

Map of Astronomical Facilities

This document provides a brief description of the astronomical facilities to which Australian astronomers have access. It includes both National and University facilities.

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National Facilities

Anglo-Australian Telescope

Wavelengths	Optical/Infrared
Access	Open to all astronomers internationally, with programs ranked competitively based on scientific strength. Since 1 July 2010, Australia has full ownership and access rights, although up to 30% of telescope time may be awarded to international programs with no Australian involvement.
Location	Siding Spring Mountain, Coonabarabran, NSW
Management	Australian Astronomical Observatory
Owned	Australian Government
Description	<p>This 3.9-m telescope was commissioned in 1974. It was one of the last large equatorially mounted telescopes built but one of the first to be completely computer controlled. It now runs in visitor and service mode and currently offers the following instruments:</p> <ul style="list-style-type: none"> • AAOmega fibre-fed spectrograph fed by either the 2 Degree Field (2dF) robotic fibre positioner covering a 2 degree field at prime focus with 392 fibres; or the SPIRAL Integral Field Unit lenslet array, covering a 22" x 11" field with 0.7" sampling at the f/8 Cassegrain focus. • IRIS2 - 1.0-2.5 micron infrared imager and longslit/multi-slit spectrograph covering a 7.7' x 7.7' field. Offered in 2011B in shared-risk: GNOSIS, an OH-line suppression fibre-feed for IRIS2. • University College London Echelle Spectrograph (UCLES) - cross-dispersed echelle spectrograph with resolution $R = 40,000 - 120,000$. Offered in 2011A and 2011B in shared-risk: CYCLOPS fibre-feed with the 79 l/mm echelle. • Ultra High Resolution Facility (UHRF) - echelle spectrograph with $R = 300,000, 600,000, \text{ or } 940,000$. <p>Visitor instruments may also be used at the AAT with permission from the Observatory Director. Only one instrument is mounted on the telescope at any one time.</p>
Website	http://www.aao.gov.au/



Australia Telescope Compact Array

Wavelengths	Radio / mm
Access	Open to all astronomers based solely on science: For the year to September 2009 50% of time was allocated to proposals with a PI from Australia, 50% allocated to proposals with an international PI.
Location	Paul Wild Observatory, 20 km west of Narrabri, NSW
Management	CSIRO Astronomy and Space Science division
Owned	CSIRO
Description	The Australia Telescope Compact Array (ATCA) is an array of six identical 22-m dishes that commonly operate in aperture synthesis mode to produce radio images. Five of the dishes can be moved along a 3 kilometre railway track. The sixth antenna is situated 3 kilometres west of the end of the main track. Each dish weighs about 270 tonnes. The Compact Array is a part of the Australia Telescope National Facility network of radio telescopes. The array is frequently operated together with the 64-m metre dish at the Parkes Observatory and a single 22-m dish at Mopra (near Coonabarabran), to form a very long baseline interferometry array.
Website	http://www.narrabri.atnf.csiro.au/



Australian Long Baseline Array

Wavelengths	Radio
Access	Open to all astronomers based solely on science.
Location	Various sites within Australia
Management	CSIRO Astronomy and Space Science division
Owned	CSIRO, University of Tasmania, Curtin University of Technology
Description	The Long Baseline Array (LBA) is a National Facility, part of the ATNF, operated by CSIRO Astronomy and Space Science, University of Tasmania and Curtin University of Technology. It is the only astronomical Very Long Baseline Interferometry (VLBI) array operating in the southern hemisphere and regularly observes with other telescopes in South Africa, Japan, New Zealand and the USA. It has provided unique astronomical data on southern hemisphere active galaxies, masers, pulsars and supernovae in nearby galaxies. In addition, technological work on the LBA pioneered the developed the software correlator, now standard throughout the international VLBI community.
Website	http://www.atnf.csiro.au/vlbi



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Gemini

Wavelengths	Optical / Infrared
Access	6.19% of available time = ~8 nights per semester per telescope (32 nights per year).
Location	Gemini North – Mauna Kea Observatory – Hawaii Gemini South – Cerro Pachon – Chile
Management	Gemini Observatory
Owned	National Science Foundation, USA.
Description	The Gemini Observatory is operated by the Association of Universities for Research in Astronomy Inc., on behalf of a partnership of 7 countries including the United States, United Kingdom, Canada, Chile, Australia, Brazil and Argentina. It consists of twin 8.1-m optical/infrared telescopes located in Chile and Hawaii, and offers a suite of optical and infrared instrumentation and both visitor and queue-scheduled observing modes. Australian astronomers have access to 6.19% of the available telescope time on the two telescopes through the Australian Research Council's membership of the International Gemini Partnership.
Website	http://www.gemini.edu/



