New Braunfels Astronomy Club

BECAUSE IT'S OUT THERE

January 20th, 2022

Agenda

- Open meeting and introduce new members (get names, email)
- Interesting observations, experiences
- Show and tell
- What's in our sky this month? Newsletter + member input
- What's going on – news, events, outreach.
- Main feature(s)
  - Dan McNeil: Will NBAC meetings return to Bosses Pizza?
- Open for discussion
- Feedback and close the meeting

Coming up: OUR 269th ASTRONOMY CLUB MEETING

February 17th, 2022, from 6 - 8 pm **Place TBD**

astronomynbtx.org Email: info@astronomynbtx.org

Astronomy Friends New Braunfels..... facebook.com/groups/354953995432792/

Comal County Friends of the Night Sky..... facebook.com/groups/166098014710276/

comaldarksky.org/ Email: info@comaldarksky.org

New Braunfels Astronomy Club

Because It's Out There

Larry's Celestial Calendar & Newsletter

by Eric Erickson

294th Edition
Volume 25, Number 1
January 20th to February 17th, 2022

NBAC's 25th Year!

NBAC Observing Calendar

My Celestial Pick - *Orion*

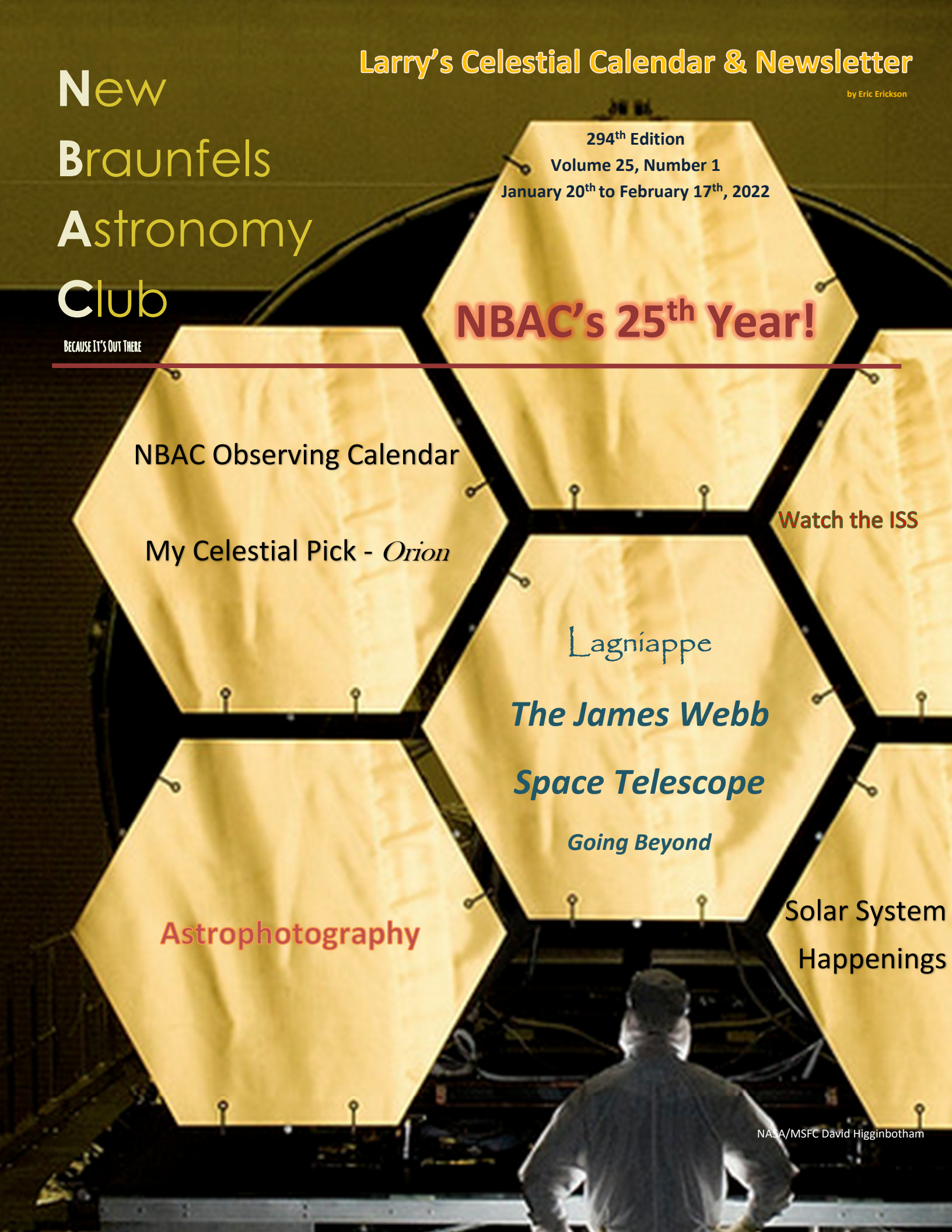
Watch the ISS

Lagniappe

The James Webb Space Telescope Going Beyond

Astrophotography

Solar System Happenings



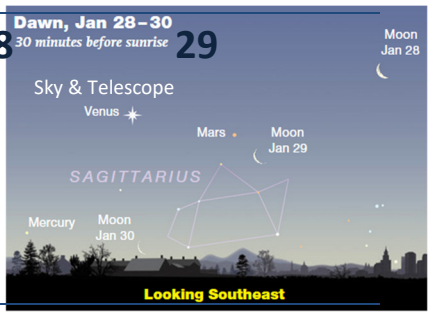
NASA/MSFC David Higginbotham

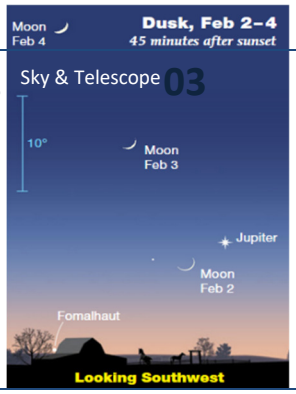
JAN/FEB 2022

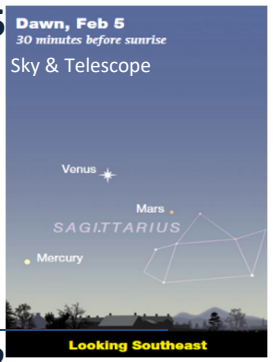
NBAC *OBSERVING CALENDAR*

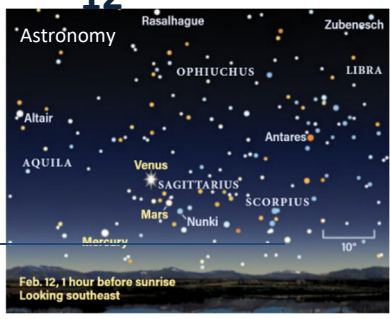
SUN	MON	TUE	WED	THU	FRI	SAT
				Jan 20 NBAC Meeting 6:00pm TJ's on Loop 337	21	22
23	24	25 Last quarter 7:41 am CST	26	27	28	29
30	31	Feb 01 New Moon 11:46 pm CST	02	03	04	05
06	07	08 First Quarter 7:50 am CST	09	10	11	12
13	14	15	16 Full Moon 10:56 am CST	17 NBAC Meeting 6:00pm		

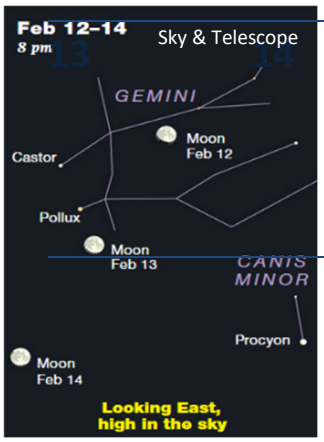
Cover Photo: A NASA technician looking back at one of JWST's protected mirror sections











