

AAL operating expenses

Actual expenses for 2010/11 were $579,285.





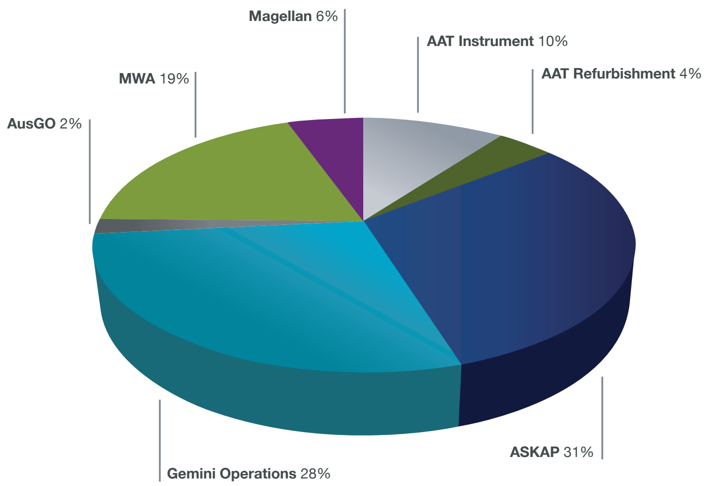
Staff salaries	**$266,023**	**46%**
Board salaries	**$85,201**	**15%**
Staff and Board travel	**$44,394**	**8%**
Accounting and company secretarial	**$45,480**	**8%**
Legal costs	**$19,674**	**3%**
External meetings	**$32,700**	**6%**
Consultants fees	**$45,454**	**8%**
Miscellaneous	**$40,359**	**7%**

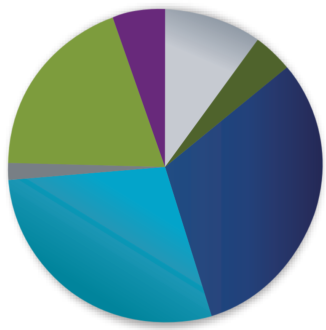
Grants received during 2010/11

AAL received three major grants during 2010/11:

Astronomy NCRIS (from DIISR):	**$5,938,000**
AAL management fee taken from Astronomy NCRIS	**($255,886)**
Gemini (from ARC):	**$3,000,000**
Gemini (from AAO):	**$960,000**
Total	**$9,642,114**

Grants paid to projects during 2010/11





AAT instrument	**$2,000,000**
AAT refurbishment	**$800,000**
ASKAP	**$6,100,000**
Gemini operations	**$5,596,253**
AusGO	**$330,500**
MWA	**$3,803,508**
Magellan	**$1,067,179**
Total	**$19,697,440**

Grants re-allocated during 2010/11

The final Aspen payment was made to Gemini during 2009/10. On 30th June 2010 AAL held $834,042 of NCRIS funds allocated for Aspen. $20,222 of this Aspen allocation was re-allocated to Magellan and the remaining $813,820 was re-allocated towards future Gemini payments.

Balance of grants held by AAL as of 30th June 2011

NCRIS grant held by AAL as of 30th June 2011:

AAL operations	**$531,000**
Gemini	**$980,038**
AusGO	**$168,500**
Total	**$1,679,538**

LIEF grant held by AAL as of 30th June 2011

Gemini:	**$3,000,000**

AAO grant held by AAL as of 30th June 2011

Gemini:	**$960,000**

Reserves

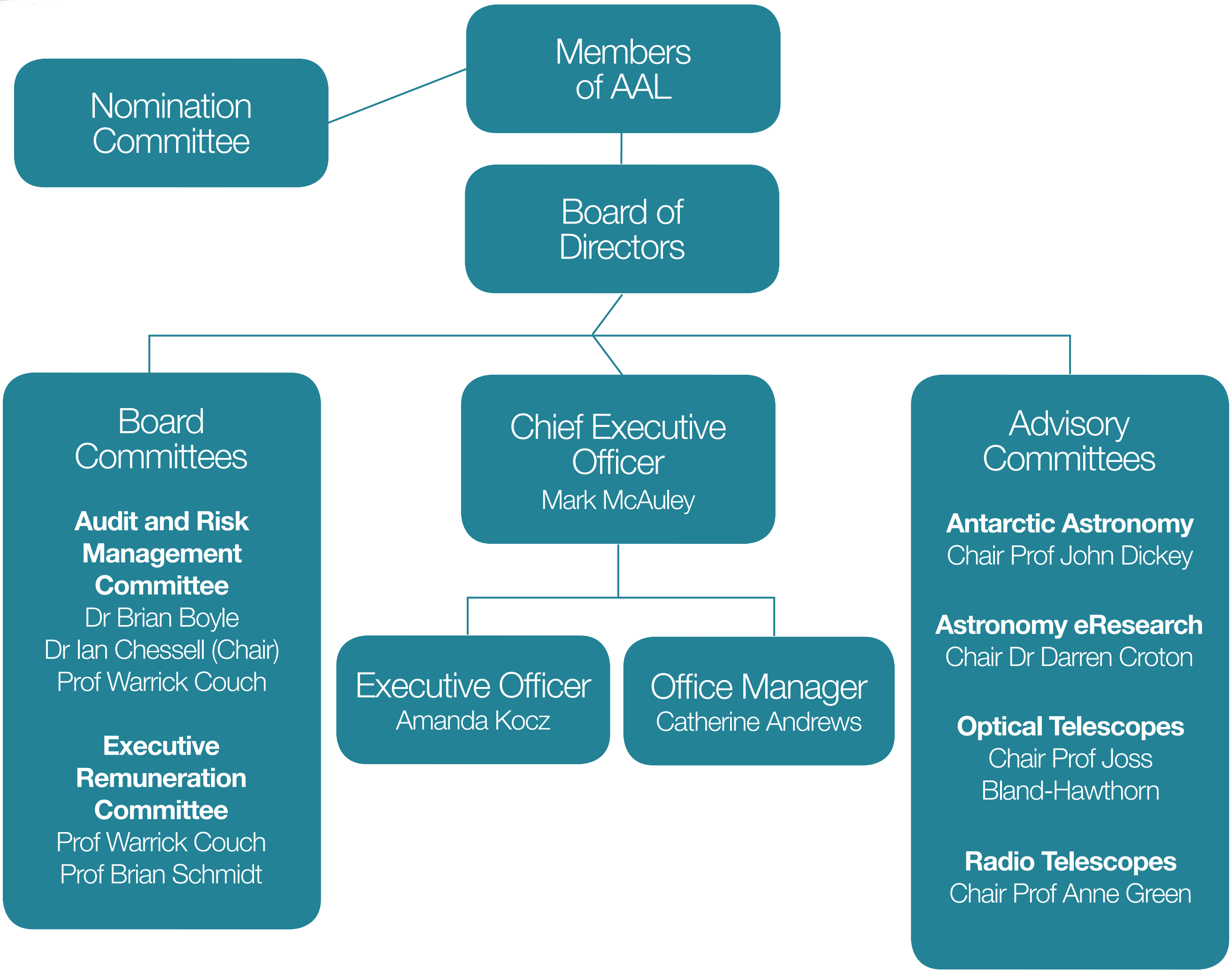
AAL currently maintains two reserves:

The Astronomy NCRIS reserve: $461,132 (uncommitted balance as of 30th June 2011)
The Overseas Optical reserve: $2,431,469 (uncommitted balance as of 30th June 2011)

The Astronomy NCRIS Reserve results from interest earned from the NCRIS grant and must be used for projects associated with the Astronomy NCRIS funding agreement. During 2010/11 the primary use of the NCRIS Reserve was $229,090 contractually committed (to be paid during 2011/12) to undertake a concept design study on the federation of national astronomy datasets. AAL has agreed with DIISR that the vast majority of the remainder of the reserve will be used towards an eResearch project associated with advancing the federation of national astronomy datasets.

The Overseas Optical Reserve is primarily used to cover shortfalls in payments to overseas optical telescope facilities. During 2010/11 the primary use of the Overseas Optical Reserve was $1,550,562 contractually committed (to be paid equally during 2011/12 and 2012/13) to continue Australian access to fifteen nights per year on the Magellan telescopes from semester 2011B until semester 2013A inclusive. During 2010/11 $25,515 was used to pay for the Australian Gemini Undergraduate Summer Scheme. AAL also draws down 1% of the balance of the reserve each year as a management fee, and a further 1% during 2010/11 to help fund investigations into the option of Australian access to overseas optical telescopes being provided by ESO (total management fee of $78,699 during 2010/11).

Organisational chart as of 30th June 2011

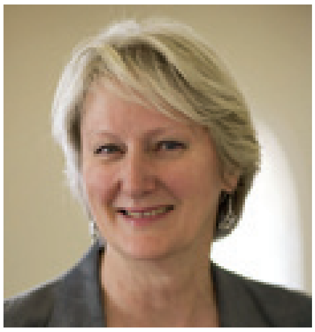


11 Board of Directors

Prof Warrick Couch (Chair)
Appointed 18th April
2007 until 2013 AGM

Dr Brian Boyle
Appointed 5th November
2009 until 2012 AGM

Dr Ian Chessell
Appointed 5th November
2010 until 2013 AGM



Prof Anne Green
Appointed 5th November
2010 until 2013 AGM

Prof Jeremy Mould
Appointed 30th September
2008 until 2011 AGM

Prof Brian Schmidt
Appointed 18th April
2007 until 2011 AGM

Prof Mark Wainwright
Appointed 5th November
2009 until 2012 AGM

Images credit: Colonial Photo Studio (Chessell), U. Sydney School of Physics (Green), Lisa Germany (Couch, Boyle, Mould, Schmidt, Wainwright).

Board committee membership as of 30th June 2011

Audit and Risk Management Committee

Chair
Dr Ian Chessell

Members
Dr Brian Boyle
Prof Warrick Couch

Executive Remuneration Committee

Members
Prof Warrick Couch
Prof Brian Schmidt

Meetings attendance

Director	Board	Other
Couch	7/7	3/4
Boyle	5/6	7/7
Chessell	3/3	-
Green	3/3	3/3
Mould	7/7	10/10
Schmidt	7/7	8/10
Wainwright	6/6	4/5

Location of Board meetings held during 2010/11

- CSIRO Astronomy and Space Science
- University of Melbourne
- University of Adelaide
- Swinburne University of Technology

Board Electronic Resolutions during 2010/11

- Accept Company Statement
- Accept Audited Financial Accounts

11 Project Committees

Antarctic Astronomy Advisory Committee (AAAC)

Prof Tom Bania (External Advisor) Boston University, until 31 December 2011
Prof Tim Bedding University of Sydney, until 31 December 2012
Prof Michael Burton University of New South Wales, until 31 December 2012
Prof John Dickey (Chair) University of Tasmania, until 31 December 2011
Dr Marc Duldig Australian Antarctic Division, until 31 December 2011
Dr Jon Lawrence Macquarie University, until 31 December 2011
Prof Jeremy Mould Astronomy Australia Ltd, until 31 December 2011
Prof John Storey University of New South Wales, until 31 December 2012

Astronomy eResearch Advisory Committee (AeRAC)

Prof Lindsay Botten The Australian National University, until 31 December 2011
Dr Tim Cornwell CSIRO, until 31 December 2012
Dr Darren Croton (Chair) Swinburne University of Technology, until 31 December 2011
A.Prof Andrew Hopkins Australian Astronomical Observatory, until 31 December 2011
Dr Bärbel Koribalski CSIRO, until 31 December 2012
Prof Geraint Lewis University of Sydney, until 31 December 2011
Prof Peter Quinn University of Western Australia, until 31 December 2011
Prof Andrew Rohl iVEC, until 31 December 2012
Prof Mark Wainwright Astronomy Australia Ltd, until 31 December 2012
Dr Ross Wilkinson Australian National Data Service, until 31 December 2012

Optical Telescopes Advisory Committee (OTAC)

Prof Joss Bland-Hawthorn (Chair) University of Sydney, until 31 December 2011
Dr Michael Brown Monash University, until 31 December 2012
Prof Matthew Colless Australian Astronomical Observatory Director (ex-officio)
Prof Gary Da Costa Australian National University, until 31 December 2011
A.Prof Scott Croom University of Sydney, until 31 December 2011
Prof Peter Quinn Gemini Board Member (ex-officio)
Dr Stuart Ryder Australian Astronomical Observatory, until 31 December 2011
Prof Brian Schmidt Astronomy Australia Ltd, until 31 December 2011
Prof Chris Tinney University of New South Wales, until 31 December 2011

Radio Telescopes Advisory Committee (RTAC)

Prof Frank Briggs Australian National University, until 31 December 2012
Dr Kate Brooks CSIRO, until 31 December 2012
Dr Phil Diamond CASS Director, CSIRO (ex-officio)
Prof John Dickey University of Tasmania, until 31 December 2011
Prof Anne Green (Chair) Astronomy Australia Ltd, until 31 December 2011
Prof Lister Staveley-Smith University of Western Australia, until 31 December 2012
Prof Steven Tingay Curtin University, until 31 December 2011
Prof Rachel Webster University of Melbourne, until 31 December 2012

Nominations to Overseas Committees

Giant Magellan Telescope

Board

Prof Matthew Colless Australian Astronomical Observatory (Deputy Chair)

Finance and Audit Committee

Mr Mark McAuley Astronomy Australia Ltd (Chair)

Science Advisory Committee

Prof Chris Tinney University of New South Wales

Gemini

Board

Prof Peter Quinn,
University of Western Australia

Finance Committee

Mr Mark McAuley,
Astronomy Australia Ltd

Science Committee

A.Prof Andrew Hopkins,
Australian Astronomical Observatory

Members and their representatives as of 30th June 2011

Australian Astronomical Observatory	Prof Matthew Colless
Australian National University	Prof Harvey Butcher
Commonwealth Scientific and Industrial Research Organisation	Dr Robert Braun
Curtin University	Prof Steven Tingay
James Cook University	Dr Andrew Walsh
Macquarie University	Prof Mark Wardle
Monash University	Prof John Lattanzio
Swinburne University of Technology	Prof Karl Glazebrook
University of Adelaide	Dr Gavin Rowell
University of Melbourne	Prof Rachel Webster
University of New South Wales	Prof John Storey
University of Queensland	Prof Halina Rubinsztein-Dunlop
University of Sydney	Assoc Prof Peter Tuthill
University of Tasmania	Prof John Dickey
University of Western Australia	Prof Peter Quinn

Nomination Committee (For the 2010 AGM election)

Prof Mark Wainwright (Chair) Astronomy Australia Ltd
Prof Brian Schmidt Astronomy Australia Ltd
Dr Lewis Ball CSIRO
Prof Matthew Bailes Swinburne University of Technology
Prof John Storey University of New South Wales

Astonomy Australia Limited
A.B.N 19 124 973 584

Financial report for the year ended 30 June 2011

The PLATO-F engine module is delivered to the Antarctic coast via helicopter from the icebreaker Shirase, to begin the 1200 km inland traverse to Dome F.
Image credit: Hirofumi Okita.

