THE AUSTRALIAN NATIONAL UNIVERSITY

MT STROMLO OBSERVATORY
VISITOR GUIDE & WALK

RESEARCH SCHOOL OF ASTRONOMY & ASTROPHYSICS

OUR MISSION

- Advance the observational and theoretical frontiers of astronomy and its enabling technologies
- Provide national and international astronomical leadership
- Train outstanding scientists

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MT STROMLO OBSERVATORY

Welcome

Mt Stromlo Observatory is the headquarters of The Australian National University's Research School of Astronomy and Astrophysics. The University operates two observatories, Mt Stromlo, west of Canberra, and Siding Spring, in the Warrumbungle Mountains near Coonabarabran, NSW.

The administrative centre, the offices of the astronomers and students, the mechanical, electronic and optical workshops, and the computer laboratories are located at Mt Stromlo. The telescopes and associated maintenance facilities are located at Siding Spring. Siding Spring also hosts telescopes of the Anglo-Australian Observatory, the University of NSW, and the Faulkes Telescope Project.

Mt Stromlo began operation as the Commonwealth Solar Observatory in 1924. During the Second World War it was the design and prototype centre for the Australian Optical Munitions Factory. After the war, the Observatory changed from solar to stellar astronomy and in 1957 became part of ANU. Today, Mt Stromlo and Siding Spring Observatories comprise Australia's premier university centre for astronomical research.

Mt Stromlo was severely damaged by the firestorm of 18 January 2003. All but one of the telescopes, the workshops, the design offices, the administration offices and the library and archives were destroyed. Fortunately, the offices of astronomers and students, the lecture rooms and the computer laboratories survived, so staff were able to be back on site two weeks after the fire. Mt Stromlo is now in the process of rebuilding. In October 2004, visitors were welcomed back to the Observatory and construction of a new Advanced Instrumentation and Technology Centre was begun.

You can watch the progress of the rebuilding process on our website: www.mso.anu.edu.au

MT STROMLO OBSERVATORY VISITORS GUIDE

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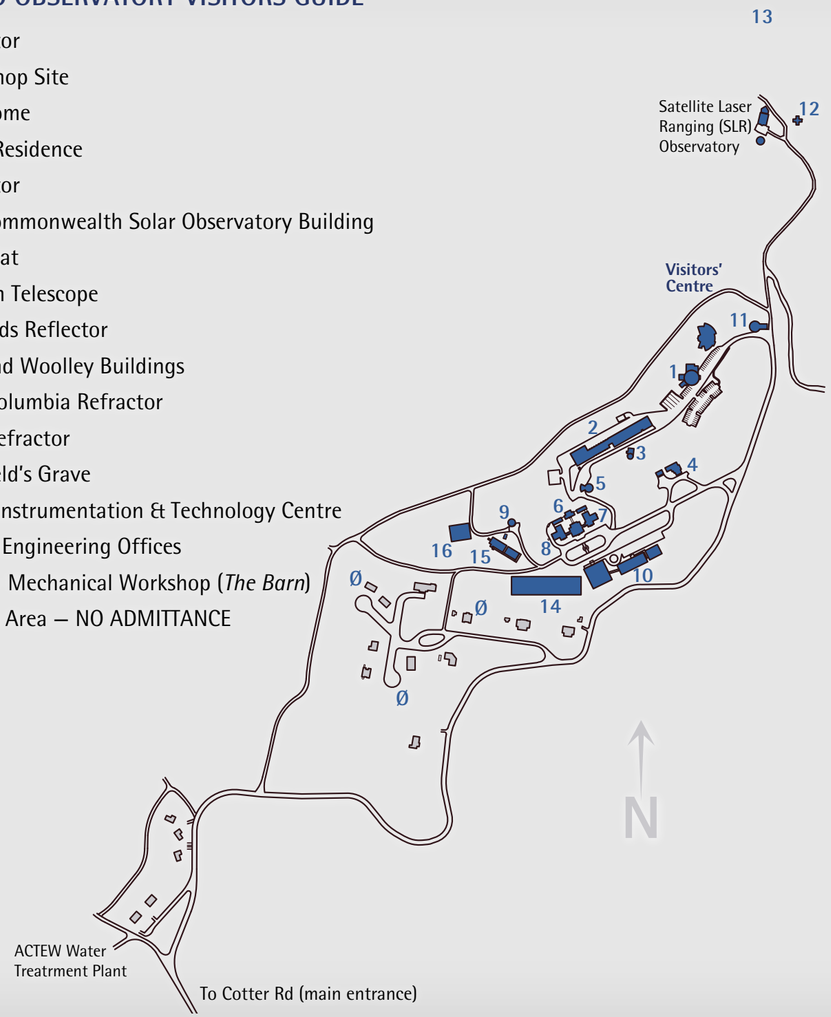

