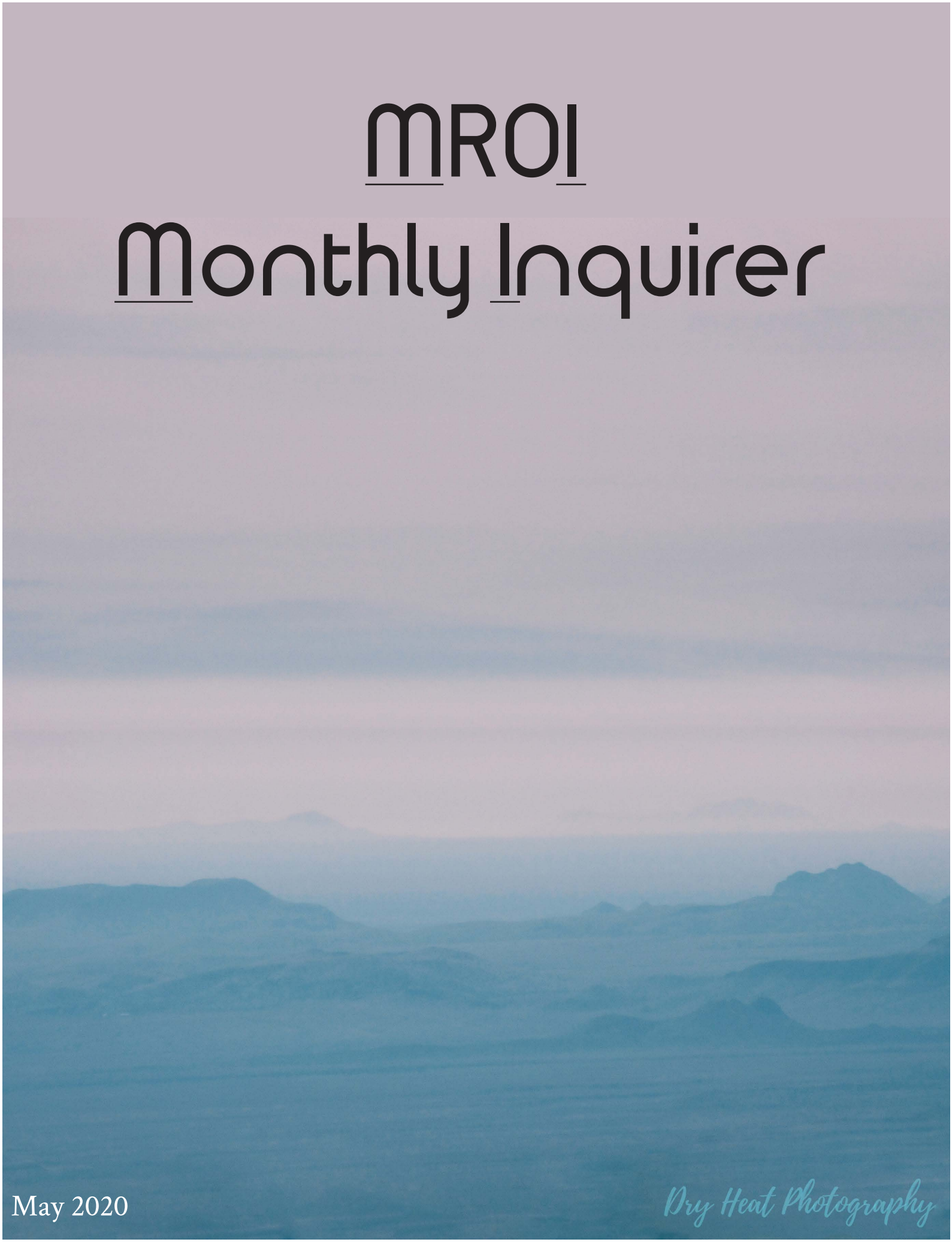
MROI
Monthly Inquirer



May 2020

Dry Heat Photography

Letter from the Director

Dear Friends,

Spring in New Mexico arrived with the usual false start – a couple of weeks of warming weather to stimulate the fruit trees into budding followed by a short, sharp drop in temperature sufficient to kill the new buds. And then it's Spring again as the warm weather returns and the fruit trees droop from the frost kill.