Directors' Report

Astronomy Australia Limited

A.B.N 19 124 973 584

Contents

General Information

The financial report covers Astronomy Australia Limited as an individual entity. The financial report is presented in Australian Dollars, which is Astronomy Australia Limited's functional and presentation currency.

The financial report consists of the financial statements, notes to the financial statements and directors' declaration.

Astronomy Australia Limited is a not for profit unlisted public company limited by guarantee, incorporated and domiciled in Australia, Its registered office and principal place of business are :

Registered Office	Principal Place of Business
Swinburne University John Street Hawthorn Vic 3122	Swinburne University John Street Hawthorn Vic 3122

A description of the nature of the company's operation and its principal activities are included in the directors' report, which is not part of the financial report.

The financial report was authorized for issue, in accordance with a resolution of directors, on 30 August 2011. The directors have the power to amend and reissue the financial report.

Your directors present their report together with the financial statements on the company for the financial year ended 30 June 2011. Astronomy Australia Ltd. is a company limited by guarantee and is an income tax exempt charitable institution

The names of the directors in office at any time during, or since the end of, the year are:

Prof. Warrick J. Couch (appointed 18 April 2007 reappointed 5 November 2010)

Prof. Anne Green (appointed 5 November 2010)

Prof. Brian P. Schmidt (appointed 18 April 2007 reappointed 30 September 2008)

Prof. Jeremy R. Mould (appointed 30 September 2008)

Emeritus Prof. Mark S. Wainwright AM (appointed 5 November 2009)

Prof. Brian J. Boyle (appointed 5 November 2009)

Dr. Ian Chessell (appointed 5 November 2010)

Dr. Martin T. Cole (appointed 18 April 2007 retired 5 November 2010)

Dr. David M. Warren (appointed 5 July 2007 retired 5 November 2010)

The surplus of the company for the financial year after providing for income tax of $Nil, amounted to ($1,323,309) (2010 profit of - $352,117).

Objectives

The Australian Government has defined the science of astronomy as one of only a few Super Sciences (Super Science Initiative, available online: www.innovation.gov.au/Science/ResearchInfrastructure/Pages/SuperScience.aspx)
To support this definition, Astronomy Australia Limited's core objective is to ensure that astronomers in Australia have access to the best astronomical research infrastructure, including Australian participation in international facilities.

Strategy for achieving the objectives

During the financial year the company worked to achieve its core objective by:

1. Engaging with Australian astronomers to advance the national research infrastructure priorities of the Australian astronomy decadal plan.
2. Advising the Australian Government on future investments in national astronomical research infrastructure.
3. Managing investments in national astronomical research infrastructure as required.

Principal activities

During the financial year the company's principal activities were:

1. Communicating directly with every Australian institution with a significant astronomy research capability, regardless of whether they were a member of the company.
2. Preparing a position paper on Australian membership of the European Southern Observatory, presented as part of the company's response to Australian Government's Department of Innovation, Industry, Science and Research (DIISR) Roadmap Discussion Paper.
3. Managing National Collaborative Research Infrastructure Strategy Capability (NCRIS) funding and Australian Research Council Linkage Infrastructure, Equipment and Facilities (LIEF) funding for research infrastructure; and preparing for the start of the Education Investment Fund (EIF) programme and associated funding.

Performance measures

The company measures its performance in two different ways. For facilities that are currently operational the company measures the cost of access to the facility and its scientific return (through number of refereed journal articles). For facilities still under construction, a range of technical and construction milestones exist by which the performance of the project is measured. Both sets of measures are included in the company's annual report to DIISR.

Company Secretary

The following person held the position of company secretary at the end of the financial year:

Mr. Robert W. Osborne, Chartered Accountant

Mr. Osborne is the principal of the firm R.W. Osborne & Associates and has held a Certificate of Public Practice since 1980. He is a Fellow of the Institute of Chartered Accountants in Australia and a Fellow of CPA Australia. Mr. Osborne is contracted to Astronomy Australia Ltd. and was appointed company secretary on 18 April, 2007.

Contribution on winding up

In the event of the company being wound up, ordinary members are required to contribute a maximum $10 each. The total amount that members of the company are liable to contribute if the company is wound up is $150 based on 15 current members.

Information on Directors

Prof. Warrick J. Couch
(Non Executive Chair) - Appointed 5 November 2010

Qualifications:
Bachelor of Science with Honours,
Master of Science,
Doctor of Philosophy (Astronomy)
FAA, FASA

Experience:
Prof. Couch has a research career spanning 30 years in optical astronomy, with an extensive and distinguished track record in terms of (i) use of university, national and international telescope facilities (including the AAT, Gemini, VLT, HST), (ii) research publications (career total of 160 refereed journal papers) and citation impact (Australian citation laureate and "Highly Cited" researcher), and (iii) securing external research grant funding (career total of more than A$3M.).

His research has involved numerous and often high profile national and international collaborations, the most notable examples being: the Berkeley-AAO Distant Supernovae Search, the MORPHS HST Distant Cluster Imaging Program (Australia, UK, US), the 2dF Galaxy Redshift Survey (Australia-UK), and the "WiggleZ" Dark Energy Survey (Australia, US, Canada).

He is or has been an active member of key national astronomy committees and bodies that are responsible for dealing with research policy and priorities, including the Australian Academy of Science's National Committee for Astronomy (at the time when it had oversight of the last decadal planning process), the Anglo-Australian Telescope Board, the Australian Gemini Steering Committee, and the executive group responsible for writing the Australian "Radio and Optical Astronomy" NCRIS Investment Plan.

He has gained considerable experience in this area through his involvement in the aforementioned national astronomy committees, particularly in developing short and long term strategies and priorities for our national astronomy infrastructure, and implementing related funding programs (e.g. MNRF and NCRIS).

Special Responsibilities:

Member	Australian Giant Magellan Telescope Advisory Committee
Member	Gemini Finance Committee
Member	Optical Telescopes Advisory Committee
Member	Executive Remuneration Committee

Information on Directors

Prof. Brian P. Schmidt
(Non Executive Director)

Qualifications:
Bachelor of Science
(Physics and Astronomy)
A.M. in Astronomy
Doctor of Philosophy (Astronomy)
FAA, NAS

Experience:
Prof. Schmidt is one of Australia's most active optical astronomers. His work has focused on the physics of supernovae and gamma ray bursts, and using these objects for cosmological studies. He is the instrument scientist for the new SkyMapper telescope which will undertake a comprehensive optical survey of the southern skies. Schmidt has received a variety of awards over his career, including the 2007 Gruber Prize for Cosmology, the 2006 Shaw Prize for Astronomy, and the inaugural Ministers Malcolm McIntosh award for Achievement in the Physical Sciences in 2000.

Prof. Schmidt has undertaken research using radio facilities to understand supernovae and Gamma Ray Bursts, and is involved in the development of radio transient astronomy with the Murchison Widefield Array, and the Australian SKA Pathfinder (ASKAP). Prof. Schmidt is actively involved in the development Murchison Wide Field array, has served as the Chair of the ATNF Time assignment committee, and as a member of the ASKAP Survey Science Proposal Committee.

Schmidt was leader of the High-Z team, a group of 20 astronomers on 6 continents whose 1998 discovery of an accelerating Universe was named Science Magazines Breakthrough of the Year. He has participated in several large international groups that have studied supernovae and gamma ray bursts, and is a member of the Australian and US National Academies of Science.

Schmidt has been an active member of several national astronomy and science bodies that are responsible for prioritizing and allocated resources for research. These include having served on the Major National Research Facilities selection panel in 2000, served as a member of the Australian Square Kilometre Array Steering Committee, and chairing the Australian Decadal Working group on International Facilities.

Professor Schmidt has taken a leading role in formulating strategy and implementation in Australian Astronomy. He is currently a member of the Murchison Widefield Array Board. He chaired the Australian National Academies LOFAR options working group.

Special Responsibilities:

Member	Nomination Committee (for 2010 AGM)
Member	High Performance Computing Working Group
Member	European Southern Observatory Working Group
Member	Optical Telescopes Advisory Committee
Member	Executive Remuneration Committee

Directors' Report

Information on Directors

Dr. David M. Warren
(Non Executive Director) - Retired 5 November 2010

Qualifications:
Bachelor of Science (Honours)
HonsDSc

Experience:
Dr. Warren brings a combination of international business experience and knowledge of practical astronomy. He has been involved in corporate governance to public company standards and has considerable experience with corporate legal matters. He is well acquainted with matters of Business Administration and Finance. Of particular relevance is his membership of the Audit and Remuneration committees of Altium Ltd. Altium Ltd. is a Sydney based company which makes CAD software for electronic design.

Physics and astronomy led him into the world of electronics and software where technologies employed at the cutting edge of science were rolled out into the commercial world. This involvement with electronics and software spans a period from before the microprocessor until the present age of ubiquitous computing and global connectivity.

He has established a DSP group at the University of Tasmania and is involved in optical astronomy micro-lensing studies for the purpose of discovering new planets. He has acted as an observer for the PLANET consortium of which his local UTAS micro-lensing group is a member.

Special Responsibilities:

Member	Audit & Risk Management Committee (to 5 November 2010)

Directors' Report

Information on Directors

Prof. Jeremy R. Mould (Non Executive Director)

Qualifications:
Bachelor of Science with Honours
Doctor of Philosophy (ANU)
Doctor of Science (Melb)
FAA, FRAS

Experience:
Prof. Jeremy Mould is currently a Professor at Swinburne University of Technology with an honorary position at Melbourne University. He has extensive astronomical observatory management experience including a six year term as the Director of the National Optical Astronomy Observatory in Arizona, beginning in 2001. Prior to this Prof. Mould was Director of Mt Stromlo and Siding Spring Observatory at the Australian National University for seven years. He was Chair of the AATB 2000, 2001.

Prof Mould is a cosmologist and is the author of over 400 scientific publications. He was part of the team that won the prestigious Gruber Cosmology Prize in 2009, recognising their leadership in determining the Hubble Constant through their Hubble Space Telescope Key Project on the Extragalactic Distance Scale.

He has received other professional awards and honours, including the Newton Lacey Pierce Prize in Astronomy in 1984 by the American Astronomical Society and the Oort Professorship in 1998 by Leiden University in the Netherlands. He is a fellow of the Royal Astronomical Society and the Australian Academy of Science and a member of the American Astronomical Society.

Special Responsibilities:

Chair	European Southern Observatory Working Group
Member	Audit & Risk Management Committee

Directors' Report

Information on Directors

Emeritus Prof. Mark S. Wainwright AM FTSE (Non Executive Director)

Qualifications:
Bachelor of Applied Science
(Honours) (Applied Chemistry)
Master of Applied Science
(Chemical Engineering)
Doctor of Philosophy (Chemical Engineering)
Doctor of Science, Doctor of Science
(*honoris causa*)
FTSE, FIEAust, FIChemE, FRACI

Experience:
Emeritus Professor Wainwright was Vice-Chancellor and President of the University of New South Wales for two years from 1 July 2004. Prior to that appointment, Professor Wainwright had been the Acting Vice-Chancellor of the University from mid April 2004. He was Deputy Vice-Chancellor (Research and International) from January 2001.

Professor Wainwright holds an Honours Degree in Applied Chemistry and a Master of Applied Science in Chemical Engineering from the University of Adelaide, a PhD in Chemical Engineering from McMaster University in Canada and a DSc for his research into skeletal catalysts from the University of South Australia. In 2007 he was awarded a Doctor of Science (honoris causa) by the University of New South Wales.

His academic career at UNSW commenced in 1974 as a lecturer in the School of Chemical Technology in the then Faculty of Applied Science and, in 1989, he was awarded a personal chair for his research in catalytic reaction engineering. In 1991 he was appointed Dean of Australia's largest Faculty of Engineering, a position he held until the end of 2000. During 1998 and 1999 he was also Pro-Vice- Chancellor (Research). Professor Wainwright is an Honorary Fellow of Engineers Australia, a Fellow of the Australia Academy of Technological Sciences and Engineering, a Fellow of the Institution of Chemical Engineers and a Fellow of the Royal Australian Chemical Institute.

In 2000 he was awarded the Centenary Medal for service to Australian society in research policy and management and engineering education. In 2004, Professor Wainwright was made a Member of the Order of Australia (AM) for his service to chemical engineering as a researcher and academic, and to tertiary education.

