Thaxted Astronomical Society

SIGs

Observing The Night Sky With Your Naked Eye

Introduction

SG0000

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Knowledge
Based
Introduction
To All Aspects
Associated With The Night Sky

The Moon
Constellations
Meteors / Comets / Asteroids
Satellites / ISS

Spot The Planets
Mercury
Venus
Mars
Jupiter
Saturn

Naked Eye
Enhanced Details

Craters Of The Moon
Lunar 100

Stars
Nebula
Galaxy's

Binocular
Enhanced Details

Details
Lunar 100

Neptune
Uranus
Pluto

Deep Space

Catalogues
Caldwell
Messier

x

How many objects can you see in the night sky with a naked eye?

In the best sky conditions, the naked eye (with exceptional effort) can see objects with an apparent magnitude of 8.0.

This reveals about 43,197 objects in the sky.

This includes 9 Galaxy's and 13 Nebulae's

https://www.omegon.eu/advice/telescope/telescope-knowledge/tips-for-observation-with-the-naked-eye/c,8683

How many stars in the sky can you see from a pitch black sky?

Dorrit Hoffleit of Yale University,, compiled the Yale Bright Star Catalog decades ago. It tabulates every star visible from Earth to magnitude 6.5, the naked eye limit for most of humanity.

The total comes to 9,096 stars visible across the entire sky. Both hemispheres.

Since we can only see half the celestial sphere at any moment, we necessarily divide that number by two to arrive at approximately 4,548 stars at any one time (give or take depending on the season).

And that's from the darkest sky you can imagine..

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What Can You Actually See In The Night Sky… From Thaxted… ???

Typically >

- The Moon
- Satellites
- The ISS
- Starlink
- Planets
- Stars
- Constellations
- Asterisms
- Meteor Showers
- Nebulas
- Galaxy's

Do You Want To Know More?

Introduction To Observing The Night Sky >

https://www.omegon.eu/advice/telescope/telescope-knowledge/tips-for-observation-with-the-naked-eye/c,8683

Observing > For basic beginners >

Before you even start thinking about buying a telescope, you should first try having some fun observing the night sky with just your eyes.

There is the whole starry sky out there to see.

Get yourself a rotatable star map (planisphere), you can use this to easily identify all the individual constellations currently visible.

It not only shows you the night sky at any time, day or night all year round, but also shows you the position of the sun, the ecliptic (for planetary positions), sunrise and sunset times and much more.

Then.. get to know the constellations in the night sky…

This is a prerequisite for subsequently being able to find the other astronomical objects that you may want to observe later using a telescope.

The Moon

https://en.wikipedia.org/wiki/Moon

Background >

The Moon is an astronomical body that orbits the Earth as its only permanent natural satellite.

It is the fifth-largest satellite in the Solar System, and the largest among planetary satellites relative to the size of the planet that it orbits (its primary).

The Moon is, after Jupiter's satellite Io, the second-densest satellite in the Solar System among those whose densities are known.

The Moon is thought to have formed about 4.51 billion years ago, not long after Earth.

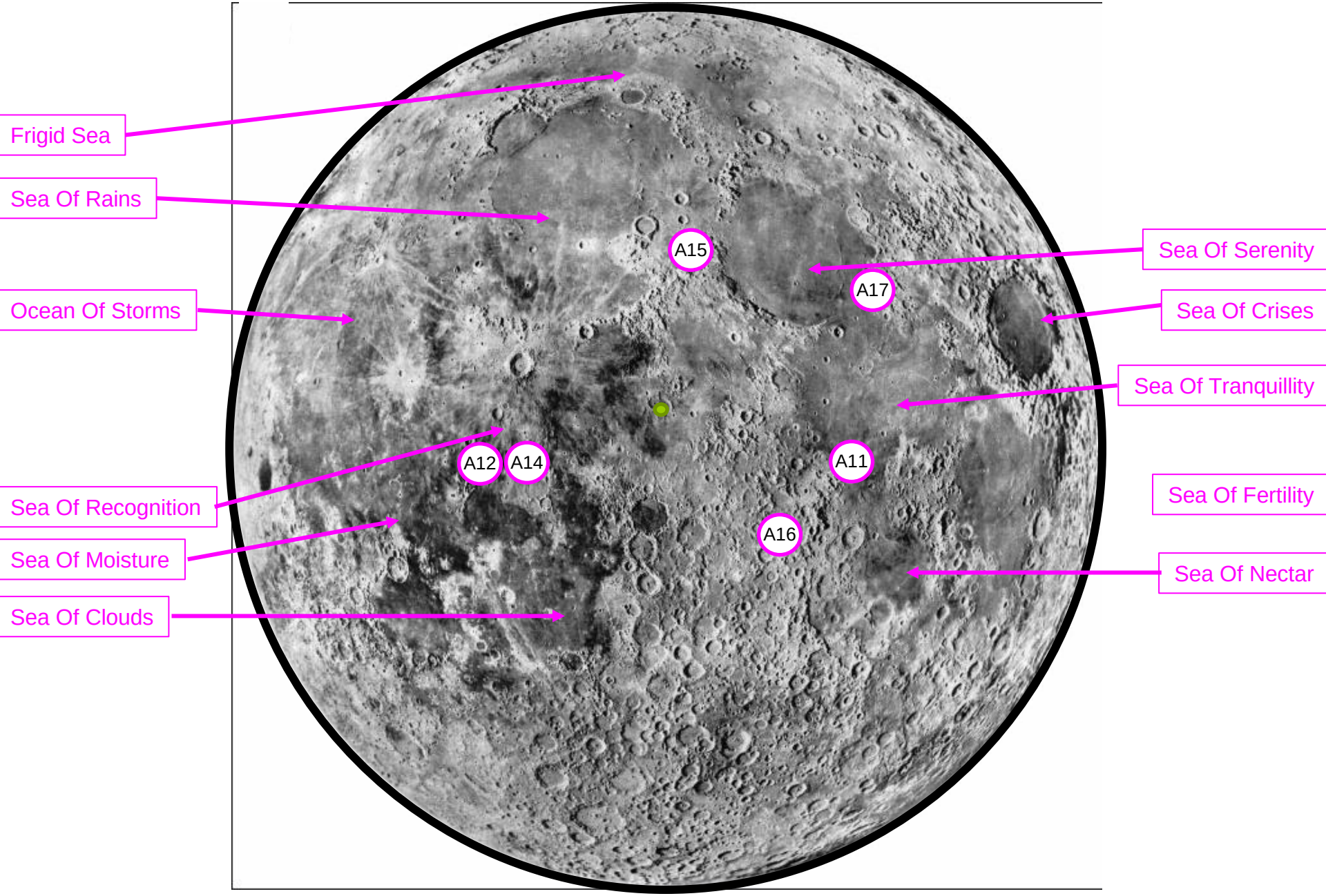
The Moon is in synchronous rotation with Earth, and thus always shows the same side to Earth, the near side.

The near side is marked by dark volcanic maria that fill the spaces between the bright ancient crustal highlands and the prominent impact craters.

After the Sun, the Moon is the second-brightest regularly visible celestial object in Earth's sky.

Its surface is actually dark, although compared to the night sky it appears very bright, with a reflectance just slightly higher than that of worn asphalt.

Its gravitational influence produces the ocean tides, body tides, and the slight lengthening of the day.


Frigid Sea
Sea Of Rains
Ocean Of Storms
Sea Of Recognition
Sea Of Moisture
Sea Of Clouds
Sea Of Serenity
Sea Of Crises
Sea Of Tranquillity
Sea Of Fertility
Sea Of Nectar
A15
A17
A12
A14
A11
A16

Satellites

https://aerosavvy.com/satellite-spotting/#:~:text=The%20best%20time%20to%20spot,%E2%80%93%20Grab%20A%20Seat%20%26%20Enjoy!

The Savvy Satellite Spotting Guide >

How To Spot Satellites

Satellites don't have exterior lights. Even if they did, the lights wouldn't be bright enough to see from the ground.

When you spot a satellite, you are actually seeing reflected sunlight.

The ISS has a huge array of reflective solar panels that reflect a lot of sunlight, making it easy to see.

Unless you are spotting the super bright ISS, you need to be away from city lights.

Head out to the country.

The best time to spot satellites is just after dark or before dawn when the sun is a few degrees below the horizon.

During the middle of the night, the earth blocks the sun from the satellites as they pass overhead making them invisible.

TAS > SIG > Satellite's >

https://www.heavens-above.com/main.aspx

User:	anonymous Login
Location:	Thaxted (51.9546°N, 0.3429°E)
Time:	21:44:33 (UTC+01:00)
Language:	English

The Savvy Satellite Spotting Guide >

App > Heavens Above > Viewing predictions for dozens of satellites and Iridium Flares.

Starlink G4-19 launched successfully at Kennedy Space Center. Get predictions

Configuration

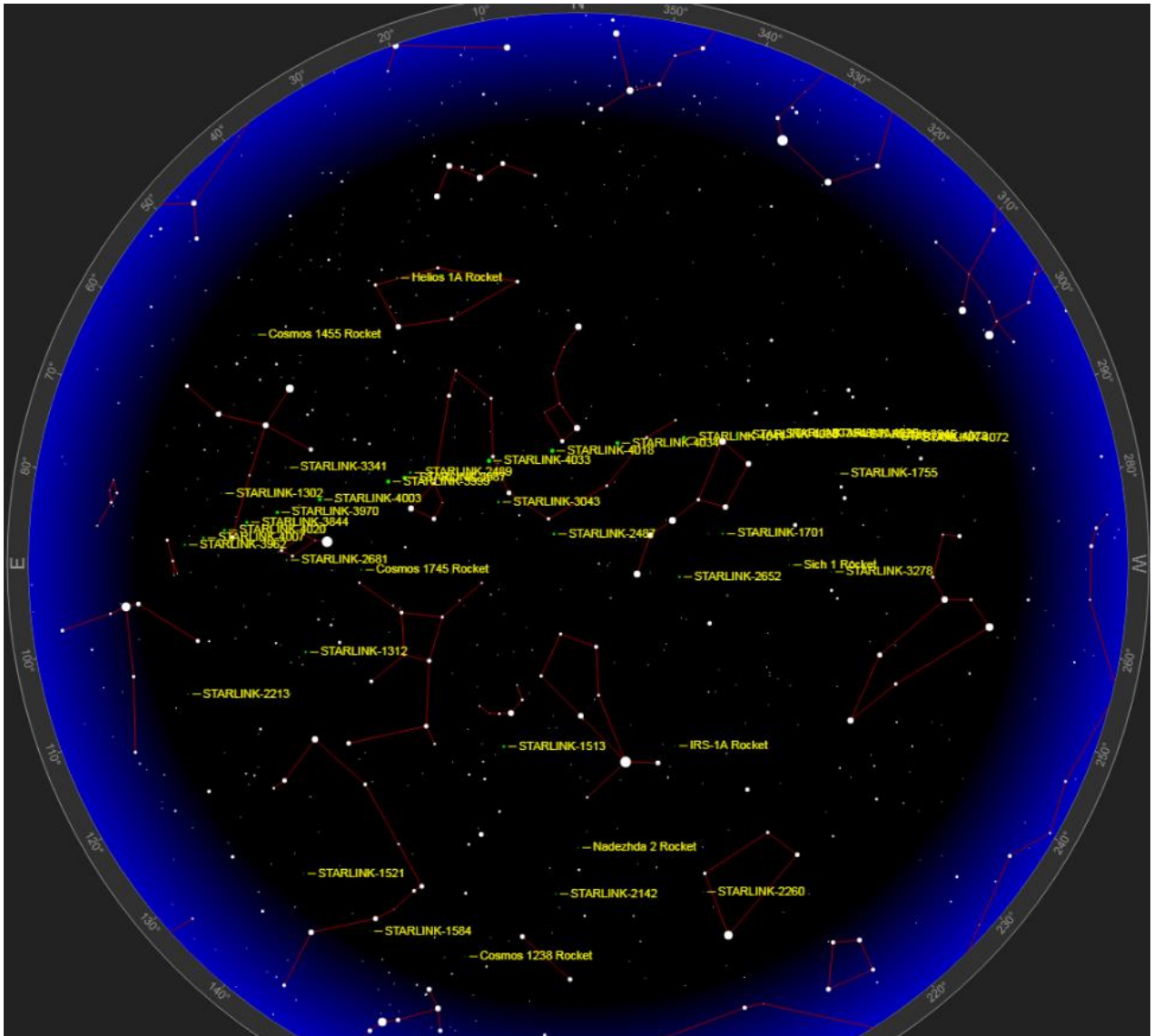
- Login (optional)
- Change your observing location

Satellites

- Live sky view
- Starlink - dynamic 3D orbit display
- ISS Interactive 3D Visualization
- Interactive Animation of Tesla Roadster Trajectory
- 10-day predictions for satellites of special interest
  - ISS
  - Tiangong
  - Starlink passes for all objects from a launch
  - X-37B
  - N. Korean satellite
  - Hubble Space Telescope
  - Envisat
- Daily predictions for brighter satellites
- Satellite database
- Spacecraft escaping the Solar System
- Amateur Radio Satellites - All Passes
- Height of the ISS

