The High Desert Observer

January 2025

Astronomical Society of Las Cruces

This Month's Meeting - Jan 24th

IN-PERSON & Zoom, Friday at 7 p.m.
Mesilla Valley Radio Clubhouse
6609 Jefferson Ave. Las Cruces, NM

At the corner of Wilt and Jefferson -- take the Porter exit from US 70, about 5 miles east from the I-25 interchange. Go south on Porter until you come to Jefferson. From there, turn left and go to the corner of Jefferson and Wilt. The meeting will also be available to members via Zoom.

In This Issue

Tombaugh Lecture Series
Presentation for the Month

Improving the Observing Experience through Community & Innovation

Richard Wolff-Jacobson
PiFinder

This presentation will explore the journey of the PiFinder over the past two years, highlighting the incredible community engagement and the resulting improvements that have made the PiFinder a valuable tool for me and other amateur astronomers.

Starting with a bit of background about the PiFinder and what spawned it, we'll delve into the collaborative efforts that have driven the project's growth, the role of user feedback, and explore how the PiFinder not only enhanced my observing sessions but also connected me to a vibrant, knowledgeable community passionate about astronomy.

Richard is a software engineer and hobbyist designer with a passion for astronomy, vintage electronics and unusual form factor computers. He's been observing the night sky for over 30 years with various commercial and home-built scopes, but still often feels like a beginner.

Masthead Image: M20 (Trifid Nebula) in Sagittarius - courtesy of ASLC Member Jeff Johnson

From the President

Ranimo Bush

Happy New Year and Solar Maximum to All! As your newly elected president, I am thrilled to be able to serve you in 2025. And no, we're not in the Twilight Zone, so it won't be for dinner. I think back to that fateful winter day in 2019 when I was living in TorC and getting frustrated with the Socorro Astronomy Club because they kept cancelling meetings because of snow. I decided to turn my fortunes to the south and have never looked back.

I was hesitant at first to take on the position, then realized quickly how much support I had around me. Our society has such a solid foundation with many dedicated members. Tim has built upon that, and I truly appreciate all he has done for the club over the past two years as president. But he is not alone, there are so many of you who give so freely of their time and knowledge. My job is to keep that momentum going and raise it up a notch.

That brings us to our first order of business, a member survey being distributed to everyone. Nils, my wonderful vice-president came up with the questions. Please take a few minutes to fill it out and send it in. We'll have our first board meeting in early February to go over the responses and see what we can implement. I'll go over the results with everyone during our February monthly meeting. Again, thanks so much in having trust in me. Don't hesitate to contact at any time with anything that's on your mind about the club. This year is the 95th anniversary of Pluto's discovery. Let's celebrate Clyde and what a wonderful astronomical society we have.

Take care!

Upcoming Events - Check ASLC-NM.org Event Calendar for details

Friday, January 24th - 7:00 to 9:00 p.m. — ASLC Monthly Meeting
Saturday, January 25th - 1:00 to 3:30 p.m. — WSMR Sci-fi/Space Party (private event)
Friday, January 31st - 6:00 to 8:00 p.m. — Tombaugh Elementary School Star Party (private event)
Friday, February 7th - 7:00 p.m. — NMSU Open House at Tombaugh Observatory Complex (on campus)
Saturday, February 8th - at sunset — NMSU MoonGaze at the Plaza da Las Cruces
Saturday, February 15th - 9:00 a.m. to 1:00 p.m. — Plutomania at LC Museum of Nature & Science
Friday, February 21st - at sunset — Rockhound State Park Public Observing
Saturday, February 22nd - at sunset — City of Rocks State Park Public Observing
Thursday, February 27th - 5:30 to 7:00 p.m. — East Picacho Elementary School STEM Night
Friday, February 28th - 7:00 to 9:00 p.m. — ASLC Monthly Meeting

ASLC-West Update

Mike Nuss

On December 20th, we had 11 guests at Rockhound State Park. On the 21st we had around 40 at City of Rocks. This last weekend we got winded out on Friday evening at Rockhound, but we had 17 at City of Rocks on Saturday evening the 18th. Barry Flansburg, Bill Nigg, Charles and myself.