Special Responsibilities:

Chair	Nomination Committee
Member	Astronomy eResearch Advisory Committee

Directors' Report

Information on Directors

Prof. Brian J. Boyle
(Non Executive Director)

Qualifications:
Bachelor of Science (Honours)
Doctor of Philosophy
FAA, FAICD

Experience:
Prof. Brian Boyle was Director of the CSIRO Australia Telescope National Facility from July 2003 to February 2009. This is the largest cm-wavelength radio astronomical observatory in the Southern Hemisphere. He has experience with many aspects of cm-wave length radio astronomy technology, and has pioneered the use of 'image stacking' at radio wavelengths to extend the flux limits of current surveys. He is currently the Australian /NZ SKA Director, with a secondment to the Australian/NZ SKA Coordination Committee for 80% of his time. He leads the Australian/ NZ bid to host the SKA telescope.

He was Director of the Anglo-Australian Observatory for seven years, from 1996-2003. During that period, he oversaw the successful commissioning of the 2-degree field instruments and was the Australian-based leader of the 2dF QSO survey. He led the development of a strategy that saw the AAO become an instrumentation provider to international observatories. He has published over 130 refereed papers, principally in the field of optical astronomy, but also including X-ray and radio survey, infrared imaging and gamma-ray bursts.

During his career he has initiated and led six international scientific collaborations, including most recently the 2QZ survey and ATLAS program (now led by Ray Norris – due to his availability). He was also chairman of the International Square Kilometre Array (SKA) Steering Committee from 2006-2008.

Prof. Brian Boyle has been a Fellow of the Australian Institute of Company Directors since 2005.

As Chairman of the National Committee for Astronomy, he initiated and led the development of the Decadal Plan for Australian Astronomy 2006-15. He was also the facilitator for the NCRIS investment plan for optical and radio astronomy. This was, in effect, the implementation of the strategies outlined in the Decadal Plan.

As a member of CSIRO's Executive Management Council, he has also played a role in the implementation of CSIRO's 2003-07 strategy and the development of the 2007-11 strategy.

Special Responsibilities:

Member	European Southern Observatory Working Group

Directors' Report

Information on Directors

Dr. Ian Chessell
(Non Executive Director) - Appointed 5th November 2010

Qualifications:

Bachelor of Science (Hons.)
Doctor of Philosophy (Physics)
FTSE

Experience:

After completing a PhD in physics at Melbourne University in 1970, Dr Chessell followed a career in the Defence Science and Technology Organisation, retiring as Australia's Chief Defence Scientist in 2003. Dr Chessell served as a member of the Prime Minister's Science, Engineering and Innovation Council (2001-2003) and in 2003 he was awarded the Centenary Medal for services to defence science. Dr Chessell was elected a Fellow of the Australian Academy of Technological Sciences and Engineering in 2003.

Dr Chessell was Chief Scientist of South Australia for the period 2008-2010 and is a member of the Defence South Australia Advisory Board and of the South Australia Renewable Energy Advisory Board. He was the Chair of the independent Technology Advisory Council of Tenix Pty Ltd for 2004-07. He was appointed Chair of the Goyder Institute for Water Research in 2011. Dr Chessell was appointed the Chairman of QinetiQ Pty Ltd in 2008.

Dr Chessell chaired the Commonwealth Government's reviews of National ICT Australia in 2005 and of the Anglo-Australian Telescope in 2006. He was a member of the Board of the Anglo-Australian Telescope for the period 2007-2010. Dr Chessell was a member of the Commonwealth Government's Review of the CSIRO's Flagship Program in 2006 and chaired the Review of the CSIRO Climate Adaptation Flagship in 2011.

Special Responsibilities:

Member	Australian Giant Magellan Telescope Oversight Committee

Information on Directors

Prof. Anne Green
(Non Executive Director) - Appointed 5th November 2010

Qualifications:
Bachelor of Science (Honours)
Doctor of Philosophy
Graduate Diploma, Australian Institute of Company Directors
FASA, FAIP

Experience:
Prof. Green has a research career spanning more than 20 years in radio astronomy. Her research is principally concerned with the structure and ecology of the Milky Way Galaxy and she has been responsible for several panoramic imaging radio surveys and has been a member of discovery teams for substantial numbers of supernova remnants, astrophysical masers and gas-rich galaxies in the Local Universe. Currently, she is Project Leader for the Square Kilometre Array Molonglo Project, a pathfinder instrument to study transient sources and the gas assembly of distant galaxies, as part of science and technology developments for the next generation of radio telescopes.

She has been an active member of several national and international astronomy committees which have had responsibility for setting strategy and managing competing priorities, including having served as a Member of the International Square Kilometre Array Steering Committee, been Chair of the Australia Telescope Users Committee and a Member of the Australia Teescope Steering Committee and President of the Astronomical Society of Australia.

Prof Green has also gained experience in management and related roles responsible for prioritizing allocation of resources while Head of the School of Physics, Director of the Science Foundation for Physics and for twelve years as Director of the Molonglo Observatory, all associated with the University of Sydney. Since 2007, she has been a Graduate Member of the Australian Institute of Company Directors.

She has shown commitment to issues of equity as founding co-Chair of the Women in Astronomy Working Group of the International Astronomical Union.

Special Responsibilities:

Deputy Chair	AAL Board
Chair	Radio Telescopes Advisory Committee

Directors' Report

Information on Directors

Dr. Martin T. Cole
(Non Executive Chair) - Retired 5th November 2010

Qualifications:

Diploma of Electronics Engineering
Master of Engineering
Doctor of Philosophy (Fluid Dynamics)
FTSE

Experience:

Dr Cole has served on Astronomy committees for more than 10 years and is an ASA member. He chaired the Australian Astronomy Board of Management, Co-chaired the Australian SKA Consortium, and is foundation Chair of AAL. As a member of the Prime Minister's Science, Engineering & Innovation Council 1999-2007, he chaired the PMSEIC Working Group on Astronomy, the output of which proved a vital step towards Australian participation in the Square Kilometre Array (currently as ASKAP) and ELT (now GMT). On PMSEIC he gained valuable insight on the setting of national research priorities and how to influence funding. He is also a member of the ASKAP Science and Technology Advisory Group (STAG).

Dr Cole served on the National Council of Engineers Australia (EA) for 21 years, becoming National President in 2000 and 2001 after holding six successive portfolios as a National Vice (or Deputy) President (EA has 80,000 members). He was also Chairman Victoria Division 1990, and was founding National President of the Society of Fire Safety 1994-99.

Currently he is Managing Director of Cole Innovation & Design Pty. Ltd. and its subsidiary imRAC Pty. Ltd. Upon graduation he had founded IEI Pty. Ltd. in Melbourne, an electronics research and manufacturing company which grew from a zero base to generate over $200M total sales and over 2000 person-years of direct employment, with sales offices in UK, USA, NZ and around Australia. He has invented and patented many electronic systems for crime prevention. He also pioneered the development and worldwide adoption of a revolutionary fire detection system, covered by several additional patents. This system protects over 50,000 zones including at Boeing, CERN and NASA. His pioneering of this field was recognized by a Clunies-Ross National Science & Technology Award. More recently he launched the next generation fire-prevention technology known as Monitair™ which won an EA National Engineering Excellence Award in 2005 and has been adopted worldwide by Siemens.

He was awarded the Australian Centenary Medal for service to society and engineering.

Special Responsibilities:

Member	Audit & Risk Management Committee (to 5 November 2010)

Register of Directors interests

Prof. Brian J. Boyle

1. Employed by CSIRO
2. Member, CSIRO Executive Management Council
3. Member, ICRAR Board
4. Member, Australia/New Zealand SKA Coordination Committee
5. Member, Pawsey HPC Centre for SKA Science Steering Committee
6. Member, CSIRO ASKAP Steering Committee

Dr. Ian Chessell

1. Chair, Goyder Institute for Water Research, SA
2. Member, Defence SA Advisory Board
3. Chair, QinetiQ Pty, Ltd. (Aust)

Dr. Martin T. Cole

1. Fellow, Australian Academy of Technological Sciences & Engineering
2. Honorary Fellow and Past President, Engineers Australia
3. Fellow, Australian Institute of Management
4. Associate, Astronomical Society of Australia

Prof. Warrick J. Couch

1. Employed by Swinburne University of Technology; Director of the Centre for Astrophysics and Supercomputing from 1 Feb 2011
2. Chair, Australian Astronomical Observatory Advisory Committee (from 1 Jan 2011)
3. ARC Grant holder and ARC Professorial Fellow
4. Fellow of the Australian Academy of Science
5. Fellow and Immediate Past President of the ASA
6. Member, ARC College of Experts (from 1 Jan 2010)
7. Member, Australian GMT Project Oversight Committee (from 1 Jan 2010 until 31 Dec 2010)

Register of Directors interests

Prof. Anne Green

1. Employed by the University of Sydney
2. Fellow, Astronomical Society of Australia
3. Fellow, Australian Institute of Physics
4. ARC Grant holder

Prof. Jeremy R. Mould

1. Honorary Professorial Fellow, University of Melbourne
2. Fellow, Australian Academy of Science
3. Professor, Swinburne University
4. Chair, Advisory Board, CoEPP

Prof. Brian P. Schmidt

1. Employed by the Australian National University, RSAA
2. Board Member, MWA
3. Member, AURA-Gemini oversight committee
4. Fellow, Australian Academy of Sciences
5. ARC Grant and Fellowship holder
6. Member, Australia Telescope Steering Committee
7. Member (2011 onwards), LIGO Program Advisory Committee
8. Member, Australian Academy's National Committee of Astronomy
9. Member, Australian Astronomical Observatory Advisory Committee

Register of Directors interests

Emeritus Prof. Mark S. Wainwright

1. Fellow, Australian Academy of Technological Sciences and Engineering
2. Honorary Fellow, Engineers Australia, (formerly Institution of Engineers Australia)
3. Fellow, Institution of Chemical Engineers (IChemE)
4. Fellow, The Royal Australian Chemical Institute (RACI)
5. Chair, Australia-China Council
6. Chair, Foundation for Australian Studies in China
7. Chair, National Computational Infrastructure Steering Committee ANU
8. Chair, Intersect Australia Limited
9. Chair, New Horizons Project Collaborations Committee Monash University / CSIRO
10. Director, Engineering Aid Australia Limited
11. Member, Queensland University of Technology Council
12. Chair, TAFE NSW Higher Education Governing Council
13. Chair, Smart Services CRC Board
14. Chair, National Institute for Experimental Arts
15. Member, International Advisory Committee, Hong Kong Polytechnic University
16. Member, Hong Kong Universities Grants Commission
17. Director, AARNeT

Dr. David M. Warren

1. Non Executive Director, Altium Ltd (www.altium.com.au)
2. Remuneration committee member, Altium Ltd
3. Non Executive Director, Houstons Farm Pty Ltd
4. Remuneration committee member, Houstons Farm Pty Ltd
5. Honorary Research Associate, School of Mathematics and Physics, UTAS
6. Considerable financial support for astronomy at UTAS and indirectly of PLANET.
7. Member, Australian Institute of Physics
8. Member, Australian Institute of Company Directors

Meetings of Directors

	Directors Meetings		Board Committee Meetings	
	No. Eligible to Attend	No. Attended	No. Eligible to Attend	No. Attended
Name:				
Dr. Martin T. Cole	3	3	1	1
Prof. Warrick J. Couch	6	6	1	1
Prof. Brian P. Schmidt	6	6	1	1
Dr. David M. Warren	3	3	1	1
Prof. Jeremy R. Mould	6	6	1	1
Prof. Brian J. Boyle	6	5	-	-
Emeritus Prof. Mark S. Wainwright	6	6	-	-
Dr. Ian Chessell	3	3	-	-
Prof. Anne Green	3	3	-	-

Auditors' Independence Declaration

A copy of the auditor's independence declaration as required under section 307C of the Corporations Act 2001 is set out on page 58. Signed in accordance with a resolution of the Board of Directors:

Direc

Prof. Warrick J. Couch

Director:

Dr. Ian Chessell

Dated this 30th day of August 2011

Auditor's Independence Declaration

I hereby declare, that to the best of my knowledge and belief, during the financial year ended 30 June 2011 there have been no:

(i) contraventions of the auditor independence requirements as set out in the Corporations Act 2001 in relation to the audit; and

(ii) contraventions of any applicable code of professional conduct in relation to the audit.

Name of Firm: E. Townsend & Co.
Chartered Accountants

Name of Partner: Eric Townsend

Eric Townsend

Address: 35 Mereweather Avenue, Frankston. Vic. 3199.

Dated this 30th day of August 2011

Liability limited by a scheme approved under Professional Standards Legislation.

Statement of comprehensive income for the year ended 30 June 2011

	Note	2011 $	2010 $
Revenues including Government Grants	2	20,758,583	13,956,597
Less expenditure			
Grants paid		(21,502,607)	(13,116,957)
Auditor's remuneration	3	(6,000)	(3,800)
Bad and doubtful debt expenses		-	-
Depreciation and amortisation expenses		(2,356)	(2,719)
Employee benefits expenses		(350,509)	(309,823)
Finance costs		-	-
Other expenses		(220,420)	(171,181)
Surplus (Deficit) before income tax attributable to members of the entity	4	**(1,323,309)**	**352,117**
Income Tax		-	-
Surplus (Deficit) after income tax attributable to members of the entity		**(1,323,309)**	**352,117**
Other comprehensive income		**Nil**	**Nil**
Total comprehensive income for the year attributable to members of the entity	4	**(1,323,309)**	**352,117**

The accompanying notes form part of these financial statements.

The Company is an income tax exempt charitable institution.

