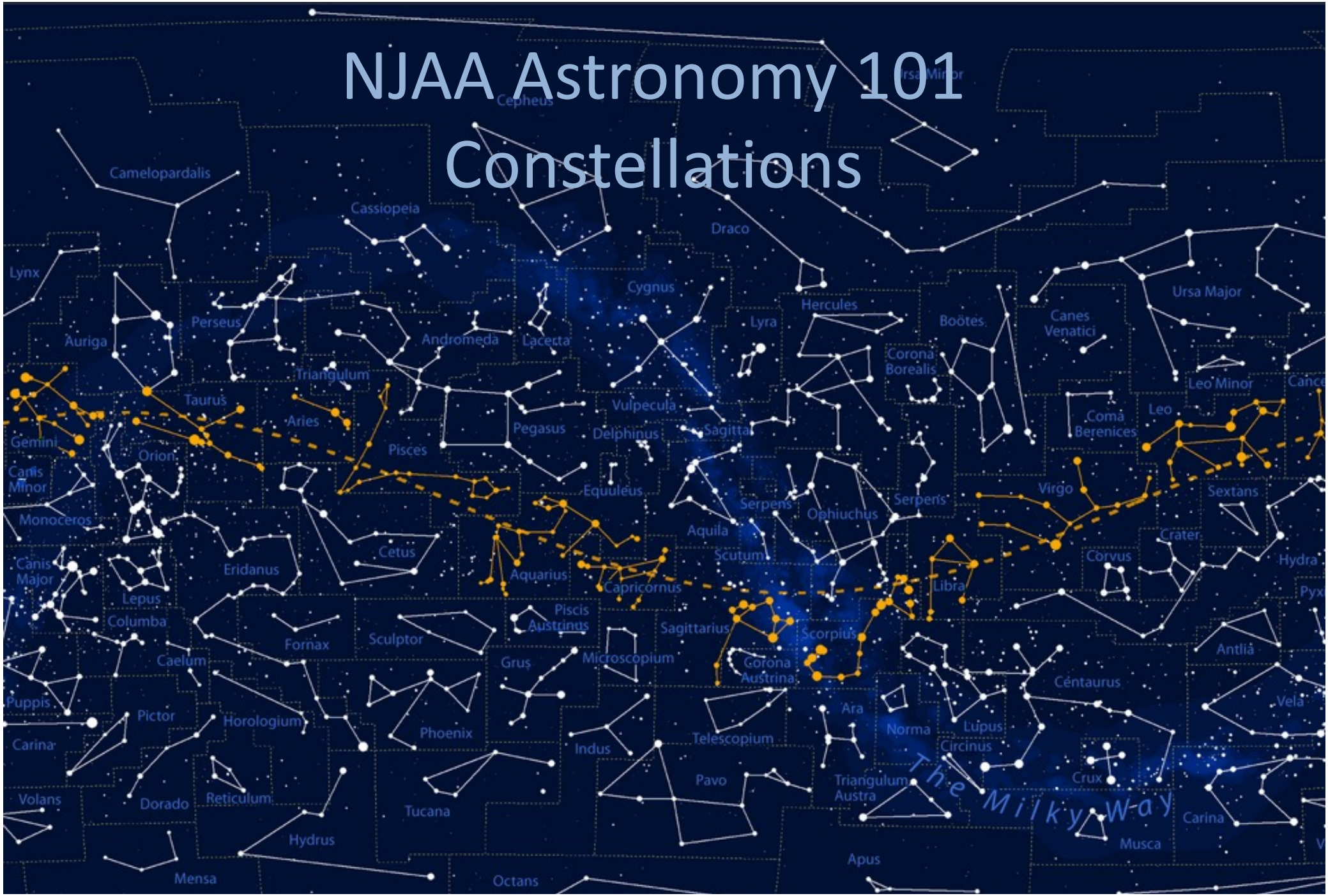
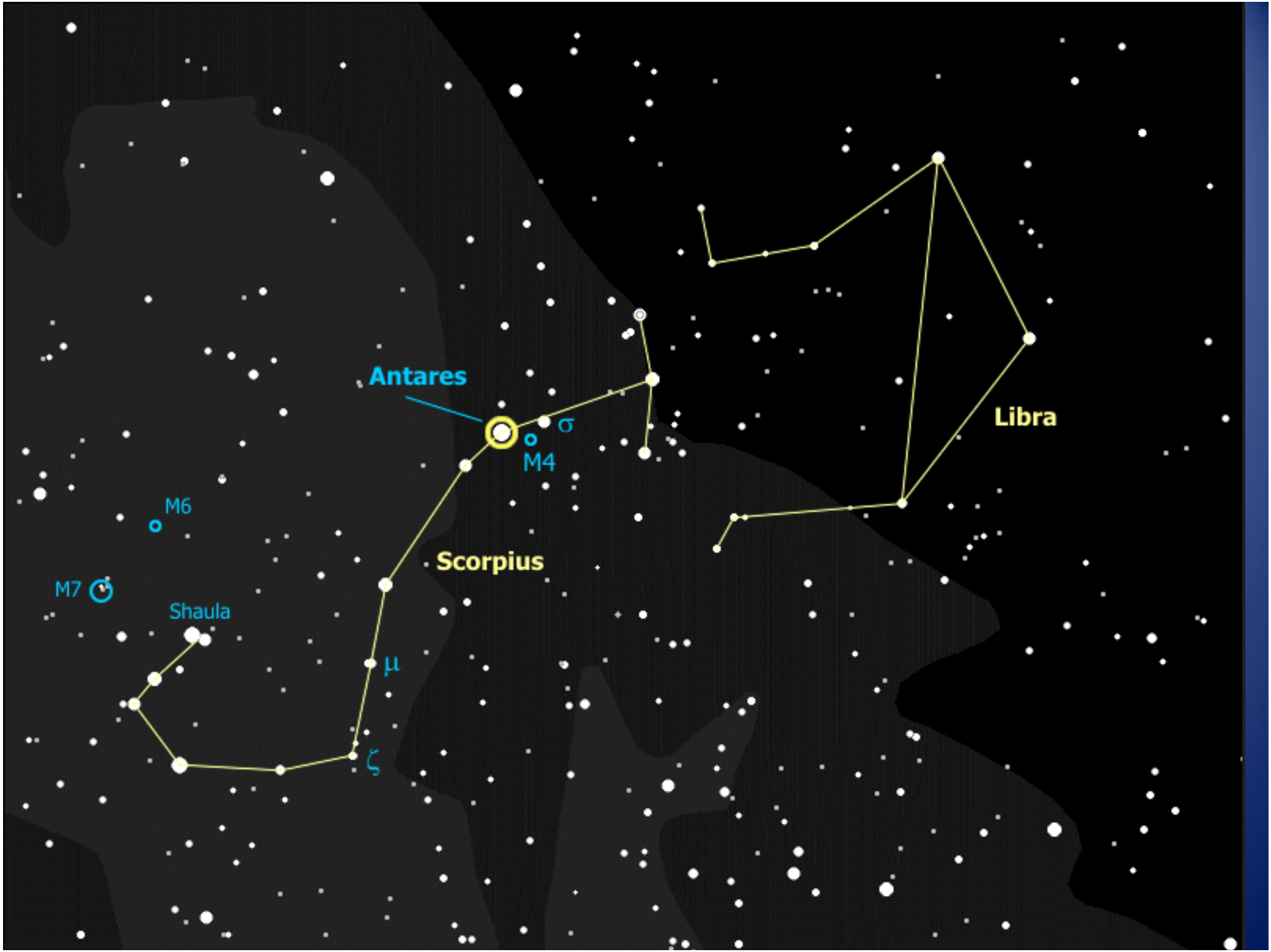
NJAA Astronomy 101
Constellations



Instructor: Bob Starcher July 17, 2025

What are Constellations?: NASA Responds

- There is a word for a pattern of stars in the sky which appears to be so distinctive that it is easily identifiable and remembered. That word is "asterism".
- In ancient times, people saw asterisms and made up all kinds of stories about mythological creatures and characters which they associated with the star patterns.
- As astronomers subsequently began to make maps of the stars, the named asterisms were included in the maps and called constellations.