The Astronomical Society of Las Cruces (ASLC) is a 503(c)(3) non-profit group dedicated to expanding public awareness and understanding of the wonders of the universe. ASLC holds frequent observing sessions and star parties, providing opportunities to work on Society and public educational projects. Members receive electronic delivery of The High Desert Observer, our monthly newsletter, plus membership in the Astronomical League including their quarterly publication, Reflector, available in either paper or digital format. ASLC members are also entitled to a discount on a subscription to Sky and Telescope magazine. Annual Individual Dues are $36; Family $42; Student (Full Time) $24. Dues are payable in January and partial year prorated for new members. Please contact our Treasurer, Patricia Conley, treasurer@aslc-nm.org for further information.

Regular Events

Monthly, on an evening close to the first-quarter moon, ASLC hosts a public "MoonGaze" observing session in Las Cruces. We also hold periodic special evening sessions at Tombaugh Observatory on the NMSU campus.

Also monthly, the ASLC welcomes public viewing at the Haas Observatory in Leasburg Dam State Park, located just 20 miles north of Las Cruces. Our 16-inch Meade LX200 telescope at this site is used to observe under rather dark skies.

Keep updated on the dates, times, and locations through this link with additional information available at our website www.aslc-nm.org as well as our Facebook page.

ASLC Board of Directors		board@aslc-nm.org
President:	Ranimo Bush	president@aslc-nm.org
Vice President:	Nils Allen	vp@acslc-nm.org
Treasurer:	Patricia Conley	treasurer@aslc-nm.org
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ALCOR:	Patricia Conley	treasurer@aslc-nm.com
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Education:	Rich Richins	education@aslc-nm.org
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Tombaugh:	Open	ASLCObservatory@aslc-nm.org
Outreach:	Stephen Wood	outreach@aslc-nm.org
Website:	Steve Barkes	webslave2@aslc-nm.org
HDO Editor:	Tim Kostelecky	HDO@aslc-nm.org

ALIGNMENT, Jan.25, 2025

Poem by Joel Hawksley, Independent Writer
Taken from poetry.com

This poem reflects on the rare planetary alignment of January 25, 2025, using the celestial event as a metaphor for the human capacity to Reset and Realign. The alignment isn't just astronomical but personal, a reminder of how external phenomena can mirror our inner lives. The poem invites readers to consider what they might recalibrate within themselves during such a unique moment.

The night opens its throat to drink the stars,
a single gulp—planets arranged like beads
on the wrist of a God who hasn't touched us yet.
Not like this: each orb polished smooth,
singing through its orbit like teeth
biting into the rind of silence.

We say the word alignment,
as if it's simple—this gathering,
this choreography of fire and stone.
Jupiter swelling, a lung of gold.
Saturn, its rings the color of rusted clocks.
Each planet leaning forward, closer now,
like strangers on a train before it derails
into a new decade, or
a new hymn—

The kind only gravity hums, deep and low.
Do you hear it? Your body answers first:
a shiver, the sharp intake of breath,
as if you'd been kissed without warning.
Do you feel it? The turning,
the pull—how the earth beneath you bends
toward the sky's open palm.

Tonight, the stars remind us
how small we are,
how massive our desires.
The universe presses its forehead
against ours. It says:
Go now. Write the letter.
Burn the bridge.

It says: Begin again.

Outside, the trees rearrange their shadows
on the ground. You can't see it,
but their roots are reaching,
searching for something
older than water,
older than time.

The stars will scatter come morning.
What will you do with this alignment,
this single stitch of light
holding the fabric of everything
together—if only for a moment?

What will you become
before the thread breaks?

ALIGNMENT, JANUARY 25, 2025 (N.D.). POETRY.COM. RETRIEVED JANUARY 21, 2025, FROM HTTPS://WWW.POETRY.COM/POEM/208502/ALIGNMENT,-JANUARY-25,-2025.

Member Article

Reduce Color Distortions by Combining Linear Luminance with Linear RGB

By Alex Woronow

Intro:

Traditionally, separately captured luminance data (L) have been used as a fast and effective way to increase the signal-to-noise ratio (SNR) of an RGB image. It does this by reducing the "luminance noise" (but not color noise) in the RGB image the same way, but more quickly, that capturing more subframes of RGB would do. The traditional approach to introducing the captured L into the RGB image operates on the nonlinear (stretched) luminance and RGB images. This nonlinear approach commonly accomplishes an increase in SNR at the expense of reducing color contrast and intensity and may cause a color shift in the image. Diminishing these aspects of the image is far from ideal behavior.