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Magellan

Wavelengths	Optical / Infrared
Access	15 nights/year
Location	Las Campanas Observatory – Chile
Management	Carnegie Observatories
Owned	Carnegie Institution of Washington, University of Arizona, Harvard University, University of Michigan, and Massachusetts Institute of Technology
Description	The 6.5-m Baade and Clay telescopes were built by the Carnegie Institution of Washington at its Las Campanas Observatory in Chile on behalf of the Magellan Project, a collaborative effort by the Carnegie Institution, University of Arizona, Harvard University, University of Michigan, and Massachusetts Institute of Technology. Australia has maintained access to Magellan since 2007 at 15 nights per year.
Website	http://obs.carnegiescience.edu/Magellan



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Mopra

Wavelengths	Radio / mm
Access	Open to all astronomers based solely on science: For the year to September 2009 40% of time was allocated to proposals with a PI from Australia, 60% allocated to proposals with an international PI.
Location	West of Coonabarabran, NSW
Management	CSIRO Astronomy and Space Science division
Owned	CSIRO
Description	Mopra is a 22-m single-dish radio telescope primarily used for 3-mm spectroscopy and VLBI experiments in conjunction with other ATNF telescopes. Mopra is operated remotely from a control desk at the Paul Wild Observatory near Narrabri, home of the CSIRO Australia Telescope Compact Array.
Website	http://www.narrabri.atnf.csiro.au/mopra/



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Parkes

Wavelengths	Radio / mm
Access	Open to all astronomers based solely on science: For the year to September 2009 65% of time was allocated to proposals with a PI from Australia, 35% allocated to proposals with an international PI.
Location	Parkes Observatory, 20 km north of Parkes, NSW
Management	CSIRO Astronomy and Space Science division
Owned	CSIRO
Description	Completed in 1961, the Parkes telescope is a 64-m, fully steerable radio antenna that operates at cm and mm wavelengths.
Website	http://www.parkes.atnf.csiro.au/



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Tidbinbilla 34-m and 70-m Radio Telescopes

Wavelengths	Radio / mm
Access	~5% of time (a few hundred hours per year) for astronomy activities
Location	Near Canberra, NSW
Management	CSIRO on behalf of NASA, via subcontract with Raytheon Australia.
Owned	NASA Jet Propulsion Laboratory
Description	As part of the Host Country agreement with NASA, a fraction of the time on the Tidbinbilla DSS-43 70-m and DSS-34 34-m antennas is available to the astronomical community. Access is managed by CSIRO Astronomy and Space Science division.
Website	http://www.atnf.csiro.au/observers/tidbinbilla/



UK Schmidt Telescope

Wavelengths	Optical
Access	Dedicated surveys only – no general user access. User groups interested in gaining long-term access to the UK Schmidt Telescope and 6dF spectrograph must contact the AAO Director. Time is awarded strictly on a user-pays basis.
Location	Siding Spring Mountain, Coonabarabran, NSW
Management	Australian Astronomical Observatory
Owned	The Australian National University
Description	The 1.2-m UK Schmidt telescope, commissioned in 1973, is a special purpose survey telescope with a very wide-angle field of view. It was originally designed to photograph 6.6 x 6.6 degree areas of the night sky on photographic plates and is currently carrying out the Radial Velocity Experiment (RAVE) survey utilizing the 6dF multi-object spectrograph.
Website	http://www.aao.gov.au/ukst/



University Facilities

2.3-m Telescope

Wavelengths	Optical / Infrared
Access	Proposals are only be considered if the PI is from the ANU or from another institution that contributes financially or has recently contributed financially and directly to the building and/or operations of the 2.3m telescope and its commissioned instruments. In 2010 approximately 25% of time was allocated to proposals from entirely outside the ANU.
Location	Siding Spring Mountain, Coonabarabran, NSW
Management	Research School of Astronomy and Astrophysics – The Australian National University
Owned	The Australian National University
Description	The 2.3-m is a multi-instrument telescope on an Alt-Az mount inside a co-rotating building. A complement of general-purpose instruments is available, which include an optical imager, a double-beam spectrograph and a near-infrared imager; all are mounted simultaneously and can be used in the same night of observing. A new control system and a wide-field, integral field, broad band spectrometer (WiFeS) is now in operation
Website	http://www.mso.anu.edu.au/observing/telescopes/2.3m.php