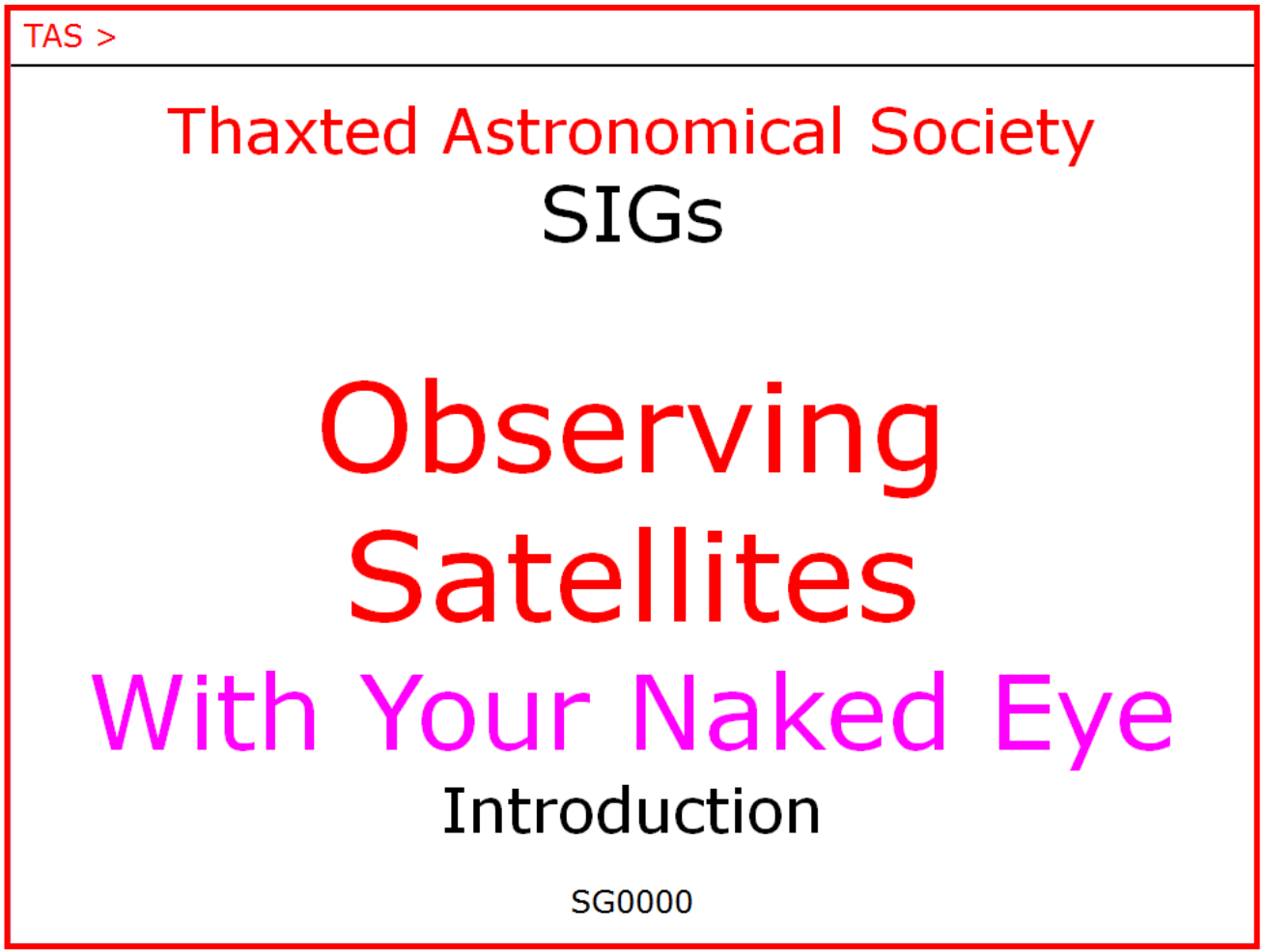
Astronomy

- Solar Eclipses
- Interactive sky chart
- Sky chart (old version)
- Sun
- Moon
- Planets
- Solar system chart
- Comets
- Asteroids
- Constellations



Do You Want To Know More?

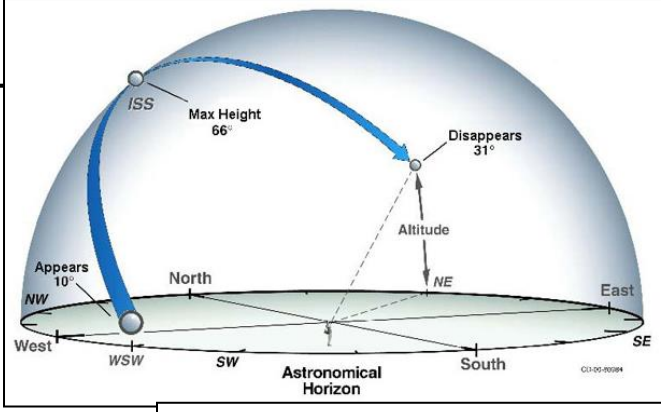
Introduction To Observing Satellites >



The ISS

https://spotthestation.nasa.gov/sightings/

ISS Viewing Times



UK > England > Cambridge

The following ISS sightings are possible from >

Date	Visible	Duration	Height	Appears	Disappears
Sat Oct 2,	8:08 PM	5 min	26°	10° above W	17° above SSE

The following ISS sightings are possible from from Friday Apr 29, 2022 through Saturday May 14,

Date	Visible	Max Height*	Appears	Disappears	Share Event
Example >					
Thu May 19, 10:20 PM		7 min	84°	10° above W	10° above E Fa

Time: Wed Apr 25 7:45 PM, **Visible**: 4 min, **Max Height**: 66 degrees, **Appears**: WSW, **Disappears** NE. ”

Time is when the sighting opportunity will begin in your local time zone. All sightings will occur within a few hours before or after sunrise or sunset. This is the optimum viewing period as the sun reflects off the space station and contrasts against the darker sky.

Visible is the maximum time period the space station is visible before crossing back below the horizon.

Max Height is measured in degrees (also known as elevation). It represents the height of the space station from the horizon in the night sky. The horizon is at zero degrees, and directly overhead is ninety degrees. If you hold your fist at arm’s length and place your fist resting on the horizon, the top will be about 10 degrees.

Appears is the location in the sky where the station will be visible first. This value, like maximum height, also is measured in degrees from the horizon. The letters represent compass directions -- N is north, WNW is west by northwest, and so on.

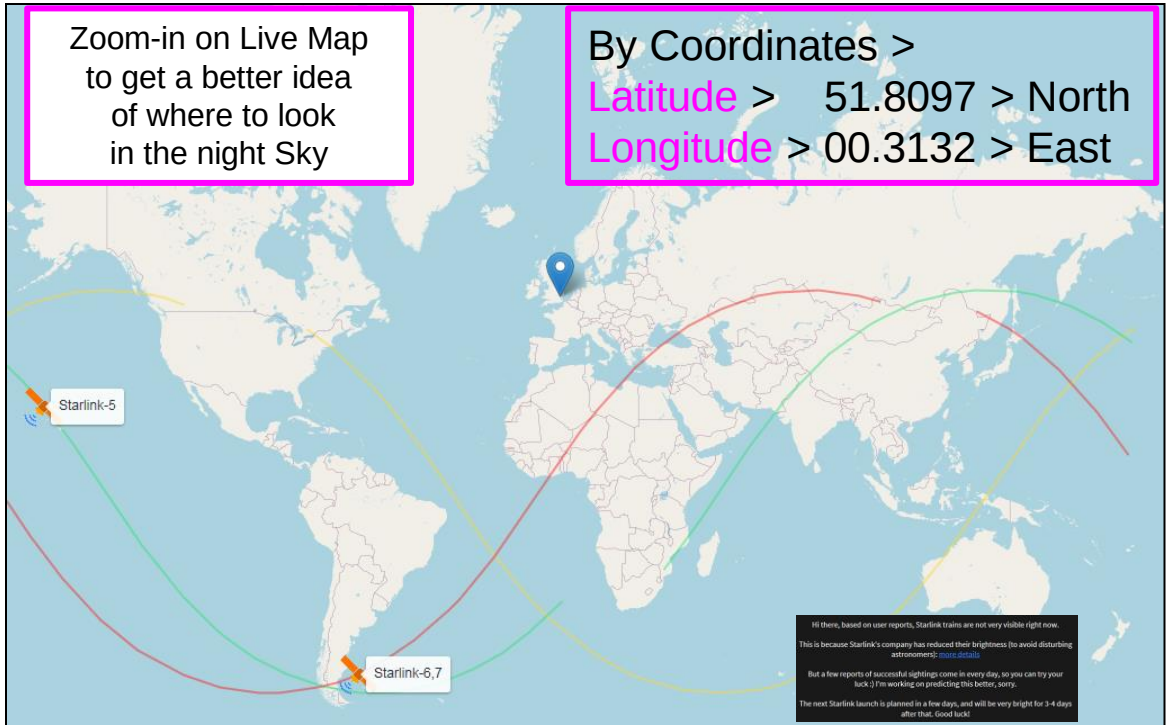
Disappears represents where in the night sky the International Space Station will leave your field of view.

The Starlink

https://findstarlink.com/

Starlink Viewing Times >

Please Keep Checking the
Web Site for the Latest Data..



Web Links

SpaceX

Starlink
Viewing Times

Planets

https://en.wikipedia.org/wiki/Solar_System

The Solar System >

The Solar System is the gravitationally bound system of our local star, the Sun, and the objects that orbit it, either directly or indirectly.

Of the objects that orbit the Sun directly, the largest are the eight planets, with the remainder being smaller objects, such as the five dwarf planets and small Solar System bodies.

Of the objects that orbit the Sun indirectly—the moons—two are larger than the smallest planet, Mercury.

The Solar System formed 4.6 billion years ago from the gravitational collapse of a giant interstellar molecular cloud. The vast majority of the system's mass is in the Sun, with the majority of the remaining mass contained in Jupiter.

The four smaller inner planets, Mercury, Venus, Earth and Mars, are terrestrial planets, being primarily composed of rock and metal.

The four outer planets are giant planets, being substantially more massive than the terrestrials.

The two largest, Jupiter and Saturn, are gas giants, being composed mainly of hydrogen and helium;

The two outermost planets, Uranus and Neptune, are ice giants, being composed mostly of substances with relatively high melting points compared with hydrogen and helium, called volatiles, such as water, ammonia and methane.

All eight planets have almost circular orbits that lie within a nearly flat disc called the ecliptic

https://www.omegon.eu/advice/telescope/telescope-knowledge/tips-for-observation-with-the-naked-eye/c,8683

How many Planets can you see in the night sky with a naked eye?

Mercury

Venus

Mars

Jupiter

Saturn.

To gain an indication of what stars are visible on any given day or time.. Check out the relevant Sky Chart…

https://www.space.com/39231-top-skywatching-events-this-year.html

June > Five Planets Align >

During the last two weeks of June 2022 all five naked-eye planets will be visible simultaneously, arrayed in a line that will span the eastern and southeastern morning twilight sky

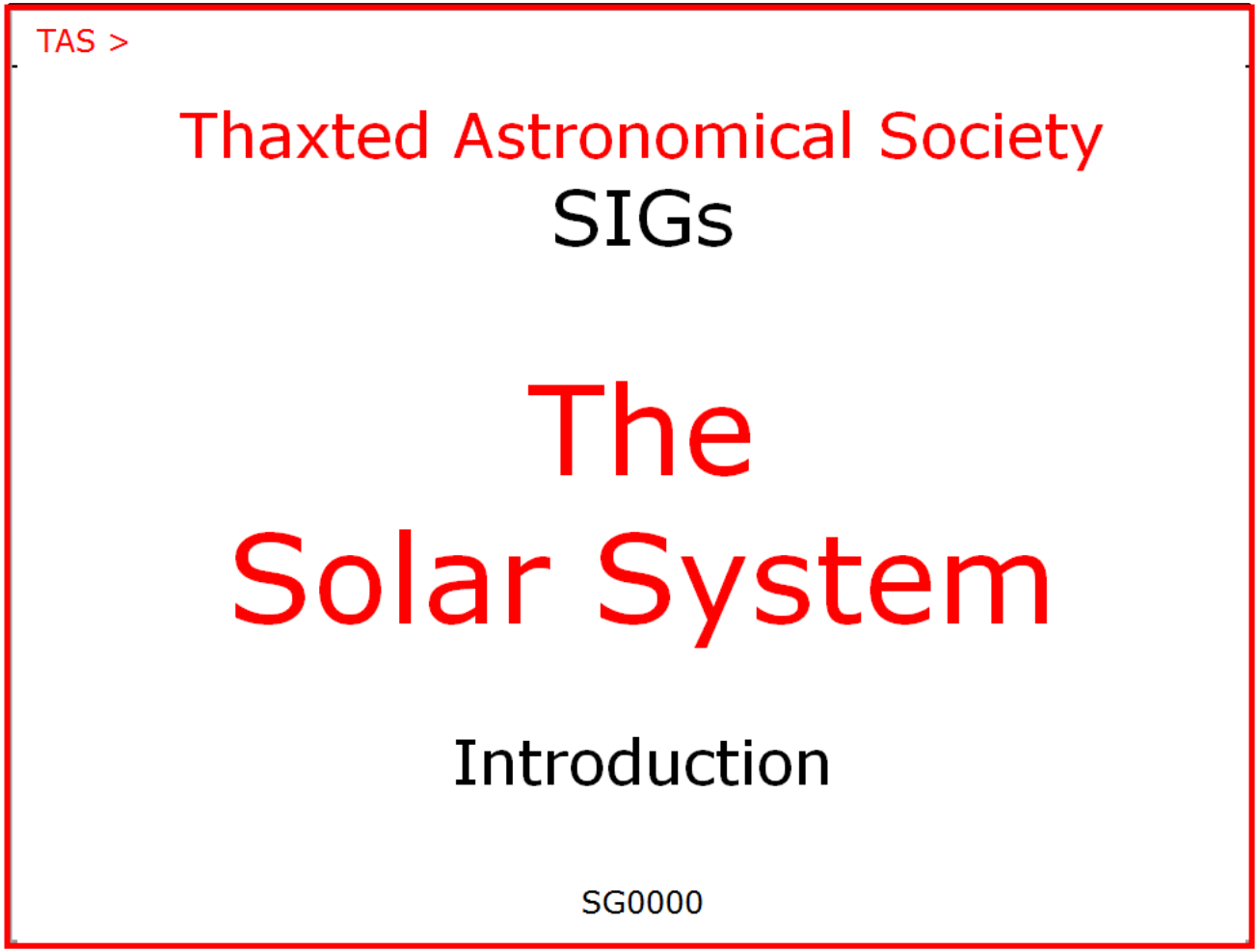
What is even more amazing is that they will all be aligned in their correct order out from the sun > Mercury, Venus, Mars, Jupiter and Saturn.

And the moon, waning from a gibbous to a slender crescent phase, will pay a visit to each planet on specific mornings >

Saturn > June 18
Jupiter > June 21
Mars > June 22
Venus > June 26
Mercury > June 27.

Do You Want To Know More?

Introduction To The Solar System >



Stars

Description Of A Star >

A star is an astronomical object consisting of a luminous spheroid of plasma held together by its own gravity.

The nearest star to Earth is the Sun.

Many other stars are visible to the naked eye from Earth during the night, appearing as a multitude of fixed luminous points in the sky due to their immense distance from Earth.

Historically, the most prominent stars were grouped into constellations and asterisms, the brightest of which gained proper names.