This paper describes, in detail, a workflow for the PixInsight image-processing platform that introduces the linear (unstretched) luminance data into the linear RGB to achieve the same SNR improvement afforded by the traditional method but without the diminution of color quality.

Background:

The "Luminance," or, more properly, the "lightness" of an RGB image, is not a separate component of that image. An RGB color image has precisely three channels displayed on a monitor or saved in a file. There is no channel or layer holding values of the image's lightness in an RGB image file or its monitor display. Lightness belongs to a different coordinate system. Just as the XYZ coordinates of a point fully specify the location of that point, and R (radial distance to the point from the origin) is superfluous to locating that point, L is superfluous to specifying any attributes of an RGB image.

Why, then, do we capture L? Really, I think it is an arcane noise-suppression technology that AI noise removal has relegated to the attic…but not everyone agrees on that, and it persists. Those who purchase data get it in bundles that include L subs, useful or not. Given that L comes with the price you pay for a data set, is there some use it might have? In cases where the RGB exposures did not go as "deep" as possible, L data might extend the depth to a fainter level, albeit with no information about the colors of those deeper features. Therefore, I developed a method to utilize the L data that minimizes or eliminates color distortions and allows us to, perhaps, "go deeper" into our image content.

Method Overview:

My improved LRGB method relies on two factors: 1) the ability to manipulate the RGBWorkingSpace (RGBWS) (as in PixInsight), and 2) the ability to apply a linear fit to the L to match (as much as possible) the lightness component inherent in the rgb data. (I use lowercase, e.g., "rgb", to indicate a linear image.) PI's only tool for accomplishing this match is HistogramMatching, which can only be

applied to linear images. Therefore, introducing L into a nonlinear RGB image will likely replace the existing lightness with a mismatched, separately captured luminosity image.

The RGB Working Space specifies the human eye's sensitivity to different colors. PixInsight (PI) uses the RGBWS coefficients to relate luminance to the proportions of the R, G, and B in an image. The default coefficients specify that green receives the lion's share of the brightness boost, with blue then red receiving progressively less. Why would we want to put a lot of green into our RGB images? Green is rare in DSO, and while there are green stars, we don't see them as such; they appear white to us because of their black-body curves. Therefore, Juan Conejero (PI's principal developer) suggests changing the RGBWS default coefficients to uniform values (or even biasing them toward red and blue and setting the green coefficient to a small value, which may harm "white" stars). I use uniform coefficients.

The Figure [at the end] shows a screenshot of my steps to introduce the separately captured luminance "master" into the rgb image. This Process container can be downloaded from here. It looks far more complex than it actually is. However, each step must be invoked separately; DO NOT TRY TO RUN THE SCRIPT CONTAINER AS A WHOLE!

When an entry in the script container is selected, it will display, in the script container's dialog, toward the bottom-right, a comment explaining how to use that icon or what it does. I will not repeat those details here but give a simplified overview of the progressing workflow.

Step 1: Set the RGBWorkingSpace coefficients to uniform.

Steps 2 - 10: Create a color image, remove background gradients, and calibrate that image photometrically. In step 10, the stars and background are sharpened modestly.

Steps 11 & 12: Create a starless version of the linear, color-calibrated, sharpened rgb image.

Step 13: This is a reminder that we are temporarily done with the rgb image and will now operate on the luminance image.

Step 14: A reminder to switch to working on the captured-luminance image.

Steps 15 – 19: Create a starless, linear, grayscale, L-filter image and augment it with the lightness extracted from the rgb image to make a "Super-l" linear grayscale image.