Antares
σ
M4
Libra
M6
Scorpius
M7
Shaula
μ
ζ

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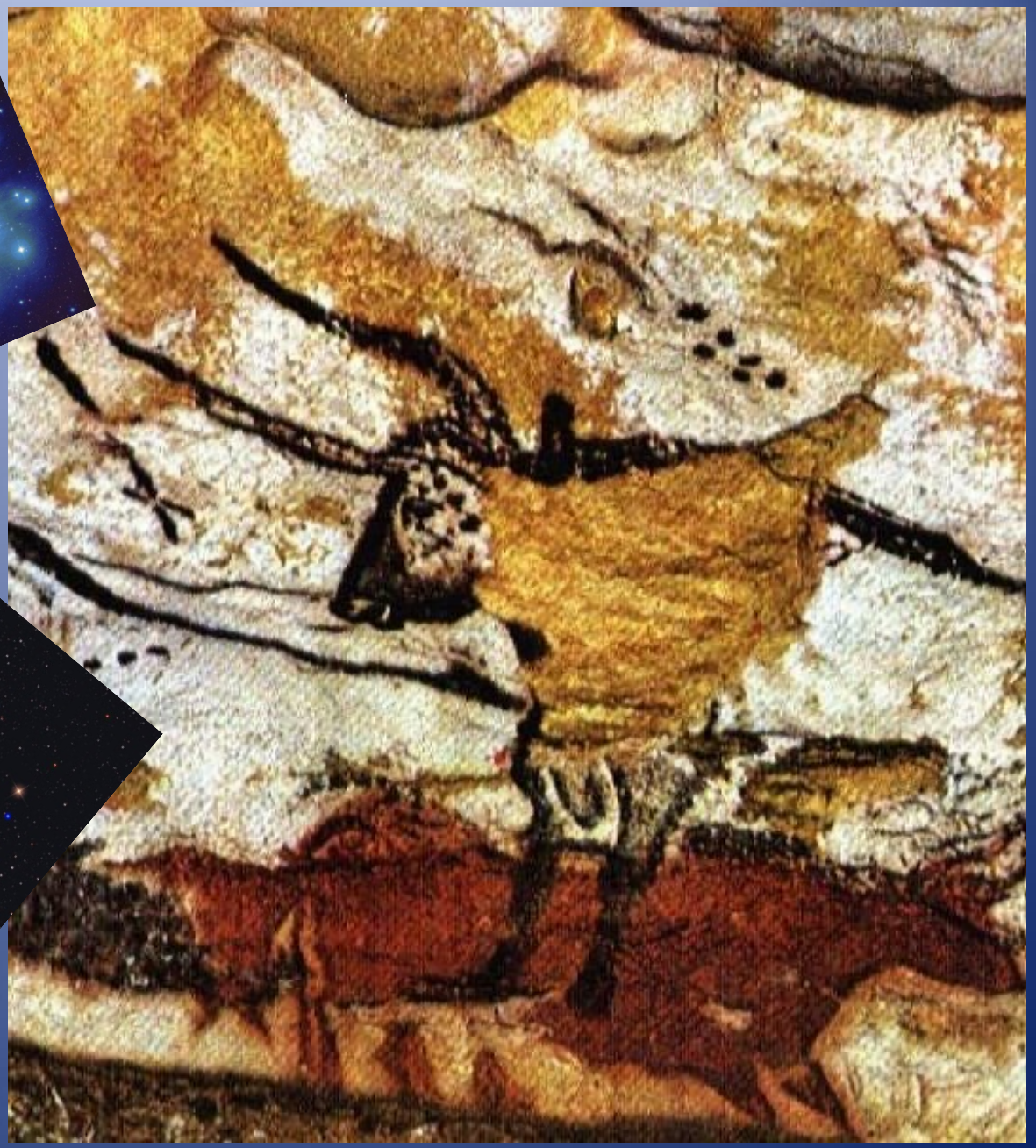
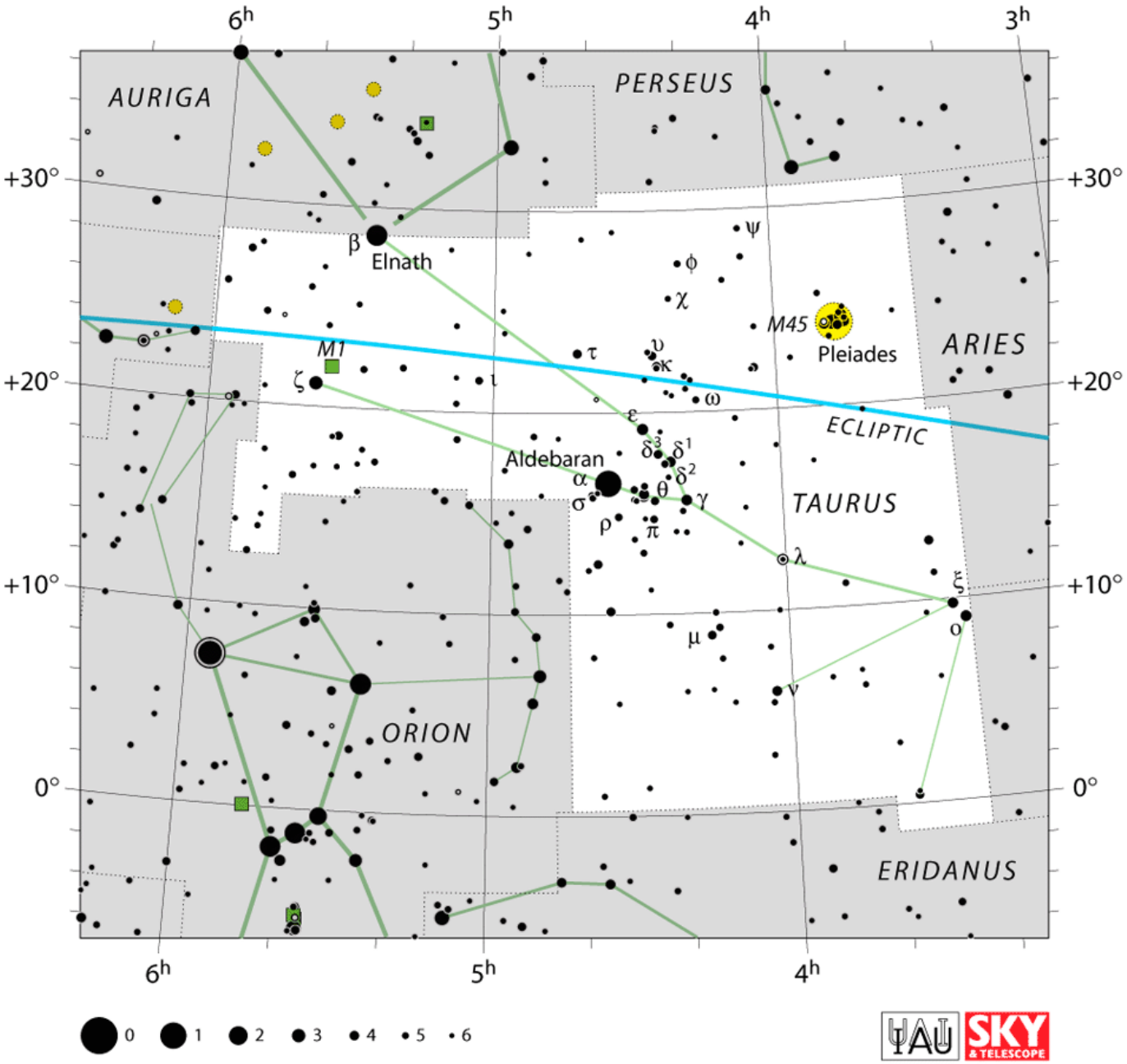
Triangulum
Andromeda
Aries
Pisces
Pegasus
Equule
Aquarius
Cetus
Eridanus
Phoenix
Piscis
Notius
Caper
Grus
Tropicus
Equator
Ecliptica
Capricorni

US Naval Observatory Glossary

Constellation

1. A grouping of stars, usually with pictorial or mythical associations, that serves to identify an area of the celestial sphere.
2. One of the precisely defined areas of the celestial sphere, associated with a grouping of stars, that the International Astronomical Union (IAU) has designated as a constellation.