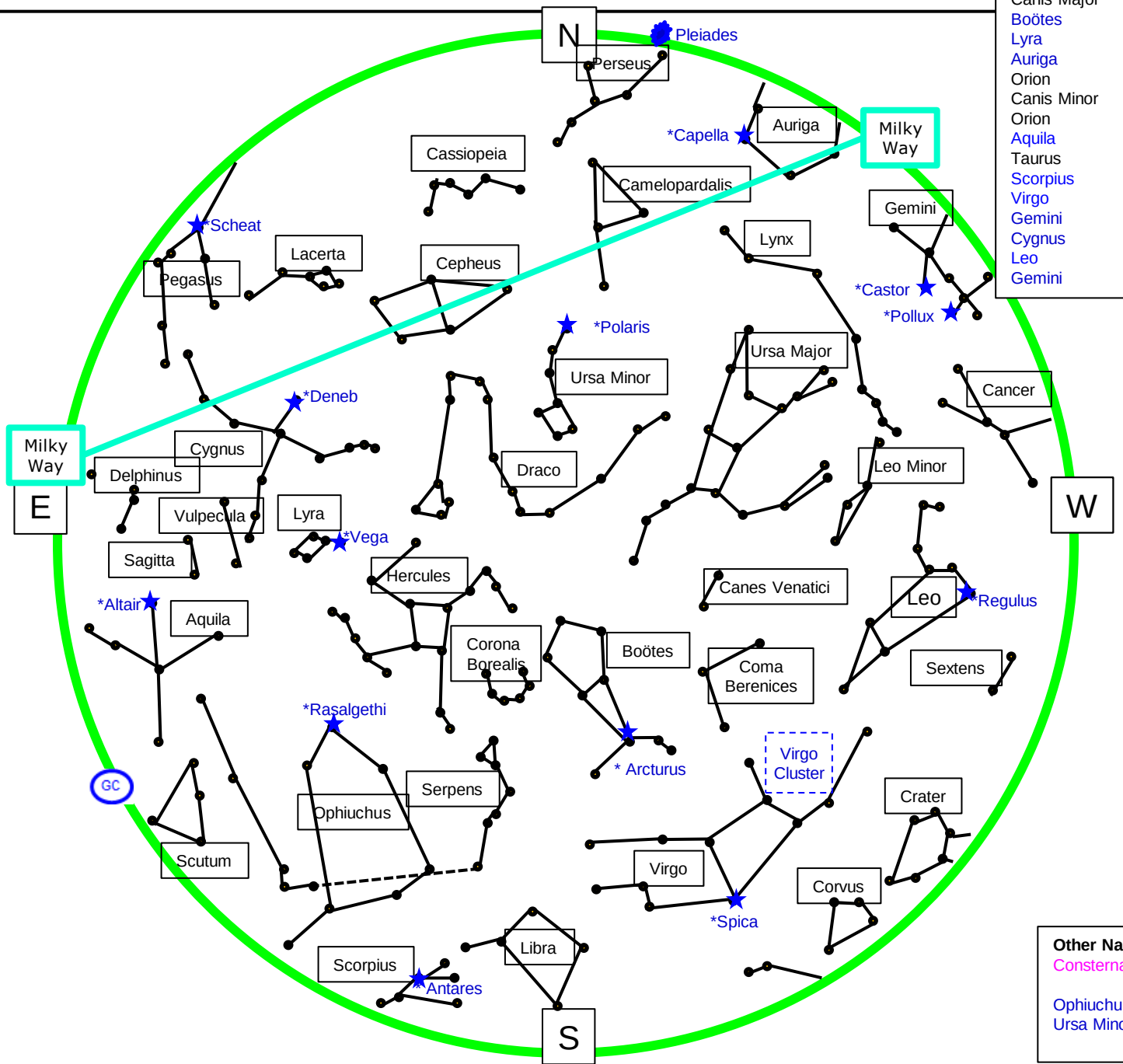
Astronomers have assembled star catalogues that identify the known stars and provide standardized stellar designations.

The observable Universe contains an estimated 1×1024 stars, but most are invisible to the naked eye from Earth, including all stars outside our galaxy, the Milky Way.

To gain an indication of what stars are visible on any given day.. Check out the relevant Sky Chart…

TAS > Night Sky Chart > JUL > EarlyMonth > 2000H > 2022

01 > Andromeda
04> Aquarius
05 > Aquila
07 > Aries
08 > Auriga
09 > Boötes
11 > Camelopardalis
12 > Cancer
13 > Canes Venatici
14 > Canis Major
15 > Canis Minor
16 > Capricornus
18 > Cassiopeia
20 > Cepheus
21 > Cetus
25 > Coma Berenices
27 > Corona Borealis
28 > Corvus
29 > Crater
31 > Cygnus
32 > Delphinus
34 > Draco
35 > Equuleus
36 > Eridanus
38 > Gemini
40 > Hercules
42 > Hydra
45 > Lacerta
46 > Leo
47 > Leo Minor
48 > Lepus
49 > Libra
51 > Lynx
52 > Lyra
55 > Monoceros
59 > Ophiuchus
60 > Orion
62 > Pegasus
63 > Perseus
66 > Pisces
71 > Sagitta
72 > Sagittarius
73 > Scorpius
75 > Scutum
76 > Serpens
77 > Sextens
78 > Taurus
81 > Triangulum
83 > Ursa Major
84 > Ursa Minor
86 > Virgo
88 > Vulpecula



Bight Stars >

Consternation	Name	ApMg
Canis Major	Sirius	> -1.46
Boötes	Arcturus	> -0.04
Lyra	Vega	> 0.03
Auriga	Capella	> 0.08
Orion	Rigel	> 0.12
Canis Minor	Procyon	> 0.38
Orion	Betelgeuse	> 0.50
Aquila	Altair	> 0.77
Taurus	Aldebaran	> 0.85
Scorpius	Antares	> 0.96
Virgo	Spica	> 0.98
Gemini	Pollux	> 1.14
Cygnus	Deneb	> 1.25
Leo	Regulus	> 1.35
Gemini	Castor	> 1.57

Planets On View > P

Mercury
Venus
Mars
Jupiter
Saturn
Uranus
Neptune
Pluto

P

Other Named Stars >

Consternation	Name
Ophiuchus	Rassalgethi
Ursa Minor	Polaris

Do You Want To Know More?

Introduction To Stars >

Constellations

A constellation is a group of stars that forms an imaginary outline or pattern on the celestial sphere, typically representing an animal, mythological person or creature, a god, or an inanimate object

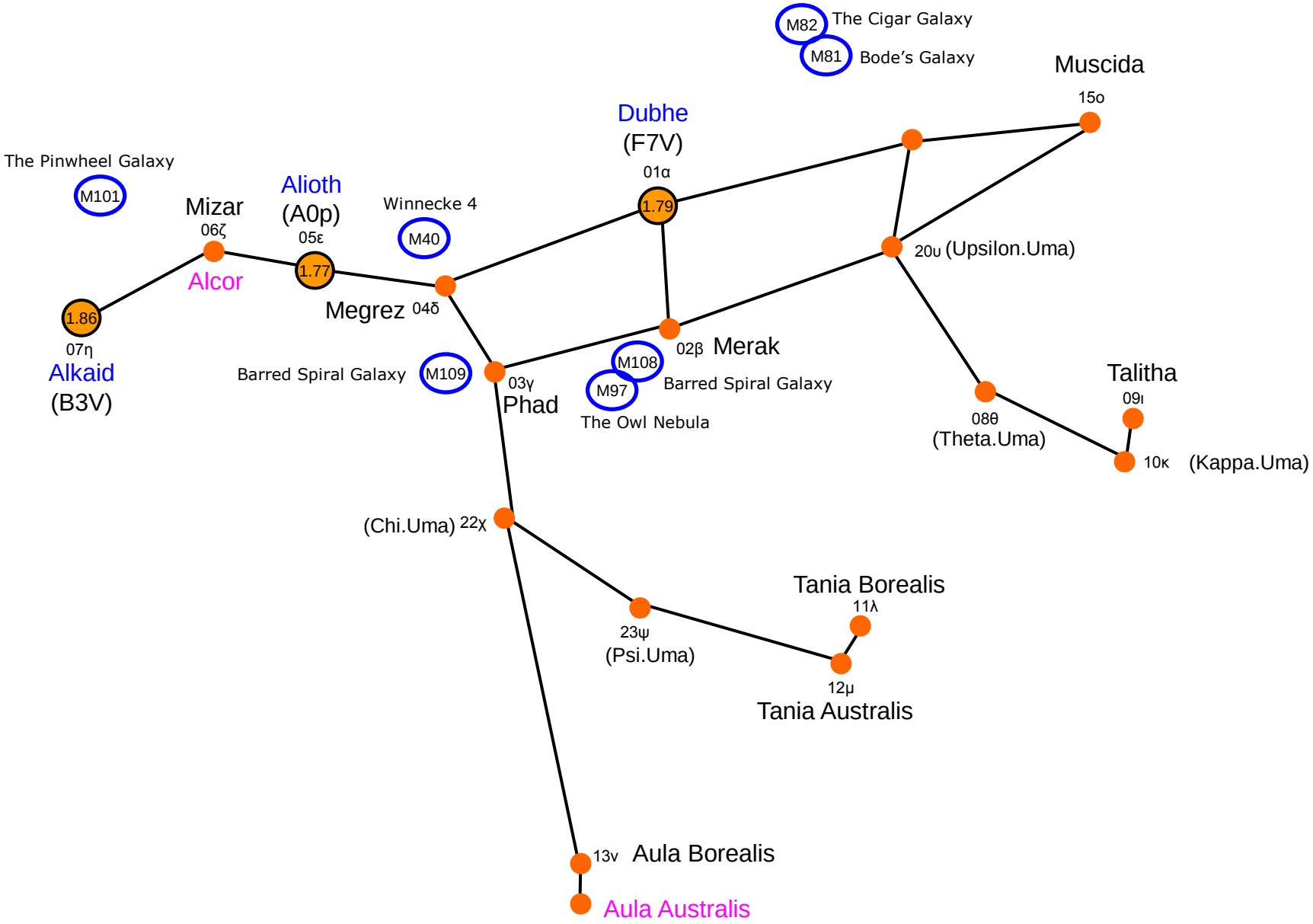
The origins of the earliest constellations likely go back to prehistory. People used them to relate stories of their beliefs, experiences, creation, or mythology. Different cultures and countries adopted their own constellations, some of which lasted into the early 20th century before today's constellations were internationally recognized

In 1922, the International Astronomical Union (IAU) formally accepted the modern list of 88 constellations, and in 1928 adopted official constellation boundaries that together cover the entire celestial sphere. Any given point in a celestial coordinate system lies in one of the modern constellations

Historically, the origins of the constellations of the northern and southern skies are distinctly different.

The Most northern Sky constellations are based on the traditional Greek constellations listed by Ptolemy in his Almagest in the 2nd century and Aratus' work Phenomena, with early modern modifications and additions

Southern Sky constellations are more modern inventions, sometimes as substitutes for ancient constellations (e.g. Argo Navis). Some southern constellations had long names that were shortened to more usable forms; e.g. Musca Australis became simply Musca


M82
The Cigar Galaxy
M81
Bode's Galaxy
Muscida
15o
Dubhe
(F7V)
01α
1.79
The Pinwheel Galaxy
M101
Mizar
06ζ
Alcor
Alioth
(A0p)
05ε
1.77
Winnecke 4
M40
20υ (Upsilon.Uma)
1.86
07η
Alkaid
(B3V)
Megrez 04δ
02β Merak
Barred Spiral Galaxy
M109
03γ
Phad
M108
M97
Barred Spiral Galaxy
The Owl Nebula
Talitha
09ι
08θ
(Theta.Uma)
10κ
(Kappa.Uma)
(Chi.Uma) 22χ
Tania Borealis
11λ
23ψ
(Psi.Uma)
12μ
Tania Australis
13ν
Aula Borealis
Aula Australis

TAS > Night Sky Chart > JUL > EarlyMonth > 2000H > 2022

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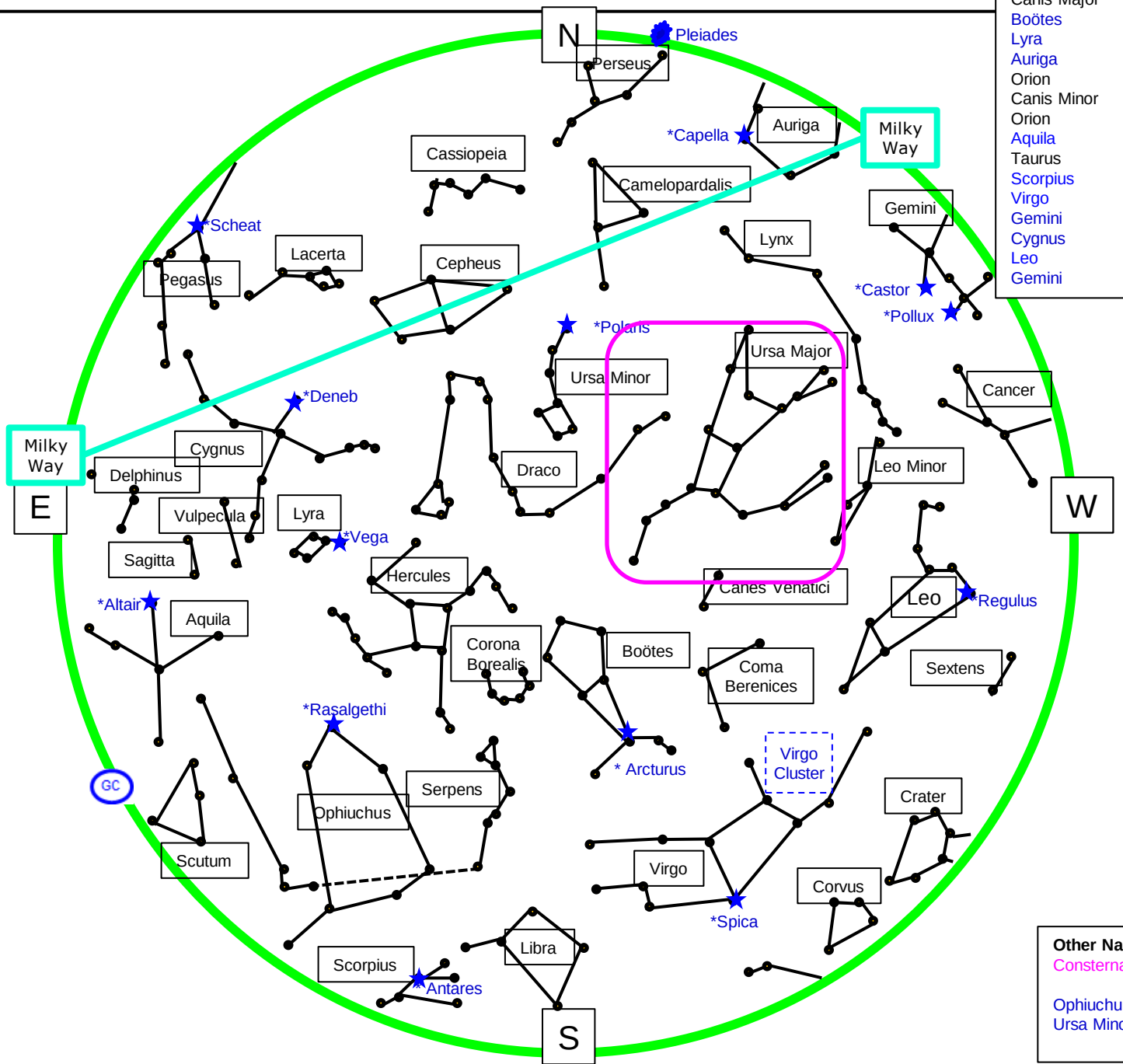

