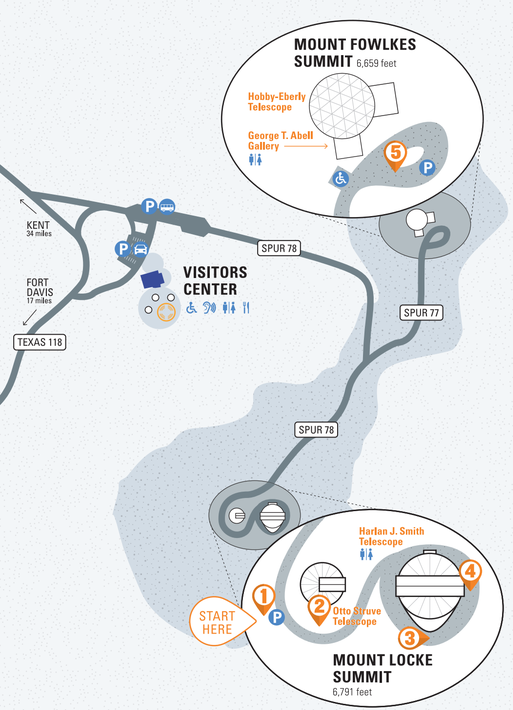
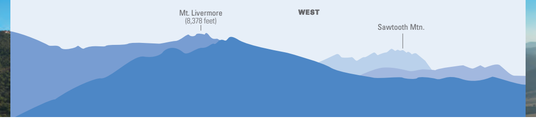


At certain times of the day, you may encounter the public guided tour (typically at Stations 3 and 4, the lobby of the Harlan J. Smith telescope, or at the Hobby-Eberly Telescope). Feel free to listen to the tour guide. Safety requirements force us to restrict access to the dome and we ask that you refrain from joining the tour when it heads upstairs at the Harlan J. Smith telescope.



Welcome to McDonald Observatory,

the research arm of The University of Texas at Austin Astronomy Program. It is one of the world's top-ranked research observatories, with strong capabilities in observation, instrument design, education, and public outreach.

Since its dedication in 1939, it has pursued leading-edge research, from the chemical abundances of stars and nebulae, to the atmospheres of the planets and moons of the solar system, to the evolution of galaxies. Today, it continues to pursue key topics in astronomy and astrophysics. Among many research efforts, it is instituting a new study of dark energy; searching for exoplanets and characterizing their atmospheres, orbits, and stellar environments; probing the relationship between the formation of galaxies and their central black holes; and using white-dwarf stars as probes of the age and chemical evolution of the Milky Way galaxy.

These world-class research efforts are conducted with cutting-edge telescopes and instruments at the Observatory, and in collaboration with other researchers and observatories around the world.

We invite you to visit some of these telescope domes and enjoy stunning vistas of the Davis Mountains on a self-paced tour of the Observatory grounds. Feel free to inquire at the Frank N. Bash Visitors Center at the base of the Observatory for information on guided tours and special programs.

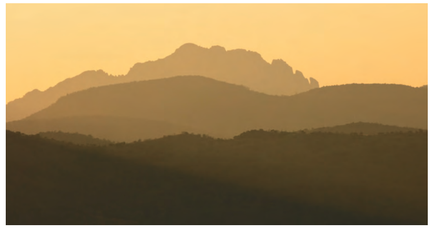
To begin the tour, take Spur 78 to the parking area near Station 1 at the top of Mount Locke. Points of interest are marked along the tour with signs like the one shown.

There are four marked points of interest on Mount Locke. The fifth point of interest is the Hobby-Eberly Telescope on Mount Fowlkes. To get there, return down Spur 78 to Spur 77.

1

STATION 1 — MOUNT LOCKE SUMMIT

Scenic Overlook West | MONET | Staff Residences



Sawtooth Mountain

The drawing along the top of this brochure gives the names of the prominent peaks around you. Look for the signs to help you identify which landmarks are visible from each station. Note that you may have to take a few steps to either side to see some landmarks between the trees.

Looking out from Station 1 to your right, you can spot the square top of Mount Livermore just above the rest of the mountains. At an elevation of 8,378 feet (2,554 meters), it is the highest peak in the Davis Mountains.

Farther right are the jagged peaks of Sawtooth Mountain.

Far to your left and below you to your right, you will see two private residences. There are about 70 people who live here at the Observatory, including staff members, their spouses, and their children. Please respect residents' privacy while touring the grounds.

Looking down the mountainside between the two private residences, you will see the barn-like clamshell structure housing MONET, a 48-inch (1.2-meter) robotic telescope.

To find Station 2, use the sidewalk along the summit road and continue uphill to the state historical marker.

2

STATION 2 — MOUNT LOCKE SUMMIT

Otto Struve Telescope | 30-inch Telescope

You are now standing in front of the dome of McDonald Observatory's first telescope. In 1926, William Johnson McDonald left the bulk of his estate to The University of Texas to establish an observatory. This telescope was dedicated in 1939 and is named for

Otto Struve Telescope (on this page)

the Observatory's first director, Dr. Otto Struve. With a mirror 82 inches across (2.1 meters), it was the second-largest telescope in the world at that time. Observations made with the Struve Telescope have contributed to our understanding of the solar system, stars, galaxies, and the origin of the universe. Upgraded instruments have enhanced the abilities of this telescope, which is still in use every clear night of the year.