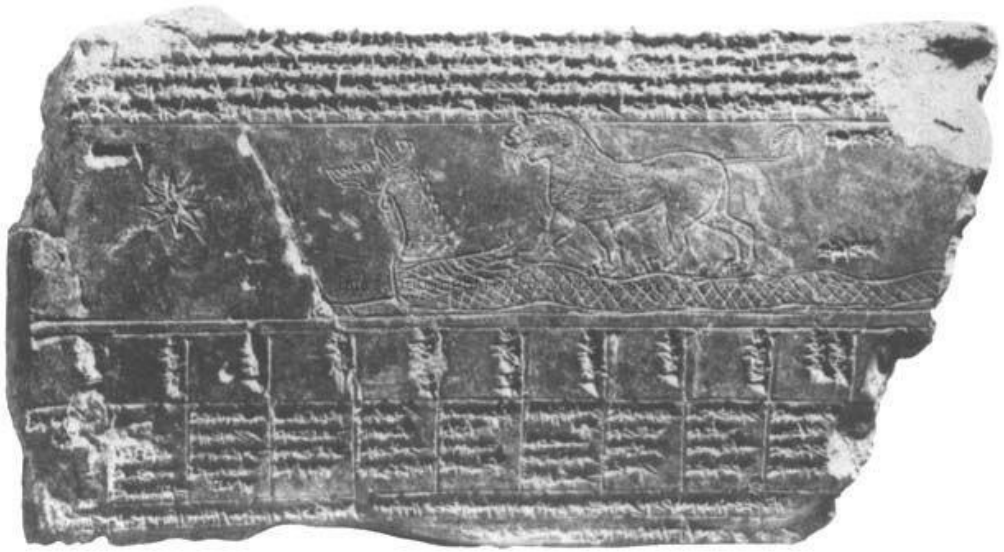



6h
5h
4h
3h
AURIGA
PERSEUS
ARIES
TAURUS
ORION
ERIDANUS
+30°
+20°
+10°
0°
β
Elnath
M1
ζ
M45
Pleiades
ECLIPTIC
Aldebaran
α
0
1
2
3
4
5
6
IAU
SKY & TELESCOPE

Constellation History

- Cave-Painting Pleiades?: Taurus at Lascaux?
- Ancient Civilizations: Zodiac and Myths
- Ptolemy's Almagest: 48 Classical Constellations
- Age of Exploration and Science: Filling in Gaps
- Sprawl in Heaven and Stellar Multi-Tasking
- IAU Steps In and Sets Boundaries for 88 Constellations that Fill the Celestial Sphere.

Late Babylonian Representation of Leo and Hydra



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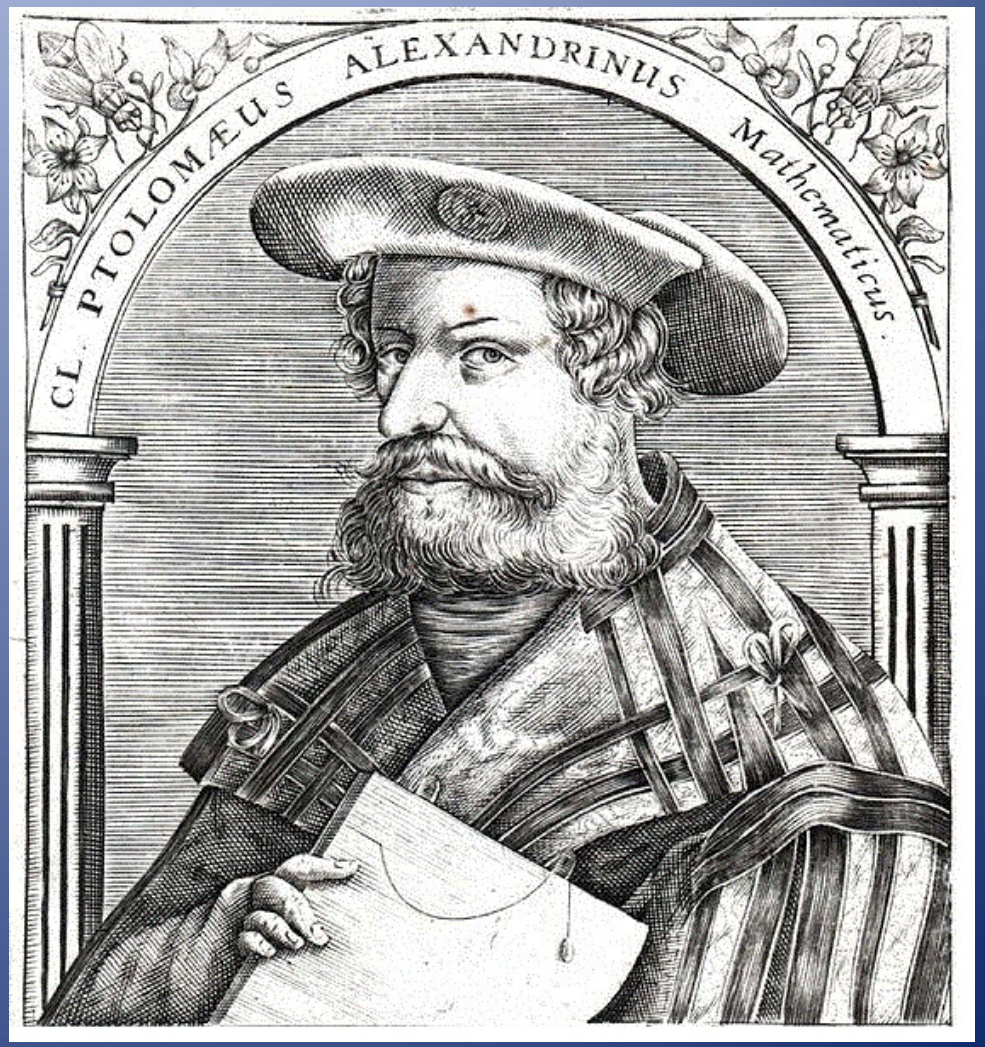
Claudius Ptolemaeus of Alexandria (90-168 AD)

Ptolemy's Almagest contains 48 constellations, and was the final word on the subject for 1500 years.



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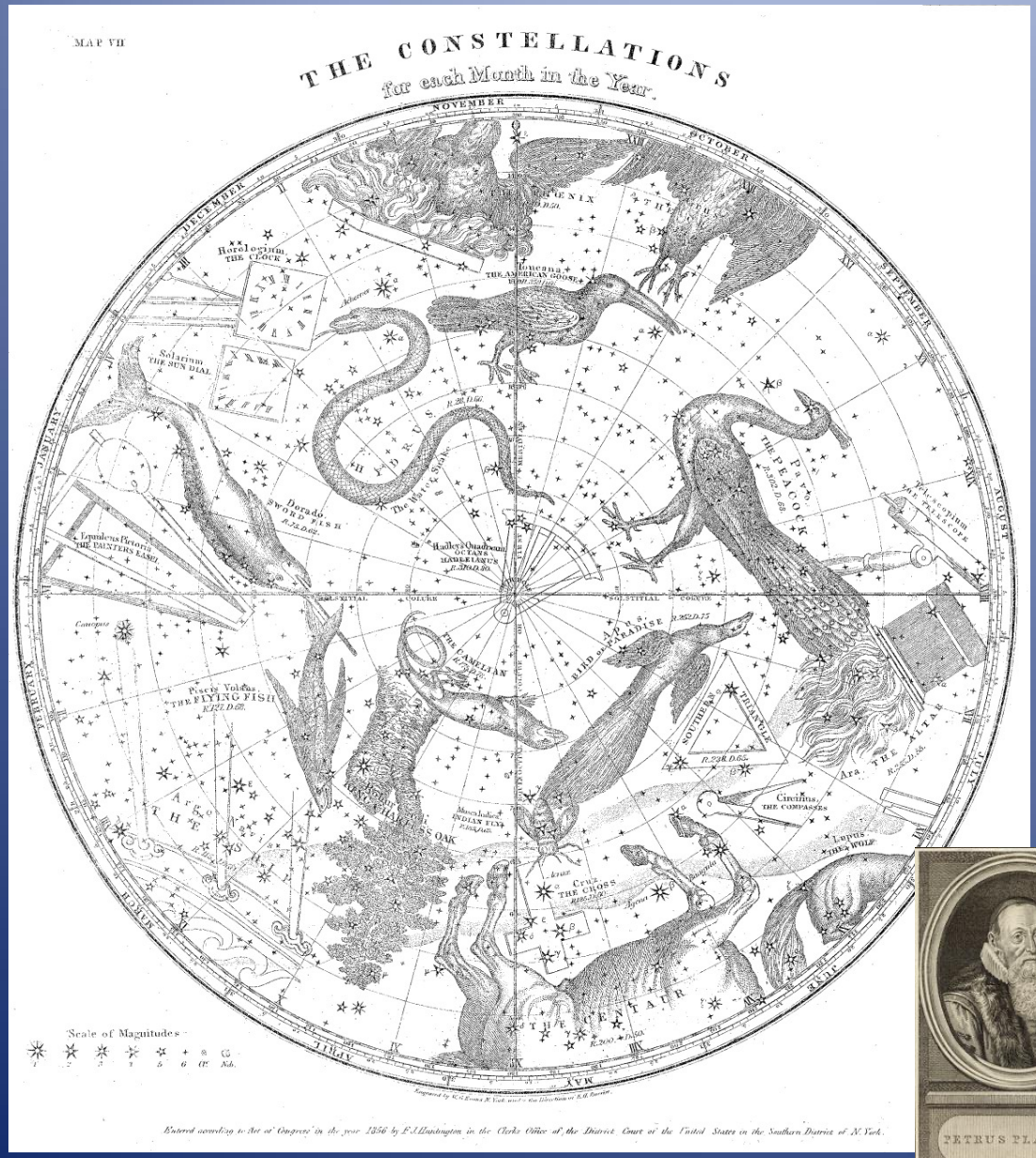
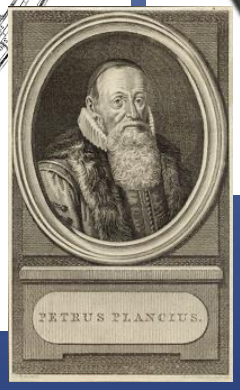
Pieter Dirkszoon Keyser
(ca. 1540-1596)