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Cygnus	Deneb	> 1.25
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Gemini	Castor	> 1.57

Planets On View > P

Mercury
Venus
Mars
Jupiter
Saturn
Uranus
Neptune
Pluto

P

Other Named Stars >

Consternation	Name
Ophiuchus	Rassalgethi
Ursa Minor	Polaris

Constellations Visible From Thaxted > 52 fm 88

09 > Northern Circumpolar
12 > Zodiac
31 > Northern and Southern

36 > Constellations Not Visible From Thaxted

01 NQ1	Andromeda
02 SQ2	Antlia
03 SQ3	Apus
04 SQ4	Aquarius
05 NQ4	Aquila
06 SQ3	Ara
07 NQ1	Aries
08 NQ2	Auriga
09 NQ3	Boötes
10 SQ1	Caelum
11 NQ2	Camelopardalis
12 NQ2	Cancer
13 NQ3	Canes Venatici
14 SQ2	Canis Major
15 NQ2	Canis Minor
16 SQ4	Capricornus
17 SQ2	Carina
18 NQ1	Cassiopeia
19 SQ3	Centaurus
20 NQ4	Cepheus
21 SQ1	Cetus
22 SQ2	Chamaeleon
23 SQ3	Circinus
24 SQ1	Columba
25 NQ3	Coma Berenices
26 SQ4	Corona Australis
27 NQ3	Corona Borealis
28 SQ3	Corvus
29 SQ2	Crater
30 SQ3	Crux
31 NQ4	Cygnus
32 NQ4	Delphinus
33 SQ1	Dorado
34 NQ3	Draco
35 NQ4	Equuleus
36 SQ1	Eridanus
37 SQ1	Fornax
38 NQ2	Gemini
39 SQ4	Grus
40 NQ3	Hercules
41 SQ1	Horologium
42 SQ2	Hydra
43 SQ1	Hydrus
44 SQ4	Indus
45 NQ4	Lacerta
46 NQ2	Leo
47 NQ2	Leo Minor
48 SQ1	Lepus
49 SQ3	Libra
50 SQ3	Lupus
51 NQ2	Lynx
52 NQ4	Lyra
53 SQ1	Mensa
54 SQ4	Microscopium
55 NQ2	Monoceros
56 SQ3	Musca
57 SQ3	Norma
58 SQ4	Octans
59 SQ3	Ophiuchus
60 NQ1	Orion
61 SQ4	Pavo
62 NQ4	Pegasus
63 NQ1	Perseus
64 SQ1	Phoenix
65 SQ1	Pictor
66 NQ1	Pisces
67 SQ4	Piscis Austrinus
68 SQ2	Puppis
69 SQ2	Pyxis
70 SQ1	Reticulum
71 NQ4	Sagitta
72 SQ4	Sagittarius
73 SQ3	Scorpius
74 SQ1	Sculptor
75 SQ4	Scutum
76 NQ3	Serpens
77 SQ2	Sextans
78 NQ1	Taurus
79 SQ4	Telescopium
80 SQ3	Triangulum Australe
81 NQ1	Triangulum
82 SQ4	Tucana
83 NQ2	Ursa Major
84 NQ3	Ursa Minor
85 SQ2	Vela
86 SQ3	Virgo
87 SQ2	Volans
88 NQ4	Vulpecula

Do You Want To Know More?

Introduction To Constellations >

Do You Want To Know More?

Constellation Guides >

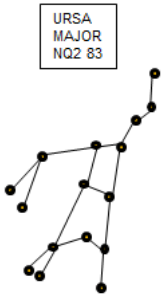
TAS >

Thaxted Astronomical Society

SIGs

Constellations

Ursa Major



Introduction

83

SC0083

NQ2

Asterisms

https://en.wikipedia.org/wiki/Asterism_(astronomy)

In observational astronomy, an asterism is a pattern or group of stars that can be seen in the night sky.

Asterisms range from simple shapes of just a few stars to more complex collections of many stars covering large portions of the sky.

The stars themselves may be bright naked-eye objects or fainter, even telescopic, but they are generally all of a similar brightness to each other.

The larger brighter asterisms are useful for people who are familiarizing themselves with the night sky.

For example, the asterism known as the Big Dipper comprises the seven brightest stars in the constellation Ursa Major.

The stars within an asterism may be physically associated, for example, the stars of Orion's Belt are all members of the Orion OB1 association,

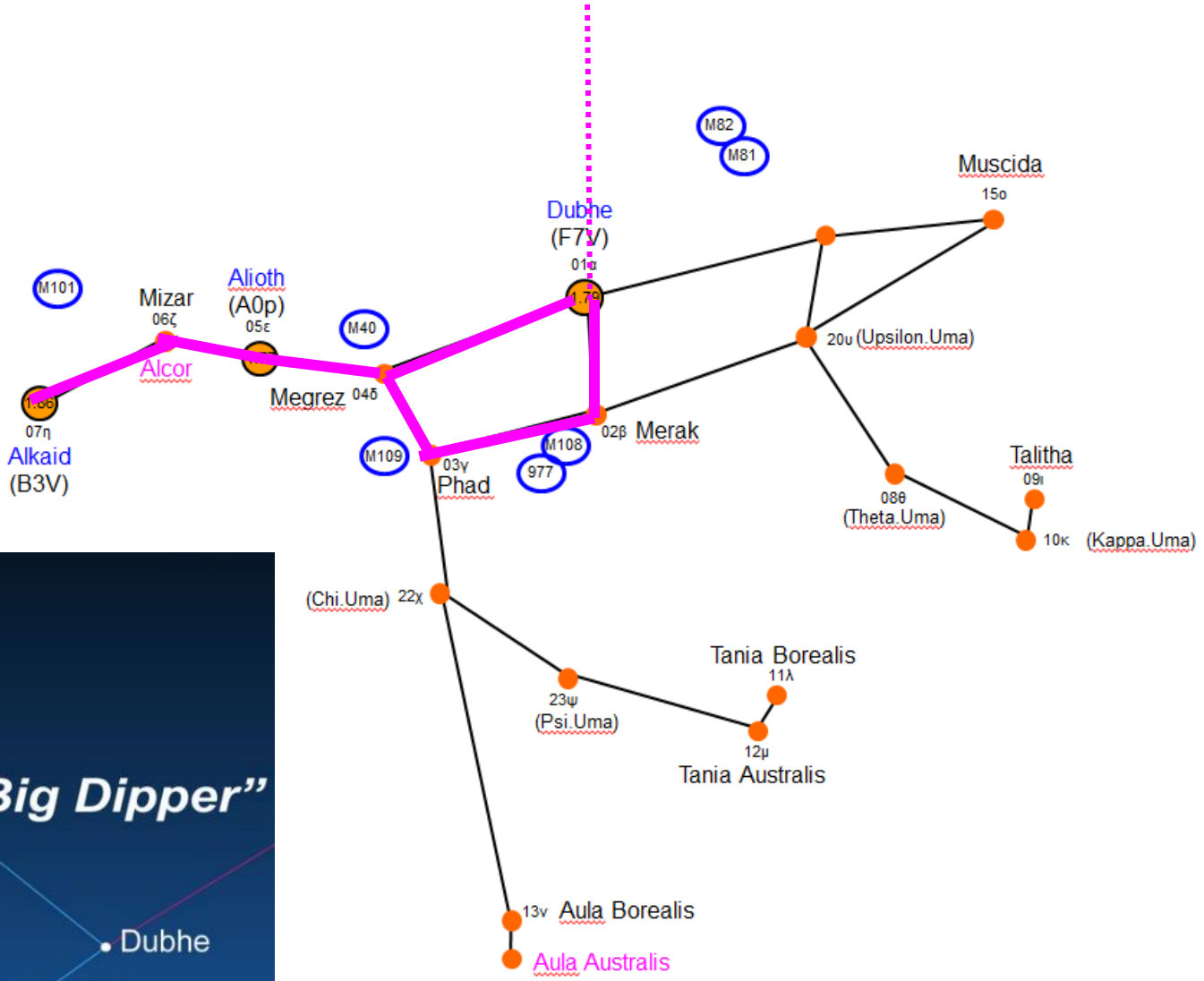
In other cases, the stars are unrelated, such as in the Summer Triangle.

The 88 constellations into which the sky is divided are based on asterisms, however, they are formally defined regions of sky, and contain all the celestial objects within their boundaries.

Asterisms do not have officially determined boundaries and are a more general concept which may refer to any identified pattern of stars

https://en.wikipedia.org/wiki/Asterism_(astronomy)

The Big Dipper, also known as The Plough or Charles's Wain, is composed of the seven brightest stars in Constellation Ursa Major. These stars delineate the Bear's hindquarters and exaggerated tail, or alternatively, the "handle" forming the upper outline of the bear's head and neck.



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Best Known Asterisms > ABC By > Northern > Within (56) / Across (7) Consternations = Total 63

Beehive
Bier
Big Dipper
Boomerang
Broken Engagement Ring
Bull of Poniatowski
Butterfly
Christmas Tree
Circlet of Pisces
Coat Hanger
Davis' Dog
Draco Dagger
Eastern Fish
Engagement Ring
Fish Hook
Frederick's Glory
Golf Ball
Golf Putter
Great Square Of Pegasus
Guardians of the Pole
Head of Cetus
Herman's Cross
Home Plate
Hyades
Hydra Head
Ice Cream Cone
Jobs Coffin
Kembles Cascade
Keystone
Kids
LE 37
Little Dipper
Lozenge
Milk Dipper
Napoleons Hat
Northern Cross
Northern Fly
Orion's Belt
Orion's Saucepan
Orion's Sword
Pointer Stars North
Queen W
Ring Of The Nibelungen
Segment of Perseus
Sickle Of Leo
Star Gun
Stick Man
Teapot
Teaspoon
Terebellum
Thaxted Morris Dancer
Three Steps The Gazelle
V Of Aquarius
Venus Mirror
Water Jar
Western Fish

Great Diamond
Heavenly G
Lightning Bolt
Spring Triangle
Summer Triangle
Winter Hexagon
Winter Triangle

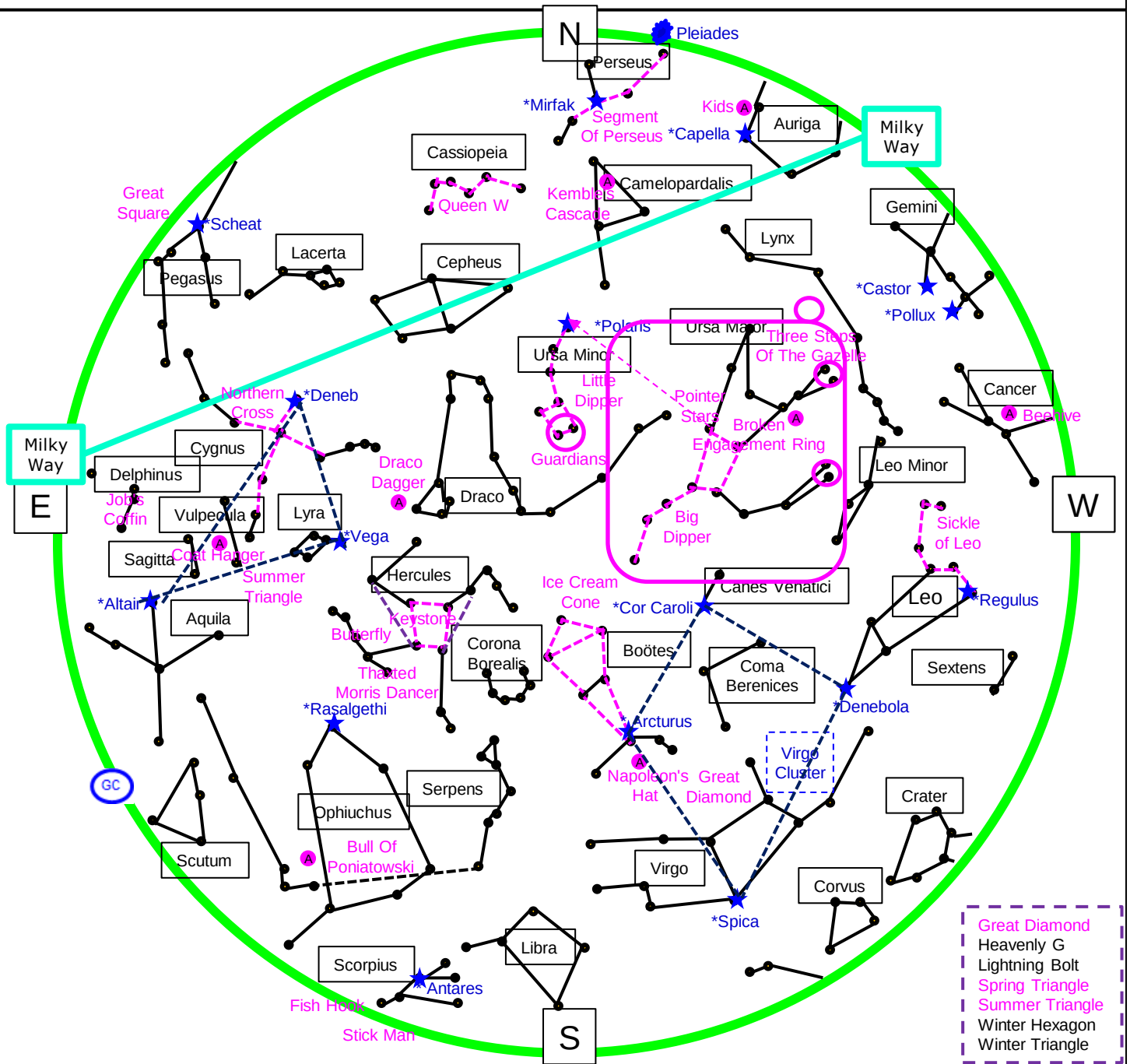
x

Best Known Asterisms ABC By > Northern > Within (56) > By Consternation

Andromeda	Frederick's Glory	Orion	LE 37
Andromeda	Golf Ball	Orion	Orion's Belt
Andromeda	Golf Putter	Orion	Orion's Saucepan
Andromeda	Home Plate	Orion	Orion's Sword
Aquarius	V Of Aquarius	Orion	Venus Mirror
Aquarius	Water Jar	Pegasus	Great Square Of Pegasus
Aries	Northern Fly	Perseus	Segment of Perseus
Auriga	Kids	Pisces	Circlet of Pisces
Boötes	Ice Cream Cone	Pisces	Eastern Fish
Boötes	Napoleons Hat	Pisces	Western Fish
Camelopardalis	Kembles Cascade	Sagittarius	Herman's Cross
Cancer	Beehive	Sagittarius	Milk Dipper
Canis Major	Boomerang	Sagittarius	Teapot
Cassiopeia	Queen W	Sagittarius	Teaspoon
Cetus	Head of Cetus	Sagittarius	Terebellum
Cygnus	Northern Cross	Scorpius	Fish Hook
Delphinus	Jobs Coffin	Scorpius	Stick Man
Draco	Draco Dagger	Taurus	Davis' Dog
Draco	Lozenge	Taurus	Hyades
Draco	Ring Of The Nielungen	Ursa Major	Bier
Hercules	Butterfly	Ursa Major	Big Dipper
Hercules	Keystone	Ursa Major	Broken Engagement Ring
Hercules	Thaxted Morris Dancer	Ursa Major	Pointer Stars North
Hydra	Hydra Head	Ursa Major	Three Steps The Gazelle
Leo	Sickle Of Leo	Ursa Minor	Engagement Ring
Monoceros	Christmas Tree	Ursa Minor	Guardians of the Pole
Monoceros	Star Gun	Ursa Minor	Little Dipper
Ophiuchus	Bull of Poniatowski	Vulpecula	Coat Hanger