1 74" REFLECTOR

Built by Grubb-Parsons in the UK and erected at Mt Stromlo in 1954. It was the equal fourth largest telescope in the world at the time and until 1974 it was the largest telescope in the southern hemisphere. With its spectrographs and advanced CCD cameras, the 74" was one of the most powerful instruments for investigating the chemistry and physics of stars and galaxies.

The 74" Reflector was damaged beyond repair by the fires of 18 January 2003

2 WORKSHOPS

Built in 3 stages between 1950 and the late 1970s, the workshop complex comprised three sections; electronic, optical and mechanical. The complex was completely destroyed by the fires of 18 January 2003 and has since been demolished. The work carried out in the complex is now being done in the Advanced Instrumentation and Technology Centre, situated on the other side of the Mt Stromlo ridge.

Workshop staff do all maintenance of observatory equipment at Mt Stromlo and at Siding Spring. They also design and build new instruments for our own observatories and for those worldwide.

The Workshops were damaged beyond repair by the fires of 18 January 2003 and have since been demolished

3 UPPSALA DOME

This dome housed the 20" Uppsala Schmidt telescope between 1957 and 1983. A very fast wide-angle survey camera, it did many of the initial surveys of the southern Milky Way and the Magellanic Clouds. The telescope was moved to Siding Spring Observatory in 1983 and is currently searching for potentially hazardous asteroids and comets.

At the time of the fires of January 2003, the dome and office were the headquarters of the Canberra Astronomical Society, who lost their library, computers, records and telescopes.

The 20" Uppsala Schmidt telescope is operating at Siding Spring Observatory

4 DIRECTOR'S RESIDENCE

The residence was built between 1925 and 1928 as Observatory House. It has since been home to most of the directors of Mt Stromlo. A further five houses were destroyed in the fires, three of which dated back to the earliest days of the Observatory.

The once stately Observatory House was damaged beyond repair by the fires of 18 January 2003.

5 50" REFLECTOR

Formerly called the Great Melbourne Telescope, it was built by Grubb of Dublin in 1868 and designed for visual observation, where the astronomer sketched what he saw. The telescope had a speculum metal mirror and very long focal length. This made it obsolete in an era where photography and glass mirrors were emerging as the new technology.

After the closure of the Melbourne Observatory in 1944, Mt Stromlo Observatory purchased the telescope and had it drastically re-engineered to a shorter focal length and giving it a new glass mirror. Between 1956 and late 1970s it was used for spectroscopy and photometry. Most of the PhD theses produced at Mt Stromlo during this time by ANU students depended on data from this telescope.

The telescope was only used at Melbourne Observatory from 1869 to 1893.

The telescope was rebuilt again in the late 1980s for the MACHO project. This project showed that some of the 'dark matter' in galaxies was in the form of compact dark objects, and was probably burnt-out stars. The telescope was then completely automated in 2000.

The 50" was rebuilt in the 1980s, completely automated in 2000 and damaged beyond repair by the fires of 18 January 2003

6 COMMONWEALTH SOLAR OBSERVATORY

The main building was constructed between 1924 and 1926 and was designed by John Smith Murdoch, the government architect who also designed Old Parliament House. Work on the solar laboratories, housed in the basement below the Sun telescope, took another two years to complete. At the time of the firestorm, the building was the Observatory's administration centre. It also housed the mechanical design section, the library and archives. All were totally destroyed by the fires on 18 January 2003.

7 THE HELIOSTAT

The Heliostat was the main instrument of the Commonwealth Solar Observatory from 1931 until 1946. It was housed in small dome on the east wing of the observatory building. The Heliostat sent light down a tower to measuring instruments housed in the basement. It did pioneering work on the solar spectrum and radiation. The 12" diameter lens from the Heliostat is used in the heliostat in the Mt Stromlo Visitors' Centre. The main structure was damaged beyond repair in the fires of 18 January 2003.