Statement of Financial Position as at 30 June 2011

	Note	2011 $	2010 $
CURRENT ASSETS			
Cash and cash equivalents	5	9,970,303	19,722,755
Trade and other receivables	6	444,386	295,124
TOTAL CURRENT ASSETS		10,414,689	20,017,879
NON-CURRENT ASSETS			
Property, plant and equipment	7	3,859	6,215
TOTAL NON-CURRENT ASSETS		3,859	6,215
TOTAL ASSETS		10,418,548	20,024,094
CURRENT LIABILITIES			
Trade and other payables	8	7,451,652	15,729,595
Short-term Provisions payable	9	9,791	14,085
TOTAL CURRENT LIABILITIES		7,461,443	15,743,680
TOTAL LIABILITIES		7,461,443	15,743,680
NET ASSETS		2,957,105	4,280,414
EQUITY			
Reserves		2,892,601	4,217,686
Retained earnings		64,504	62,728
TOTAL EQUITY		2,957,105	4,280,414

The accompanying notes form part of these financial statements

Statement of changes in equity for the year ended 30 June 2011

	Note	Retained Earnings $	NCRIS Reserve Account $	Overseas Optical Reserve Account $	Total $
Balance at 30 June 2009		**57,066**	**114,843**	**3,756,388**	**3,928,297**
Surplus attributable to equity members		352,117	-	-	352,117
Allocated to Reserves		(782,360)	542,729	239,631	-
Transfers from Reserves		435,905	(374,815)	(61,090)	-
Balance at 30 June 2010		**62,728**	**282,757**	**3,934,929**	**4,280,414**
Surplus attributable to equity members		(1,323,309)	-	-	(1,323,309)
Allocated to Reserves		(558,781)	407,464	151,317	-
Transfers from Reserves		1,883,866	(229,090)	(1,654,776)	-
Balance at 30 June 2011		**64,504**	**461,132**	**2,431,469**	**2,957,105**

The accompanying notes form part of these financial statements

Statement of cash flows for the year ended 30 June 2011

		2011 $	2010 $
Cash Flows from Operating Activities:			
Receipts from Grants/Members		11,434,297	15,236,341
Interest Received		588,874	1,343,489
Payments to Suppliers, Employees &Taxes		(728,925)	(968,690)
Payments of Grants		(21,046,698)	(14,077,448)
Net Cash Provided by (Used in) Operating Activities	Note 10	(9,752,452)	1,533,692
Cash Flows from Investing Activities:			
Proceeds from Sale of Property, Plant & Equipment		-	-
Payment for Property, Plant & Equipment		-	(2,966)
Net Cash Provided (Used in) Investing Activities		-	(2,966)
Cash Flows from Financing Activities:			
Proceeds from Borrowings		-	-
Repayment of Borrowings		-	-
Distributions/Dividend by Chief Entities		-	-
Net Cash Provided (Used in) Financing Activities		-	-
Net Increase (Decrease) in Cash Held		(9,752,452)	1,530,726
Cash at Beginning of the financial year		19,722,755	18,192,029
Cash at 30th June 2011	Note 5	9,970,303	19,722,755

The accompanying notes form part of these financial statements

The financial statements cover Astronomy Australia Limited as an individual entity. It is a company limited by guarantee incorporated and domiciled in Australia and is a not-for-profit income tax exempt charitable institution.

1 Summary of Significant Accounting Policies

Basis of Preparation

The financial statements are general purpose financial statements that have been prepared in accordance with Accounting Standards, including Australian Accounting Interpretations and the Corporations Act 2001.

Australian Accounting Standards set out accounting policies that the AASB has concluded would result in financial statements containing relevant and reliable information about transactions, events and conditions. Material accounting policies adopted in the preparation of these financial statements are presented below and have been consistently applied unless otherwise stated.

Reporting basis and conventions

The financial statements have been prepared on an accruals basis and are based on historical costs modified where applicable by the measurement at fair value of selected non-current assets, financial assets and financial liabilities.

Accounting Policies

Revenue

Interest revenue is recognised on a proportional basis taking into account the interest rates applicable to the financial assets.

Revenue from the rendering of a service is recognised upon the delivery of the service to the customers.

Grants are recognised at fair value where there is reasonable assurance that the grant will be received and all grant conditions will be met. Grants relating to expense items are recognised as income over the periods necessary to match the grant to the costs they are compensating. Grants relating to assets are credited to deferred income at fair value and are credited to income over the expected useful life of the asset on a straight-line basis.

All revenue is stated net of the amount of Goods and Services Tax (GST)

Goods and Services Tax (GST)

Revenues, expenses and assets are recognised net of the amount of GST, except where the amount of GST incurred is not recoverable from the Australian Tax Office. In these circumstances, the GST is recognized as part of the cost of acquisition of the asset or as part of an item of the expense. Receivables and payables in the balance sheet are shown inclusive of GST.

Cash flows are presented in the cash flow statement on a gross basis, except for the GST component of investing and financing activities, which are disclosed as operating cash flows.

Comparative Figures

When required by Accounting Standards, comparative figures have been adjusted to conform to changes in presentation for the current financial year.

Critical Accounting Estimates and Judgments

The directors evaluate estimates and judgments incorporated into the financial report based on historical knowledge and best available current information. Estimates assume a reasonable expectation of future events and are based on current trends and economic data, obtained both externally and within the group.

Key estimates – Impairment

The company assesses impairment at each reporting date by evaluating conditions specific to the entity that may lead to impairment of assets. Where an impairment trigger exists, the recoverable amount of the asset is determined. Value-in-use calculations performed in assessing recoverable amounts incorporate a number a key estimates.

No impairment has been recognized in respect of this financial year.

Income Taxation

The company is endorsed by the Taxation Office as a Charitable Institution. Therefore no income tax is payable by the company.

Property, Plant and Equipment

Buildings, Motor Vehicles, Office Furniture and Equipment and Plant and Equipment

Buildings, Motor Vehicles, Office Furniture and Equipment and Plant and Equipment are carried at cost or fair value less, where applicable, any accumulated depreciation and impairment losses.

Notes to the financial statements for the year ended 30 June 2011

Property

Freehold land is at cost.

Depreciation

The depreciable amount of Buildings (but not freehold land), Motor Vehicles, Office Furniture and Equipment and Plant and Equipment are depreciated on a written down value (WDV) or a straight line basis over their useful lives to the company commencing from the time the asset is held ready for use. Leasehold improvements are depreciated over the shorter of either the unexpired period of the lease or the estimated useful lives of the improvements.

The depreciation rates used for each class of depreciable assets are:

Class of Fixed Assets	Depreciation rate	Method
Office Furniture & Equipment	15% to 50%	Written down value

The assets' residual values and useful lives are reviewed, and adjusted if appropriate, at each balance sheet date.

An asset's carrying amount is written down immediately to its recoverable amount if the asset's carrying amount is greater than its estimated recoverable amount.

Gains and losses on disposals are determined by comparing proceeds with the carrying amount. These gains or losses are included in the income statement. When revalued assets are sold, amounts included in the revaluation reserve relating to that asset are transferred to retained earnings.

Leases

Leases of fixed assets where substantially all the risks and benefits incidental to the ownership of the asset, but not the legal ownership that are transferred to the company, are classified as finance leases.

Finance leases are capitalised by recording an asset and a liability at the lower of the amounts equal to the fair value of the leased property or the present value of the minimum lease payments, including any guaranteed residual values. Lease payments are allocated between the reduction of the lease liability and the lease interest expense for the period.

Leased assets are depreciated on a straight-line basis over the shorter of their estimated useful lives or the lease term.

Lease payments for operating leases, where substantially all the risks and benefits remain with the lessor, are charged as expenses in the periods in which they are incurred.

Lease incentives under operating leases are recognised as a liability and amortised on a straight-line basis over the life of the lease term.

Financial Instruments

Recognition

Financial instruments are initially measured at cost on trade date, which includes transaction costs, when the related contractual rights or obligations exist. Subsequent to initial recognition these instruments are measured as set out below.

Financial assets at fair value through profit and loss

A financial asset is classified in this category if acquired principally for the purpose of selling in the short term or if so designated by management and within the requirements of AASB 139: Financial Instruments: Recognition and Measurement. Derivatives are also categorised as held for trading unless they are designated as hedges. Realised and unrealised gains and losses arising from changes in the fair value of these assets are included in the income statement in the period in which they arise.

Loans and receivables

Loans and receivables are non-derivative financial assets with fixed or determinable payments that are not quoted in an active market and are stated at amortised cost using the effective interest rate method.

Held-to-maturity investments

These investments have fixed maturities, and it is the entity's intention to hold these investments to maturity. Any held-to-maturity investments held by the entity are stated at amortised cost using the effective interest rate method.

Available-for-sale financial assets

Available-for-sale financial assets include any financial assets not included in the above categories. Available-for-sale financial assets are reflected at fair value. Unrealised gains and losses arising from changes in fair value are taken directly to equity.

Financial liabilities

Non-derivative financial liabilities are recognised at amortised cost, comprising original debt less principal payments and amortisation.

Derivative instruments

Derivative instruments are measured at fair value. Gains and losses arising from changes in fair value are taken to the income statement unless they are designated as hedges.

Fair value

Fair value is determined based on current bid prices for all quoted investments. Valuation techniques are applied to determine the fair value for all unlisted securities, including recent arm's length transactions, reference to similar instruments and option pricing models.

Impairment

At each reporting date, the company assesses whether there is objective evidence that a financial instrument has been impaired. In the case of available-for-sale financial instruments, a prolonged decline in the value of the instrument is considered to determine whether impairment has arisen. Impairment losses are recognised in the income statement.

As a not-for-profit entity the value in use of an asset may be equivalent to the depreciated replacement cost of that asset when the future economic benefits of the asset is not primarily dependent on the asset's ability to generate net cash inflows and where the entity would, if deprived of the asset, replace its remaining future economic benefits.

Provisions

Provisions are recognised when the company has a legal or constructive obligation, as a result of past events, for which it is probable that an outflow of economic benefits will result and that outflow can be reliably measured.

Employee Benefits

Provision is made for the company's liability for employee benefits arising from services rendered by employees to balance date. Employee benefits that are expected to be settled within one year have been measured at the amounts expected to be paid when the liability is settled, plus related on-costs. Employee benefits payable later than one year have been measured at the present value of the estimated future cash outflows to be made for those benefits.

Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, deposits held at call with banks, other short-term highly liquid investments with original maturities of three months or less, and bank overdrafts. Bank overdrafts are shown within short-term borrowings in current liabilities on the balance sheet.

Unspent Grant Funds

Unspent Grant Funds available as revenue or liable to be returned to the grant provider in the following year are recognised as a current liability in the balance sheet. They are not treated as an operating surplus or profit.

Notes to the financial statements for the year ended 30 June 2011

Overseas Optical Reserve

As part of the Australian Research Council's financial arrangements with Sydney University for paying for the Australian share of Gemini, a substantial reserve was established. When the ARC LIEF grant for Gemini was transferred from Sydney University to AAL, this "Gemini Reserve" was also transferred to AAL. AAL and the ARC have agreed that the primary use of this reserve would be to cover shortfalls in payments to overseas optical telescope facilities due to currency fluctuations. AAL therefore renamed this reserve the "Overseas Optical Reserve".

A 2% (2010 – 1%) administration fee totalling $78,699 (2010 - $37,564) has been transferred from the Reserve.

Grant payments totaling $1,576,077 (2010 - $23,527) have been transferred from the Reserve.

AASB 101 – Presentation of Financial Statements

There have been changes in the Australian Accounting Standards Board (AASB) standards AASB101 that requires changes to the presentation of certain information within the financial statements. Below is an overview of the key changes and their impact on these financial statements.

Disclosure impact

Terminology changes:- The revised version of AASB 101 contains a number of terminology changes, including to the names of the primary financial statements. Put simply the Profit and Loss Statement is now termed the 'Statement of Comprehensive Income' and the Balance Sheet is now the 'Statement of Financial Position'.

Reporting changes in equity:– The revised AASB 101 requires all changes in equity arising from transactions with owners, in their capacity as owners, to be presented separately from "non-owner" changes in equity. "Non-owner" changes are shown in the Statement of Comprehensive Income and "Owner changes" are shown in the Statement of Changes in Equity.

Other comprehensive income:- AASB 101 introduces the concept of 'Other Comprehensive Income" which is income and expense items that are not required to be shown in the Profit and Loss under other Australian Accounting Standards.