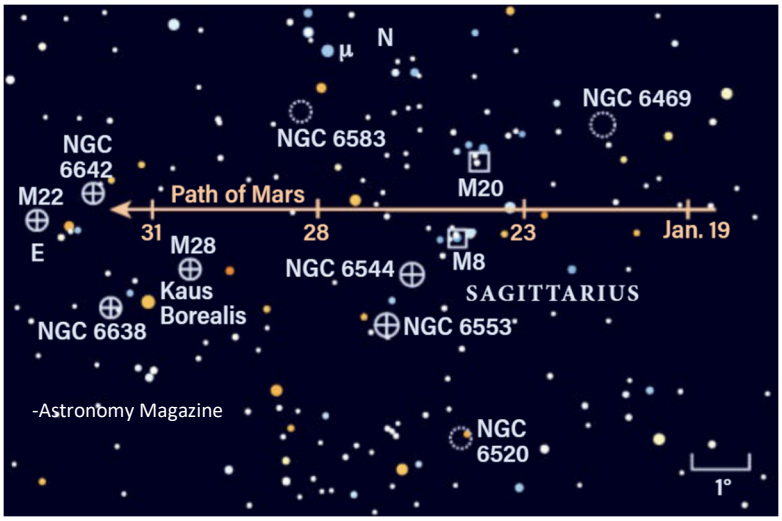
Solar System Happinings

- Mercury is a morning planet, shining at magnitude +0.3. It joins with Venus, a waning crescent Moon, and Mars on January 29-30, again on February 5th without the Moon, to form a pretty morning triangle in them pre-dawn southeastern sky.
- Venus is a morning planet, shining at magnitude -4.9 – brilliant! It is brightening and will reach *greatest illuminated extent* on February 12th. Get up early (before sunrise) to see it mate up with Mercury and the Moon.
- Earth still spins, and we are still here to marvel at it all.

Best ISS viewing for New Braunfels (works for Canyon Lake too) -From Heavens Above

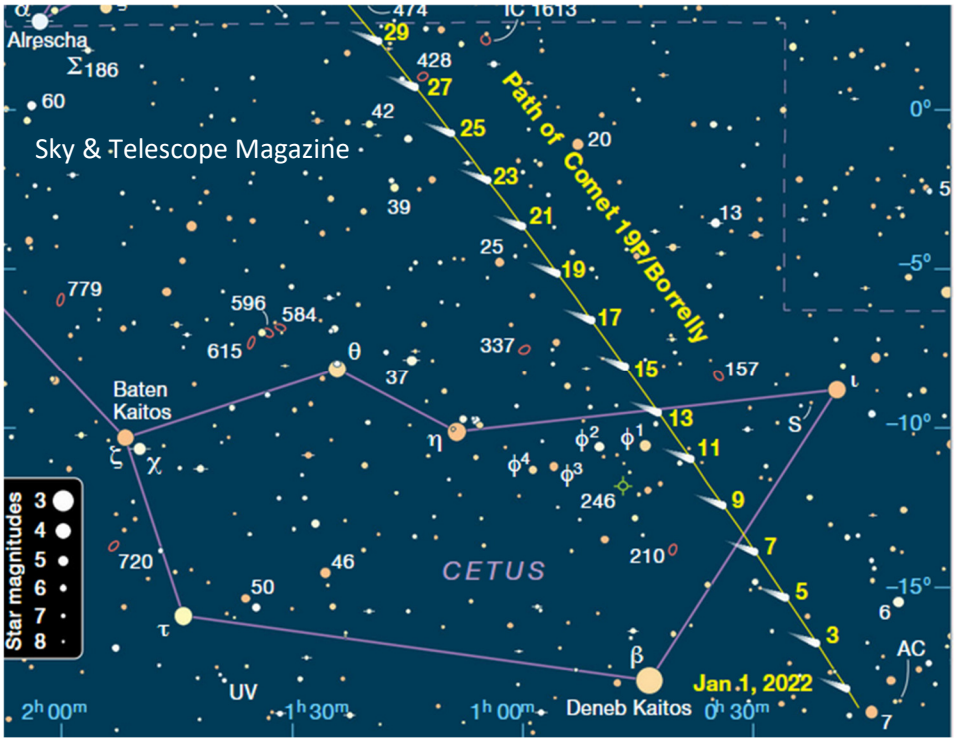
Date	Start Time	Start Loc	Max Alt °	End Loc	Note
02/05	19:42	NW	46	S	Passes east of the Moon. Enters Earth's shadow due S.
02/06	18:57	NW	87	SE	Passes close to Aldebaran, Orion's Belt
02/08	19:04	WNW	19	SSE	Passes east of Jupiter
02/14	06:26	S	12	ENE	Passes between Venus and Mercury
02/16	06:32	SW	57	NE	Passes close to Albireo