Frederick de Houtman
(1571 – 21 October 1627)



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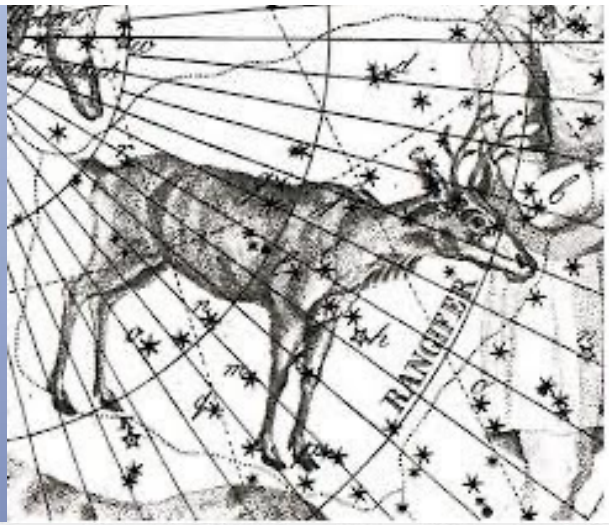
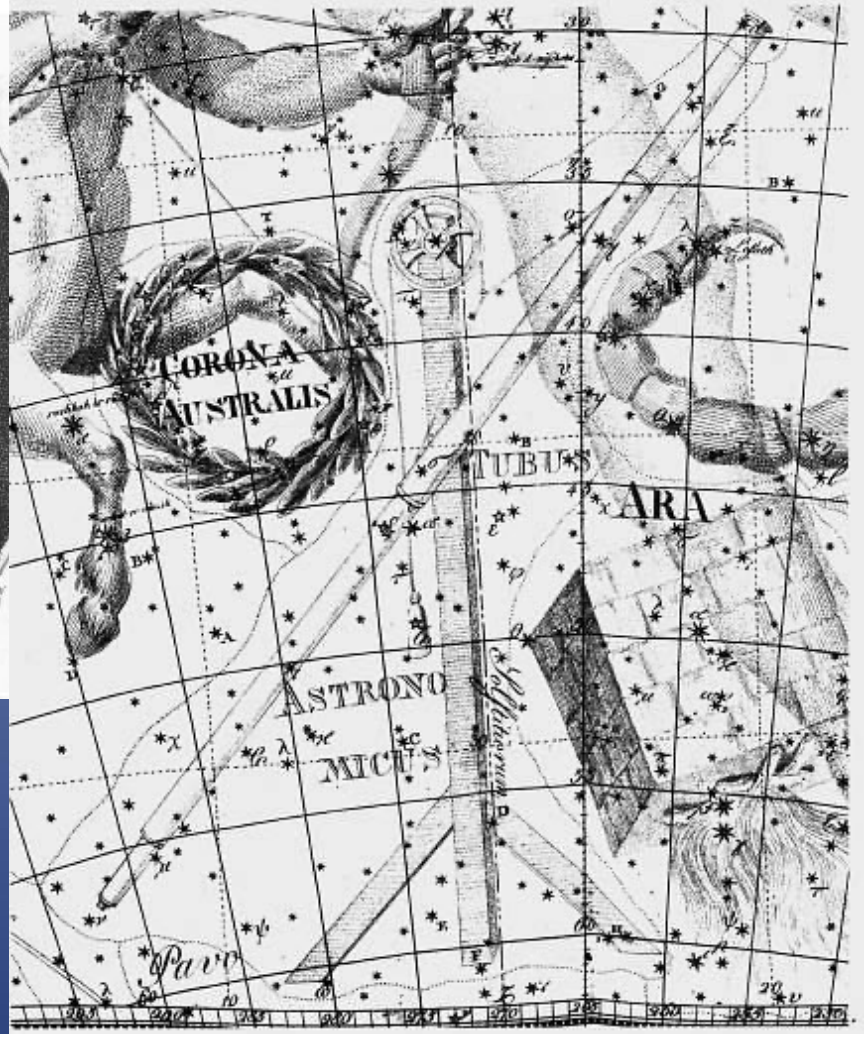
Detail from Bode's Uranographia (1801) 100 Constellations and 6 "Sub-constellations"



John Elert Bode (1747-1826)