TAS > Night Sky Chart > JUL > EarlyMonth > 2000H > 2022 >

01 > Andromeda
04> Aquarius
05 > Aquila
07 > Aries
08 > Auriga
09 > Boötes
11 > Camelopardalis
12 > Cancer
13 > Canes Venatici
14 > Canis Major
15 > Canis Minor
16 > Capricornus
18 > Cassiopeia
20 > Cepheus
21 > Cetus
25 > Coma Berenices
27 > Corona Borealis
28 > Corvus
29 > Crater
31 > Cygnus
32 > Delphinus
34 > Draco
35 > Equuleus
36 > Eridanus
38 > Gemini
40 > Hercules
42 > Hydra
45 > Lacerta
46 > Leo
47 > Leo Minor
48 > Lepus
49 > Libra
51 > Lynx
52 > Lyra
55 > Monoceros
59 > Ophiuchus
60 > Orion
62 > Pegasus
63 > Perseus
66 > Pisces
71 > Sagitta
72 > Sagittarius
73 > Scorpius
75 > Scutum
76 > Serpens
77 > Sextens
78 > Taurus
81 > Triangulum
83 > Ursa Major
84 > Ursa Minor
86 > Virgo
88 > Vulpecula



Great Diamond
Heavenly G
Lightning Bolt
Spring Triangle
Summer Triangle
Winter Hexagon
Winter Triangle

Beehive
Bier
Big Dipper
Boomerang
Broken Engage Ring
Bull of Poniatowski
Butterfly
Christmas Tree
Circlet of Pisces
Coat Hanger
Davis' Dog
Draco Dagger
Eastern Fish
Engagement Ring
Fish Hook
Frederick's Glory
Golf Ball
Golf Putter
Great Square Peg
Guardians of Pole
Head of Cetus
Herman's Cross
Home Plate
Hyades
Hydra Head
Ice Cream Cone
Jobs Coffin
Kembles Cascade
Keystone
Kids
LE 37
Little Dipper
Lozenge
Milk Dipper
Napoleons Hat
Northern Cross
Northern Fly
Orion's Belt
Orion's Saucepan
Orion's Sword
Pointer Stars North
Queen W
Ring Of Nibelungen
Segment of Perseus
Sickle Of Leo
Star Gun
Stick Man
Teapot
Teaspoon
Terebellum
Thaxted Morris
Three Steps Gazelle
V Of Aquarius
Venus Mirror
Water Jar
Western Fish

Do You Want To Know More?

Introduction To Asterisms >

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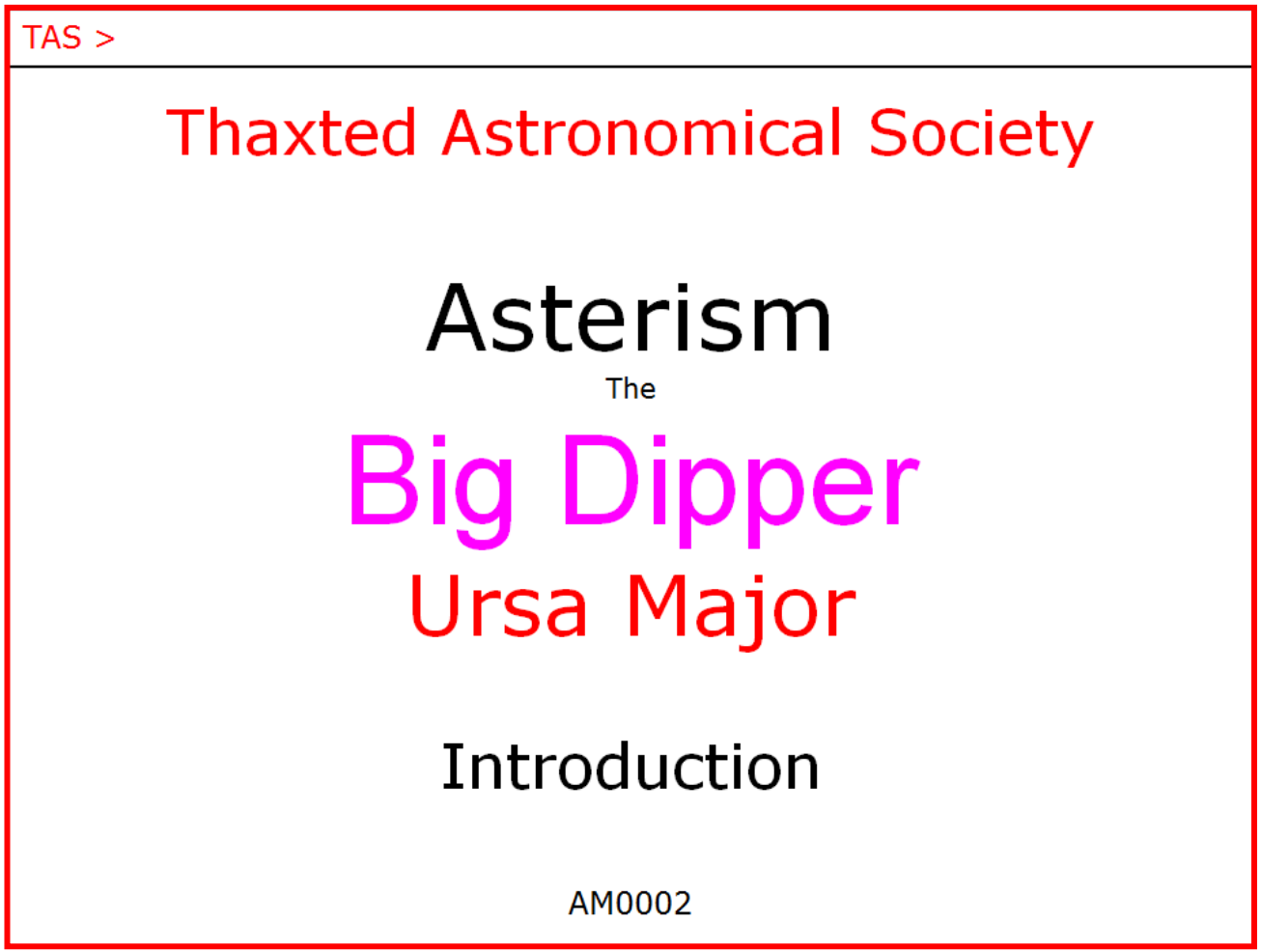
Asterism Guides >



Meteor Showers

https://en.wikipedia.org/wiki/Glossary_of_astronomy#M

What is a Meteor Shower? >

A meteor shower is a celestial event in which a number of meteors are observed to radiate, or originate, from one point in the night sky. These meteors are caused by streams of cosmic debris called meteoroids entering Earth's atmosphere at extremely high speeds on parallel trajectories.

Most meteors are smaller than a grain of sand, so almost all of them disintegrate and never hit the Earth's surface. Very intense or unusual meteor showers are known as meteor outbursts and meteor storms, which produce at least 1,000 meteors an hour, most notably from the Leonids.

The Meteor Data Centre lists over 900 suspected meteor showers of which about 100 are well established

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The IAU Meteor Data Center > List Of All Meteor Showers >

https://www.ta3.sk/IAUC22DB/MDC2007/Roje/roje_lista.php?corobic_roje=0&sort_roje=0

CATALOGUES

List of all showers
List of established showers
Working list of showers
List of shower groups
MDC orbital database
MDC bibliographical references

MISCELLANEA

New meteor shower reports
Shower nomenclature rules
Nomenclature working group

OTHER SITES

Mirror of this site
UWO - CMOR
NASA - CAMS
NASA - All Sky Fireball Network
EDMOND database
Meteorite Orbits info
IAU Minor Planet Center
NEODYS risk page
ASTDYS main page
IMO main page
SonotaCo Meteor Data Sets
Shower activity estimator

Update

AD 2019, October 11
R. Rudawska and
T.J. Jopek

No	Code	Name	No	Code	Name	No	Code	
00001	CAP	alpha Capricornids	00096	NCC	Northern delta Cancrids	00206	AUR	Aurigids
00002	STA	Southern Taurids	00097	SCC	Southern delta Cancrids	00208	SPE	Septem
00004	GEM	Geminids	00100	XSA	Daytime xi Sagittariids	00212	KLE	Daytime
00005	SDA	Southern delta Aquariids	00102	ACE	alpha Centaurids	00221	DSX	Daytime
00006	LYR	April Lyrids	00110	AAN	alpha Antliids	00233	OCC	October
00007	PER	Perseids	00128	MKA	Daytime kappa Aquariids	00242	XDR	xi Draco
00008	ORI	Orionids	00137	PPU	pi Puppids	00246	AMO	alpha M
00009	DRA	October Draconids	00144	APS	Daytime April Piscids	00250	NOO	Novemb
00010	QUA	Quadrantids	00145	ELY	eta Lyrids	00252	ALY	alpha L
00011	EVI	eta Virginids	00151	EAU	epsilon Aquilids	00254	PHO	Phoenic
00012	KCG	kappa Cygnids	00152	NOC	Northern Daytime omega Cetids	00257	ORS	Souther
00013	LEO	Leonids	00153	OCE	Southern Daytime omega Cetids	00281	OCT	October
00015	URS	Ursids	00156	SMA	Southern Daytime May Arietids	00319	JLE	January
00016	HYD	sigma Hydrids	00164	NZC	Northern June Aquilids	00320	OSE	omega
00017	NTA	Northern Taurids	00165	SZC	Southern June Aquilids	00321	TCB	theta C
00018	AND	Andromedids	00170	JBO	June Bootids	00322	LBO	lambda
00019	MON	December Monocerotids	00171	ARI	Daytime Arietids	00323	XCB	xi Coron
00020	COM	Comae Berenicids	00172	ZPE	Daytime zeta Perseids	00324	EPR	epsilon
00021	AVB	alpha Virginids	00173	BTA	Daytime beta Taurids	00325	DLT	Daytime
00022	LMI	Leonis Minorids	00175	JPE	July Pegasids	00326	EPG	epsilon
00023	EGE	epsilon Geminids	00183	PAU	Piscis Austrinids	00327	BEQ	beta Eq
00026	NDA	Northern delta Aquariids	00184	GDR	July gamma Draconids	00328	ALA	alpha L
00027	KSE	kappa Serpentids	00187	PCA	psi Cassiopeiids	00330	SSE	sigma S
00031	ETA	eta Aquariids	00188	XRI	Daytime xi Orionids	00331	AHY	alpha H
00033	NIA	Northern iota Aquariids	00191	ERI	eta Eridanids	00333	OCU	October
00061	TAH	tau Herculids	00197	AUD	August Draconids	00334	DAD	Decemb
00063	COR	Corvids	00198	BHY	beta Hydrusids	00335	XVI	Decemb
00069	SSG	Southern mu Sagittariids	00202	ZCA	Daytime zeta Cancrids	00336	DKD	Decemb

01179	OGE	omega Geminids
01180	DAN	December alpha Antliids

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Shower Name	Date of Max	Normal Limits	PossRate
Quadrantids	03/04 Jan	28 Dec to 12 Jan	110
Lyrids	22/23 Apr	16 Apr to 25 Apr	18
Eta Aquariids	06 May	19 Apr to 28 May	50
Delta Aquariids	29 Jul	12 Jul to 23 Aug	25
Perseids	12 Aug	17 Jul to 24 Aug	100
Draconids	08 Oct	06 Oct to 10 Oct	10
Southern Taurids	10/11 Oct	10 Oct to 20 Nov	05
Orionids	21/22 Oct	02 Oct to 07 Nov	25
Northern Taurids	12/13 Nov	20 Oct to 10 Dec	05
Leonids	17-18 Nov	06 Nov to 30 Nov	10
Geminids	14 Dec	04 Dec to 17 Dec	150
Ursids	22/23 Dec	17 Dec to 26 Dec	10