New Accounting Standards for Application in Future Periods

Australian Accounting Standards and Interpretations that have recently have been issued or amended but are not yet mandatory, have not been early adopted by the company for the annual reporting period ended 30 June 2011. The company has not yet assessed the impact of these new or amended Accounting Standards and Interpretations

Notes to the financial statements for the year ended 30 June 2011

	2011 $	2010 $
2 Revenue including Government Grants		
Operating activities		
NCRIS and LIEF Grants	19,697,440	12,726,541
Administration Grant	255,886	249,593
Members subscriptions	240,930	190,919
Other income	-	2,200
Interest received – General Account	5,284	4,685
Interest received – Grants Account	407,726	543,029
Interest received – Overseas Optical Reserve Account	151,317	239,630
Total revenue	20,758,583	13,956,597
Movement in Grants Allocation for the Year		
NCRIS Grants yet to be Allocated		
Opening Balance	11,994,864	11,313,998
Grants Paid	(16,253,326)	(11,826,541)
Grants Received	5,938,000	12,507,407
Closing Balance (Note 8)	1,679,538	11,994,864
LIEF Grants yet to be Allocated		
Opening Balance	3,700,000	3,700,000
Grants Paid	(3,700,000)	(900,000)
Grants Received	3,000,000	900,000
Closing Balance (Note 8)	3,000,000	3,700,000

Notes to the financial statements for the year ended 30 June 2011

		2011 $	2010 $
OOR Grants yet to be Allocated			
Opening Balance		-	-
Grants Paid		-	-
Grants Received		1,550,562	-
Closing Balance	(Note 8)	1,550,562	-
AAO Gemini Grant yet to be Allocated			
Opening Balance		-	-
Grants Paid		-	-
Grants Received		960,000	-
Closing Balance	(Note 8)	960,000	-
NCRIS Reserve Grant yet to be Allocated			
Opening Balance		-	-
Grants Paid		-	-
Grants Received		229,090	-
Closing Balance	(Note 8)	229,090	-

2 Auditor's Remuneration

Auditor's Remuneration

Audit Services	6,000	3,800

Notes to the financial statements for the year ended 30 June 2011

	2011 $	2010 $
4 Revenue and Expense items		
Bad and doubtful debts		
Trade Receivables	-	-
Total bad and doubtful debts	-	-
Rental expense on operating leases		
Operating Lease Minimum Lease Payment	-	-
Significant Revenue and Expense items		
The following significant revenue and expense items are relevant in explaining the financial performance		
Additional grants not paid (paid)	(1,414,751)	1,661,034
Gemini reserve received	-	(157,356)
(Less) More interest received	(223,017)	(573,722)
Salaries and Directors Fees	(38,001)	(57,228)
Meeting and travel expenses	(2,728)	56,042
Consultants Fees	(45,454)	-

5 Cash and Cash Equivalents

Reconciliation of cash

Cash at the end of the financial period as shown in the cash flow statement is reconciled to the related items in the statement of financial position as follows:

	2011 $	2010 $
Current		
Cash on Hand	33	55
Term Deposit - Grant Account	2,428,997	6,500,000
Term Deposit - Overseas Optical Reserve Account (Secured)	-	-
Term Deposit - Grant Account USD	7,085,248	4,589,269
Cash at Bank - General Account	39,571	2,007
Cash at Bank - General Maximiser Account	48,167	69,825
Cash at Bank - Grant Account	89	60,763
Cash at Bank - Grant Maximiser Account	368,198	8,500,836
	9,970,303	19,722,755

Notes to the financial statements for the year ended 30 June 2011

	2011 $	2010 $
6 Trade and Other Receivables		
Current		
Trade Debtors	2,613	691
Other Debtors	-	24,547
GST Receivable	441,773	269,886
	444,386	295,124
7 Property, Plant and Equipment		
PLANT AND EQUIPMENT		
Plant and equipment:		
At cost	13,997	13,997
Accumulated depreciation	(10,138)	(7,782)
Total Plant and Equipment	3,859	6,215
Office Furniture and Equipment		
Opening Balance	6,215	5,968
Purchases	-	2,966
Accumulated depreciation	(2,356)	(2,719)
Closing Balance at 30th June 2011	3,859	6,215

Notes to the financial statements for the year ended 30 June 2011

	2011 $	2010 $

Movement in the carrying amounts for each class of property, plant and equipment

	Office furniture & equipment	Total
2009		
Carrying amount at end year	**5,968**	**5,968**
2010		
Additions at cost	2,966	2,966
Disposals		
Depreciation Expense	(2,719)	(2,719)
Carrying amount at end year	**6,215**	**6,215**
2011		
Additions at cost	-	-
Disposals		
Depreciation Expense	(2,356)	(2,356)
Carrying amount at end year	**3,859**	**3,859**

8 Trade and Other Payables

	2011 $	2010 $
Current		
NCRIS Grants to be allocated	1,679,538	11,313,998
LIEF Grants to be allocated	3,000,000	3,700,000
OOR Grants to be allocated	1,550,562	-
AAO Gemini Grant to be allocated	960,000	-
NCRIS Reserve Grant to be allocated	229,090	-
Other Creditors	32,462	24,426
GST Payable	-	-
	7,451,652	15,038,424

Notes to the financial statements for the year ended 30 June 2011

	2011 $	2010 $
Movement in the carrying amounts for each class of property, plant and equipment		
	Office furniture & equipment	**Total**

9 **Provisions**		
Provision for Recreational Leave	9,791	14,085
Total provisions	**9,791**	**14,085**
Analysis of Total Provisions		
Current	9,791	14,085
	9,791	14,085
Opening balance	**14,085**	**4,096**
Additional provisions raised during year	-	9,989
Amount used	4,294	-
Balance at end of period	9,791	14,085
10 **Cash Flow Information**		
Reconciliation of Cash flow from Operations with Surplus after Income Tax		
Surplus from ordinary activities after tax	(1,323,309)	352,117
Non-cash flows in surplus (deficit)		
Depreciation	2,356	2,719
Changes in assets and liabilities, net of the effects of purchase and disposal of subsidiaries		
(Increase)/decrease in trade and other receivables	(149,262)	477,696
Increase/(decrease) in trade and other payables	(8,277,943)	691,171
Increase/(decrease) in current provisions	(4,294)	9,989
Cash flow from operations	**(9,742,452)**	**1,533,692**

11 Events After the Balance Sheet Date

There have been no material non-adjusting events after the reporting date, nor has any information been received about conditions at reporting date that have not been included in this report.

12 Capital & Leasing Commitments

There are no Capital or Lease Commitments.

13 Segment Reporting

The company operates predominantly in one business and geographical segment being liaison with the astronomy community and managing capital grant funds to astronomy projects throughout Australia.

14 Economic Dependency, Contingent Assets & Contingent Liabilities

The company receives the majority of its grant funds from the Department of Innovation, Industry, Science & Research (DIISR). This funding source establishes certain procedures for grant expenditure and acquittal. If grants are not expended and acquitted in accordance with grantor's procedures, the Grantor can refuse to make further grants and request repayments of grants made.

The company has entered into a long funding agreement with the Department of Innovation, Industry, Science & Research (DIISR) for the receipt of A$45,000,000 over 5 years to 2011 of which a portion is for the company's operating costs and the majority is for projects to be undertaken by third parties. This agreement has been added to for a receipt of $10,000,000 over 2 years to June 2013.

15 Financial Risk Management

The entity's financial instruments consist mainly of deposits with banks, local money market instruments, short-term investments, accounts receivable and payable, loans and borrowings and mortgages.

The totals for each category of financial instruments, measured in accordance with AASB 139 is as follows:-.

Notes to the financial statements for the year ended 30 June 2011

	2011 / $	2010 / $
Financial assets		
Cash and cash equivalents	9,970,303	19,722,755
Loans and Receivables	444,392	295,124
Total financial assets	**10,414,695**	**20,017,879**
Financial liabilities		
Financial liabilities at amortised cost		
- Trade and other payables	32,462	34,731
Grants yet to be allocated	7,419,190	15,694,864
Total financial liabilities	**7,451,652**	**15,729,595**

Financial risk management policies

The directors' overall risk management strategy is to assist the entity in meeting its financial targets, whilst minimising potential adverse effects or financial performance. Risk management policies are approved and reviewed by the Board of Directors on a regular basis. These include credit risk policies and future cash flow requirements.

The entity does not have any derivative instruments at the end of the reporting period.

Specific Financial Risk Exposures and Management

The main risks the entity is exposed to through its financial instruments are interest rate risk, liquidity risk and credit risk.

(a) Credit risk

Credit risk is the risk that parties that owe money do not pay it.

The maximum exposure to credit risk, excluding the value of any collateral or other security, at balance date to recognised financial assets, is the carrying amount, net of any provisions for impairment of those assets, as disclosed in the statement of financial position and notes to the financial statements.

The entity does not have any significant concentration of credit risk exposure to any single, or group, of counter-parties under financial instruments entered into by the entity. A profile of credit risk appears above under the Note on 'Trade and Other Receivables'.

(b) Liquidity risk

Liquidity risk arises due the possibility that the entity might encounter difficulty in settling its own debts or other liabilities. The entity manages this risk by managing credit risk on amounts owed to it, monitoring forecast cash flows and ensuring that adequate unutilised borrowing facilities are maintained.

Financial liability and financial asset maturity analysis

	Within 1 year		1 to 5 years		Over 5 years		Total	
	2011 / $	2010 / $	2011 / $	2010 / $	2011 / $	2010 / $	2011 / $	2010 / $
Financial liabilities due for payment								
Trade and other payables (excluding employee benefit provisions and deferred income)	32,462	34,731					32,462	34,731
Grants yet to be allocated	7,419,190	15,694,864					7,419,190	15,694,864
Total expected outflows	7,451,652	15,729,595					7,451,652	15,729,595
Financial assets – cash flows realisable								
Cash and cash equivalents	9,970,303	19,722,755					9,970,303	19,722,755
Trade and other receivables	444,392	295,124					444,392	295,124
Total anticipated inflows	10,414,695	20,017,879					10,414,695	20,017,879
Net inflow (outflow) on financial instruments	2,963,043	4,288,284					2,963,043	4,288,284

Notes to the financial statements for the year ended 30 June 2011

(c) Market Risk

Interest rate risk

Exposure to interest rate risk arises whereby future changes in interest rates will affect future cash flows or the fair value of financial assets and liabilities.

Foreign exchange risk

Exposure to foreign exchange risk may result in the fair value or future cash flows of a financial instrument fluctuating due to movement in the foreign exchange rates of currencies in which the entity holds financial instruments other than the Australian Dollar (AUD) functional currency of the entity.

The following table shows the foreign currency risk of the entity

Net financial assets (liabilities) in AUD.	2011 / $	2010 / $
Term Deposit – Grant Account USD	7,085,248	4,589,269

Forward US Dollar Contracts

The company had purchased forward dollar contracts with maturity dates between 1st July 2010 and 30th June 2011 totalling US$983,657 (AUD$1,151,149) for forward overseas commitments of present and future NCRIS Grants secured with a Term Deposit of $1,000,000 maturing on 30th June 2011. There were no such contracts held at 30 June 2011.

Price Risk

Price risk relates to the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in their market price.

Notes to the financial statements for the year ended 30 June 2011

Sensitivity analysis

The following table illustrates sensitivities to the entity's expose in interest rates and equity prices (if equities held). The table indicates the impact on how profit and equity values reported at the end of the reporting period would have been affected by changes in the relevant risk variable that management considers to be reasonably possible. These sensitivities assume that the movement in any particular variable is independent of other variables.

	2011 / $		2010 / $	
		Profit $'000		Equity $'000
Year ended 30th June 2010				
+ or – 2% in interest rates	+/-	393	+/-	393
+ or - 10% in listed investments	+/-	-	+/-	-
+ or - 5% in $A / $US	+/-	229		229
Year ended 30th June 2011				
+ or – 2% in interest rates	+/-	199	+/-	199
+ or - 10% in listed investments	+/-	-	+/-	-
+ or - 5% in $A / $US	+/-	354	+/-	354

Net Fair Values

The net fair values of listed investments have been valued at the quoted market bid price at balance date adjusted for transaction costs expected to be incurred. For other assets and other liabilities the net fair value approximates their carrying value. No financial assets and financial liabilities are readily traded on organised markets in standardised form other than listed investments.

The differences between fair values and carrying values of financial instruments with fixed interest rates are due to the change in discount rates being applied by the market to those instruments since their initial recognition by the entity. Most of these instruments which are carried at amortised cost (e.g. trade receivables, loan liabilities) are to be held until maturity and therefore their current net fair values bear little relevance to the entity.

As appropriate the net fair values and carrying amounts of financial assets and financial liabilities are disclosed in the Statement of Financial Position and in the notes to the financial statements.

Notes to the financial statements for the year ended 30 June 2011

16 Key Management Personnel Compensation

The total of remuneration paid to key management personnel (KMP) of the entity during the year is as follows:

	2011 / $	2010 / $
Short-term employee benefits	219,962	214,735
Post-employment benefits	-	-
Other long-term benefits	-	-
Termination benefits	-	-
	219,962	214,735

17 Contingent Liability/Forward Commitments

To be taken from the NCRIS Reserve.
2011 Nil (2010- $19,858 during 2010/11 towards the costs of hiring two support astronomers from the Magellan telescopes to conduct research at an Australian-based institution.)

To be taken from the Overseas Optical Reserve.
2011 Nil (2010 - AUD$1,550,562 (USD$1,380,000) during 2010/11 and 2011/12 to purchase time for Australia-based astronomers on the Magellan telescopes. The time purchased is expected to average 7.5 nights per semester during observing semesters 2011B, 2012A 2012B and 2013A)

18 Member's Guarantee

Astronomy Australia Limited is a company limited by guarantee. Every member of the company undertakes to contribute to the assets of the company in the event of its being wound up while he/she is a member or within one year after he or she ceases to be a member for the payment of the debts and liabilities of the company contracted before he/she ceases to be a member and the costs, charges and expenses of winding up and for the adjustment of the rights of the contributories among themselves such amount as may be required not exceeding 10 dollars.

19 Related Party Transactions

Transactions between related parties are on normal commercial terms and conditions no more favorable than those available to the other parties unless otherwise stated.

20 Company Details

The registered office of the company is:

Swinburne University

John Street

Hawthorn. Vic. 3122.

The principal place of business is:

Swinburne University

John Street

Hawthorn. Vic. 3122.

Directors' Declaration

The directors of the company declare that:

1. The financial statements and notes, as set out on pages 42 to 81, are in accordance with the Corporations Act 2001:

    (a) comply with Australian Accounting Standards and the Corporations Regulations 2001 mandatory professional reporting requirements, International Financial Reporting Standards; and

    (b) give a true and fair view of the financial position as at 30 June 2011 and of the performance for the year ended on that date of the company; and

2. There are reasonable grounds to believe that the company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors.

On behalf of the Directors

Director:

Prof. Warrick J. Couch

Director:

Dr. Ian Chessell

Dated this 30th day of August 2011

Astronomy Australia Limited A.B.N 19 124 973 584

Independent Auditor's Report to the members of Astronomy Australia Limited

Report on the Financial Report

I have audited the accompanying financial statements of Astronomy Australia Limited, which comprises the statement of financial position as at 30 June 2011, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, notes comprising a summary of significant accounting policies and other explanatory information and the director's declaration.

Directors' Responsibility for the Financial Report

The directors of the company are responsible for the preparation and fair presentation of the financial statements that gives a true and fair view in accordance with Australian Accounting Standards (including the Australian Accounting Interpretations) and the Corporations Act 2001 and for such internal control as the directors determine is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

My responsibility is to express an opinion on the financial statements based on my audit. I conducted my audit in accordance with Australian Auditing Standards. These Auditing Standards require that I comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the director, as well as evaluating the overall presentation of the financial statements.