Bisdee Tier Optical Observatory

Wavelengths	Optical
Access	University of Tasmania astronomers and their collaborators.
Location	Bisdee Tier, Spring Hill, Tasmania
Management	University of Tasmania
Owned	University of Tasmania
Description	<p>50 inch reflecting telescope with wide field camera and spectrograph under construction by the University of Tasmania. The telescope will be automated with remote control via microwave link from University campus allowing control from all over the world by internet.</p> <p>The main scientific goal of the new telescope will be survey and follow-up observations of micro-lensing events. Other science goals are observations of Magellanic Clouds and Milky Way structures, variable stars and short time occultations of small celestial bodies.</p>
Website	http://www-ra.phys.utas.edu.au/physics_telescopes.html



Ceduna Observatory

Wavelengths	Radio
Access	Currently 10% of telescope time is used for astronomical Very Long Baseline Interferometry. The remainder of the time is used by University of Tasmania astronomers and their collaborators.
Location	Near Ceduna, South Australia
Management	University of Tasmania
Owned	University of Tasmania
Description	The 30-m telescope is a key element of the Australian Long Baseline Array and has been used since the mid-1990s for dedicated monitoring of variable radio sources. The observatory also provides vital ground support for a variety of space missions including the Japanese space agency's VSOP mission, the European Space Agency's Huygens probe and NASA's GLAST mission.
Website	http://www.phys.utas.edu.au/physics/Ceduna.html



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HAT-South

Wavelengths	Optical
Access	Limited to members of the HAT-South project
Location	Siding Spring Mountain, Coonabarabran, NSW
Management	Research School of Astronomy and Astrophysics – The Australian National University
Owned	The Australian National University; Harvard/Smithsonian Center for Astrophysics (CfA); the Max Planck Institute for Astronomy (MPIA)
Description	<p>HAT-South is a project to search for transiting extrasolar planets in the Southern Hemisphere.</p> <p>The HAT-South telescopes are fully automated, robotic telescopes located on three sites around the Southern Hemisphere: at Siding Spring Observatory (Australia), Las Campanas Observatory (Chile), and the Hess Site (Namibia).</p> <p>Each site hosts two "TH4" units. These TH4 units consist of four 0.18m Takahashi astrographs fitted with Apogee 4Kx4K CCDs. Each TH4 unit monitors 64 square degrees of sky at a time, so each site is capable of monitoring 128 square degrees of sky.</p>
Website	http://www.mso.anu.edu.au/misc/hat/index.php



Katherine radio telescope

Wavelengths	cm-wave
Access	Telescope dedicated to AuScope Geodetic Very Long Baseline Array project
Location	Katherine, Northern Territory
Management	University of Tasmania
Owned	University of Tasmania
Description	<p>Along with the Yarragadee 12-m radio telescope and the Hobart 12-m radio telescope, this 12-m antenna forms part of the AuScope Geodetic Very Long Baseline Array. The primary science goals of the AuScope Geodetic VLB Array are:</p> <ul style="list-style-type: none">• Astrometry of the reference radio sources in the southern hemisphere, especially, with declination south of -40 degrees• Underpinning of the International Terrestrial Reference Frame• Measurement of local tectonic motion, for instance, intraplate deformation across the Australian tectonic plate
Website	http://www-ra.phys.utas.edu.au/auscope/observatories.html



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Keck

Wavelengths	Optical / Infrared
Access	Swinburne Astronomers - up to 20 nights/year until 2013
Location	Mauna Kea Observatory, Hawaii
Management	California Association for Research in Astronomy
Owned	Caltech and University of California
Description	Swinburne University of Technology has bought its astronomers access to the twin 10-m Keck Telescopes. These telescopes are the largest in the world and provide a wide range of optical and infrared instrumentation including DEIMOS, HIRES, NIRC, LRIS, ESI, NIRSPEC, OSIRIS as well as interferometry capabilities and natural and laser guide star Adaptive Optics.
Website	http://www.keckobservatory.org/