This start-stop-start sequence neatly parallels the current life of our project as we suffer through this frosty period of diminished budget waiting for the returning warmth of renewed funding. Since we have now delayed the delivery of the second telescope, we have the opportunity to continue engineering tests on the first telescope and also the beam train to the inner Beam Combining Area. Development of software programming also continues apace so that even though we have had to cut back on our activities, we are making good use of this opportunity to consolidate what we have so far achieved in the project.

It is also evident from this issue of the newsletter and from the recent additions to our web site that our photographers have also taken the opportunity to brighten our lives with the wonders of the universe.

I wish all our Friends a healthy month of May.

Want to be the first to know all the news and updates coming out of the MROI with early access to our monthly e-newsletter? Want our exclusive yearly newsletter mailed straight to your door? How about a private dinner and tour at the Observatory for you and seven of your friends? Or maybe you'd just like to support the advancement of science and astronomy in your community?

Do all of this and more by joining the Friends of the MRO. Go to our website to find out more: http://www.mro.nmt.edu/support-mro/

Stay up to date with all of MROI's monthly newsletters at http://www.mro.nmt.edu/news/newsletter/.
Click the links below to access new content being uploaded across all our platforms!

Complete the printable coloring page at the end of this newsletter and send a picture to setscorn@mro.nmt.edu to have your name and art in our next newsletter!

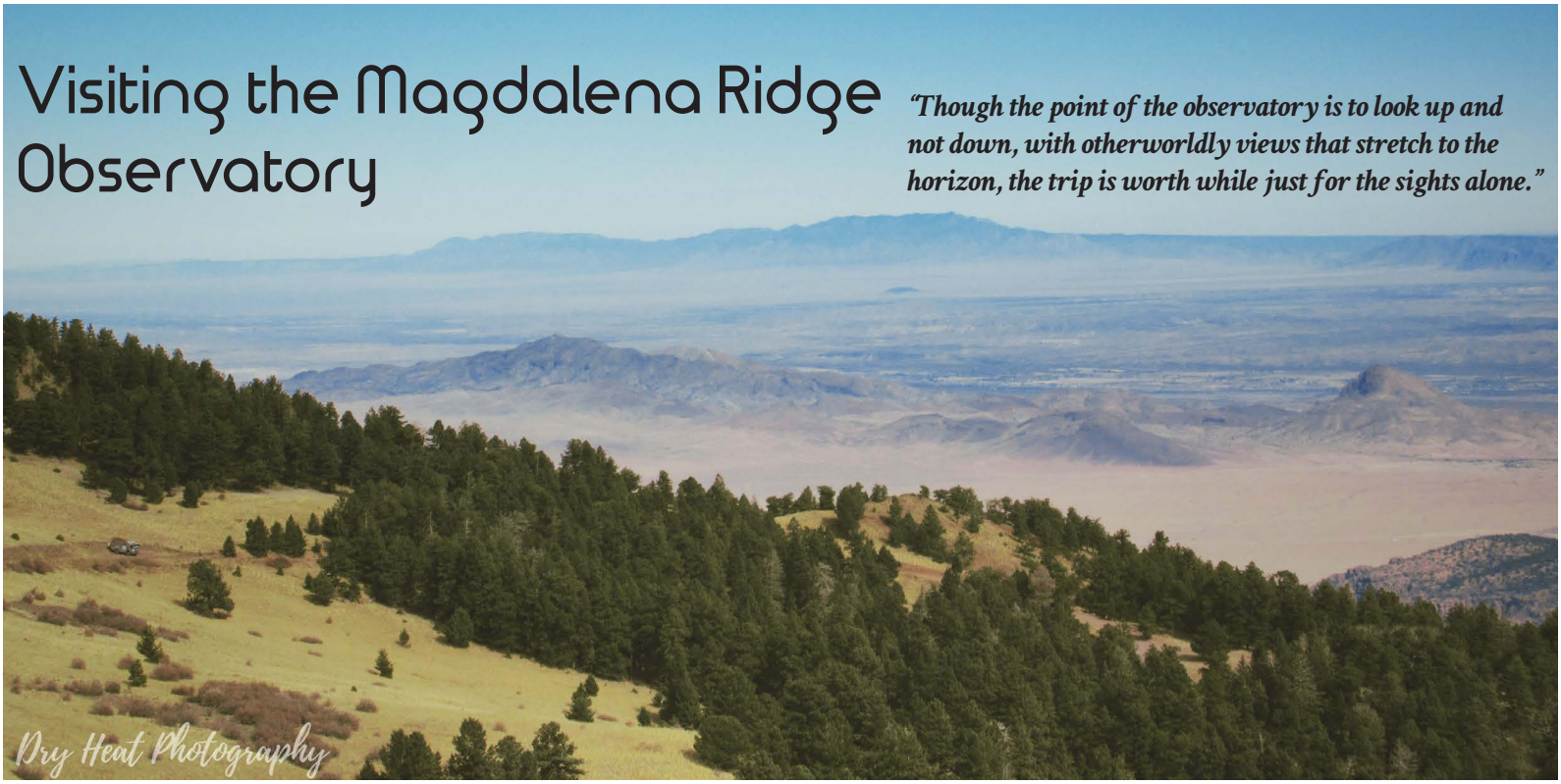
From the Photographer:

Colleen Gino on this issue's back cover photo.

At this time of year, the Galactic Center region of the Milky Way is visible to the ESE in the early morning hours. The best time to see it is when the Moon is not visible, as any amount of moonlight can wash out the faint detail in the MW. The 12 exposures that comprise this image were taken around 4:15 AM on April 16 from a fairly dark site in Polvadera. I was using a Nikon D850 DSLR with a 50mm Nikkor lens on a stable tripod. Each of the twelve exposures used to create the final image are four seconds long at ISO 6400 with the lens at f/2.5. The exposures are first aligned then stacked together in Photoshop to result in an image that has a better signal to noise ratio than a single image would have.

Visiting the Magdalena Ridge Observatory

"Though the point of the observatory is to look up and not down, with otherworldly views that stretch to the horizon, the trip is worth while just for the sights alone."



The Magdalena Ridge Observatory is located atop a towering mountain overlooking the San Agustin Plains of New Mexico. Though the point of the observatory is to look up and not down, with otherworldly views that stretch to the horizon, the trip is worth while just for the sights alone.

> ***"... this journey is not for the faint of heart."***

Speaking of the trip, this journey is not for the faint of heart. The Magdalena Ridge Observatory is not open to the public so the only time that nosy photographers like myself can visit is when they host their open house events. Attendees of the open house event are instructed to park at a camp site at the bottom of the mountain. From there we all load into a shuttle bus and begin the 30 minute, 10 mile journey up the treacherous one lane dirt road with no guardrail. There is literally not room for two cars to pass each other going opposite directions on this road which is part of why they don't want visitors coming and going at random intervals. As a passenger on the shuttle, it is safe to assume that the driver doesn't want to die in such a horrific manner as driving a bus full of screaming visitors off a cliff, so if you stay calm and busy with eyes on your Twitter feed, all will be well and you'll be there in a jiffy.

Interferometry is a technique used by astronomers to obtain the resolution of a large telescope by using multiple smaller telescopes. The electromagnetic radiation collected at each of the smaller telescopes is combined to recreate the image that would have been obtained with a large telescope. This process is commonly referred to as aperture synthesis. At present, the Magdalena Ridge Observatory only has one [element of the] Interferometer (pictured above) but in the near future more will be coming so they can set up their array. The goal of this project is to produce images of astronomical targets at resolutions over 100 times that of the Hubble Space Telescope.