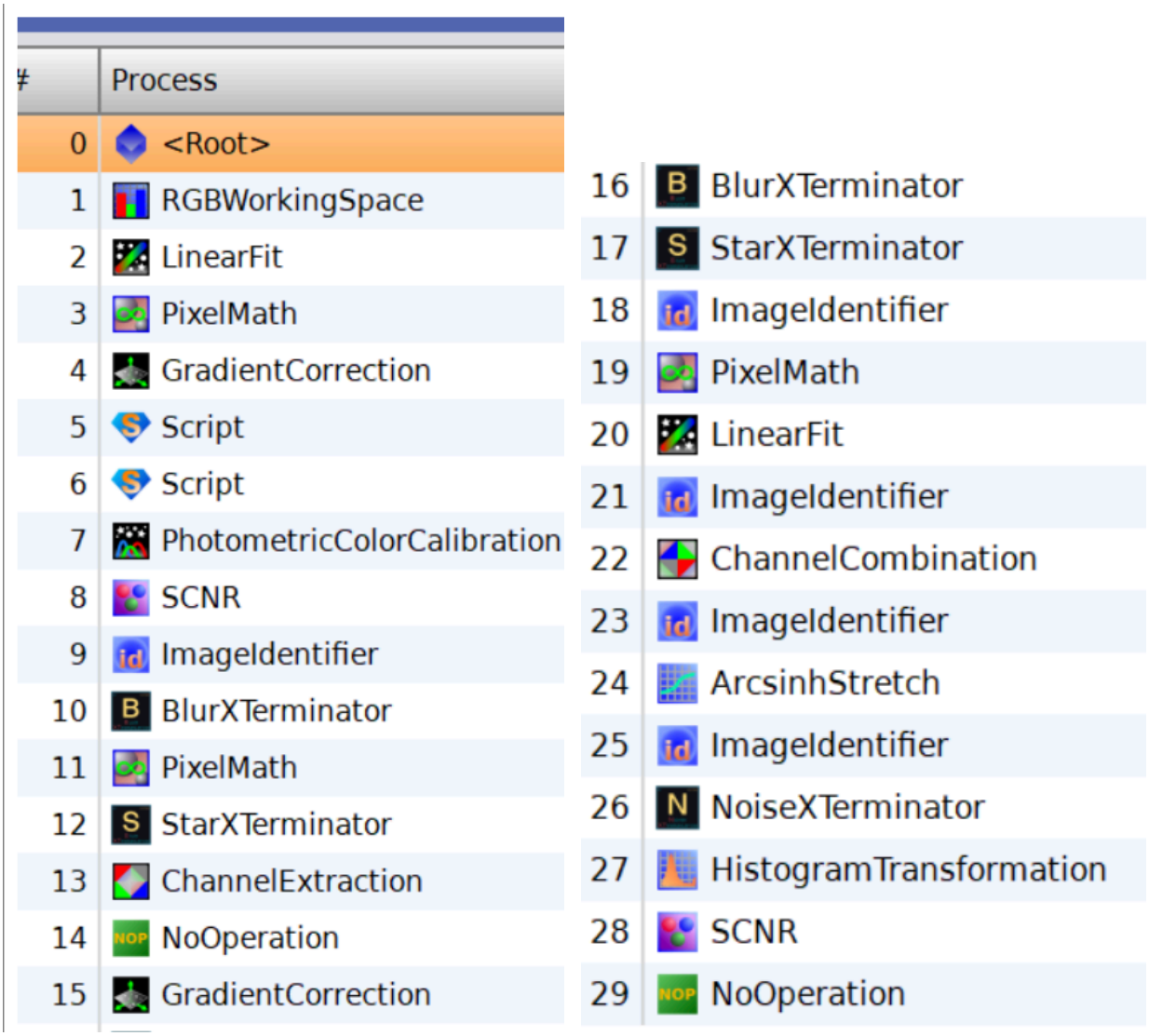
Step 20 - 21: Adjust the "Super l" to mimic the lightness distribution of the target rgb image. This uses the linear-fit tool. A histogram-matching approach would be better, but PI lacks that common tool.

Step 22 – 23: Substitutes the Super-l into the rgb image, which completes the major processing objective of this script container.

Steps 24 -29: Stretching etc.. Use this or your own approach.

When the image is completely processed and ready to be restarred, the rgb image with stars (Step 11) can be stretched and used as a star source.