Molonglo Observatory Synthesis Telescope

Wavelengths	Radio / mm
Access	External users may apply for Molonglo Observatory Synthesis Telescope (MOST) time, through the Director. There are constraints on the availability of telescope time due to the major Sydney University Molonglo Sky Survey (SUMSS) and MGPS2 surveys, and also on the times of the year at which optimal imaging of certain right ascensions is possible. There is a preference for making observations on standard field centres, and requests to observe these early in the surveys will be favourably considered.
Location	Near Canberra in NSW
Management	University of Sydney
Owned	University of Sydney
Description	The MOST was constructed by modification of the East-West arm of the former One-Mile Mills Cross telescope. At the end of 2007, the telescope completed the SUMSS, a sensitive radio imaging survey of the southern sky at 843 MHz with similar resolution and sensitivity to the northern NRAO VLA Sky Survey (NVSS).
Website	http://www.physics.usyd.edu.au/ioa/Main/MOST



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Mount Canopus Observatory

Note – closing end of 2011

Wavelengths	Optical
Access	University of Tasmania and the PLANET collaboration. Limited amounts of time are available to external users through application to the Director.
Location	Canopus Hill Observatory, 12km east of Hobart, Tasmania
Management	University of Tasmania
Owned	University of Tasmania
Description	The Mount Canopus 1-m telescope is equipped with a CCD camera for imaging at the f/11 Cassegrain focus. The bulk of the observing time is dedicated to tracking microlensing light curve anomalies with the aim of detecting Earth-mass extrasolar planets. Stellar occultations by Solar System bodies are also regularly followed.
Website	http://www.phys.utas.edu.au/physics/Mount Canopus Observatory.html



Mount Pleasant Observatory

Wavelengths	Radio
Access	Currently 10% of telescope time is used for astronomical Very Long Baseline Interferometry (VLBI). An additional 20% is used for geodetic VLBI through the International VLBI Service. The remainder of the time is used by University of Tasmania astronomers and their collaborators.
Location	Near Hobart, Tasmania
Management	University of Tasmania
Owned	University of Tasmania
Description	<p>The 26-m telescope is a key element of the Australian Long Baseline Array and has been used since the mid-1980s for observations of Active Galactic Nuclei, Pulsars, interstellar masers and other galactic and extragalactic radio sources. The 14-m telescope is a fully steerable antenna with an Azimuth/Elevation mount. This telescope was built by the then Physics Department in 1981 exclusively for timing of the Vela Pulsar (PSR0833-45).</p> <p>The 12-m telescope operates at 2.1 and 8.3 GHz simultaneously. It is one of three 12-m dishes in Australia that operate in support of the International VLBI Service for Astrometry and Geodesy. The others are at Yarragadee and Katherine Observatories. They observe together under remote control from the University of Tasmania School of Mathematics and Physics.</p> <p>The observatory also provides vital ground support for a variety of space missions including the Japanese space agency's VSOP and SELENE missions, the European Space Agency's Huygens probe and NASA's GLAST mission.</p>
Website	http://www.phys.utas.edu.au/physics/mt_pleasant_observatory.html



PLATO: Plateau Observatory at Dome A

Wavelengths	Optical / Sub-mm
Access	Data from PLATO is freely available following a proprietary period. PLATO is an international collaboration between the University of New South Wales and a number of universities and institutions in China and the United States of America. Proposals for new instruments and science projects need to be approved by the founding partners. Interested people should begin by contacting the University of New South Wales.
Location	Dome A, Antarctica
Management	The Australian part of the collaboration is managed by the University of New South Wales
Owned	The Australian part of the collaboration is owned by the University of New South Wales
Description	PLATO, the PLATEau Observatory, is a self-contained automated platform for conducting year-round, experiments completely robotically from the Antarctic plateau. It has been operating since January 2008. While primarily designed for site-testing prior to construction of larger telescopes, PLATO is performing limited amounts of astronomical science, for example, continuous multi-colour photometry of bright stars near the South Celestial Pole.
Website	http://mcb11.phys.unsw.edu.au/~plato/