I believe that the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Independence

In conducting my audit, I have complied with the independence requirements of the Corporations Act 2001. I confirm that the independence declaration required by the Corporations Act 2001, provided to your directors and included in the financial statements, would be in the same terms if provided to the directors as at the date of this auditors' report.

Independent Auditor's Report to the members of Astronomy Australia Limited

Auditors' Opinion

In my opinion the financial statements of Astronomy Australia Ltd. is in accordance with the Corporations Act 2001, including:

(i) Giving a true and fair view of the company's financial position as at 30 June 2011 and of its performance for the year ended on that date; and

(ii) Complying with Australian Accounting Standards and the Corporations Regulations 2001.

Name of Firm: E. Townsend & Co.

Eric Townsend

Name of Auditor Eric Townsend, Chartered Accountant

Address 35 Mereweather Avenue, Frankston. Vic. 3199

Dated this 30th day of August 2011

Liability limited by a scheme approved under Professional Standards Legislation.

Astronomy Australia Limited A.B.N 19 124 973 584

Profit and Loss Statement for the year ended 30 June 2011

	2011 $	2010 $
REVENUE		
Administration Grant - NCRIS	255,886	249,593
Membership Subscriptions - Level 1	221,196	175,010
Membership Subscriptions - Level 2	19,734	15,909
Administrative Services	-	2,200
Gemini Reserve Received	-	-
Grants Allocated	19,697,440	12,726,541
	20,194,256	13,169,253
LESS: GRANTS PAID		
Grants Paid	19,697,440	12,726,541
Grants Paid from Reserves	1,805,167	390,416
	21,502,607	13,116,957
GROSS SURPLUS FROM TRADING	(1,308,351)	52,296
OTHER INCOME		
Interest Received - General Account	5,284	4,685
Interest Received - Grants Account	407,726	543,029
Interest Received - Overseas Optical Reserve Account	151,317	239,630
	564,327	787,344
	(744,024)	839,640

Astronomy Australia Limited A.B.N 19 124 973 584

Profit and Loss statement for the year ended 30 June 2011

	2011 $	2010 $
Expenses		
Accountancy	25,890	26,184
Auditor's Remuneration	6,000	3,800
Bank Charges	1,095	1,093
Company Secretarial Fees	19,590	15,732
Contract Staff	-	20,835
Consultant Fees	45,454	-
Depreciation	2,356	2,719
Filing Fees	41	40
Fringe Benefits Tax	1,004	1,029
Insurance	9,609	6,236
Legal Costs	19,674	8,137
Meeting Expenses	32,700	30,055
Printing & Stationery	10,825	11,696
Office Expenses	-	-
Salaries	243,700	208,824
Salaries - Board	73,344	70,219
Software	-	-
Subscriptions	795	731
Superannuation - Board	11,142	12,885
Superannuation Contributions	22,323	17,895
Telephone	2,665	2,549
Training/Conference	4,822	1,018
Travel - Staff	20,369	8,911
Travel - Board	24,025	31,090
Travel - Board - Salary	715	5,025
Worksafe Insurance	1,147	820
	579,285	487,523
Surplus before income tax	**(1,323,309)**	**352,117**

Appendix

Astronomy NCRIS Progress Report

GMT-1 at the Steward Observatory Mirror Laboratory. Image Credit: Roger Franzen.

11 Appendix

Astronomy NCRIS Progress Report

Status of the Project, and activities undertaken

The status of each activity undertaken through this project is described on pages 11-22 of this report.

Access and Pricing

The access and pricing arrangements described in section 3, “Access and Charging Arrangements” of the Project Plan, remain unchanged and are unlikely to change in the future. The arrangements for existing infrastructure have been operating successfully for many years and have been leveraged in devising the arrangements outline for future infrastructure.

UNSW partners with the Polar Research Institute of China, in conjunction with the Chinese Purple Mountain Observatory, in the deployment of the PLATO-A; and with the Japanese National Institute of Polar Research in the deployment of PLATO-F. The access arrangements are being discussed at present in the context of the EIF project starting in July 2011. It is a requirement of the Antarctic Treaty that all scientific data collected on the continent be made publically available (Article III 1(c)).

Progress against milestones

The progress against milestones for 2010-11 for each activity is given on pages 89-95.

Deviations from the Annual Business Plan 2010/11

- An NSF proposal for further funding for MWA was not successful. A revised project outline and corresponding science case was approved by the AAL Board and the full project plan is now in a further state of revision as a result of larger than expected quotes from infrastructure providers. The current draft plan is for a 128 tile array to be built, retaining an expansion path to 256 tiles if further funding became available. This project continues with AAL EIF funding during 2011-13, and AAL will continue to actively engage with Curtin University of Technology to progress the MWA to completion.
- The PLATO-A deployment has been delayed due to a Chinese decision to postpone the deployment. The deployment is now expected in November 2011.

Cash and in-kind investment

Confirmation of the cash and in-kind co-investment to this project from the AAO and UNSW can be found on pages 98-100. A financial summary showing the transactions under this Project for the past financial year can be found on pages 96-98.

Attachments

The description of the performance against agreed indicators (Gemini and Magellan) is on pages 101-105. The audited financial statement can be found beginning on page 41.

Progress against milestones

A. Governance

Milestone	Due	Completed	Comments
Quarterly newsletter published	Sep 2010	Oct 2010	
Fourteenth board meeting held	Sep 2010	Aug 2010	
2009/10 Annual report published and made available on AAL website	Sep 2010	Sep 2010	
2009/10 Astronomy NCRIS progress report submitted to DIISR and made available on AAL website	Sep 2010	Sep 2010	
Poster presentation at the Annual Meeting of the ASA	Sep 2010	Jul 2010	
Quarterly newsletter published	Dec 2010	Dec 2010	
Fifteenth board meeting held	Dec 2010	Nov 2010	
2010 Annual General Meeting held	Dec 2010	Nov 2010	
Appointment of 3 board members and Chair at the AGM	Dec 2010	Nov 2010	Warrick Couch appointed Chair; Anne Green and Ian Chessell appointed Directors
Quarterly newsletter published	Mar 2011	Mar 2011	
Sixteenth board meeting held	Mar 2011	Feb 2011	
Quarterly newsletter published	Jun 2011	Jun 2011	
Seventeenth board meeting held	Jun 2011	Apr 2011	Included an extra day for Strategic Planning

Progress against milestones cont.

B. Research Infrastructure

AAO – Refurbishment of Facilities

Milestone	Due	Completed	Comments
Upgrade telescope hydraulic system	Sep 2010	Ongoing	On hold due to current workload
Refurbish telescope focus drives	Sep 2010	Dec 2010	
Replace standby generator	Dec 2010	Dec 2010	
Replace the main UPS Stan inverter	Dec 2010	Ongoing	80% complete as of June 2011
Replace dome crane control system	Mar 2011	Ongoing	Contract signed. Work expected to begin mid-September 2011
Replace the main high voltage electrical switchgear	Mar 2011	Ongoing	ANU has begun the design phase
Upgrade the dome shutter and brake control system	Jun 2011	Ongoing	Contract signed. Work expected to be completed during 2011/12 financial year
Upgrade the maintenance platform brakes and controls	Jun 2011	Ongoing	On hold; emergency brakes on the main shutter are the first priority

AAT – New Instrument HERMES

Milestone	Due	Completed	Comments
Commence ordering materials	Sep 2010	Sep 2010	
Complete instrument final design	Dec 2010	Jul 2011	
Deliver final design report	Dec 2010	Dec 2010	
Start preparing Epping assembly & test facility	Mar 2011	Dec 2010	
Complete test facility at Epping	Jun 2011	Dec 2010	

Progress against milestones cont.

Australian Membership of the Gemini International Partnership

Milestone	Due	Completed	Comments
Support Australian involvement in 8m-class telescopes by: • managing the Australian time allocation process for 8m telescopes; • the Australian Gemini Scientist (AGS) and both Deputy Gemini Scientists (DGS) performing specified Gemini support duties; • supporting Gemini instruments as required; • maintaining an up-to-date AusGO web site.	Ongoing	Ongoing	
Promote Australian science, and new opportunities with the Gemini and Magellan telescopes, by staffing a booth at the Astronomical Society of Australia Annual Scientific Meeting in Hobart (Jul 2010)	Sep 2010	Jul 2010	All AusGO staff, including 3 Magellan Fellows, attended meeting
AGS attends Gemini Operations Working Group meeting in Hilo (Aug 2010).	Sep 2010	Aug 2010	
Recruit up to 3 Australian Gemini Undergraduate Summer Students (AGUSS) to spend Dec 2010 - Feb 2011 at Gemini South.	Sep 2010	Sep 2010	
Unveil winning entry in the 2010 Australian Gemini School Astronomy Contest.	Sep 2010	Mar 2011	
Coordinate AGUSS travel and projects with Gemini South.	Dec 2010	Dec 2010	
Coordinate technical assessment of Semester 2011A joint proposals on behalf of all Gemini partners.	Dec 2010	Dec 2010	
AusGO hosts 2011A Gemini International Time Allocation Committee meeting at AAO in Epping (Nov 2010).	Dec 2010	Dec 2010	Gemini moved meeting to Hilo for budget reasons
Coordinate Australian usage of FLAMINGOS-2 Science Verification time.	Mar 2011	Ongoing	FLAMINGOS-2 Science Verification delayed until late 2011
Organise AGUSS final seminars via videoconference from Chile.	Mar 2011	Mar 2011	
AGS attends Gemini Operations Working Group meeting in La Serena, Feb 2011.	Mar 2011	Mar 2011	
AusGO launches the 2011 Australian Gemini School Astronomy Contest.	Mar 2011	Mar 2011	
Coordinate technical assessment of Semester 2011B joint proposals on behalf of all Gemini partners.	Jun 2011	Jun 2011	
Coordinate Australian usage of GSAOI Science Verification time.	Jun 2011	Ongoing	GSAOI Science Verification call delayed until Q1 2012/13
Judging panel selects winner of 2011 Australian Gemini School Astronomy Contest.	Jun 2011	Jun 2011	Annoucement imminent
AusGO organises a Gemini observational techniques and data reduction workshop.	Jun 2011	Ongoing	Workshop scheduled for 30 Aug–2 Sep 2011.

Progress against milestones cont.

Murchison Widefield Array

Milestone	Due	Completed	Comments
MS4 - Supply of Data-Over-Coax (DOC) for 32-T Retrofit	Sep 10	Sep 10	Re-scoped to retrofit only partial 32-T array (8-T) owing to US funds constraints. Implemented and verified during the x14 field campaign
MS5 - Support System Specification (512-T-MSys-SS. Rev.0001) Completed	Sep 10	Ongoing	Finalised to support site works RFT in April 2011. Re-opened for de-scope after RFT returned quotes well in excess of the cost opinion provided by the consulting engineers at the end of detailed design phase. To be concluded to support re-quote Aug 2011.
MS6 - Mission System Specification (512-T-MSys-SS. Rev.0001) Completed	Sep 10	Ongoing	Several design/development issues have been resolved in the wake of the NSF determination. The mission system performance specification is maturing in line with the development of the [largely software] sub-systems and the finilisation of the de-scoped array layout.
MS7 -Receiver Electronics Development Complete	Sep 10	Superceded	Receiver development is approaching conclusion. The design is mature undergoing robust test and verification. The last contracted development work package remains open to support changes required by testing. This milestone is superseded by a number of milestones subordinate to WBS 2.3 (PMP rev.007).
MS8 - Update (second of two) on status of funding required to complete phase 2	Sep 10	Apr 11	This milestone was satisfied with submission of MWA PMP rev.007 on 01 April 2011. An additional update will be provided following resolution of the current funding uncertainty.
MS9 - Approval by MWA Board of the Operations Management Plan	Sep 10	Deferred	Some early scoping and development of an operations model and Operations Management Plan has occurred. This process has been deferred by agreement with AAL to allow finite project resources to focus on more immediate priorities. Operations' Planning is a Project Element (PE) in its own right in the new PMP structure. It is scheduled to occur concurrently with Phase 2—System Realisation and be completed by 29 June 2012. A number of milestones subordinate to WBS 2.8 map the progress of this PE.
MS10 - Report of progress against issues raised in Review of MWA Project Plan and 32T Verification Program	Sep 10	Sep 10	Closed. This milestone was temporally specific and has not been carried forward.
MS11 - Support System Design Complete	Dec 10	Ongoing	Per MS5, design was complete to support RFT in Apr 11 but has been re-opened for de-scope to reduce cost.
MS12 - Support System Critical Design Review (CDR) Completed	Dec 10	Ongoing	Per MS11. CDR of de-scoped design to occur on about 16 August 2011.
MS13 - Commence Factory Acceptance Testing of Tile Elements	Dec 10	Superceded	Schedule delays precluded the procurement of production batches of Tile Elements. Test regimes have been developed but the regime of testing and acceptance will necessarily be negotiated and agreed with tvendor as part of contract negotiations. This milestone has been superseded by milestones subordinate to WBS 2.2.

Progress against milestones cont.