Walk across the street to the site of the pay telescopes. Here, you are standing near the summit of Mount Locke. Local rancher Violet Locke McIvor donated this mountain to the observatory, and it is named in honor of her grandfather. This is the highest public road in Texas, at an elevation of 6,791 feet (2,069 meters).

McDonald Observatory remains one of the darkest observing sites in the continental United States.

Below and to your right is the dome of the 30-inch (0.8-meter) telescope. Completed in 1970, the 30-inch telescope is used for observing solar system objects such as asteroids, as well as stars, galaxies, and clusters of galaxies. It has recently been upgraded for remote use.

To find Station 3, follow the paved road toward the 82-inch dome. Continue downhill and to the right of the dome.

Tour continues on reverse →

McDONALD OBSERVATORY

VISITOR ACTIVITIES

Please check **mcdonaldobservatory.org** for seasonal times and up-to-date ticket prices. All programs are subject to capacity limits. To ensure tickets, we recommend you make advance reservations.

Frank N. Bash Visitors Center
10 a.m.–5:30 p.m. daily
Except Thanksgiving, Christmas, and New Year's Day
(Additional hours on Star Party nights)

View exhibits and a video. Visit the astronomy gift shop.

Daytime Solar Viewing & Tour
11 a.m. & 2 p.m. daily

The Daytime Pass includes our Solar Viewing program (live, safe view of the Sun, weather permitting) and a Guided Tour of the research areas. Plan on at least 2 hours and 30 minutes to join both programs.

Solar Viewing Only
11 a.m. & 2 p.m. daily

No time for the tour? Join just our Solar Viewing (first 45 minutes of each daytime program).

Twilight Program
Tuesday, Friday, and Saturday
(Times vary)

The optional Twilight Program is a one-hour educational program intended to enrich the Star Party experience that follows.

Star Party
Tuesday, Friday, and Saturday
(Times vary)

The evening viewing programs held at the Visitors Center typically include constellation tours, telescope viewing, and other presentations. Alternate indoor activities are held on cloudy evenings.

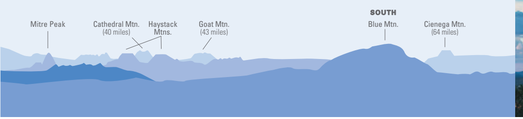
StarDate Café
Open daily

Noon–5 p.m. *(Su, M, W, Th)* and Noon–end of the Star Party *(Tu, F, Sa)*

For a recorded message of seasonal information, call toll free 1-877-984-7827.
Or visit our website:
mcdonaldobservatory.org

Photo Credit: Damond Benningfield (cover), Ethan Tweedie Photography (all others)

McDonald Observatory
The University of Texas at Austin



STATION 3 — MOUNT LOCKE SUMMIT

Scenic Overlook South | 36-inch Telescope VLBA Telescope

VLBA Telescope

This panoramic view is one of the most stunning in the state of Texas. You are looking generally south toward Marfa, Alpine, Big Bend National Park, and Mexico.

Directly below you is the dome of the 36-inch (0.9-meter) telescope. This telescope has been used for many research projects since its construction in 1956. Today, McDonald Observatory uses it for a wide variety of public and educational programs. Special Viewing Nights are occasionally available; details are on our website.

You will also see Texas State Highway 118 in the valley below as it snakes between the mountains toward Fort Davis. A number of homes are visible in the mountains about halfway to the horizon. This residential area is known as Limpia Crossing, and is home to some Observatory staff members and many amateur astronomers.

On the valley floor, you can see the white 82-foot-diameter radio telescope operated by the National Radio Astronomy Observatory. It looks like a giant satellite dish. This is one of a series of telescopes that make up the Very Long Baseline Array (VLBA). For more information, see the display panel near the summit, uphill from Station 2.

Behind you, you may have noticed a large container of liquid nitrogen. We use it to cool the instruments on the telescopes, reducing heat noise in the data.

To find Station 4, follow the orange railing counterclockwise around the dome.

STATION 4 — MOUNT LOCKE SUMMIT

Harlan J. Smith Telescope | The Astronomers Lodge Mount Fowlkes

Look north across the valley for a spectacular view of Mount Fowlkes. The silver dome to the left of the mountain's summit is the Hobby-Eberly Telescope (HET). To the right of the summit is a small white dome, which houses a 39-inch (1-meter) fully robotic telescope that is part of the Las Cumbres Observatory Global Telescope Network. Seven sites around the world host identical telescopes for research and educational use. The long reddish-orange roof of the Astronomers Lodge (AL) is below you. This is where astronomers stay during observing runs. The large air conditioners just below keep the telescope and dome cool to improve image quality.