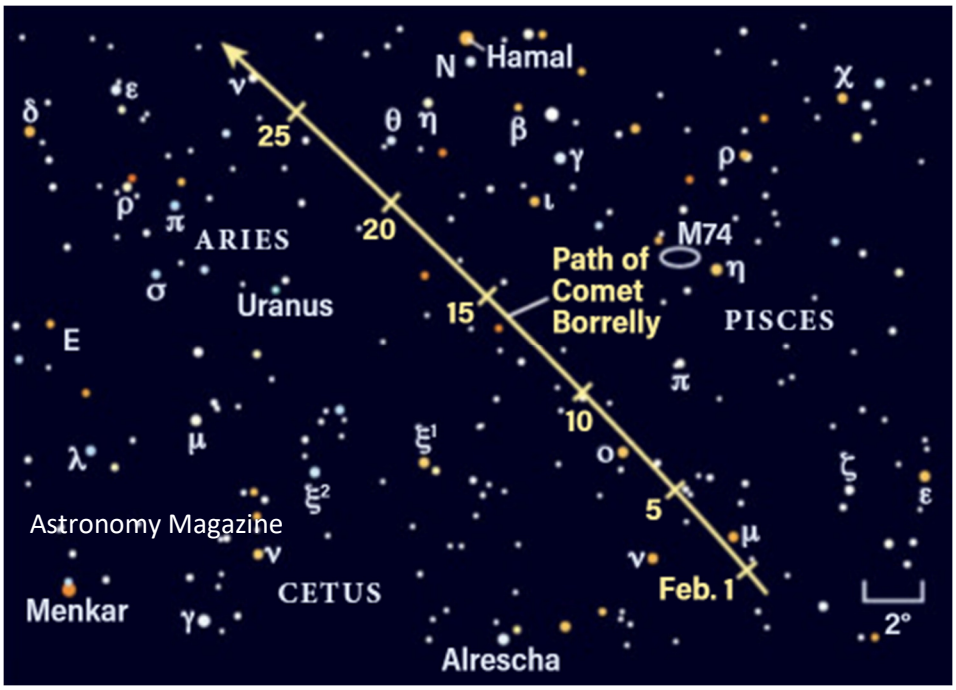
- The Moon dances with planets and stars
- Mars is in the early pre-dawn sky and travels through a crowded portion of the Milky Way. Some nice photo opportunities. On February 3rd it will be south of NGC 6642. On February 5th, it will be north of M22.



- Jupiter is on its way to the sunset, getting lower in the southwest every day. See it and the waxing crescent Moon on February 2nd. A nice sunset view.
- Saturn is gone from the evening sky, heading for solar conjunction on February 4th. It will emerge in the morning twilight later in February.