Murchison Widefield Array (continued)

Milestone	Due	Completed	Comments
MS14 - System Acceptance Test Plans & Procedures (ATP&P) Completed	Dec 10	Superceded	This milestone remains partially complete. System acceptance tests and procedures for the instrument will be the aggregation of myriad subordinate test plans and procedures for the individual PEs and their interfaces. These subordinate plans are at different stages of completion reflecting the different status of the PEs. This milestone is superseded by PE specific milestones throughout the revised WBS.
MS15 - Receiver Batch one of three Field Testing Complete	Dec 10	Closed (Mar 11)	This milestone is obsolete in the context of the re-base-lined project plan and procurement strategy. This milestone has been superseded by milestones subordinate to WBS 2.3.
MS16 - Contracts signed for all funding required to complete phase 2	Dec 10	Ongoing	EIF contract remains outstanding and will be executed in about November 2011 subject to finalisation of Project costs [to be submitted to AAL in October 2011]
MS 17 - Commence Tile Install (Install Team Deployed to Site)	Mar 11	Ongoing	This milestone has been carried forward to the revised WBS and is scheduled following completion of the site works.
MS18 - Mission System Development Complete	Mar 11	Superceded	This milestone is superseded by PE specific milestones throughout the revised WBS. All PE are approaching development completion with build-out to commence as soon as the supporting infrastructure is available on site.
MS19 - Receiver Batch two of three Field Testing Complete	Mar 11	Closed (Mar 11)	Closed consistent with closure of MS15
MS 20 - System Integration Complete	Jun 11	Superceded	Complete system integration will entail integration within and between numerous components and sub-systems that make up and support the MWA instrument. This milestone is superceded by specific milestones throughout the revised MWA WBS. Completion of this milestone will signal the transition between the deployment and the commissioning and early science phases of the project.

ASKAP Digital Systems

Milestone	Due	Completed	Comments
BETA Digital System (ES1) integration test with other IPTs systems*	Feb 2010	Oct 2010	
BETA digital system deployed and verified operational*	Jun 2010	Jun 2011	
Digital System installation at MRO (1st Antenna)*	Jun 2010	Ongoing	
Digital System Integration test at MRO with all IPT's sub systems*	Jun 2010	Ongoing	
ASKAP Digital Systems pass Critical Design Review*	Jun 2010	Jun 2011	
Digital System installation of BETA antenna sub systems at MRO	Jun 2011	Ongoing	
Full Digital System Integration test of full 6 antennas array	Jun 2011	Ongoing	
ASKAP Digital System manufacture commence	Jun 2011	Ongoing	
ASKAP Digital System installed and verified operational*	Jun 2012	Ongoing	
Full Digital System Integration test of full 36 antennas array*	Jun 2012	Ongoing	
Full ASKAP Digital System commissioned & accepted for the ASKAP array*	Jun 2012	Ongoing	

* Milestones due outside the reporting period 2010/11

Progress against milestones cont.

ASKAP Overall

Milestone	Due	Completed	Comments
Systems pass Preliminary Design Review*	Oct 2009	Jun 2011	
Data/Signal Transport passes Critical Design Review*	Feb 2010	Ongoing	
Systems pass Critical Design Review*	Feb 2010	Ongoing	
Fibre link installed and verified operational*	Feb 2010	Ongoing	Fibre Link installation is expected to be operational by August 2011
Analogue Systems pass Preliminary Requirements Review*	Jun 2010	Ongoing	
BETA computing installed and verified operational	Jun 2011	Ongoing	BETA Installation completion planned for Q4 2011
Complete full imaging simulation	Jun 2011	Ongoing	
BETA dedication for early science	Jun 2011	Ongoing	
12 antennas installed and operational	Jun 2011	Ongoing	
BETA produces science results with the full array for the community on a regular basis*	Jun 2012	Ongoing	
36 antennas ASKAP installed and operational*	Jun 2012	Ongoing	
SKA site decision*	Jun 2012	Ongoing	SKA site decision expected 29 Feb 2012
36 antennas ASKAP complete and ready for shared-risks science operations by Dec 2012*	Dec 2012	Ongoing	

* Milestones due outside the reporting period 2010/11

Progress against milestones cont.

Antarctic Astronomy

Milestone	Due	Completed	Comments
Engine module designed and manufactured	Sep 2010	Dec 2010	
Power system designed and manufactured	Sep 2010	Dec 2010	
Instrument module designed and manufactured	Sep 2010	Dec 2010	
Engine sub-system designed	Sep 2010	Aug 2010	
Engine module integration complete	Sep 2010	Dec 2010	
Control system designed and manufactured	Sep 2010	Sep 2010	
Computer and communications system complete	Sep 2010	Dec 2010	
Instrument module integration complete	Sep 2010	Dec 2010	
PLATO-A tested and shipped to Chinese collaborators for deployment to Dome A	Dec 2010	Ongoing	PLATO-A has been delayed by 12 months because of a Chinese decision to postpone the deployment
PLATO-F tested and shipped to Japanese collaborators for deployment to Dome F	Dec 2010	Oct 2010	

List of Astronomy NCRIS cash receipts and payments – grant allocations (GST exclusive)

Item	Transaction Type	From / To	Budget Receipts	Budget Payments	Actual Receipts	Actual Payments
Gemini operations	Payments - International Access	NSF (USA)		$1,151,184		$1,151,184
Magellan	Payments - International Access	Carnegie		$444,634		$444,634
AAT instrument	Payment - Capital	AAO		$500,000		$500,000
AAT refurbishment	Payments - Operating	AAO		$200,000		$200,000
ASKAP	Payment - Capital	CSIRO		$2,000,000		$2,000,000
AusGO	Payments - Operating	AAO		$81,000		$81,000
MWA	Payment - Capital	Curtin Uni		$1,527,447		$1,527,447
AAT instrument	Payment - Capital	AAO		$500,000		$500,000
AAT refurbishment	Payments - Operating	AAO		$200,000		$200,000
AusGO	Payments - Operating	AAO		$81,000		$81,000
MWA	Payment - Capital	Curtin Uni		$1,985,679		$1,985,679
AAT instrument	Receipts	NCRIS	$650,000		$650,000	
AAT refurbishment	Receipts	NCRIS	$400,000		$400,000	
ASKAP	Receipts	NCRIS	$756,133		$756,133	
AusGO	Receipts	NCRIS	$337,000		$337,000	
Gemini operations	Receipts	NCRIS	$907,981		$907,981	
MWA	Receipts	NCRIS	$2,100,000		$2,100,000	
Magellan	Payments - International Access	Carnegie		$444,635		$444,635
AAT instrument	Payment - Capital	AAO		$500,000		$500,000
AAT refurbishment	Payments - Operating	AAO		$200,000		$200,000
ASKAP	Payment - Capital	CSIRO		$2,000,000		$2,000,000
AusGO	Payments - Operating	AAO		$84,250		$84,250
Aspen	Payments - International Access	NSF (USA)		$424,335		$0
MWA	Payment - Capital	Curtin Uni		$290,382		$290,382
Gemini operations	Payments - International Access	NSF (USA)		$911,286		$745,069
AAT instrument	Payment - Capital	AAO		$500,000		$500,000
AAT refurbishment	Payments - Operating	AAO		$200,000		$200,000
ASKAP	Payment - Capital	CSIRO		$2,100,000		$2,100,000
AusGO	Payments - Operating	AAO		$84,250		$84,250
Magellan Fellows	Payments - Operating	AAO		$158,052		$177,910
AAL Operations	Receipts	NCRIS	$0		$531,000	
			$5,151,114	**$16,568,134**	**$5,682,114**	**$15,997,440**

Notes:

The actual receipts are as 110% relative to the budget. This was due to a contract variation to award AAL an additional $531,000 to manage the Astronomy EIF grant from July 2011 until June 2013. The actual payments are 97% relative to the budget. The significantly reduced NCRIS payments throughout the year compared to budget are primarily associated with Australian contributions to the Gemini Observatory; while the full commitments to Gemini continue to occur, the grants funding those payments during 2010/11 were re-scheduled due to additional non-NCRIS grant contributions from the ARC and AAO.

The above receipts of $5,682,114 are confirmed in the financial statements.
(See Note 2 to Financial Statements: NCRIS Grants Received minus Administration Grant.)

The above payments of $15,997,440 are confirmed in the financial statements.
(See Note 2 to Financial Statements: NCRIS Grants Paid minus Administration Grant.)

List of Astronomy NCRIS cash receipts and payments – AAL Operations (GST exclusive)

Item	Transaction Type	From / To	Budget Receipts	Budget Payments	Actual Receipts	Actual Payments
AAL Operations	Receipts	AAL members	$193,788		$240,930	
AAL Operations	Receipts	NCRIS	$255,886		$255,886	
AAL Operations	Payments - Operating	AAL		$193,788		$240,930
AAL Operations	Payments - Operating	AAL		$255,886		$255,886
			$449,674	**$449,674**	**$496,816**	**$496,816**

Notes:

The actual receipts and payments are as 110% relative to the budget. This was primarily due to a special levy paid by the AAL members to partially fund the development of a position paper on Australian membership of the European Southern Observatory.

The above receipts of $496,816 are confirmed in the financial statements.
(See Note 2 to Financial Statements: Administration Grant plus Members subscriptions.)

List of Astronomy NCRIS in-kind contributions (GST exclusive)

Item	Transaction Type	From / To	Budget Receipts	Budget Payments	Actual Receipts	Actual Payments
PLATO	Receipts	UNSW/ARC/AAO/Macquarie	$450,000		$450,000	
PLATO	Payments - Operating	UNSW		$450,000		$450,000
AAT instrument	Receipts	AAO	$0		$938,664	
AAT instrument	Payment - Capital	AAO		$0		$938,664
			$450,000	**$450,000**	**$1,388,664**	**$1,388,664**

Notes:

The in-kind contributions are confirmed in the letters from the AAO and UNSW (see letters pg 99, 100).

List of Astronomy NCRIS Reserve receipts and payments (GST exclusive)

Item	Transaction Type	From / To	Budget Receipts	Budget Payments	Actual Receipts	Actual Payments
Magellan Fellows	Payments - Operating	AAO		$19,858		$0
NCRIS reserve	Receipts	Interest	$240,000		$407,464	
			$240,000	**$19,858**	**$407,464**	**$0**

Notes:

The amount of interest earned was 170% relative to budget. This was due to the timing of NCRIS grant receipts and payments.

The interest earned by the NCRIS grant is allocated to the Astronomy NCRIS Reserve, and payments are drawn from that reserve to pay for activities related to the Astronomy NCRIS. The above receipts are confirmed in the financial statements (see Statement of Changes in Equity).

Notes: The $407,464 allocated to the Astronomy NCRIS Reserve is the Interest earned by the Astronomy NCRIS minus bank fees associated with the Astronomy NCRIS bank accounts. The $229,090 transfer from the reserve relates to a contractual commitment to Intersect Australia Ltd to be paid during 2011/12; as this cash transaction did not occur during 2010/11 it is not listed in the above table.

AAO Statement confirming In-kind Contribution

Australian Government
Department of Innovation
Industry, Science and Research

AUSTRALIAN ASTRONOMICAL OBSERVATORY
PO Box 296, Epping, NSW 1710, Australia
Telephone: +61 2 9372 4811
Facsimile: +61 2 9372 4860
Email: director@aao.gov.au

Professor Matthew Colless FAA FRAS
Director

12 August 2011

Mr Mark McAuley
Chief Executive Officer
Astronomy Australia Limited
PO Box 2100
Hawthorn, VIC 3122

Dear Mark

During the financial year 2010-11, the AAO contributed $938,664 towards the HERMES instrument for the Anglo-Australian Telescope. The AAO expects to make further contributions towards the full project cost, as budgeted, during the years 2011-13.

Yours,

Matthew Colless

Professor Matthew Colless

Director

UNSW Statement confirming in-kind contribution

UNSW

SCHOOL OF PHYSICS

15th July 2011

Mr. Mark McAuley
Chief Executive Officer
Astronomy Australia Limited
P.O. Box 2100
Hawthorn
VIC 3122

Dear Mr. McAuley

In-Kind Contribution
PLATO Project
Financial Year 2010/2011

We are pleased to confirm receipt of the total in-kind contribution of $450,000 for spending on the PLATO project in financial year 10/11. Please see below for breakdown of the contributions:

University of New South Wales contribution: $150,000
ARC contribution: $200,000
Macquarie University contribution: $80,000
Anglo-Australian Observatory contribution: $20,000

We further confirm that the funds have been fully spent in the same financial year.

Yours sincerely,

Stephen Lo
School Manager

Cc Professor John Storey

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Gemini Performance Indicators

Although the following information is for the financial year 2010/11, the observing semesters 2010B and 2011A on which statistics are based run from 1 August 2010 – 31 July 2011.

Providing Research Infrastructure

During Semesters 2010B and 2011A both Gemini telescopes have maintained a high level of operational efficiency, despite extended periods of inclement weather. The 2010/11 subscription paid by Australia for its 6.19% share of the Gemini partnership was:

LIEF $323,645 | **NCRIS** $1,896,253 | **Total** $2,219,898

In addition, NCRIS supplied $330,500 for the costs of operating AusGO.

Notes: Unlike previous years, the above LIEF contribution was not formally a matching contribution to the Astronomy NCRIS grant. In addition, the 2010/11 Australian contribution towards Gemini Instrumentation was re-scheduled to September 2011 to be funded by the Astronomy EIF grant.

Meeting Researcher Needs / Fostering Collaboration

A total of 75 astronomers (18 of whom were PhD students) from 12 Australian institutions were involved in submitting 58 proposals for observing time with Gemini in 2010/11. These are all down slightly on the record figures for 2009/10 (86 astronomers including 26 students from 13 institutions submitted 68 proposals), but still above the numbers from 2008/09. Collaborators from 66 foreign institutions (listed in Table 1) were involved, and almost half of all proposals involved investigators from one Australian institution collaborating with investigators from one or more foreign institutions. Just 18% of proposals involved investigators from a single Australian institution only.

The oversubscription factor (ratio of hours requested to total hours available assuming no weather loss) for the year as a whole was 207%, a 30% decrease on the record demand in 2009/10. In total 54 astronomers from 12 institutions were allocated time in the Gemini queue bands (or classically-scheduled nights on the Subaru and Keck telescopes via a time exchange program), 12 of whom were PhD students. Pages 24-26 list the 22 papers published in refereed journals in the past year that have been based on Gemini data and involving Australian authors (up from 17 in 2009/10).

