

Explore the universe without leaving the state

Look to the Skies this Summer

Summer has arrived, and for many, it grants a welcome chance to get away from daily drudgery, relax, and maybe even take a trip somewhere. Fortunately, living in New Mexico means that you can explore the wonders of the universe from your own backyard. Plus, there are a myriad of online resources, too.

This special vacation issue of *The Portal* will take a break, too, to share with you how to take advantage of the many illuminating possibilities this summer.

Wide-open spaces

One of the great things about the Land of Enchantment is our open skies. With **280 sunny days per year** here in town, just about any place is great for stargazing. While there are no spectacular eclipses, transits, or comets forecast this summer, many planets will be conveniently visible for easy viewing.

After sunset, Jupiter is the brightest light in the sky, followed by Mars and Saturn. The latter two are near the closest that they ever get to Earth, and so the south polar cap of Mars and the rings of Saturn should be visible through a small telescope.

Summer solstice, the longest day of the year, falls on June 20th, coincidentally with the Full Moon. This happy chance means that the Moon that evening is just about where the Sun will be on the first day of winter. But you can use the Sun's current position to teach your kids about the seasons and the calendar.

Start by marking the direction the Sun rises or sets June 20. An alignment with the rising point on the Sandias, or the shadow of a telephone pole, the edge of a window, or two stakes in the backyard will do nicely. As summer progresses, you should note exactly how the Sun moves south day by day. With this, you could even **build your own Stonehenge**.

Because of clear skies and empty spaces, there are over fifty astronomy and space-related places here, enough for a **New Mexico Space Trail**. Listed below are a few of the best attractions you can visit. Sadly, since UNM's small dome on North Campus only permits public viewing during the school year, you will have to go further afield to visit a real observatory.

Up on Sacramento Peak near Cloudcroft is the **National Solar Observatory**, which offers daylight tours. The nearby **Apache Peak** site only offers tours to school groups, but the **Sunspot Visitor's Center** at the NSO also has exhibits relating to their work.

Also down south is the iconic **Very Large Array**, a Y-shaped arrangement of some 24 huge radio dishes 50 miles west of Socorro. Known from the sci-fi movie **Contact**, the VLA uses the radio spectrum to view the heavens, with tours every day and a gift shop.

There's more to space exploration than just looking. New Mexico has had a crucial role in rocketry, too. This will continue at **Spaceport America** near Las Cruces, which has yet to launch more than suborbital flights, but offers **tours** for optimistic enthusiasts.

The **New Mexico Museum of Space Exploration** in Alamogordo features exhibitions focusing on the state's role with an outdoor gallery of rockets, a Moon rock, the **Space Hall of Fame** celebrating astral heroes including NM's own **Clyde Tombaugh**, the discoverer of the (former) planet Pluto, and more.

Our state's long involvement with rockets began with the pioneering experiments of **Robert Goddard** in Roswell, where an early vehicle is on display, and continued after World War II with V-2 launches from **White Sands Missile Range**, which has its own **museum**. There's also an odd **Space Murals** roadside attraction and gift shop down near Las Cruces, too.



Continued on back

Of course, **Roswell** is famous for another association with outer space. This year, the 69th anniversary of that still-debated crash of whatever will be celebrated at the **UFO Festival** from June 30 - July 2, which is like a street fair combined with a Star Trek convention. Be sure to visit the **International UFO Museum** for various sides to the story. The state's *other* alleged **UFO crash at Aztec**, doesn't have a museum, nor a convention any longer, but the supposed site can still be visited outside of town.

To become involved with serious stargazing much closer to home, the **Albuquerque Astronomical Society** holds free star viewing parties, telescope making classes, and other public outreach activities.

Heavens online


But since New Mexico can get rather warm in the summer, perhaps you'd like to do your galactic wandering online from the cool comforts of your couch. You can enjoy celestial vistas remotely from several locations also down by Cloudcroft through **NM Skies** and **Tzec Maun** telescope farms. There's also **Slooh**, offering daily live remote telescope feeds from several observatories located around the world and has partnered with UNM to livestream celestial events.

The internet offers a lot of ways to help track what's out there. There are **online satellite trackers**, free open-source planetarium programs like **Stellarium**, and for the truly imaginative, JPL's **HORIZONS** website generates positions in the sky for anything anywhere in the solar system from any planet or moon. There are bunches of starry **smartphone apps** too.

But if you're interested in looking at what has already been discovered, you're in luck. Photography has been used to document every space mission, not to mention telescopic observations for the last century, much of it now online and available to everyone.

NASA and **JPL**, of course, have *enormous* archives of pictures and written documents, too. These range from unmanned **lunar** and **planetary probes**, to transcripts of the **manned Moon explorations**, raw images from the **Mars rovers**, to vast cosmic vistas seen from **Hubble** and livestreaming video from the **International Space Station**. Plus, you can start off each and every morning with a fresh new perspective with NASA's **Astronomy Picture of the Day**.

Other space programs also post material online. The **European Space Agency**, **India**, **Japan**, and even **Russia** all have websites showcasing their space exploits and discoveries. **China**, however, has offered little to see so far beyond a few lunar rover pictures. Yet, even companies like **Virgin Galactic**, **Space X**, and **Blue Origin** seem much more open.

Space fans have made their own contributions. On Flickr, for instance, are the **Project Apollo Photo Archives**, featuring every frame shot by the astronauts on their trip to the Moon and back. For true believers, only the sky is the limit. 

Net Notes

No More Capitalization

A short milestone was passed on June 1. From now on, "web" and "internet" are no longer proper nouns, and should be written with all lower-case letters, according to the prestigious **AP Stylebook**. The reason is that they are now generic terms, like telephone and electricity, and so have been downgraded like "website" (originally "Web site") and email ("E-mail").


MySpace Hack Biggest Ever

MySpace, the pioneering social network that's long been overshadowed by Facebook, still matters. But that may be because over *360 million* accounts were **hacked** recently, scooping up email addresses and passwords. It is therefore the biggest such data breach ever known. If you joined before June 2013, your data was taken. Those inactive on the site since then could be vulnerable only if they have ever reused their MySpace password anywhere else.

Facebook Censors Photos with AI

Facebook now employs artificial intelligence to stop offensive photos from being posted, and they're flagging more than human moderators. All images are checked for hate speech, threats, pornography or nudity, and graphic or gratuitous violence. **Facebook** is also working on systems to write descriptions and captions for photos and to automatically tag faces in videos, even categorize subject matter.

Our Safety and Security Relies on 8-inch Floppies

Six of the ten **oldest computer systems** the government depends upon to run crucial activities such as the nuclear forces and taxpayer records are from the 1980s – older than the IT staff that keeps them running. Some systems are *still* not yet even scheduled for replacement or upgrades. 



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