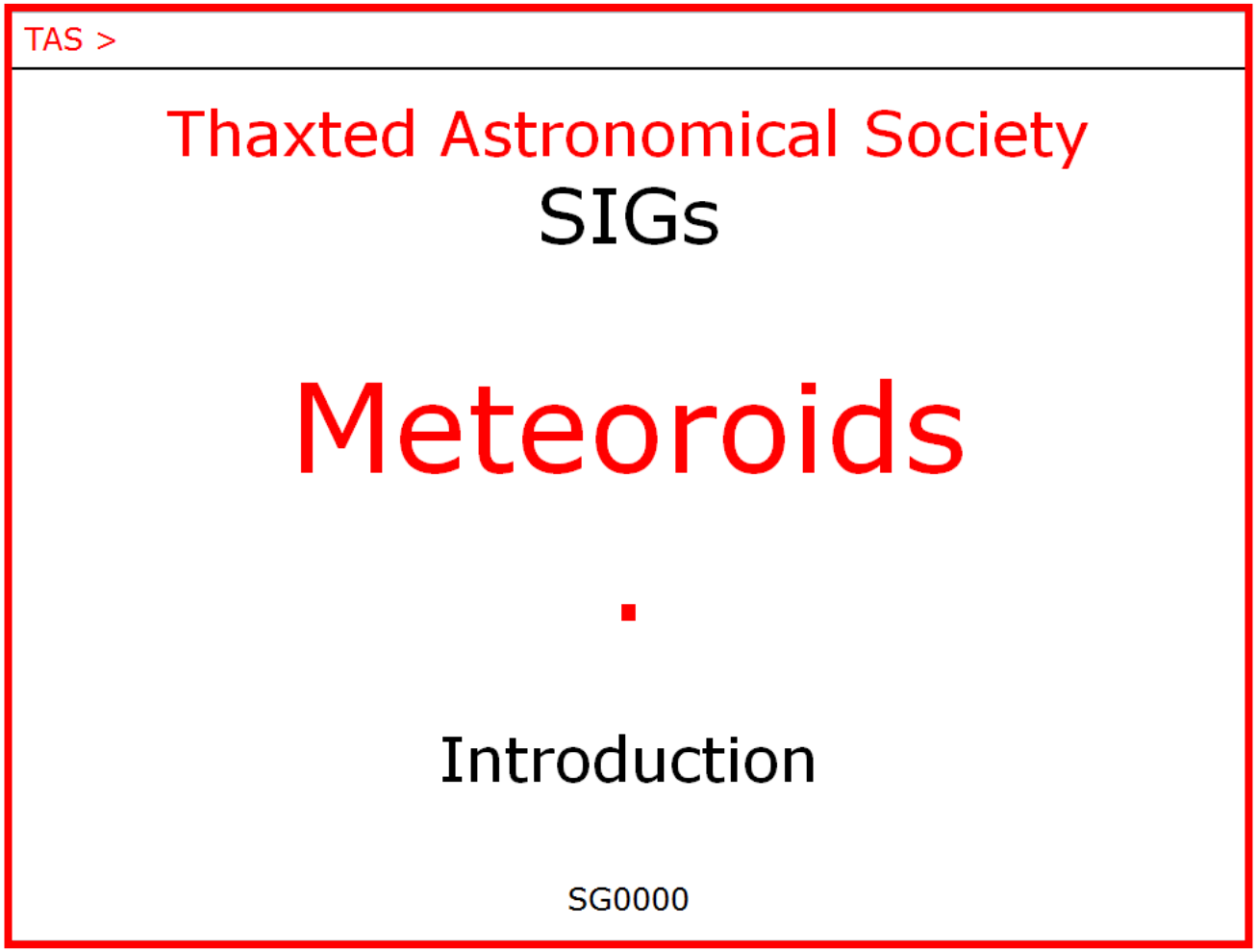
https://en.wikipedia.org/wiki/Glossary_of_astronomy#M

Top 3 Must See Annual Meteor Showers >

Geminids	Dec
Perseids	Aug
Quadrantids	Jan

Do You Want To Know More?

Introduction To Meteoroids >



2022

July

Delta Aquariids

Occurs > 12 Jul to 23 Aug

Date Of Peak > 29 Jul

Best Viewing

O400H

RS0729

TAS > Night Sky Chart > Aug > EarlyMonth > 0400H > YYYY

01 > Andromeda
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84 > Ursa Minor
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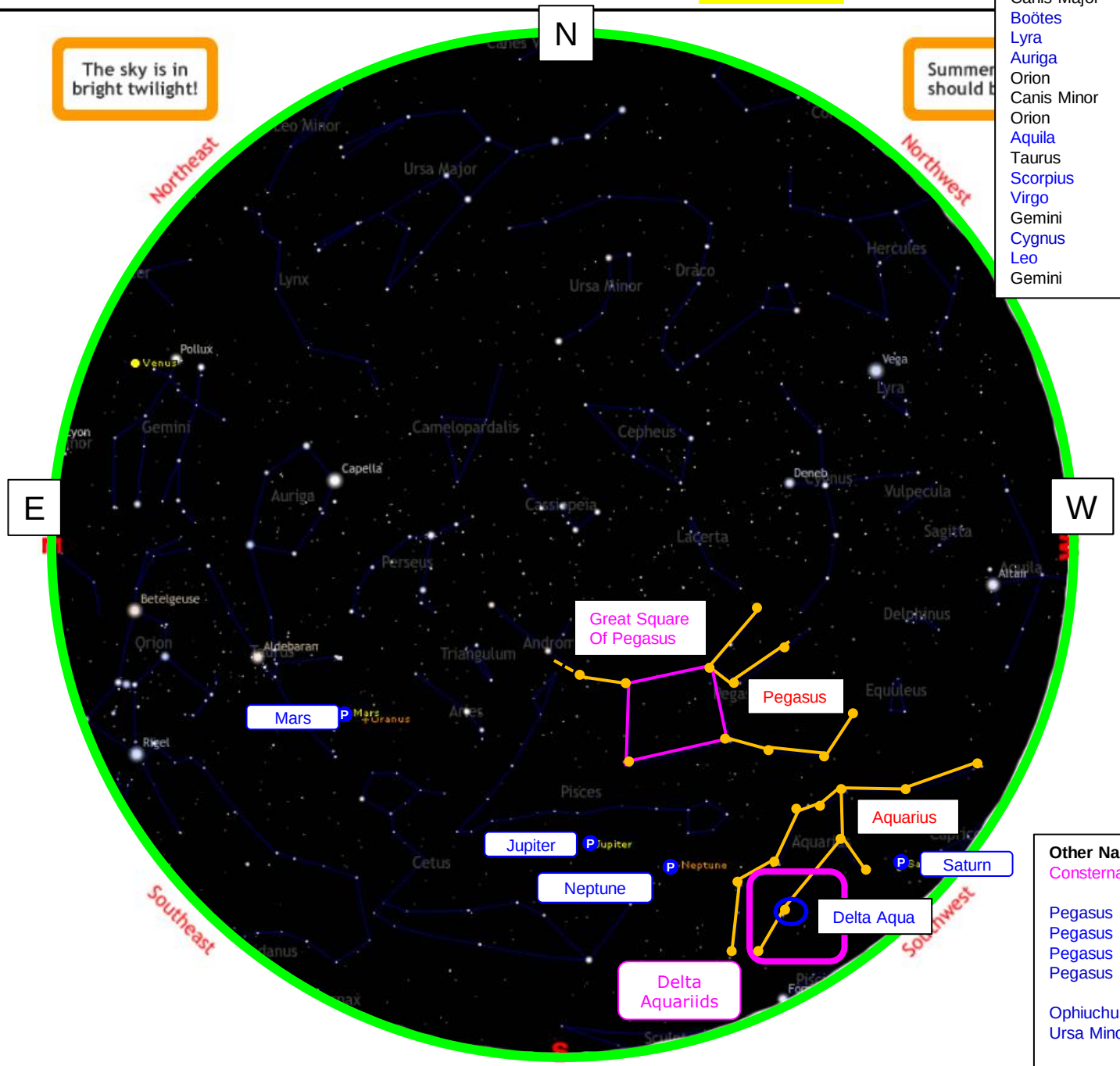
88 > Vulpecula



Bight Stars >

Consternation	Name	ApMg
Canis Major	Sirius	> -1.46
Boötes	Arcturus	> -0.04
Lyra	Vega	> 0.03
Auriga	Capella	> 0.08
Orion	Rigel	> 0.12
Canis Minor	Procyon	> 0.38
Orion	Betelgeuse	> 0.50
Aquila	Altair	> 0.77
Taurus	Aldebaran	> 0.85
Scorpius	Antares	> 0.96
Virgo	Spica	> 0.98
Gemini	Pollux	> 1.14
Cygnus	Deneb	> 1.25
Leo	Regulus	> 1.35
Gemini	Castor	> 1.57

Planets On View > P

Mercury
Venus
Mars
Jupiter
Saturn
Uranus
Neptune
Pluto

P

Other Named Stars >

Consternation	Name
Pegasus	Alpheratz
Pegasus	Algenib
Pegasus	Markab
Pegasus	Scheat
Ophiuchus	Rassalgethi
Ursa Minor	Polaris

Do You Want To Know More?

Meteor Shower Guides >

Nebula's

https://www.omegon.eu/advice/telescope/telescope-knowledge/tips-for-observation-with-the-naked-eye/c,8683

Definition of Nebula >

A nebula is a giant cloud of dust and gas in space.

Some nebulae (more than one nebula) come from the gas and dust thrown out by the explosion of a dying star, such as a supernova.

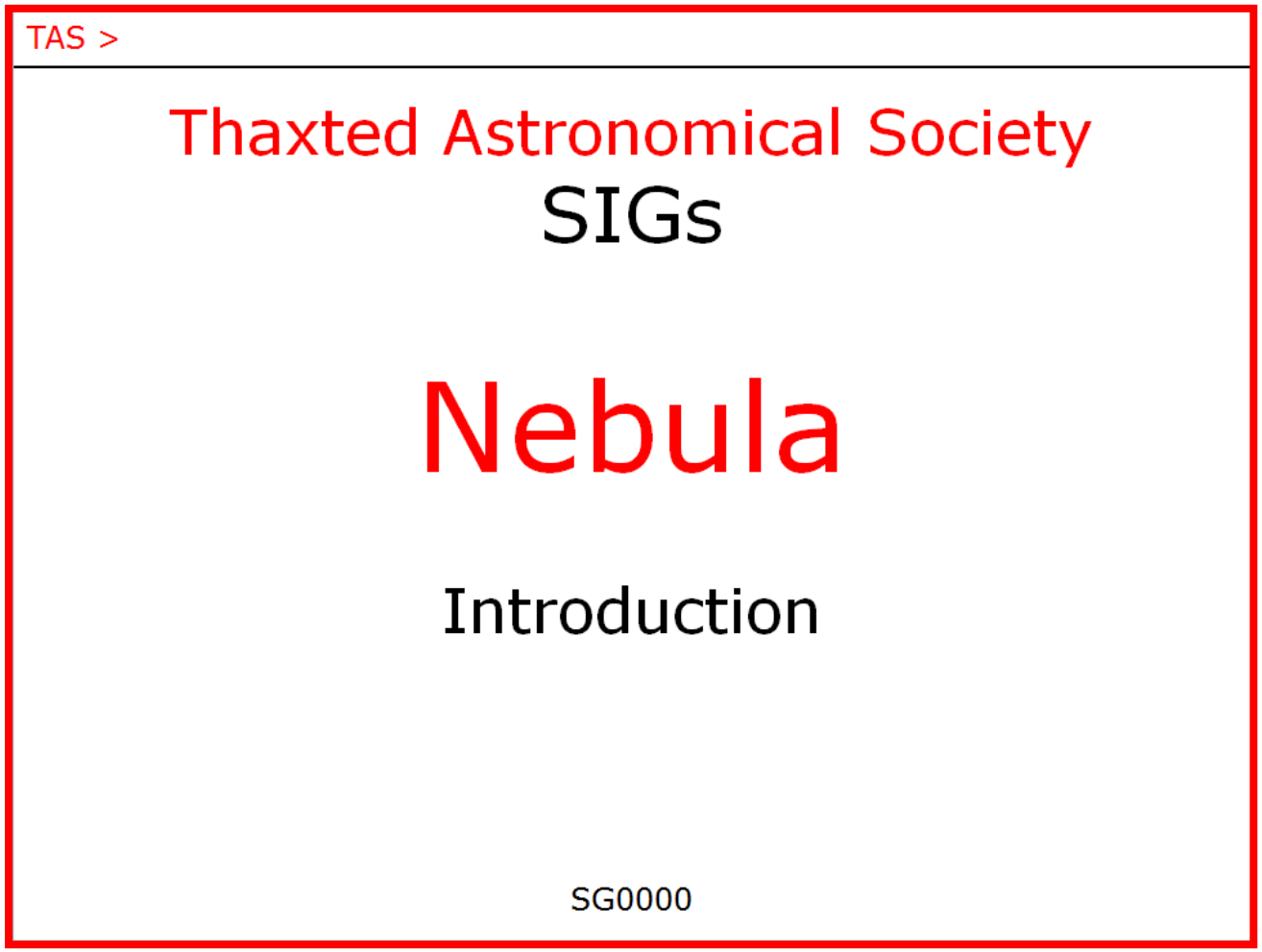
Other nebulae are regions where new stars are beginning to form.

For this reason,

some nebulae are called "star nurseries."

Do You Want To Know More?

Introduction To Nebula's >



https://www.omegon.eu/advice/telescope/telescope-knowledge/tips-for-observation-with-the-naked-eye/c,8683

How many Nebulas can you see in the night sky with a naked eye?