Read this article in it's entirety at: https://www.dryheatphotography.com/dry-heat-blog/visiting-the-magdalena-ridge-observatory

About the author: DeAnna Vincent is the author of the Dry Heat Blog featuring New Mexico's ghost towns, Route 66 and interesting attractions across the desert southwest. www.dryheatphotography.com She is also a professional portrait photographer with over 20 years experience working in New Mexico.

Alumnus Student Starlight

Isaac Alejandro Salayandia

2018 NMT graduate with a Bachelor's in Mechanical Engineering

Former MROI Student Employee

Current Full-time MROI Staff Member

"I started working at the MROI as a student in February 2018. I began working under Andres Olivares, our Senior Opto-Mechanical Engineer. During this time, I assisted with some of the 3-D design work and modifications for the interferometer. One example of design work that I accomplished was modifying a gimbal mirror mount to accept electronically controlled motors. With this modificatio,the mirror could be moved electronically with high precision. Currently, I am the Lead Operations Engineer at the MROI. I lead a small crew of employees and supervise maintenance work that needs to be done on the mountain site. I am also responsible for the some of the design work that is required when installing new hardware or components onto the site. My favorite part of working at the MROI are the people I work with, many whom I can say have become good friends of mine. It may seem a bit cliché, but the working environment and the culture at the MROI is very welcoming and accepting of new ideas. This, in my opinion, is due to all of the diverse and outstanding individuals we have employed here."

Spargo's Sky Report

May Skies

As was feared by many, Comet Atlas was literally a bust. It broke into many smaller pieces around the middle of April. Search for Comet Atlas on line and you can see pictures of the breakup. However, comet watchers, do not despair. Comet PanSTARRS to the rescue. While only at magnitude 8, this comet will be with us for a while and, in fact, will transit through the bowl of the Big Dipper in early June. A good pair of binoculars or a small telescope will be all you'll need to view this comet. It is actually visible right now. Go online to find its exact path.

Venus begins this month at 35 degrees above the western horizon but then plunges toward the horizon such that it will be only 3 degrees above the horizon by the 31st as it heads for inferior conjunction with the Sun on June 3rd. Along the way its brightness changes as it dims from magnitude -4.6 to magnitude -4.2. While doing this, a good pair of binoculars will allow you to see its crescent shape change from being 24% illuminated to a scant 2 or 3% lit! And that's not all.

Tiny Mercury appears above the west-northwest horizon, beginning on the 11th and rising each night as if to greet Venus. On the 21st the two planets will be about one degree from each other. After passing by Venus, Mercury continues to rise reaching its maximum elevation in early June. This will be one of the best apparitions of Mercury this year.

Jupiter and Saturn spend the entire month separated by only 5 degrees. Both will rise around 1:30 a.m., daylight saving time, at the beginning of May and 11:30 p.m. by month's end. Both planets brighten slightly over the course of the month and are closest, 4.7 degrees, on the 18th. Saturn's rings are still wide open at 21 degrees from edge on and will be a delight to view through a small to medium size telescope.

Mars lags behind the two gas giants rising around 3 a.m. at the beginning of May and 2 a.m. at the end of the month. It is fast becoming a good telescopic target as its apparent disk grows in size and its magnitude increases from +0.4 to 0.0.