PLATO-F: Plateau Observatory at Dome Fuji

Wavelengths	Optical / Sub-mm
Access	Data from PLATO-F is freely available following a proprietary period. PLATO-F is an international collaboration between the University of New South Wales and a number of universities and institutions in Japan. Proposals for new instruments and science projects need to be approved by the founding partners. Interested people should begin by contacting the University of New South Wales.
Location	Dome Fuji, Antarctica
Management	The Australian part of the collaboration is managed by the University of New South Wales
Owned	The Australian part of the collaboration is owned by the University of New South Wales
Description	PLATO-F, the PLATEau Observatory for Dome F, is a self-contained automated platform for conducting year-round, experiments completely robotically from the Antarctic plateau. It has been operating since January 2011. While primarily designed for site-testing prior to construction of larger telescopes, PLATO is performing limited amounts of astronomical science, for example, continuous multi-colour photometry of bright stars near the South Celestial Pole.
Website	http://mcba11.phys.unsw.edu.au/~plato-f/



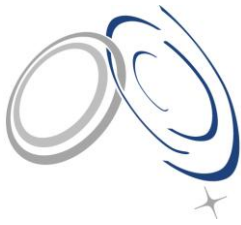
SkyMapper Telescope

Wavelengths	Optical
Access	Database from the five-year Southern Sky Survey will be made public. Up to 25% of time will be for non-SSS observing by ANU astronomers.
Location	Siding Spring Observatory, Coonabarabran NSW
Management	Research School of Astronomy and Astrophysics, The Australian National University
Owned	The Australian National University
Description	The 1.3-m telescope has an 8 sq degree field of view; the imaging detector consists of 16k x 16k CCD mosaic with 0.5" pixels covering 5.7 sq degrees. The survey will be multi-colour (ugriz filter + stromgren-like v), multi-epoch, of 20000 sq degrees south of equator. Star and Galaxy photometry will have a 3% absolute calibration, and the astrometry will be better than 50 milli-arcseconds.
Website	http://www.mso.anu.edu.au/skymapper/



Sydney University Stellar Interferometer

Wavelengths	Optical
Access	External users may apply for SUSI time, through the Director. Such observations would normally be made in collaboration with University of Sydney staff.
Location	Paul Wild Observatory, 20 km west of Narrabri, NSW
Management	University of Sydney
Owned	University of Sydney
Description	<p>The Sydney University Stellar Interferometer (SUSI) is a long-baseline optical interferometer developed to tackle a range of problems in stellar astrophysics. Observations are made with a single baseline (2 apertures) selected from an array of fixed north-south baselines covering the range from 5 to 160m corresponding to a resolution of 1~32 milli-arcseconds at 700 nm.</p> <p>A new detector (PAVO@SUSI) installed in 2008 has a limiting magnitude of 6.5 in R and its main task is to survey the nearby Sco-Cen OB Association to establish the frequency distribution of multiple star systems.</p>
Website	http://www.physics.usyd.edu.au/iaa/Main/SUSI



Uppsala Schmidt telescope

Wavelengths	Optical
Access	Telescope dedicated to Near-Earth Object search. Research School of Astronomy and Astrophysics, The Australian National University only.
Location	Siding Spring Observatory, Coonabarabran NSW
Management	Research School of Astronomy and Astrophysics, The Australian National University; University of Arizona.
Owned	The Australian National University
Description	The 0.6-m Schmidt telescope is equipped with CCD detectors, and is dedicated to a NASA-funded search for near-Earth crossing asteroids that could be a hazard to life on Earth. As a by-product, many comets and other asteroids are regularly discovered.
Website	http://www.mso.anu.edu.au/~rmn/



Yarragadee radio telescope

Wavelengths	cm-wave
Access	Telescope dedicated to AuScope Geodetic Very Long Baseline Array project
Location	Yarragadee, Western Australia
Management	University of Tasmania
Owned	University of Tasmania
Description	<p>Along with the Katherine 12-m radio telescope and the Hobart 12-m radio telescope, this 12-m antenna forms part of the AuScope Geodetic Very Long Baseline Array. The primary science goals of the AuScope Geodetic VLB Array are:</p> <ul style="list-style-type: none">• Astrometry of the reference radio sources in the southern hemisphere, especially, with declination south of -40 degrees• Underpinning of the International Terrestrial Reference Frame• Measurement of local tectonic motion, for instance, intraplate deformation across the Australian tectonic plate
Website	http://www-ra.phys.utas.edu.au/auscope/observatories.html