

Project Update

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Giant Magellan Telescope

Third mirror cast for the GMT

On Saturday, August 24, 2013, the third mirror for the Giant Magellan Telescope (GMT) was cast inside a rotating furnace at the University of Arizona's Steward Observatory Mirror Lab, the only facility in the world where mirrors of this size are being made (see [Press Release](#)). The GMT features an innovative design comprising seven mirrors, each 8.4 meters wide and weighing over 18,000kg. The mirrors will be arranged as segments of a single mirror 24.5 meters wide, allowing GMT to acquire images 10 times sharper than the Hubble Space Telescope. The surface of each mirror has to be polished smooth to within a twentieth of a wavelength of light. If a mirror were scaled up to the size of Australia, no bump would be higher than an inch.



20 tons of glass being loaded into the GMT mirror furnace mould. Image credit: GMT0 Corporation

The mirror casting event, which was attended by representatives from Astronomy Australia Ltd (AAL) and the Australian National University (ANU), generated significant media attention, including coverage by ABC ([link](#)) and hundreds of international press releases and news reports.

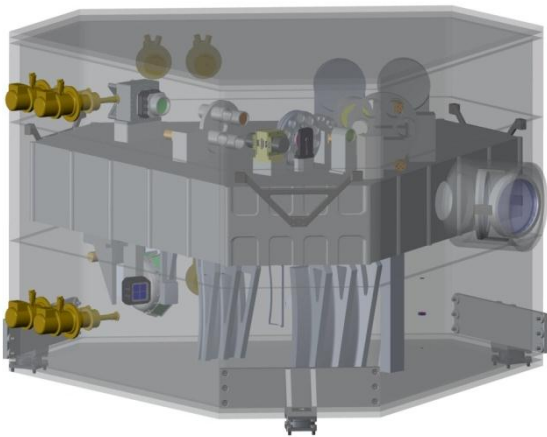


Illustration of the proposed GMT Integral Field Spectrograph cryostat on the GMT instrument platform assembly

Australia, through ANU and the Australian Astronomical Observatory (AAO), is playing a significant role in designing and developing GMT instrumentation. ANU's proposed GMT Integral Field Spectrograph (GMTIFS) instrument was chosen as one of six GMT first-light instrument, and ANU is also contracted to develop the GMT Laser Tomography Adaptive Optics (LTAO) system concept. AAO aspires to build a general-purpose fibre-positioning system called MANIFEST (MANY-Instrument Fibre SysTem), to feed the GMT instruments, and has successfully completed the feasibility study.

Australian involvement in GMT

Australia's involvement in GMT has been supported with Australian Government funding from the National Research Infrastructure Strategy (NCRIS) 2006 program, followed by funding from the Education Investment Fund (EIF). Through these two grants, the Australian Government has provided \$70M to partner in the design and construction phase of GMT, and \$23M for GMT-related activities in Australia, including the building of new laboratory facilities at ANU and several innovative projects. GMT construction is scheduled to begin in 2014 at the Las Campanas Observatory, Chile, with full science operations to begin in 2020. Early science may begin as soon as 2018, using four of the seven mirrors.

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