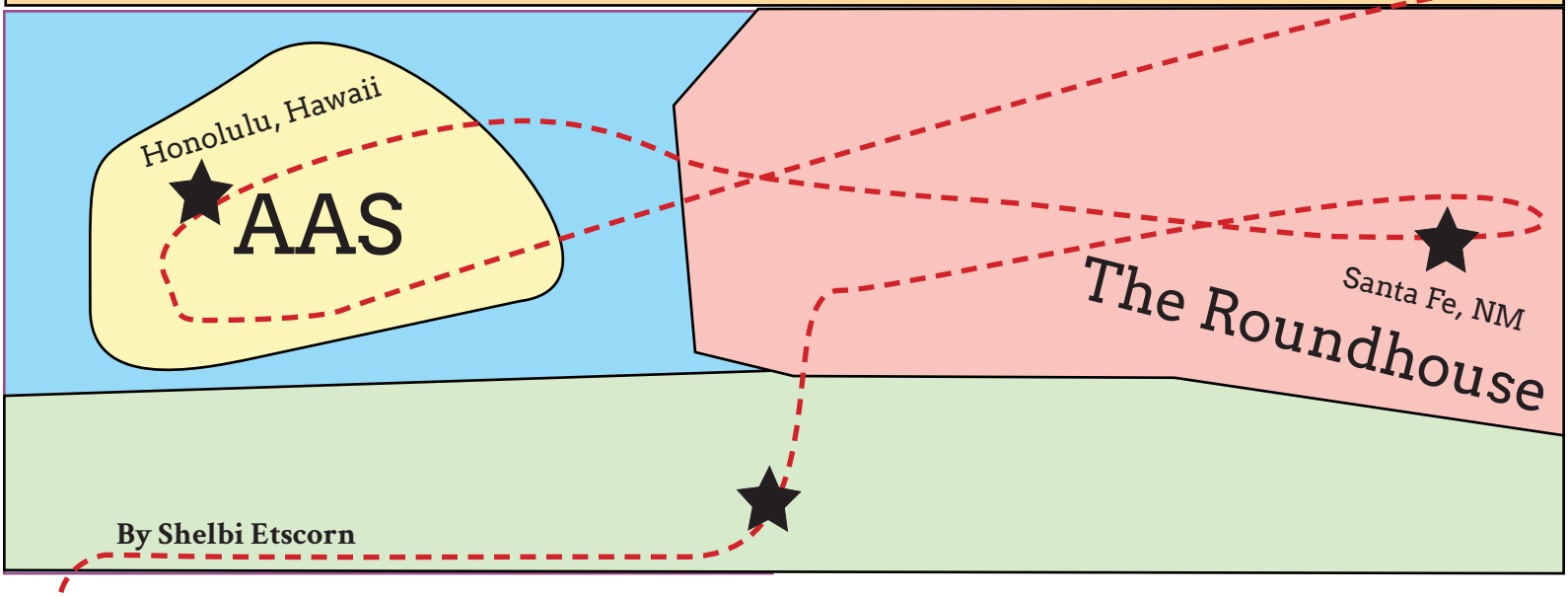
The Moon will be full on the 7th, last quarter on the 14th, new on the 22nd and first quarter on the 30th. From the 11th through the 15th, look to the south-southeast about one hour before sunrise. The waning last quarter Moon will pass below Jupiter, Saturn and Mars. On the 23rd and 24th the new crescent Moon will visit Venus and Mercury just above the west-northwest horizon about 30 minutes after sunset.

Due to the closure of New Mexico Tech because of COVID-19 virus concerns, there WILL NOT be a first Saturday of the month star party at the Etscorn Campus Observatory.

Stay safe and Clear Skies!