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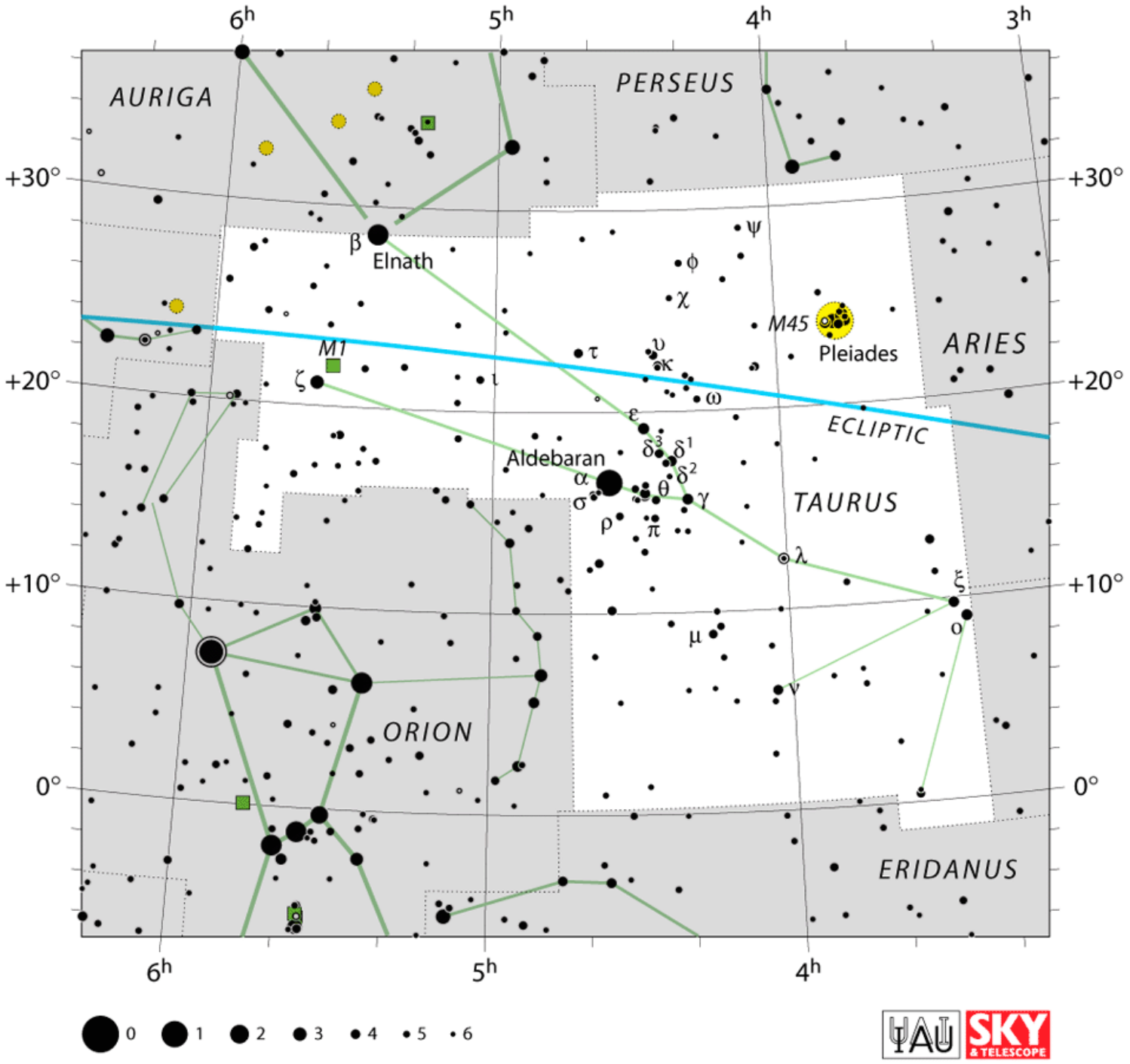
6h
5h
4h
3h
AURIGA
PERSEUS
+30°
+20°
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0°
β
Elnath
M1
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Pleiades
ARIES
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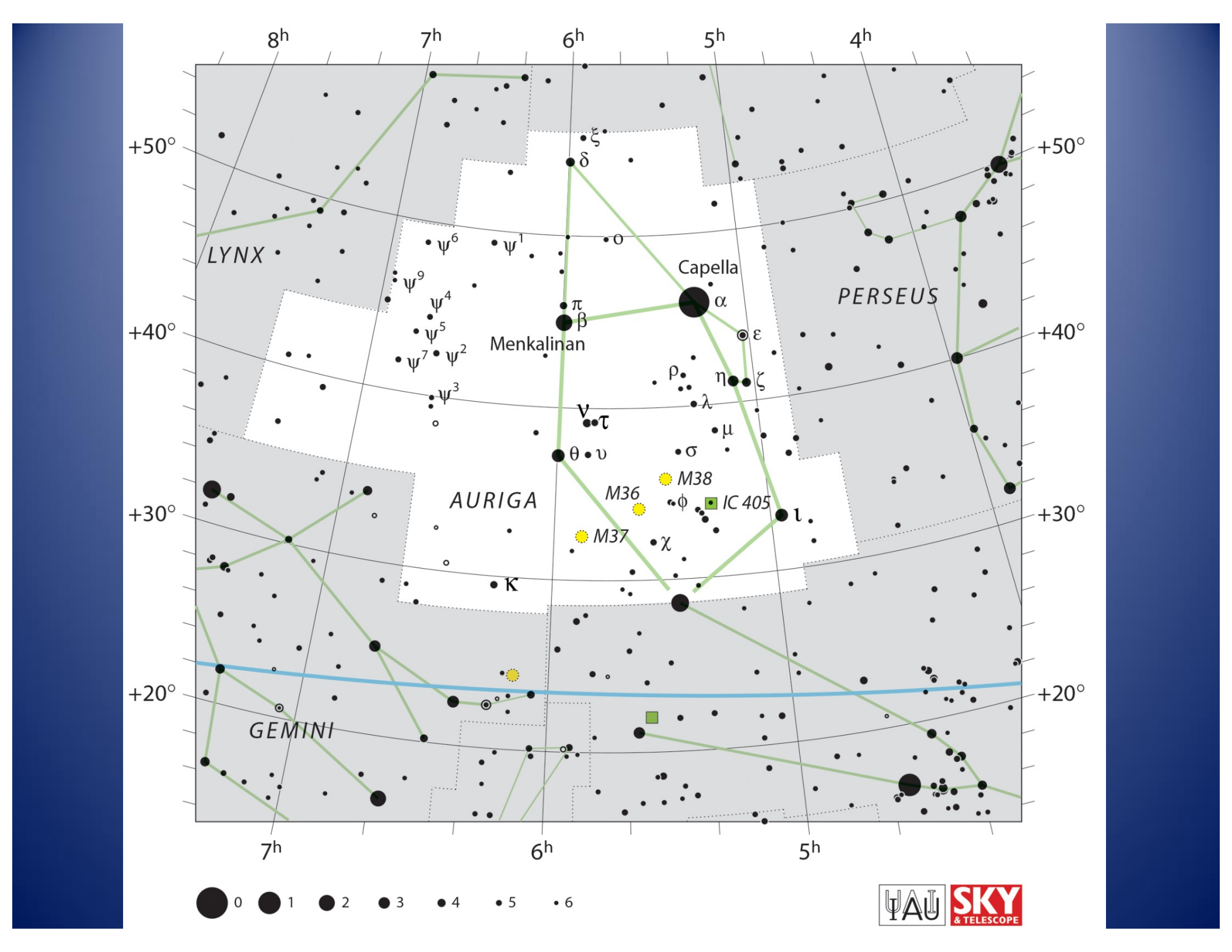
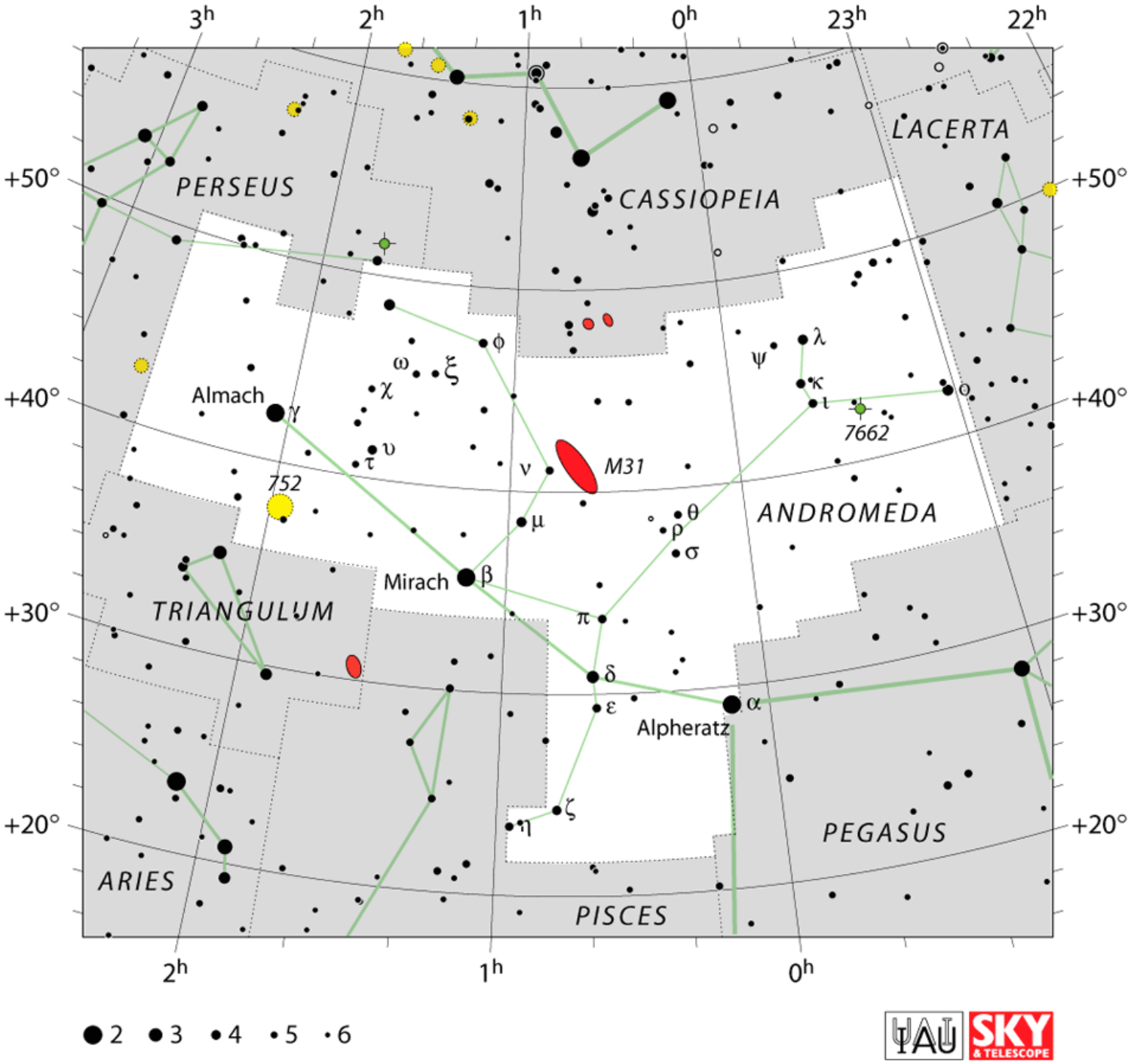
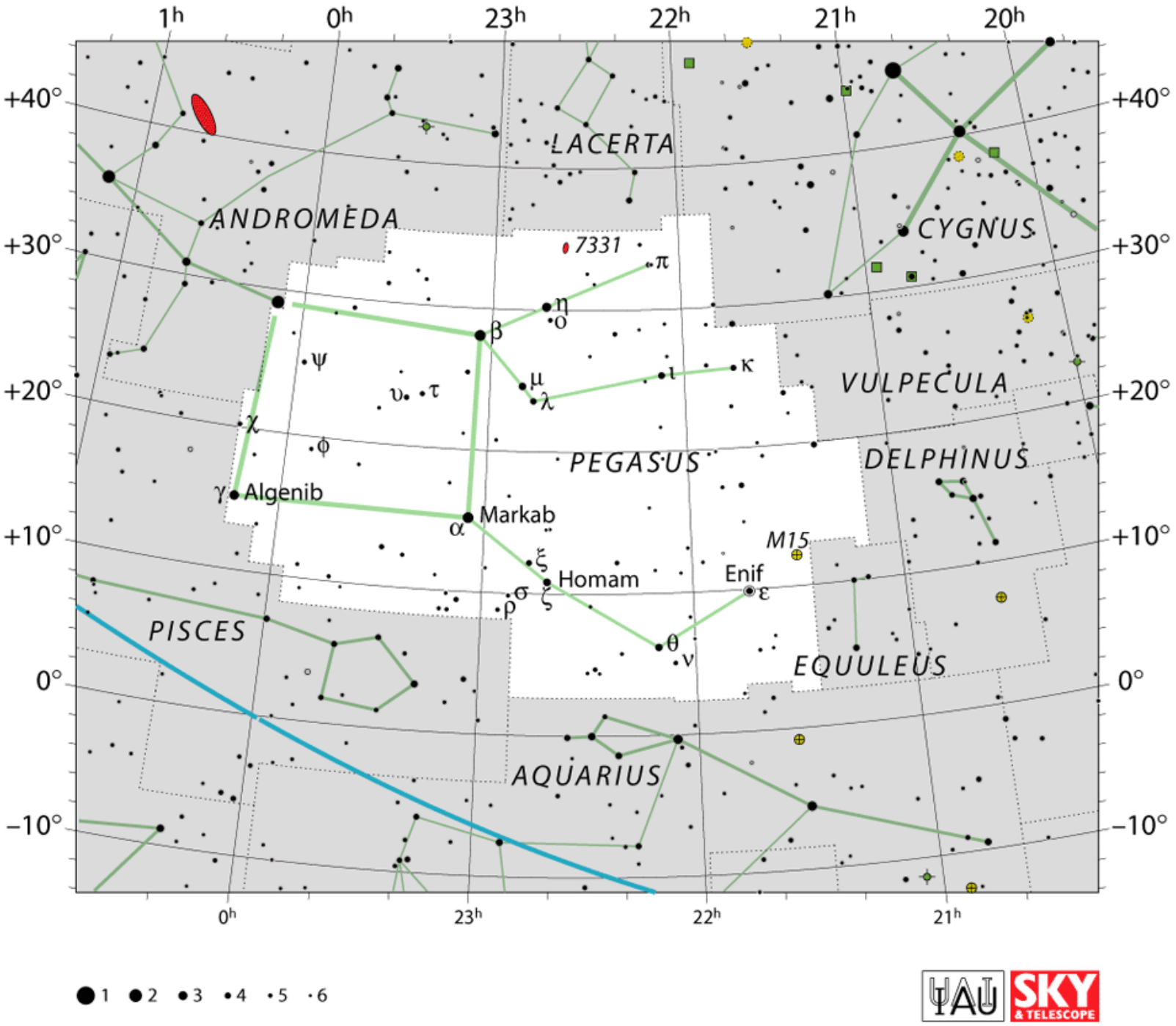