M8	Lagoon Nebula
M20	Trifid Nebula
M27	Dumbbell Nebula
M42	Orion Nebula
NGC 3372;	Eta Carinae Nebula
NGC 7293	Helix Nebula

TAS > Messier Cat. > M8 > The Lagoon Nebula > Nebula With Cluster >

https://en.wikipedia.org/wiki/Messier_object

Messier No	NGC/ICNo	Common Name	Object type	Distance (kly)	Constellation	A Mag	Right Ascension	Declination
M8	NGC 6523	Lagoon Nebula	Nebula with cluster	4.1	Sagittarius	6	18h 03m 37s	−24° 23′ 12″

M8, also known as NGC 6523, Commonly known as the Lagoon Nebula located in the constellation Sagittarius

M8, the Lagoon Nebula	
Observation data: J2000 epoch	
Right ascension	$18^h\ 03^m\ 37^s$[1]
Declination	−24° 23′ 12″[1]
Distance	4,100[2] ly (1,250 pc)
Apparent magnitude (V)	6.0
Apparent dimensions (V)	90 × 40 arcmins
Constellation	Sagittarius
Physical characteristics	
Radius	55 × 20 ly
Designations	Sharpless 25, RCW 146, Gum 72 *M8 contains:* NGC 6523, NGC 6530,[1] Hourglass nebula[3]

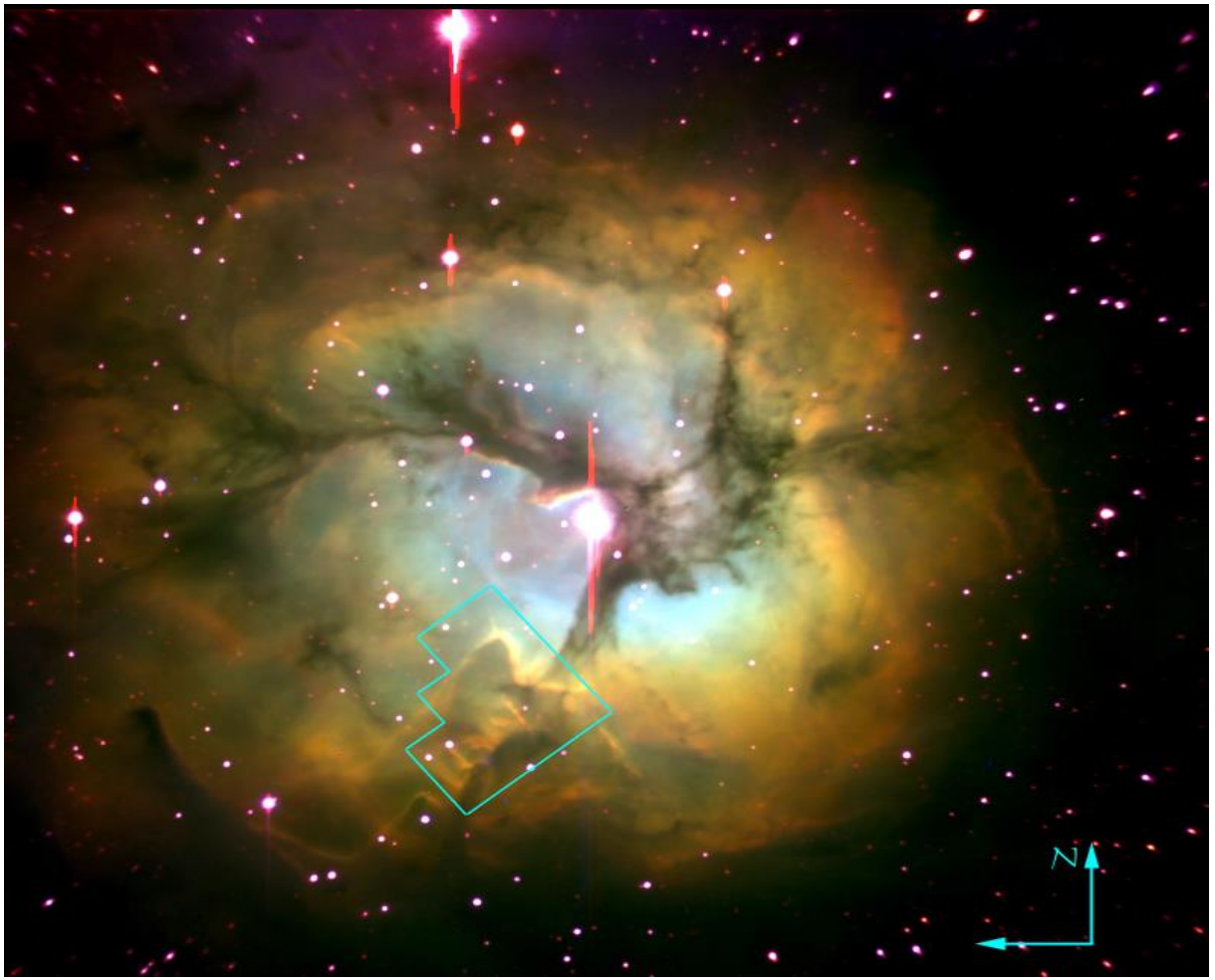
TAS > Messier Cat. > M20 > The Trifid Nebula > H II Region Nebula >

https://en.wikipedia.org/wiki/Messier_object

Messier No	NGC/ICNo	Common Name	Object type	Distance (kly)	Constellation	A Mag	Right Ascension	Declination
M20	NGC 6514	Trifid Nebula	H II region nebula with cluste	5.2	Sagittarius	6.3	18h 02m 23s	−23° 01′ 48″

M20, also known as as NGC 6514, The Trifid Nebula (is an H II region nebula in the constellation Sagittarius The object is an unusual combination of an open cluster of stars, an emission nebula (the relatively dense, reddish-pink portion), a reflection nebula (the mainly NNE blue portion), and a dark nebula (the apparent 'gaps' in the former that cause the trifurcated appearance, also designated Barnard 85

Observation data: J2000 epoch	
Right ascension	$18^h\ 02^m\ 23^s$[1]
Declination	−23° 01′ 48″[1]
Distance	4100±200[2] ly (1,260±70 pc)
Apparent magnitude (V)	+6.3[1]
Apparent dimensions (V)	28 arcmins
Constellation	Sagittarius
Physical characteristics	
Radius	21 ly
Notable features	a
Designations	M20, NGC 6514,[1] Sharpless 30, RCW 147, Gum 76



TAS > Messier Cat. > M27 > The Dumbbell Nebula > Planetary Nebula >

https://en.wikipedia.org/wiki/Messier_object

Messier No	NGC/ICNo	Common Name	Object type	Distance (kly)	Constellation	A Mag	Right Ascension	Declination
M27	NGC 6853	Dumbbell Nebula	Planetary nebula	1.148–1.52	Vulpecula	7.5	19h 59m 36.340s	+22° 43′ 16.09″

M27, also known as NGC 6853, The Dumbbell Nebula is a planetary nebula (nebulosity surrounding a white dwarf) in the constellation Vulpecula

Observation data: J2000 epoch	
Right ascension	$19^h\ 59^m\ 36.340^s$[1]
Declination	+22° 43′ 16.09″[1]
Distance	$417\ ^{+49}_{-65}$ pc[2][3] 376.3 ± 6.2[1] pc
Apparent magnitude (V)	7.5[1]
Apparent dimensions (V)	8.0′ × 5.6′[4]
Constellation	Vulpecula
Physical characteristics	
Radius	$1.44\ ^{+0.21}_{-0.16}$[a] ly
Absolute magnitude (V)	$-0.6\ ^{+0.4}_{-0.3}$[d]
Notable features	Central star radius is among the largest known for a white dwarf.
Designations	NGC 6853,[1] M 27,[1] Diabolo Nebula,[1] Dumb-Bell Nebula,[1]

TAS > Messier Cat. > M42 > The Orion Nebula > Diffuse Nebula >

https://en.wikipedia.org/wiki/Messier_object

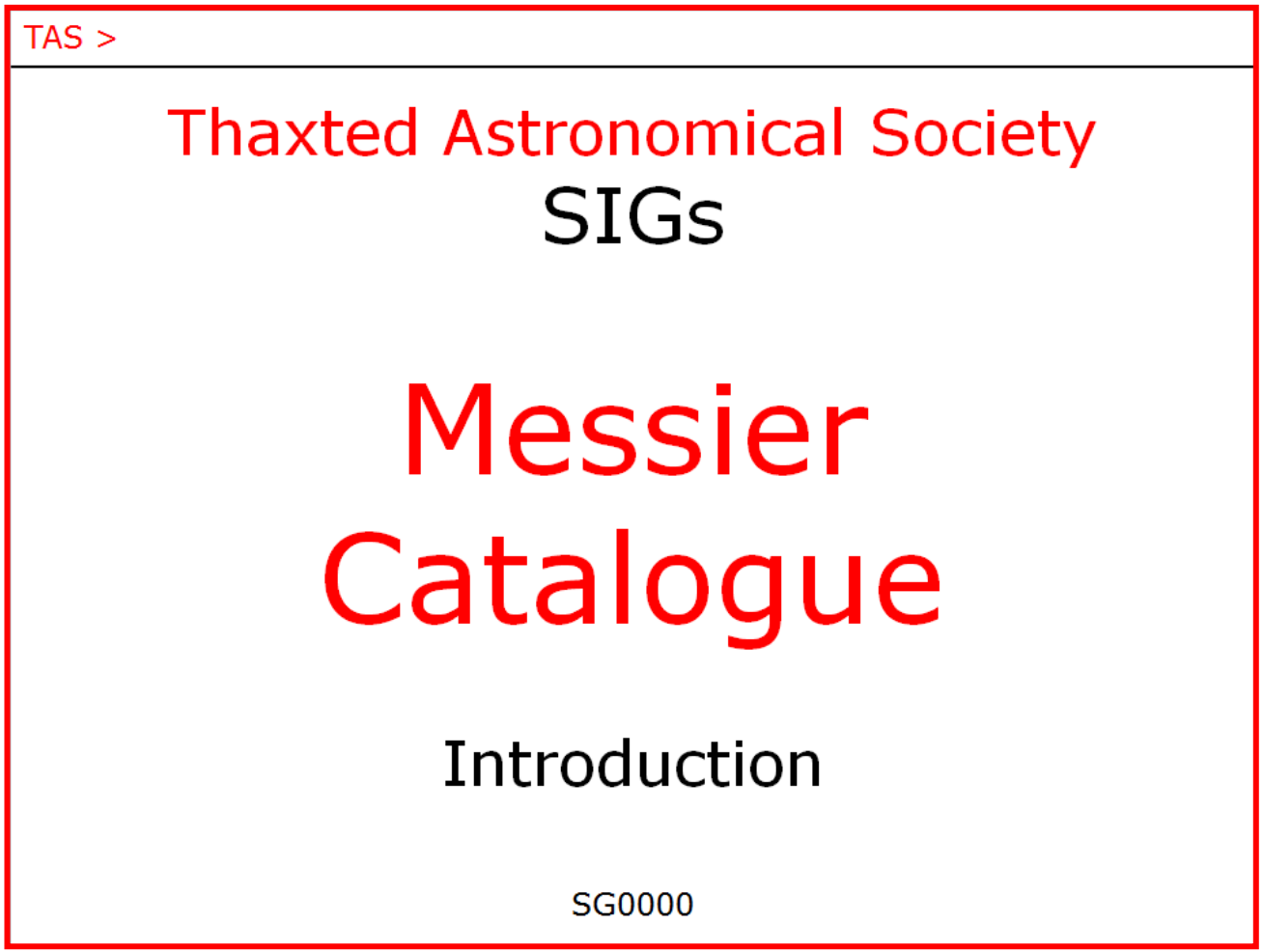
Messier No	NGC/ICNo	Common Name	Object type	Distance (kly)	Constellation	A Mag	Right Ascension	Declination
M42	NGC 1976	Orion Nebula	H II region nebula	1.324–1.364	Orion	4	05h 35m 17.3	−05° 23′ 28″

M42, also known as NGC 1976, The Orion Nebula is a diffuse nebula situated in the Milky Way, being south of Orion's Belt in the constellation of Orion. It is one of the brightest nebulae and is visible to the naked eye in the night sky with apparent magnitude 4.0

Observation data: J2000 epoch	
Subtype	Reflection/Emission[2]
Right ascension	$05^h\ 35^m\ 17.3^s$[1]
Declination	−05° 23′ 28″[1]
Distance	1,344±20 ly (412[3] pc)
Apparent magnitude (V)	4.0[4]
Apparent dimensions (V)	65×60 arcmins[5]
Constellation	Orion
Physical characteristics	
Radius	12[a] ly
Absolute magnitude (V)	—
Notable features	Trapezium cluster
Designations	NGC 1976, M42, LBN 974, Sharpless 281

Do You Want To Know More?