- Uranus is visible most of the night in southern Aries. At magnitude 5.8 it is catchable in binoculars. Look for a fairly bright greenish gray “star”.
- Neptune is magnitude 7.8 and visible in binoculars, a bright blue “star”. It’s up most of the night in eastern Aquarius
- Comet(s)
  - Periodic comet 19P/Borrelly was discovered by French astronomer Alphonse Borrelly on December 28, 1904. 19P is expected to peak at magnitude 9, dim in a 4-inch scope.

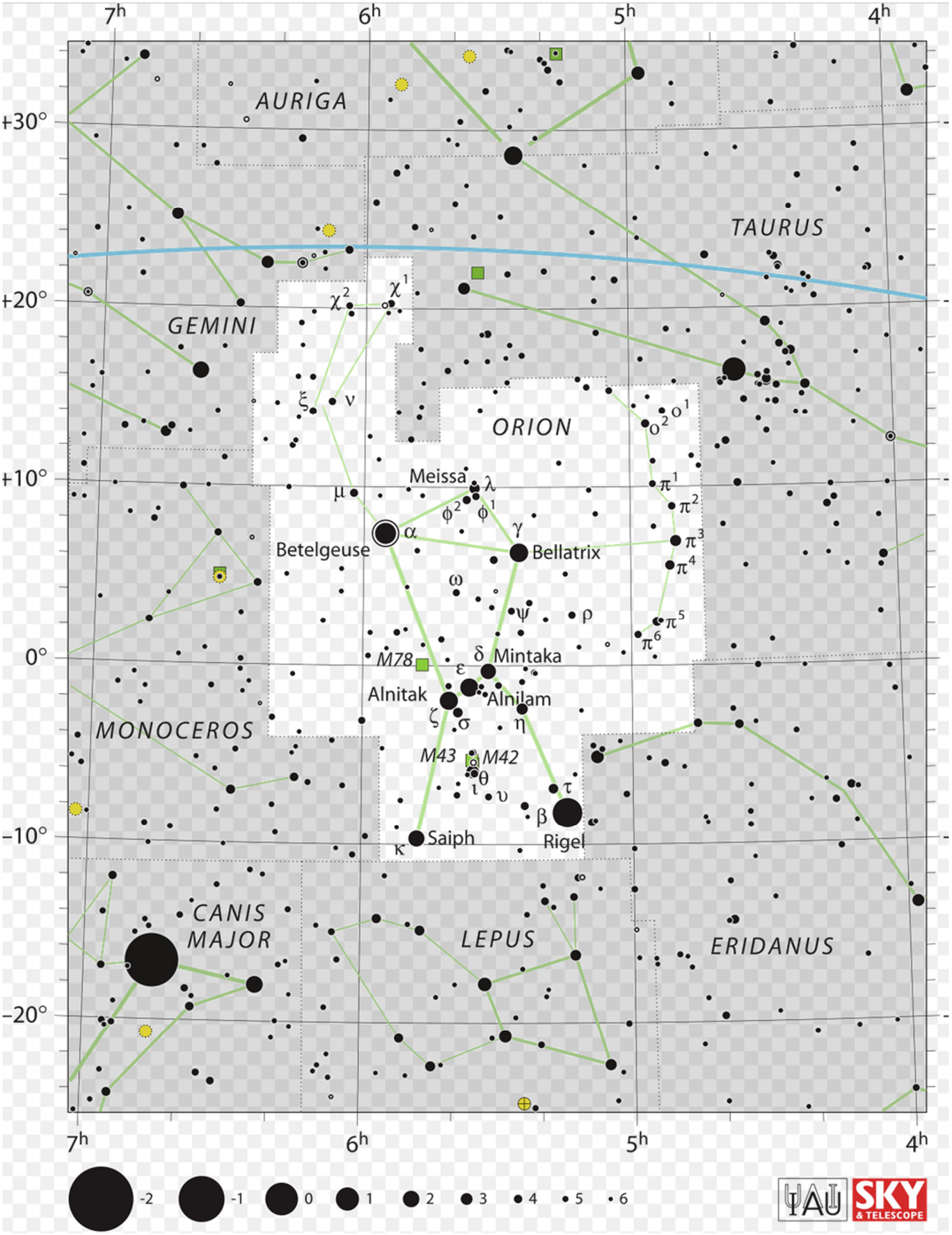




My Celestial Pick: Orion of Course

It's that time of year – winter skies, glorius winger skies! Orion is high in the sky, loaded with delights, and prime for vewing or astrophotography.