8h
7h
6h
5h
4h
+50°
+40°
+30°
+20°
LYNX
PERSEUS
AURIGA
GEMINI
Capella
Menkalinan
M36
M37
M38
IC 405
0
1
2
3
4
5
6
IAU
SKY & TELESCOPE


3h
2h
1h
0h
23h
22h
+50°
+40°
+30°
+20°
PERSEUS
CASSIOPEIA
LACERTA
ANDROMEDA
TRIANGULUM
ARIES
PISCES
PEGASUS
Almach
Mirach
Alpheratz
M31
752
7662
2
3
4
5
6


1h
0h
23h
22h
21h
20h
+40°
+30°
+20°
+10°
0°
−10°
LACERTA
ANDROMEDA
CYGNUS
7331
VULPECULA
PEGASUS
DELPHINUS
Algenib
Markab
M15
Homam
Enif
PISCES
EQUULEUS
AQUARIUS
1 2 3 4 5 6
IAU
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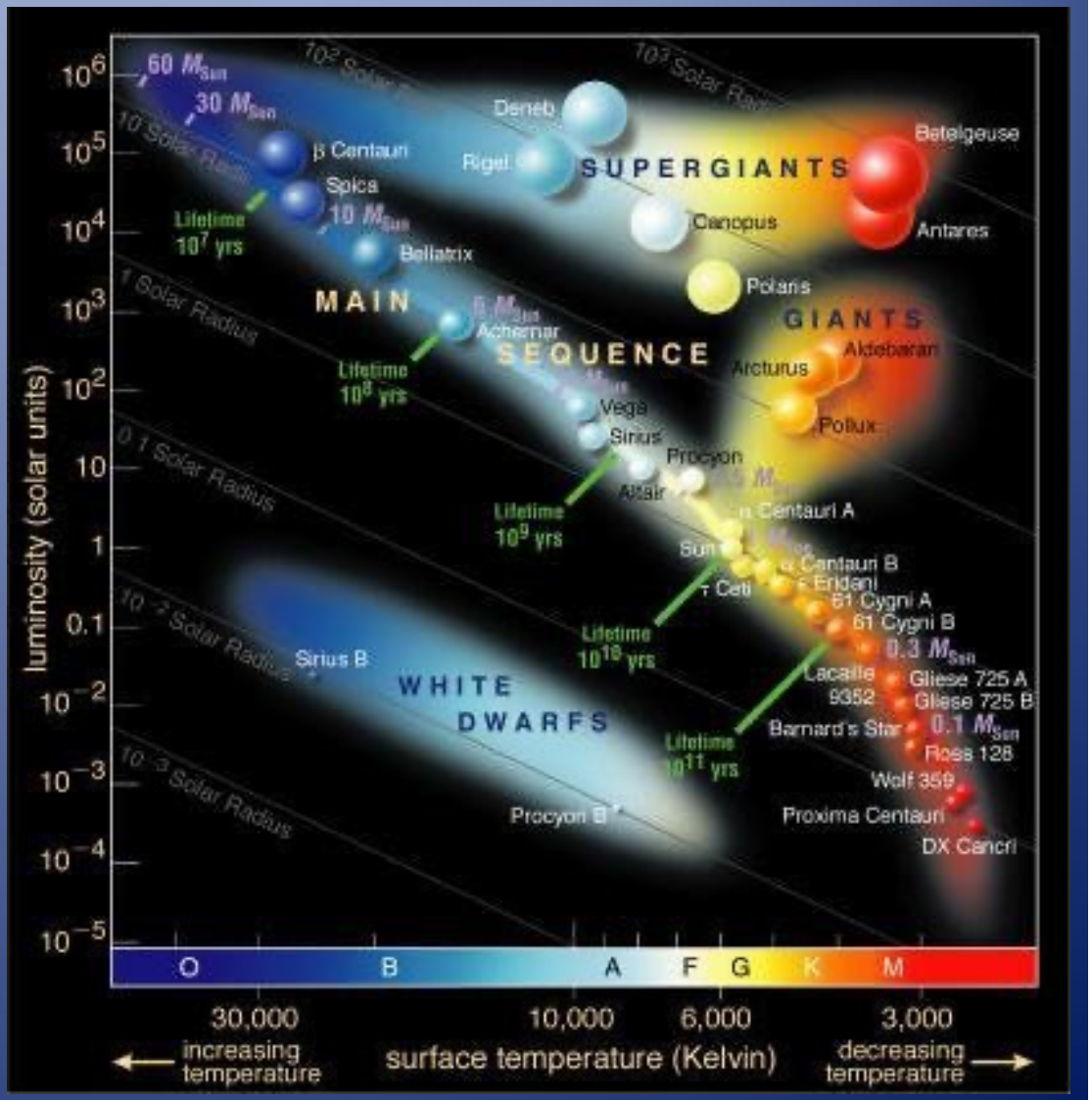
IAU's Plan