Jon Spargo
New Mexico Tech Astronomy Club
May 2020

MROI on the Road



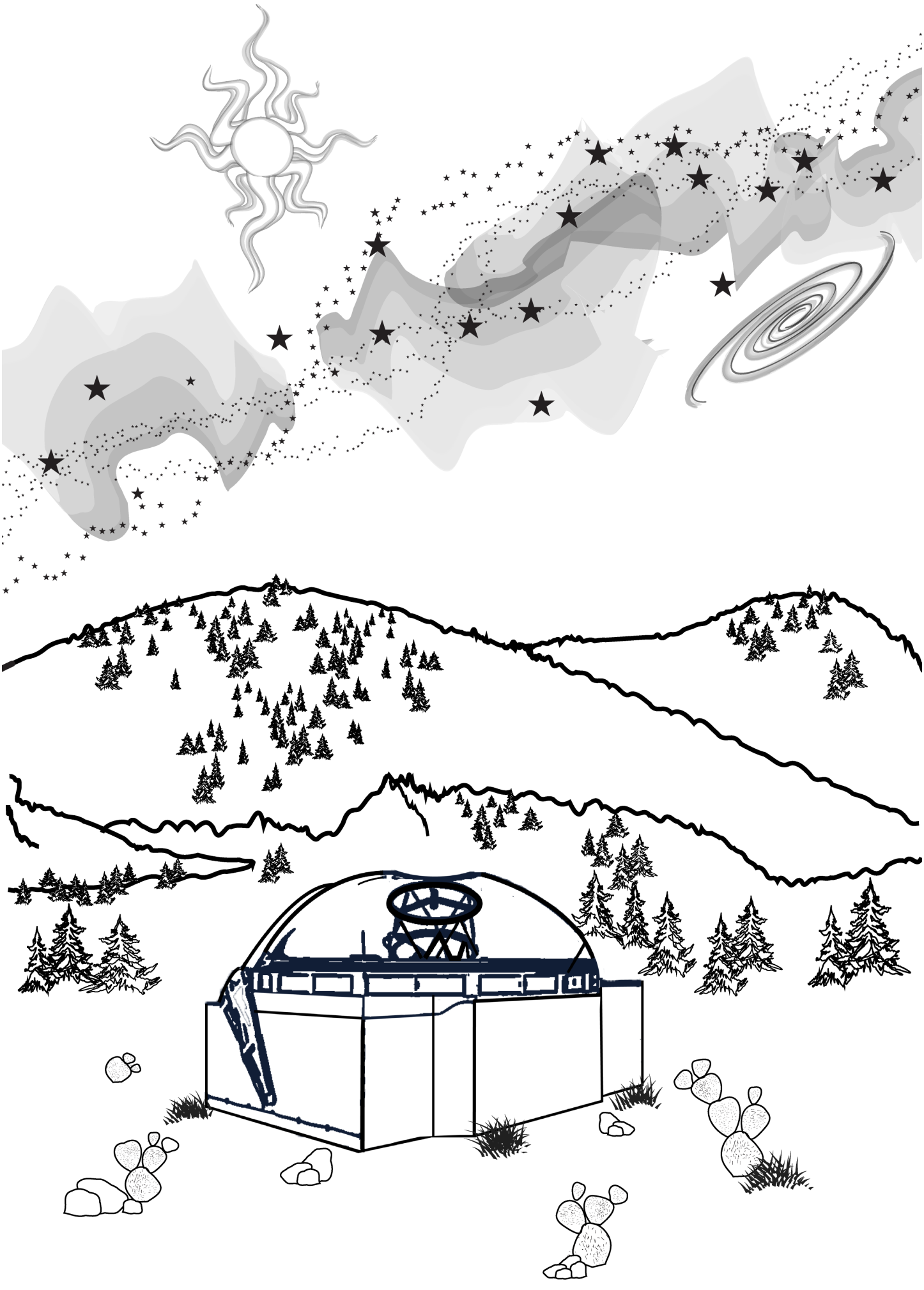
By Shelbi Etscorn

n Monday February 4, MRO staff traveled to our state's capital to take part in NMT/Earth Sciences Day at the Roundhouse. As the legislative session was being held, tables representing different departments and research branches of Tech sprang up in the halls around the rotunda. Colleen Gino and Shelbi Etscorn with the help of Ifan Payne manned the MRO's booth and spoke with politicians, New Mexico Tech staff and students, Santa Fe school children, and members of the public who stopped by our vibrant display.