Continued on next page



#	Process
0	<Root>
1	RGBWorkingSpace
2	LinearFit
3	PixelMath
4	GradientCorrection
5	Script
6	Script
7	PhotometricColorCalibration
8	SCNR
9	ImageIdentifier
10	BlurXTerminator
11	PixelMath
12	StarXTerminator
13	ChannelExtraction
14	NoOperation
15	GradientCorrection
16	BlurXTerminator
17	StarXTerminator
18	ImageIdentifier
19	PixelMath
20	LinearFit
21	ImageIdentifier
22	ChannelCombination
23	ImageIdentifier
24	ArcsinhStretch
25	ImageIdentifier
26	NoiseXTerminator
27	HistogramTransformation
28	SCNR
29	NoOperation

The complete set of operations (in PixInsight) combines r, g, and b with the separately captured luminance master in a manner that does not do significant harm to the colors of the image.

Monthly Meeting Minutes
November 2024

John McCullough - Secretary

Call to Order:

Tim Kostelecky, President, Astronomical Society of Las Cruces (ASLC, the Society), called the November 2024 meeting to order at 7:00 pm on 15 November 2024 at the Mesilla Valley Radio Clubhouse. There were twenty (20) members, spouses, and guests in attendance, as well as nine (9) attendees via Zoom at the start of the meeting.

Tim welcomed the group to tonight's meeting. He announced that the meeting minutes from October 2024 were published in the November 2024 issue of the Society newsletter, the High Desert Observer (HDO). He asked if there were corrections, clarifications, or modifications required. None being offered, Rich Richins moved that the October minutes be accepted as published and Bernie Jezercak seconded the motion. The minutes were accepted by acclamation.

Presentation:

Tonight's Tombaugh Series presentation was by Charles Miller, PhD, Project Engineer, New Mexico State University (NMSU) and Apache Point Observatory, on "Tales from a Post-retirement Postdoc". Chas presented several topics related to his past experiences and current projects with NMSU and the Apache Point Observatory.

Chas Miller is a Postdoctoral Fellow in the Astronomy Department at NMSU. He served for over 20 years as a design engineer and project manager at Bell Labs and Lucent Technologies, and as an applications and training engineer at Lattice Semiconductor. Chas moved to Las Cruces in 2006 to study planetary astronomy at New Mexico State University, earning his Ph.D. in 2013. While at NMSU, he analyzed observations of Saturn's moon Phoebe, and wrote computer models of the atmospheres of Pluto and Neptune's moon Triton. He worked as an engineer for three years at Spaceport America supporting business development and flight operations. He is currently assembling a high-resolution spectrograph for exclusive use at the new 1-meter telescope at Apache Point Observatory. Once completed, this spectrograph will be used to characterize stellar oscillations for the Stellar Observations Network Group (SONG) global network.

Tim welcomed John Gutierrez, a new member, and Lydia Tamez. Lydia has relocated from Houston, where she was a sales rep for ultrasound equipment. She has had several telescopes and currently has an eVscope smart telescope.

Officer/Committee Reports:

Treasurer:

Trish Conley, Treasurer, presented a report on the status of the Society's finances. The Society received $21 in donations at the 2024 Renaissance ArtsFaire, $26.62 in interest from its accounts, $300 from apparel sales, and $32 in dues payments. Contact her for detailed expenditure/income reports.

Outreach:

Stephen Wood, outreach coordinator, reported on recent and upcoming local events. Events and attendance were:

Event	Date	Members	Visitors
LDSP (3rd Qtr. Moon)	26 Oct	12	80
'24 Ren Faire, Day 1	02 Nov	7-8	500
'24 Ren Faire, Day 2	03 Nov	4-6	30
Vista MS Star Party	07 Nov	3	10
November Moon Gaze	09 Nov	8	100
Sunrise Elementary Star Party	14 Nov	2	100

Upcoming events are:

Event	Date
LDSP (3rd Qtr. Moon)	23 Nov
Vista MS Star Party	05 Dec
December Moon Gaze	06 Dec (Fri)
Telescope training	03 Jan
January Moon Gaze	04 Jan
LDSP (3rd Qtr. Moon)	18 Jan

Tim added that he was contacted by Kyle McGrogan (Las Cruces Railroad Museum) regarding an event in January that would be the same evening as that month's Moon Gaze. ASLC may support both events once more details are available.

Contact Stephen if you can support any or all events. He would like to see more members support the smaller events with telescopes.