- Henry Norris Russell Selected to Help Divide the Sky into 88 Contiguous Sections
- Ancient Names were Retained Where Possible
- In 1930, Eugène Delporte Charted the Boundaries along lines of Right Ascension and Declination (i.e. like an Etch-a-Sketch, without any diagonals!)
- All Corners and Intersections Given Coordinates from Epoch B1875.0
- Due to Precession, Boundaries Noticeably Off with Respect to Modern Celestial Graticule

Henry Norris Russell

(October 25, 1877 – February 18, 1957)

Ejnar Hertzsprung



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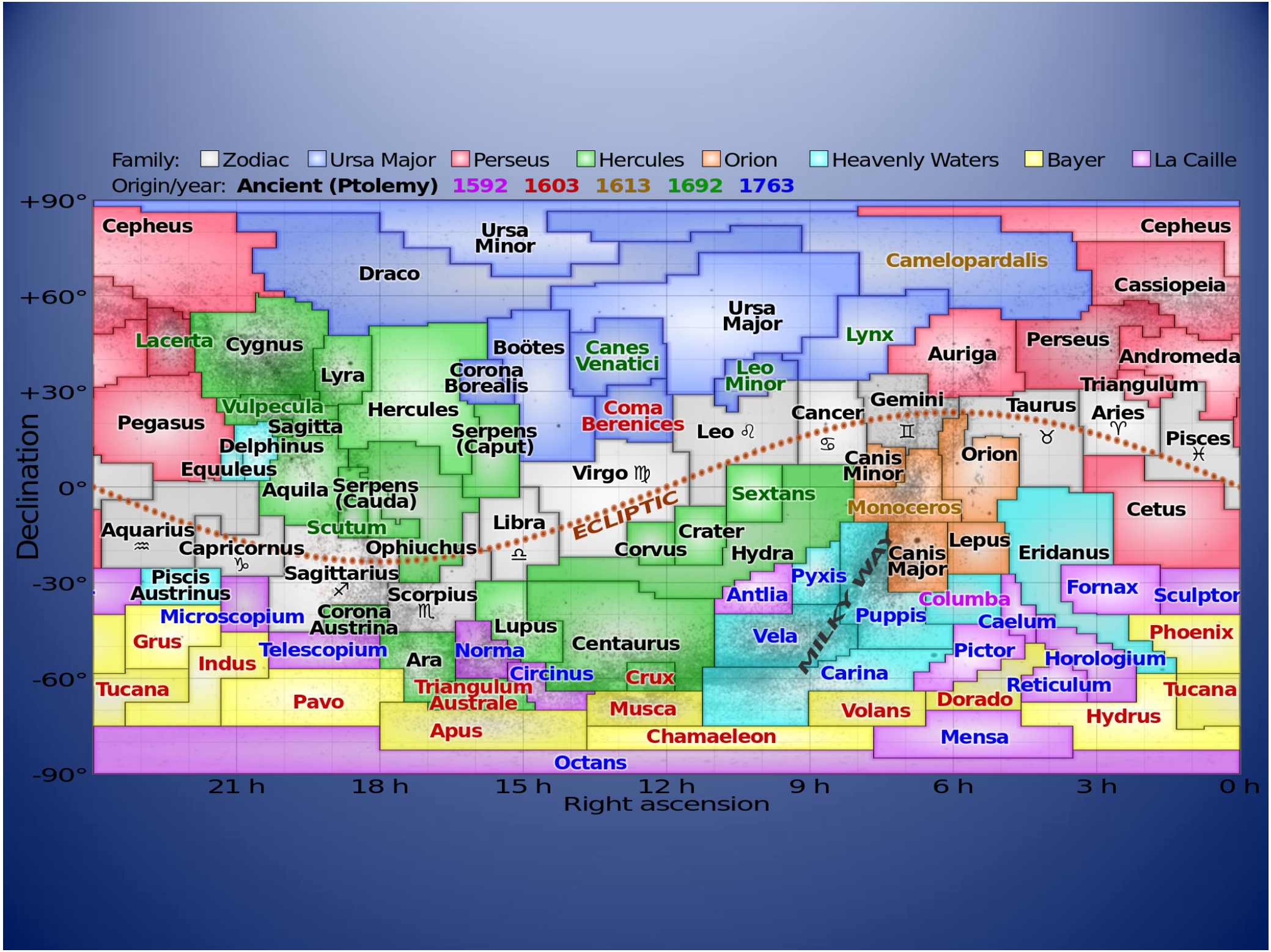
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Origin/year: Ancient (Ptolemy) 1592 1603 1613 1692 1763
+90°
+60°
+30°
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-60°
-90°
Declination
21 h
18 h
15 h
12 h
9 h
6 h
3 h
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Right ascension
Cepheus
Ursa Minor
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Camelopardalis
Cassiopeia
Ursa Major
Lynx
Lacerta
Cygnus
Boötes
Canes Venatici
Auriga
Perseus
Andromeda
Lyra
Corona Borealis
Leo Minor
Triangulum
Vulpecula
Hercules
Coma Berenices
Gemini
Taurus
Aries
Pegasus
Sagitta
Cancer
Leo
Pisces
Delphinus
Serpens (Caput)
Canis Minor
Orion
Equuleus
Virgo
Aquila
Serpens (Cauda)
Sextans
Monoceros
Cetus
Scutum
Libra
ECLIPTIC
Crater
Aquarius
Capricornus
Ophiuchus
Corvus
Hydra
Lepus
Eridanus
Canis Major
Sagittarius
Pyxis
Fornax
Piscis Austrinus
Scorpius
Antlia
Columba
Sculptor
Microscopium
Corona Australis
Puppis
Caelum
Lupus
Vela
Phoenix
Grus
Centaurus
Pictor
Telescopium
Norma
Ara
Horologium
Indus
Circinus
Crux
Carina
Tucana
Triangulum Australe
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Mensa
Octans
MILKY WAY