Quality of Research Infrastructure

In Semester 2010B (the most recent complete semester for which statistics are available), all but one of the seven Band 1 (i.e. highest ranked) programs were completed; 4 of the 6 Band 2 programs got 90% or more of their data; while none of the 4 Band 3 (i.e. lowest ranked) programs were even started. Almost 80% of the time charged to Australia went to programs that were ultimately completed. In Semester 2011A one user has even received over 30 hours of useful data in the "Poor Weather" queue, for which Australia is not charged.

Collaborative Infrastructure Provision

There were no changes to the Gemini Partnership during 2010/11, although the United Kingdom will withdraw from the Partnership at the end of 2012.

Table 1 – List of foreign institutions represented in Australian Gemini proposals

Arizona State University
Bamberg Observatory
California Institute of Technology
Columbia University
Consejo Superior de Investigaciones Científicas
European Southern Observatory
European University Cyprus
Gemini Observatory
George Washington University
Harvard-Smithsonian Center for Astrophysics
Herzberg Institute of Astrophysics
Imperial College of Science Technology and Medicine
Instituto de Astrofisica de Canarias
Ioffe Physical Technical Institute
Keele University
Lawrence Berkeley National Laboratory
Liverpool John Moores University
Max-Planck-Institut fur Astrophysik
Max-Planck-Institut fur Extraterrestrische Physik
McGill University
McMaster University
National Astronomical Observatory of Japan
Observatoire de Strasbourg
Osservatorio Astronomico di Padova
Osservatorio Astronomico di Torino
Pennsylvania State University
Pomona College
Queen's University Kingston
Saint Marys University
Saint Michaels College
South African Astronomical Observatory
Space Telescope Science Institute
Tata Institute of Fundamental Research
Tuorla Observatory
Universidad de Chile
Universidade de São Paulo
Universitat-Sternwarte Gottingen
Universite de Montreal
Universite Laval
University of Birmingham
University of Bristol
University of Bochum
University of California Berkeley
University of California Los Angeles
University of California Santa Barbara
University of California Santa Cruz
University of Cambridge
University of Central Lancashire
University of Chicago
University of Copenhagen
University of Durham
University of Edinburgh
University of Florida
University of Hertfordshire
University of Iceland
University of Leicester
University of North Carolina
University of Oxford
University of Toronto
University of Utah
University of Victoria
University of Warwick
University of Waterloo
Uppsala Astronomical Observatory
Valparaiso University
Yale University

Magellan Performance Indicators

Although the following information is for the financial year 2010/11, the observing semesters 2010B and 2011A on which statistics are based run from August 2010 – July 2011.

Providing Research Infrastructure

In Semester 2011A, a new wide-field near-infrared camera (FourStar) was commissioned on the Magellan Baade telescope. The two Magellan Fellows, Dr Francesco Di Mille and Dr Shane Walsh, completed the second of their two years of research and observing support in Chile, and will soon be moving to Australia for their final, research-only year while continuing to provide technical assistance to Magellan users. Just over 70% of Australia's classically-scheduled nights on Magellan were usable, with the rest lost to poor weather.

The cost of Australia's 15 nights on the Magellan telescopes was $889,269, funded by NCRIS.

Meeting Researcher Needs / Fostering Collaboration / Quality of Research Infrastructure

A total of 36 astronomers (8 of whom were PhD students) from 8 Australian institutions were involved in submitting 15 proposals for observing time with Magellan in 2010/11. These numbers are about 25% lower than the record totals achieved in 2009/10. Collaborators from 16 foreign institutions (listed in Table 2) were involved, with 6 proposals having investigators from a single Australian institution collaborating with investigators from one or more foreign institutions; 7 proposals with investigators from multiple Australian institutions plus foreign investigators; one proposal with investigators from a single Australian institution only; and one proposal with investigators from multiple Australian institutions only.

The oversubscription factor (ratio of nights requested to total nights available) for the year as a whole was 280%, down slightly on the 2009/10 demand. In total 20 astronomers from 7 institutions were allocated time on Magellan, 4 of whom were PhD students. Page 27 lists the 7 papers published in refereed journals in the past year that have been based on Magellan data and involving Australian authors, similar to that for 2009/10 (note that Magellan access has only been offered since January 2007).

Collaborative Infrastructure Provision

There were no changes to the Magellan Partnership during 2010/11.

Table 2 – List of foreign institutions represented in Australian Magellan proposals

Aarhus University	Universidad de Chile
Carnegie Institution of Washington	Universidad Nacional de Cordoba
Lick Observatory	Universidade do Porto
Liverpool John Moores University	University of Bristol
Max-Planck-Institut fur Astrophysik	University of Hertfordshire
Pontifica Universidad Catolica	University of Maryland
Space Telescope Science Institute	University of Michigan
Stanford University	University of Washington

Astronomy Australia Ltd Code of Conduct

AAL is a public, non-profit company of limited liability, the principle object of which is the advancement of the science of astronomy within the principles of the National Collaborative Research Infrastructure Strategy (Constitution 3.). AAL is ultimately controlled by the members, who appoint the board and vote on matters of community importance, normally at the annual general meeting.

This Code of Conduct establishes ethical standards for the conduct of AAL's directors, executives, and employees ("Officers" herein) as they strive to achieve the company objectives within this framework.

The Code stands beside but does not exclude or replace other legally binding obligations.

Organisational Principles

- Officers will use their best efforts to pursue the furtherment of Australian Astronomy within Australia and abroad.
- Officers will treat all people with respect and will not discriminate on grounds of race, religion, gender, marital status or disability.
- Officers will observe all relevant laws and regulations in the execution of AAL business.
- Officers will at all times act with honesty and integrity, both internally and externally, when representing AAL.
- The company promotes a zero tolerance approach for any deliberate illegal acts such as but not limited to theft, fraud, embezzlement, bribery, or the receiving of bribes.
- Officers shall when actively engaged in AAL business be always unimpaired by alcohol or substance abuse.

Good Standing of the Company

AAL is responsible to the astronomy community and to the Australian Government. It is paramount that the good standing of the company within the community be fostered and protected. Community lack of respect and credibility is failure.

Public Image and Media Relations

- Officers must execute their duty with due care to the public image of AAL.
- Particular diligence must be observed in dealing with the news media.
- Officers must avoid making statements purporting to represent the views or position of AAL unless formally empowered to do so.
- An Officer may communicate with the news media as a representative of AAL strictly as formally empowered to do so.

Confidentiality

It is the nature of AAL's business that Officers will share information of a sensitive nature. The confidentiality of our Members and of all affiliated bodies and third parties must be respected. Officers will make best efforts to protect confidentiality at all times. Leaks represent failure.

An Officer of the Company will not use such confidential information for personal gain or promotion.

Conflict of Interest

- It is the nature of the Australian astronomical community that individuals will have many intersecting interests.
- Conflict of interest is inevitable and unavoidable within AAL's ambit. This must be recognized and dealt with accordingly.
- AAL will keep a register of Officers interests which should be reviewed at least annually.
- Officers will be aware of section 40 of the AAL Constitution pertaining to conflict of interest.
- If in the progress of a Board meeting a Director or Officer recognizes that a conflict exists, or might reasonably exist, he or she must declare this interest.
- Should a Member of the Board or Officer recognise that another Member or Officer has a conflict of interest, he or she must declare this to the Board without fear or favour.
- Any declared conflict of interest will be evaluated by the Board at the time. The Board will decide how to proceed. In the event that the Board is locked, the Chairman shall resolve the matter. (Such resolution will normally be positive but may include declaring a topic unresolved for reasons of conflict. Such should be minuted.)
- The conflicted Members and Officers may be asked to abstain from either discussion or voting.
- The conflicted Members and Officers may be asked to absent the meeting for the duration of entertainment of the identified item of conflict.

Strategic Alliances

Many of AAL's highest goals involve alliances and partnerships. Alliance partners should be treated with confidentiality, integrity, honesty, and openness. Officers will represent AAL to strategic alliance partners strictly as formally empowered to do so.

Dealing with Government

- It is the nature of AAL's business that Officers must interact with Government.
- Officers will represent AAL to Government strictly as formally empowered to do so.
- The highest standards of diligence are required.
- AAL must endeavor to present the most accurate possible information to Government, and to act upon the directions of Government visibly, properly, and accountably.

Living Document

- This Code of Conduct should be reviewed annually by the Audit and Risk Management Committee.
- It can be extended or truncated provided this represents improvement.
- It can be improved at any time by the Board.

Acronyms used in this report

AAAC	Antarctic Astronomy Advisory Committee
AAL	Astronomy Australia Limited
AAO	Australian Astronomical Observatory
AARNet	Australia's Academic and Research Network
AAT	Anglo-Australian Telescope
AATB	Anglo-Australian Telescope Board
AeRAC	Astronomy eResearch Advisory Committee
AGMTPO	Australian Giant Magellan Telescope Project Office
AGS	Australian Gemini Scientist
AGUSS	Australian Gemini Undergraduate Summer Studentships
AITC	Advanced Instrumentation and Technology Centre
ALTAIR	ALTtitude conjugate Adaptive optics for the InfraRed
ANU	The Australian National University
AO	Adaptive Optics
ATP&P	System Acceptance Test Plans & Procedures
ARC	The Australian Research Council
ASA	The Astronomical Society of Australia
ASKAP	Australian Square Kilometre Array Pathfinder
ATLAS	Australia Telescope Large Area Survey
ATNF	Australia Telescope National Facility
AURA	Association of Universities for Research in Astronomy
AusGO	Australian Gemini Office
BETA	Boolardy Engineering Test Array
CAD	Computer Aided Design
CASS	CSIRO Astronomy and Space Science
CDR	Critical Design Review
CoDR	Concept Design Review
CoEPP	Centre of Excellence for Particle Physics at the Terascale
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CSTAR	Chinese Small Telescope Array
DGS	Deputy Gemini Scientist
DIISR	Department of Innovation, Industry, Science and Research
DOC	Data-Over-Coax
DSP	Digital Signal Processing
EIF	Education Investment Fund
ELT	Extremely Large Telescope
EoR	Epoch of Reionization
ES1	(BETA) protoype digital Engineering System
ESO	European Southern Observatory
eVLBI	electronic Very Long Baseline Interferometry
FAA	Fellow of the Australian Academy of Science
FAICD	Fellow of the Australian Institute of Company Directors.
FAIP	Fellow of the Australian Institute of Physics
FASA	Fellow of the Astronomical Society of Australia
FDR	Final Design Review
FIEAust	Fellow of the Institution of Engineers Australia
FIEChemE	Fellow of the Institution of Chemical Engineers

FPGA	Field Programmable Gate Array
FRACI	Fellow of the Royal Australian Chemical Institute
FRAS	Fellow of the Royal Astronomical Society
FTSE	Fellow of the Australian Academy of Technological and Engineering Sciences
GeMS	Gemini Multi-Conjugate Adaptive Optics System
GHOS	Gemini High-resolution Optical Spectrograph
GMACS	Giant Magellan Areal Camera and Spectrograph
GMT	Giant Magellan Telescope
GMTIFS	Giant Magellan Telescope Integral-Field Spectrograph
GMTO	Giant Magellan Telescope Organisation
GPU	Graphics Processing Unit
GSAOI	Gemini South Adaptive Optics Imager
gSTAR	GPU Supercomputer for Theoretical Astrophysics Research
HEAT	High Elevation Antarctic Terahertz (telescope)
HERMES	High Efficiency and Resolution Multi-Element Spectrograph
HPC	High Performance Computing
HST	Hubble Space Telescope
IChemE	Institution of Chemical Engineers
ICRAR	International Centre for Radio Astronomy Research
IFU	Integral Field Unit
ITP	Integrated Project Team
LIEF	Linkage Infrastructure Equipment and Facilities
LIGO	Laser Interferometer Gravitational-Wave Observatory
LTAO	Laser Tomography Adaptive Optics
MANIFEST	Many-Instrument Fibre System
MATES	Marsfield ASKAP Test and Engineering System
MCAO	Multi-Conjugate Adaptive Optics
MIT	Massachusetts Institute of Technology
MNRF	Major National Research Facility
MRC	Molonglo Reference Catalog
MRO	Murchison Radio-astronomy Observatory
MWA	Murchison Widefield Array
NAS	National Academy of Sciences
NBN	National Broadband Network
NCRIS	National Collaborative Research Infrastructure Strategy
NIFS	Near-Infrared Integral-Field Spectrograph
NIRMOS	Near Infrared Multiple Object Spectrograph
NOAO	National Optical Astronomy Observatory
NRN	National Research Network
NSF	National Science Foundation
OOR	Overseas Optical Reserve
OTAC	Optical Telescopes Advisory Committee
PAF	Phased Array Feed
PDR	Preliminary Design Review
PE	Project Element

PILOT	Pathfinder for an International Large Optical Telescope
PLATO	Plateau Observatory
PMP	Project Management Plan
PMSEIC	The Prime Minister's Science, Engineering and Innovation Council
PTF	Parkes Testbed Facility
QSO	Quasi-stellar object
RACI	The Royal Australian Chemical Institute
RFT	Request for Tender
RMS	Root Mean Square
ROLES	Redshift One LDSS-3 Emission line Survey
RSAA	Research School of Astronomy and Astrophysics (ANU)
RTAC	Radio Telescopes Advisory Committee
SCAR AAA	Scientific Committee on Antarctic Research Astronomy and Astrophysics from Antarctica
SDSS	Sloan Digital Sky Survey
SKA	Square Kilometre Array
UCLES	University College London Echelle Spectrograph
UNSW	University of New South Wales
UPS	Uninterruptable Power Supply
UTAS	University of Tasmania
UWA	University of Western Australia
VLBI	Very Long Baseline Interferometry
VLT	Very Large Telescope
VPH	Volume Phase Holographic
WASP	Western Australian Supercomputer Program
WBS	Work Breakdown Structure

Astronomy Australia Ltd.

Astronomy Australia Ltd

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