Enter the dome of the Harlan J. Smith Telescope through the vestibule adjacent to Station 4. The 107-inch (2.7-meter) Smith Telescope was the largest at McDonald Observatory from 1969 until the completion of the HET in 1997. The telescope was originally built to help pave the way for the Apollo space program and NASA's robotic missions to the planets. New instruments have dramatically increased its effectiveness and it is in demand by astronomers around the world.

This telescope and others at McDonald Observatory offer a fertile training ground for students in the Astronomy Department to conduct their own observations and gain experience for their future careers as scientists and teachers. They also get to work with instrument designers and builders, further enhancing their education and experience.

Harlan J. Smith Telescope

The Smith Telescope has been involved in the discovery of many planets around other stars.

Explore the wall panels and videos available in the lobby to learn more about this telescope.

To reach Station 5, return down Spur 78 to Spur 77 and drive to the summit of Mount Fowlkes following the map provided. Park along the rock wall.

STATION 5 — MOUNT FOWLKES SUMMIT

Hobby-Eberly Telescope | George T. Abell Gallery McDonald Laser Ranging Station

Mount Fowlkes is named for Judge Edwin Hockaday Fowlkes, Sr., who donated 200 acres of his Highland Springs Ranch to The University of Texas in 1933 to help build McDonald Observatory.

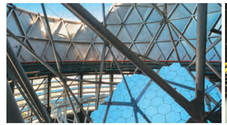
South of the rock wall, you will see several trailers. These comprise the McDonald Laser Ranging Station, operated jointly with NASA. Astronomers time laser pulses fired at the Moon and more than a dozen satellites orbiting Earth to measure continental drift, Earth's rotation rate and position in space, and even Einstein's General Theory of Relativity.

The large silver dome is home to the Hobby-Eberly Telescope (HET). It was dedicated on October 8, 1997, and is operated by a consortium of four universities: The University of Texas at Austin, The Pennsylvania State University, Lüdwig-Maximilians-Universität at München (Germany), and Georg-August Universität at Göttingen (Germany). Five flagpoles stand tall in front of the HET dome. The flags represent the United States and the home states of the partners.

The HET is named for higher education benefactors William P. Hobby, former lieutenant governor of Texas, and Robert E. Eberly, Pennsylvania State University alumnus.

The 10-meter Hobby-Eberly Telescope has been upgraded to provide a wider field of view and to carry out the Dark Energy Experiment. Innovative new instruments will allow astronomers to study hundreds of galaxies with a single observation, to measure the chemistry of galaxies and stars, and to seek out planets in other solar systems.

The George T. Abell Gallery at the HET was made possible by generous donations from the Abell Hanger Foundation, the Meadows Foundation, and an anonymous donor, in order to make this powerful telescope visible to the public. At the back of the gallery, you may look onto the dome floor and see the telescope through the viewing window.



Previous page: Flags representing consortium universities stand beside the HET dome; This page: HET mirror array (left) and an Observatory technician cleans a single HET mirror (right)

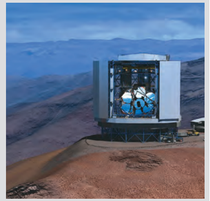
This completes your self-guided tour. We appreciate your interest in the McDonald Observatory and hope you have enjoyed your visit.

If you have questions about the telescopes, Observatory, or astronomy in general, the staff at the Visitors Center will be happy to assist you.

McDonald Observatory Beyond Fort Davis

McDonald Observatory is also a partner in the Giant Magellan Telescope, a 25-meter instrument under construction in Chile. McDonald plans to take a leading role in the development of this powerful new telescope, with contributions in instrument design and other fields.

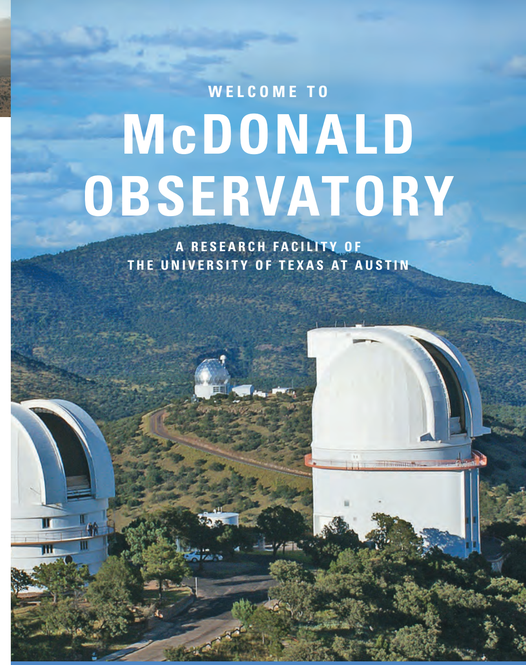
This image *(right)* is a rendering of the GMT.



WELCOME TO

McDONALD OBSERVATORY

A RESEARCH FACILITY OF
THE UNIVERSITY OF TEXAS AT AUSTIN



A SELF-GUIDED TOUR

ON MOUNT LOCKE AND MOUNT FOWLKES
FORT DAVIS, TEXAS