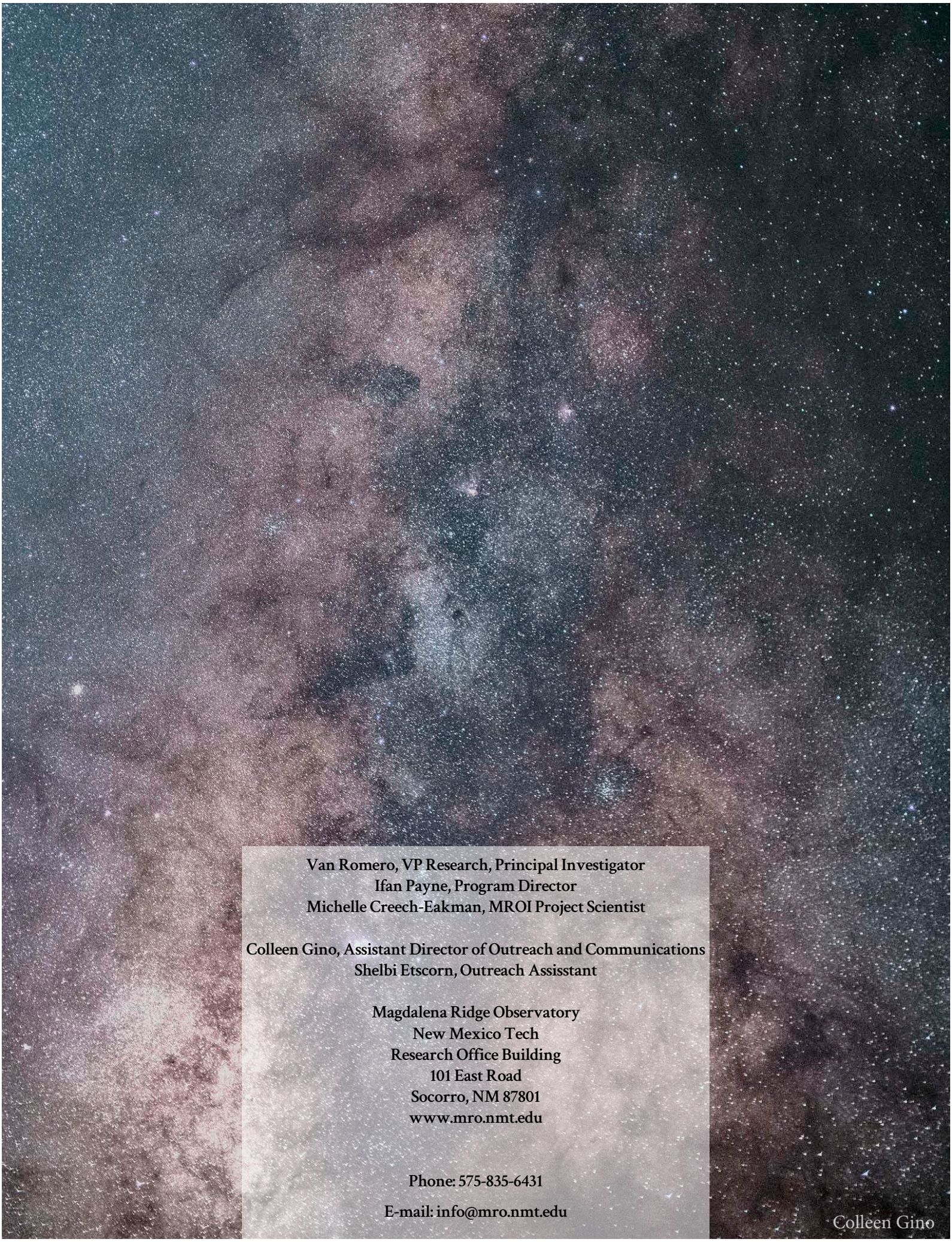
NM Senate Democrats
February 3 at 1:44 PM ·

New Mexico Tech has multiple research divisions, including the Magdalena Ridge Observatory (MRO) and the New Mexico Tech Energetic Materials Research and Testing Center (EMRTC). The MRO facilities are located at 10,600 ft. in the Cibola National Forest and hosts a 2.4m telescope and interferometer, that is currently under construction, for astronomy research and education. The EMRTC is a world class research, development, test, and evaluation (RDT&E) complex that focuses on high energy materials on its 40-square-mile field testing and training area. #NMTech #Miners #MRO #EMRTC #STEM #university #research #nmleg #nmpol

Thank you to the NM Senate Democrats for visiting our booth and featuring us on their page. Their post can be found here: https://www.facebook.com/NMSenateDemocrats/posts/2722711987798665



Designed by Shelbi Etscorn



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