ASLC-West:

Mike Nuss, coordinator, was not available at tonight's meeting; Tim gave a report on recent Deming-area outreach activities instead. On Friday 01 November, there were 13 guests at Rockhound State Park, but activities were handicapped by clouds and the viewing was tough. Bill Nigg, Barry Flansburg, Charles Turner, and Mike Nuss were the members/presenters on hand. Comet 2023/A3 was still a good telescopic object. A much better evening took place on Saturday, 02 November, with around 30 attendees at City of Rocks. Saturn's razor thin rings and the plane of the moons orbits was appreciated by most. Thermal first-layer clothing was not a necessity this weekend, but certainly provided an added comfort, even before the time change took place.

Apparel:

Rani Bush, committee chair, had some items of ASLC apparel available for purchase, including caps for $16. She plans to place another order for shirts in January 2025. A replacement committee chair will be needed as Rani moves into the position of President next year.

2024 Holiday Party:

Instead of a meeting in December, ASLC will have a potluck get-together on 07 December at Tim Kostelecky's home. RSVPs and dining contributions should be submitted via the groups.io. Tim encouraged all members to also sign up for the groups.io app.

Old Business:

Former member Ron Kramer – Former member and Society President Ron Kramer passed away on 28 September. All items of his astronomical equipment are for sale at the request of his widow. His 16" Meade has been sold to an observer in Washington state. ASLC members still have access to the items for sale, but the inventory will soon be made available to the public. The NMSU Astronomy Department will be contacted to see if there is interest in items for outreach or student use.

Dena Laterza, Pagosa Springs, CO, reported on her recent visit to Las Cruces and the Observatory at LDSP. She hopes to visit the Deming area and ASLCWest next spring.

There was no additional old business for discussion.

New Business/Announcements:

Dark Sky Association – Jon Holtzman reported on recent presentations, activities, and governmental meetings representing the NM Chapter.

Outreach support – Nils Allen asked Steve Wood if he needs more dedicated support for regular events. Additional discussion will occur.

RASC handbooks – Trish Conley announced that Royal Astronomical Society of Canada (RASC) handbooks have been ordered. Cost is usually about $26; contact Trish if interested in one or more copies.

There was no additional new business offered for discussion.

The November 2024 meeting was adjourned at 8:41 pm.

-Respectfully submitted:
John McCullough
Secretary, ASLC

Member Images

Moon/Mars Occultation

Lydia Tamez

I don't know how to [take time-lapses], but I took a few pictures as it happened - hope you can see it on lower left in this image. I almost missed it coming out the back, but eventually saw it.

Moon/Mars Occultation

Rich Richins

I took a stupid number of subs last night with my C11 and 533MC. I tried to image at 10,200mm, but the seeing just wouldn't support it. So I dropped down to 2800mm. Above is one of the subs (roughly half size).

NGC 3953 in Ursa Major

Jeff Johnson

I re-worked some data collected previously using my TOA-130F from my backyard here in Cruces... and here is the (improved) result. I applied some better techniques for data that I have learned.

NGC 3953 - Barred spiral galaxy in Ursa Major Distance: 55 million light
Telescope: Takahashi TOA-130F @ f/7.7; Mount: Takahashi EM200 Temma II
Camera: QSI 690wsg @ -15C
Filters: Astrodon Tru-Balance I-Series LRGB Gen 2
Guider: SX Lodestar
17x10min L (bin1x1); 4x5min ea RGB (bin2x2); AstroArt5, PI, Fitswork, CS4 (slightly cropped, 10xdarks/flats/fdarks/bias)

6 February 2021 - Las Cruces, NM

LBN 811: A Faint-Hearted Reflection Nebula in Lynx

Alex Woronow

OTA: SkyRover 130
Camera: ZWO ASI6200MM Pro
Observatory: Insight Observatory
Date of Processing: 01-2025
Broadband: 24.1h

LBN 811 is a reflection nebula that lies relatively close to us in the same arm of the Milky Way. Beyond these facts, LBN 811 has not attracted much attention from scientists.

The faintness of LBN 811 makes it a difficult target to process. Stars abound, but we can remove them for processing. However, the field of view contains a wall-to-wall nebula still fainter than LBN 811. Bringing out contrast and detail is, therefore, difficult.