8 6" FARNHAM TELESCOPE

This telescope was built by Grubb, Dublin, in 1886, and donated to the Commonwealth in 1907 by the estate of Lord Farnham. It was installed on Mt Stromlo in a small dome on the west wing of the Commonwealth Solar Observatory building in 1928. The Farnham was used for variable star measurements in the 1940s, and later as guide scope for wide-angle survey cameras. It survived the firestorm and was relocated for use in supporting our public education and observation programs.

9 30" REYNOLDS REFLECTOR

British industrialist and amateur astronomer John Reynolds donated this telescope to the Observatory in 1924. It was the first reflecting telescope on Mt Stromlo. During the 1940s and 50s it carried out some of the first detailed surveys of southern stellar types and of galaxies. It was completely renovated in the early 1970s and during the 1990s was used by local amateurs, who assisted Stromlo staff in monitoring supernovae and microlensing events. It was severely damaged by the fires of 18 January 2003.

10 THE DUFFIELD & WOOLLEY BUILDINGS

One of the miracles of the firestorm on 18 January 2003 is that these two buildings survived intact.

Between them they contain the offices of the astronomers and students, the lecture theatre and seminar room and the computer facilities for the ANU Research School of Astronomy and Astrophysics. The buildings' survival meant that research suffered minimal disruption and University astronomers were able to be back on the mountain within a fortnight.

The Duffield Building is named after our first director, Dr Walter Geoffrey Duffield, and the Woolley Building after our second director, Dr Sir Richard van der Riet Woolley, who left Mt Stromlo in 1955 to become the eleventh Astronomer Royal. The Duffield Building was built in 1964 and the Woolley Building in 1995.

W G Duffield

R V D R Woolley

11 26" YALE-COLUMBIA REFRACTOR

This telescope was built in the USA in 1923 for Yale and Columbia Observatories to be the main instrument at their southern hemisphere field station. It was first sited outside Johannesburg, South Africa but was moved to Mt Stromlo in 1952. It spent the whole of its working life measuring the distances and motions of stars. It was totally destroyed in the fires of 18 January 2003.

12 9" ODDIE REFRACTOR

This refractor is named after James Oddie of Ballarat, who donated it to the Commonwealth. When it was installed, in 1911, it became the first telescope on the mountain and was used to test the suitability of Mt Stromlo as a site for a Commonwealth observatory. It did much pioneering work in measuring the parameters of binary stars and recording the brightness, colours and spectra of southern stars.

From the 1970s it was the prime telescope of the Observatory used in public education and observation programs, introducing tens of thousands of visitors to the Universe.

The Oddie refractor was damaged beyond repair by the fires of 18 January 2003.

13 DUFFIELD'S GRAVE

On a ridge of the mountain, overlooking the Murrumbidgee valley, is the grave site of Dr Walter Geoffrey Duffield, founder and first director of the Commonwealth Solar Observatory. Dr Duffield began lobbying for a solar observatory in Australia in 1905, and had obtained Federal government agreement just as World War I broke out, but it was not until 1924 that the Observatory began operation. He died suddenly in 1929 and was buried where he had requested.

14–16 ADVANCED INSTRUMENTATION & TECHNOLOGY CENTRE

The engineers and technicians of the Observatory are world leaders in the design and construction of astronomical instruments. Spectrographs and imaging systems built here can be found in many of the world's major observatories.

The first priority in rebuilding the observatory was to replace the destroyed workshop complex . By the end of September 2003 a temporary workshop, *the Barn*, was ready for use. By the end of November all of the workshop staff were back on site and manufacturing had returned to the mountain.

In October 2004 construction commenced on the Advanced Instrumentation and Technology Centre (AITC). The AITC is a specialist facility for developing complex astronomical instrumentation for the largest telescopes to which Australian astronomers have access. Much of the equipment used for astronomical observations is very specialised and demands high levels of performance. These scientific instruments are not readily available from commercial sources. The AITC provides specialist optical, mechanical, electronics, and software engineering and fabrication facilities for designing, constructing, integrating, and testing instruments that are used on telescopes in Australia and overseas.