Chronicled at least 32,000 years ago, Orion has been admired by human culture…in many forms. True to man-centric history, Orion has almost always been depicted as a male, and some sort of hero, giant, patriarch, or hunter. In India however, Orion was called Mriga (The Deer) in the Rigveda, an ancient Hindu text. The ancient Polynesians called it Heiheionakeiki, say that quickly 10 times, representing something similar to a cat's cradle. With his faithful dog Canis Major near by, Orion seems to hunt, but what? Taurus the bull? No, maybe Lepus the hare. Whatever, Orion is amazing and possibly the most popular constellation. Lot's to see and photograph. Get out them binoculars, spotting scopes, telescopes, oh, and maybe those super wide angle 2-3x binos and take it all in with stunning clarity.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4h
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+20°
+10°
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−10°
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TAURUS
GEMINI
ORION
MONOCEROS
CANIS MAJOR
LEPUS
ERIDANUS
Meissa
Betelgeuse
Bellatrix
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IAU
SKY & TELESCOPE

Lagniappe

The James Webb Space Telescope – Going Beyond

It took off like a rocket on Christmas Day! Well, OK, in a rocket.

Perched inside an Ariane 5 rocket at the ESA's Spaceport in French Guiana, South America, JWST got the ride of a lifetime beginning at 6:20 a.m. CST, Christmas day no less!

As of this writing all major deployments have gone successfully, the last – unfolding its 21-foot gold plated primary mirror. Yes, a 21-foot (6.5-meter) primary mirror, made from 18 hexagonal segments of beryllium, arranged in 3 sections. The center section has 12 mirrors, and the other six mirrors are in two "wings" that fold around and back against the center section. This had to be done to get this monster fitted in the rocket.

Another monster is the sunshield – as large as a tennis court, in 5 layers. It will protect JWST from the Sun's and Earth's infrared radiation. Why? Good question.

Unlike Hubble, JWST is primarily an infrared sensing telescope whereas Hubble is primarily a visible light telescope. Hubble can be close to Earth because it sees objects mostly as we do, in visible light. All it needs is a shade to block glare and stray light. It can do only limited infrared imaging. JWST is an infrared specialist so any heat, even Earth's heat will interfere with its mission, so it will end up nearly a million miles farther from the Sun than Earth. It will occupy a solar orbital position called L2 (Lagrange 2), where the Sun and Earth's gravitational influences are in equilibrium, kind of a gravity hole where JWST can ride steadily without having to expend much energy of its own.

JWST's large mirror and infrared capabilities will give astronomers a way better view of our Milky Way galaxy's core, the early universe, brown dwarfs, exoplanets, all the cooler objects visible light telescopes just cannot see. Infrared light passes through the interstellar medium and dust while visible light gets absorbed. The earliest (and most distant) galaxies are receding away faster and faster from us due to the universe's continued expansion. This causes the light from them to be what's called red-shifted, into the infrared, so JWST will be able to see and study them, where Hubble and other visible light telescopes just cannot.

The downside? JWST must be kept super cold – below -369.7 ºF. Hence the large heat shield. The shield is in five layers, each the thickness of a human hair, made from Kapton E, a polyimide from Dupont, coated with aluminum, and a layer of doped silicon on the Sun facing side.

Currently JWST is doing system checks and mirror alignment as it heads toward L2. You go JWST!

-Eric Erickson