Introduction To The Messier Cat. >



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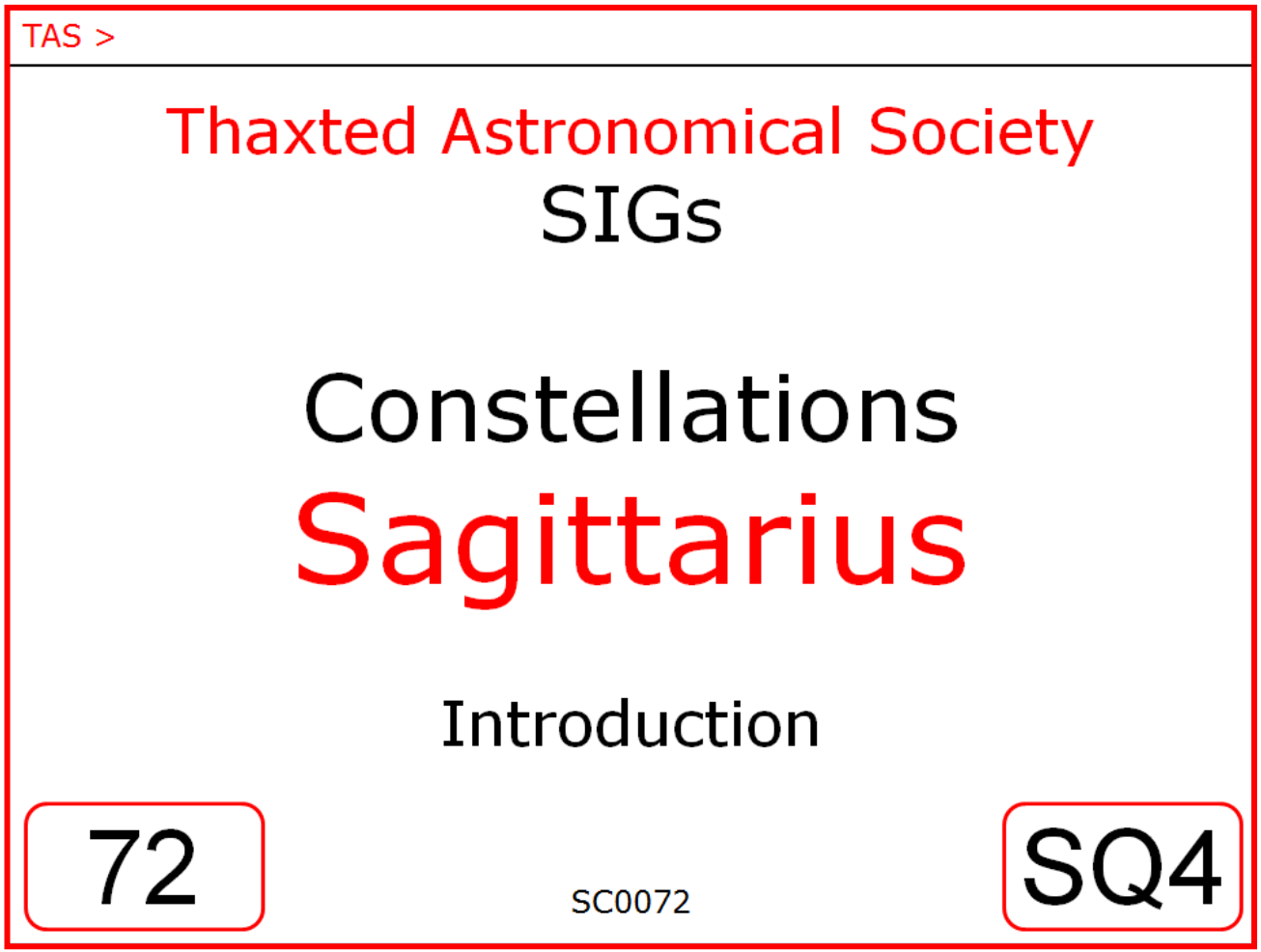
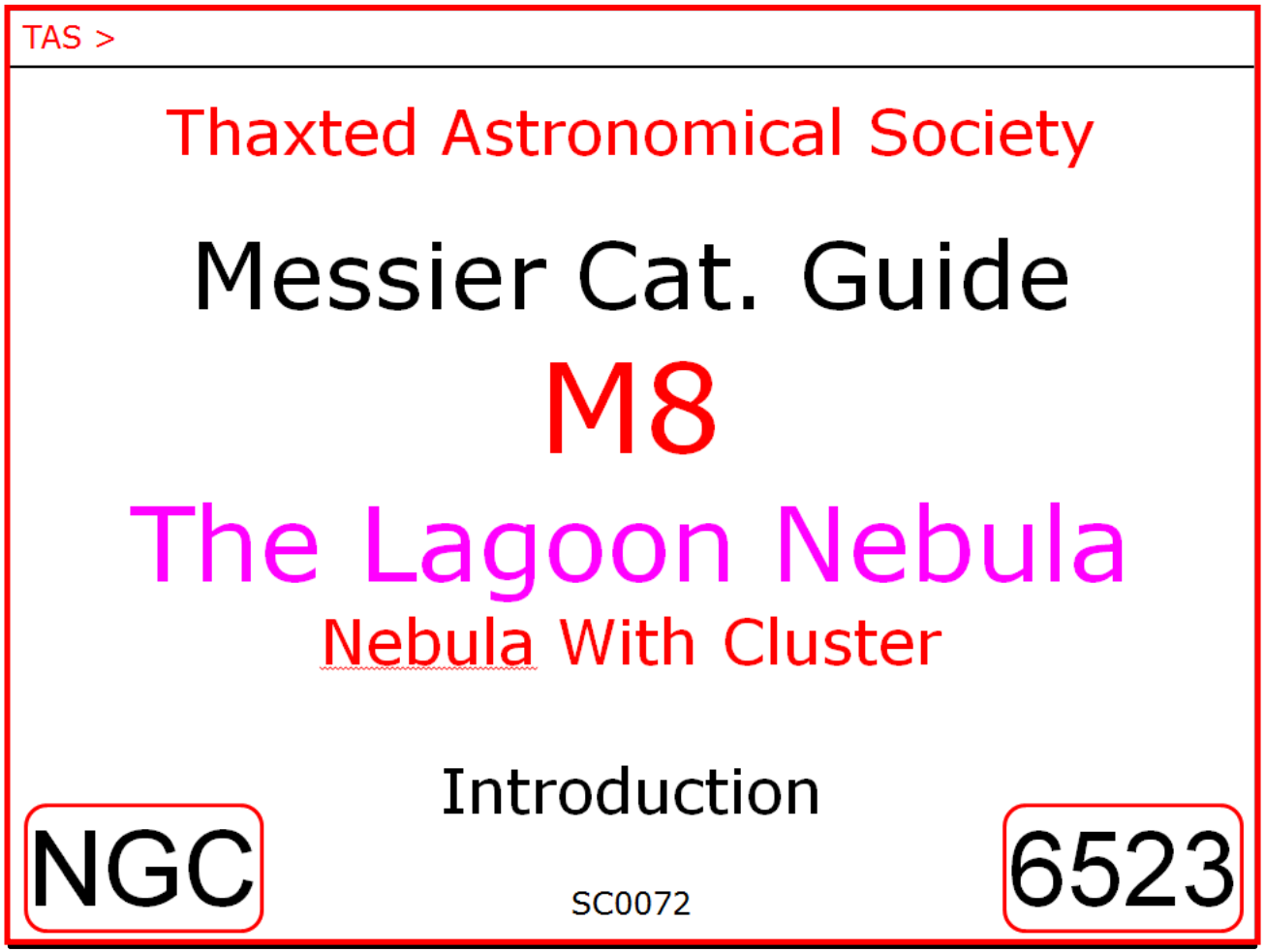
Constellation Guides >



Do You Want To Know More?

Messier Cat. Guides >



Galaxy's

https://en.wikipedia.org/wiki/Galaxy

What Is A Galaxy >

A galaxy is a gravitationally bound system of stars, stellar remnants, interstellar gas, dust, and dark matter

The word galaxy is derived from the Greek galaxias (γαλαξίας), literally "milky", a reference to the Milky Way

Galaxies range in size from dwarfs with just a few hundred million stars to giants with one hundred trillion stars, each orbiting its galaxy's center of mass.

Research released in 2016 revised the number of galaxies in the observable universe from a previous estimate of 200 billion (2×1011) to a suggested two trillion (2×1012) or more and, overall, as many as an estimated 1×1024 stars (more stars than all the grains of sand on planet Earth)

Most of the galaxies are 1,000 to 100,000 parsecs in diameter (approximately 3000 to 300,000 light years) and separated by distances on the order of millions of parsecs (or megaparsecs)

For comparison, the Milky Way has a diameter of at least 30,000 parsecs (100,000 ly)

And is separated from the Andromeda Galaxy, its nearest large neighbour, by 780,000 parsecs (2.5 million ly.)

https://en.wikipedia.org/wiki/List_of_galaxies#Naked-eye_galaxies

How many Galaxy's can you see in the night sky with a naked eye?

Galaxy's that are visible to the naked eye, for at the very least, keen-eyed observers in a very dark-sky environment that is high in altitude, during clear and stable weather.

Ref >	Galaxy >	Constellation >	AM >	Vis Thaxted
@	Milky Way	Sagittarius	-6.5	Y
M31, NGC 224	Andromeda Galaxy	Andromeda	3.4	Y
M33, NGC 598	Triangulum Galaxy	Triangulum	5.7	Y
M81, NGC 3031	Bode's Galaxy	Ursa Major	6.9	Y
LMC	Large Magellanic Cloud	Dorado/Mensa	0.9	N
NGC 292	Small Magellanic Cloud	Tucana	2.7	N
NGC 253	Sculptor Galaxy	Sculptor	7.2	Y
NGC 5128	Centaurus A	Centaurus	6.8	Y

TAS > Messier Cat. > M31 > The Andromeda Galaxy > Barred Spiral Galaxy >

https://en.wikipedia.org/wiki/Messier_object

Messier No	NGC/ICNo	Common Name	Object type	Distance (kly)	Constellation	A Mag	Right Ascension	Declination
M31	NGC 224	Andromeda Galaxy	Spiral galaxy	2,430–2,650	Andromeda	3.4	00h 42m 44.3s	+41° 16′ 9″

M31, also known as NGC 224, The Andromeda Galaxy, is a barred spiral galaxy and the nearest large galaxy to the Milky Way in the constellation Andromeda

Observation data (J2000 epoch)	
Pronunciation	/æn ˈdrɒmɪdə/
Constellation	Andromeda
Right ascension	$00^h\ 42^m\ 44.3^s$[1]
Declination	+41° 16′ 9″[1]
Redshift	z = −0.001001 (minus sign indicates blueshift)[1]
Helio radial velocity	−301 ± 1 km/s[2]
Distance	752 kpc (2.45 Mly)[3]
Apparent magnitude (V)	3.44[4][5]
Absolute magnitude (V)	−21.5[a][6]
Characteristics	
Type	SA(s)b[1]
Mass	$(1.5 \pm 0.5) \times 10^{12}$[7] $M_\odot$
Number of stars	~1 trillion (10^{12})[9]
Size	~220 kly (67 kpc) (diameter)[8]
Apparent size (V)	3.167° × 1°[1]
Other designations	
M31, NGC 224, UGC 454, PGC 2557, 2C 56 (Core),[1] CGCG 535-17, MCG +07-02-016, IRAS 00400+4059, 2MASX J00424433+4116074, GC 116, h 50, Bode 3, Flamsteed 58, Hevelius 32, Ha 3.3, IRC +40013	

TAS > Messier Cat. > M33 > The Triangulum Galaxy > Spiral Galaxy >

https://en.wikipedia.org/wiki/Messier_object

Messier No	NGC/ICNo	Common Name	Object type	Distance (kly)	Constellation	A Mag	Right Ascension	Declination
M33	NGC 598	Triangulum Galaxy	Spiral galaxy	2,380–3,070	Triangulum	5.7	01h 33m 50.02s	+30° 39′ 36.7″

M33, also known as NGC 598, The Triangulum Galaxy is a spiral galaxy in the constellation Triangulum.

Galaxy Messier 33 in Triangulum

Observation data (J2000 epoch)	
Pronunciation	/traɪˈæŋgjʊləm/
Constellation	Triangulum
Right ascension	$01^h\ 33^m\ 50.02^s$[1]
Declination	+30° 39′ 36.7″[1]
Redshift	-0.000607 ± 0.000010[1]
Helio radial velocity	-179 ± 3 km/s[2]
Galactocentric velocity	-44 ± 6 km/s[2]
Distance (comoving)	970 kpc (3.2 Mly)[3]
Apparent magnitude (V)	5.72[1]
Characteristics	
Type	SA(s)cd[2]
Mass	5×10^{10}[4] $M_\odot$
Number of stars	40 billion (4×10^{10})[5]
Size	~60,000 ly (diameter)[5]
Apparent size (V)	70.8 × 41.7 moa[1]
Other designations	
NGC 0598, MCG+05-04-069, UGC 1117, PGC 5818[2]	

TAS > Messier Cat. > M81 > Bode's Galaxy > Grand Design Spiral Galaxy >

https://en.wikipedia.org/wiki/Messier_object

Messier No	NGC/ICNo	Common Name	Object type	Distance (kly)	Constellation	A Mag	Right Ascension	Declination
M81	NGC 3031	Bode's Galaxy	Spiral galaxy	11,400–12,200	Ursa Major	6.9	09h 55m 33.2s	+69° 3′ 55″

M81, also known as NGC 3031, Bode's Galaxy is a grand design spiral galaxy in the constellation Ursa Major.

Observation data (J2000 epoch)	
Class	II[1]
Constellation	Scorpius
Right ascension	$16^h\ 17^m\ 02.41^s$[2]
Declination	−22° 58′ 33.9″[2]
Distance	32.6 kly (10.0 kpc)[3]
Apparent magnitude (V)	7.3[4]
Apparent dimensions (V)	10′.0
Physical characteristics	
Mass	5.02×10^5[5] $M_\odot$
Radius	48 ly
Metallicity	[Fe/H] = −1.47[6] dex
Estimated age	13.5 ± 1.0 Gyr[7]
Other designations	M80, NGC 6093, GCl 39[8]

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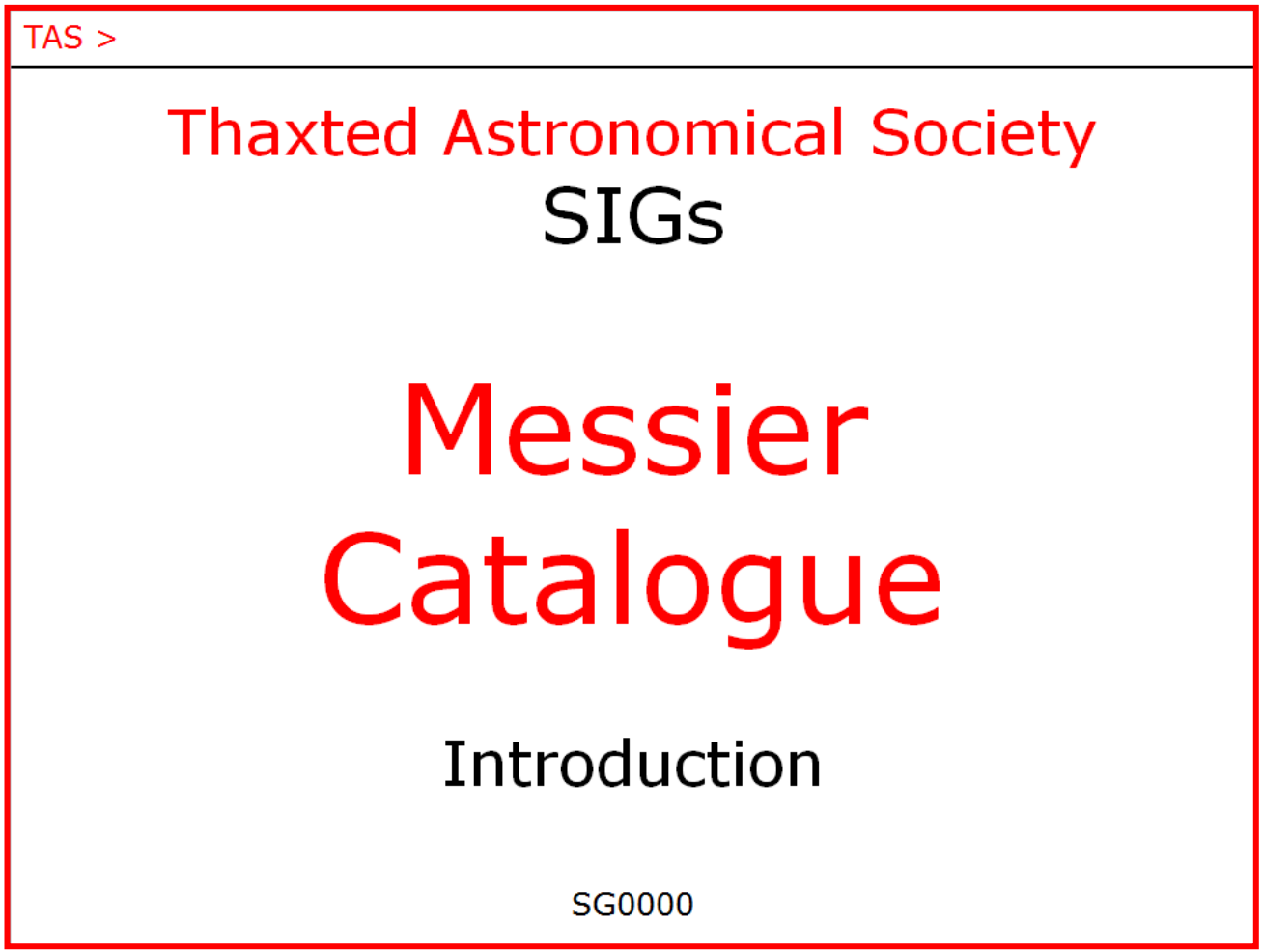

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