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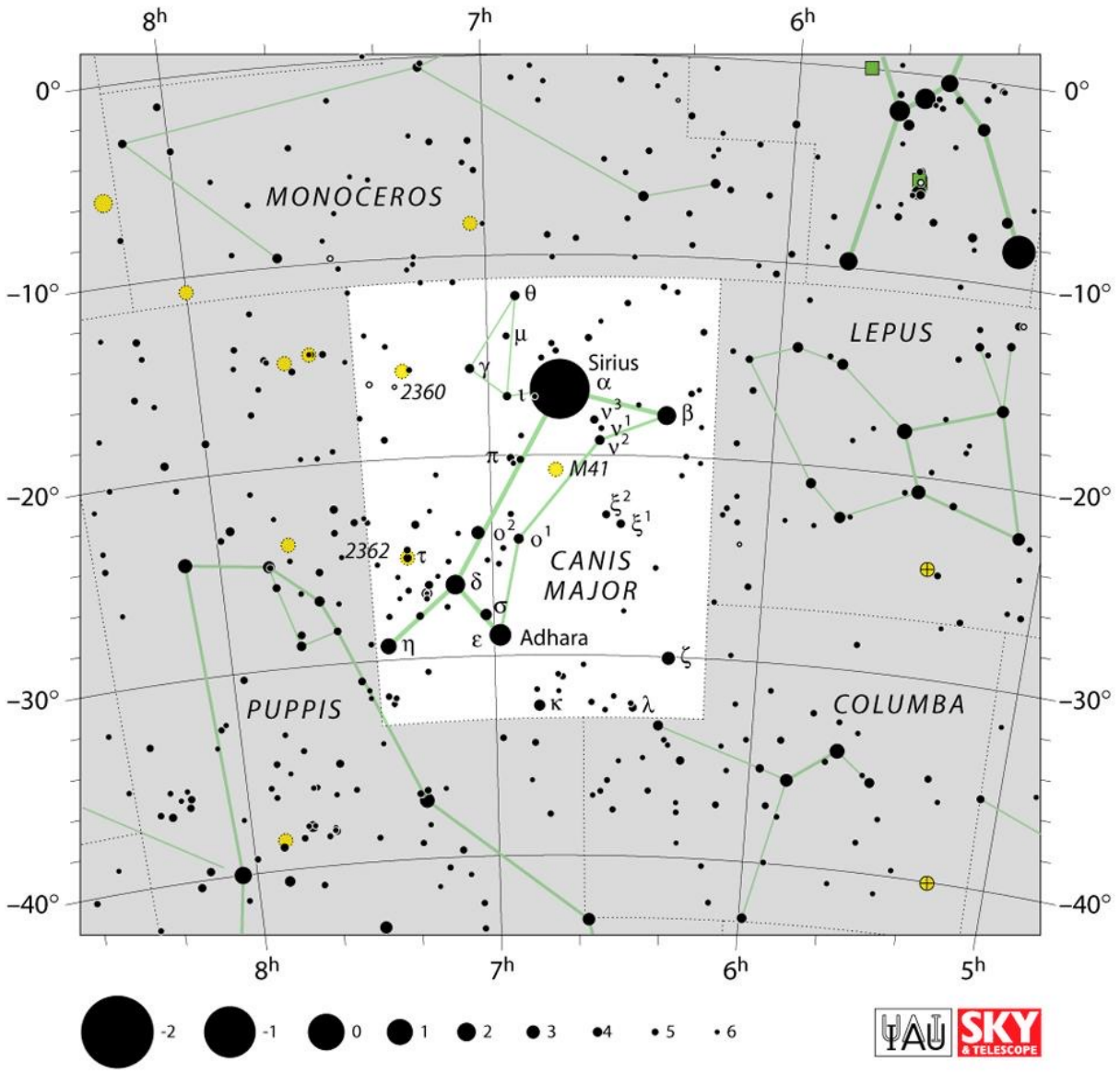
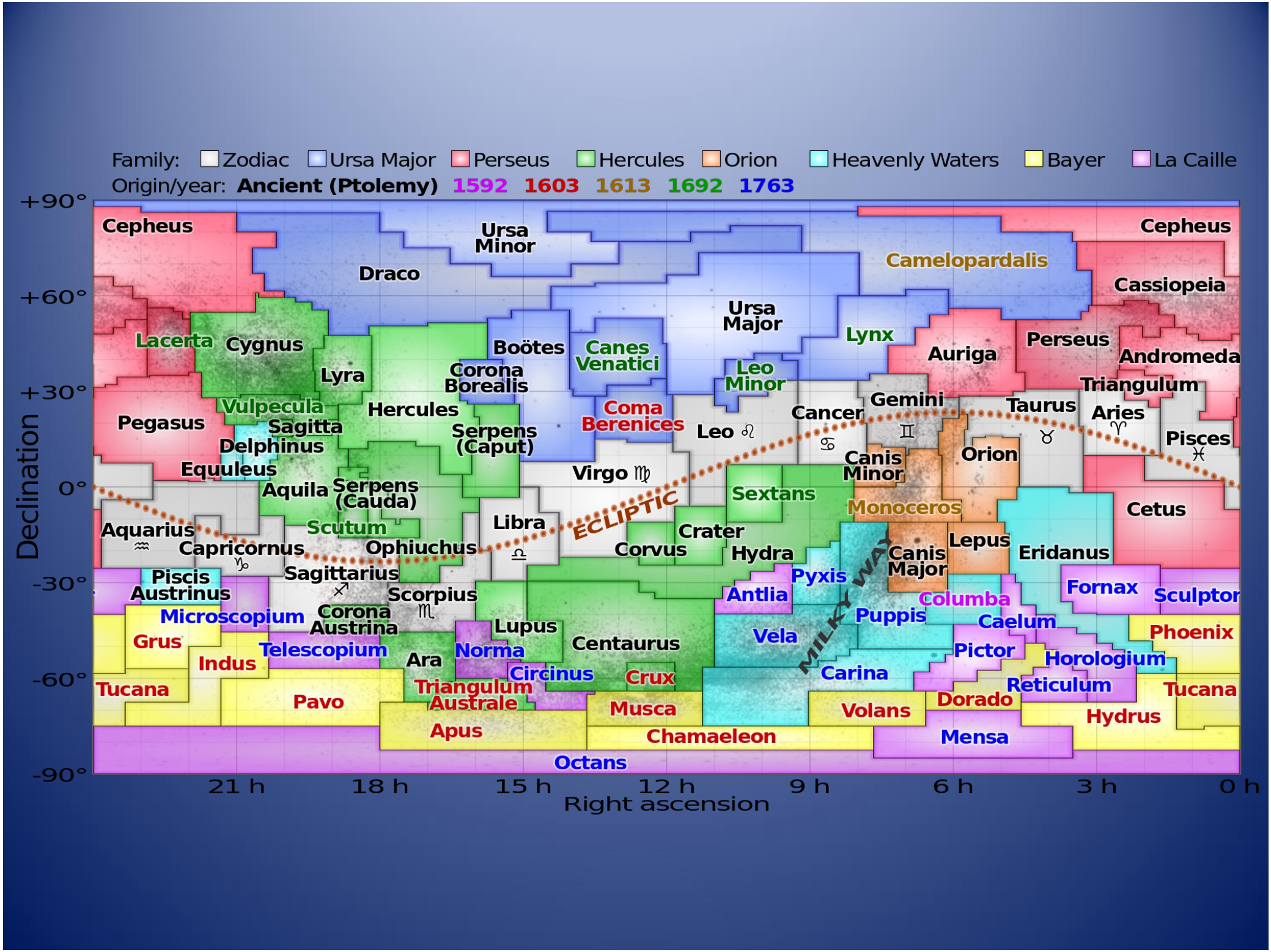
Eugène Joseph Delporte

(10 January 10, 1882– October 19, 1955)



Right Ascension	Declination	Abbr.
06 12 51.7500	-11.0301533	CMA
07 27 53.6159	-11.2521448	CMA
07 26 42.5277	-33.2504692	CMA
06 39 36.9263	-33.1128159	CMA
06 11 35.7763	-33.0282326	CMA
06 11 58.2159	-27.2787991	CMA


Family: Zodiac Ursa Major Perseus Hercules Orion Heavenly Waters Bayer La Caille
Origin/year: Ancient (Ptolemy) 1592 1603 1613 1692 1763
+90°
+60°
+30°
0°
-30°
-60°
-90°
Declination
21 h
18 h
15 h
12 h
9 h
6 h
3 h
0 h
Right ascension
Cepheus
Ursa Minor
Draco
Camelopardalis
Cassiopeia
Ursa Major
Lynx
Lacerta
Cygnus
Boötes
Canes Venatici
Auriga
Perseus
Andromeda
Lyra
Corona Borealis
Leo Minor
Triangulum
Vulpecula
Hercules
Coma Berenices
Gemini
Taurus
Aries
Pegasus
Sagitta
Cancer
Leo
Pisces
Delphinus
Serpens (Caput)
Canis Minor
Orion
Equuleus
Virgo
Aquila
Serpens (Cauda)
Sextans
Monoceros
Cetus
Scutum
Libra
ECLIPTIC
Crater
Aquarius
Capricornus
Ophiuchus
Corvus
Hydra
Lepus
Eridanus
Canis Major
Sagittarius
Pyxis
Fornax
Piscis Austrinus
Scorpius
Antlia
Columba
Sculptor
Microscopium
Corona Australis
Puppis
Caelum
Lupus
Vela
Phoenix
Grus
Centaurus
Pictor
Telescopium
Norma
Ara
Horologium
Indus
Circinus
Crux
Carina
Tucana
Triangulum Australe
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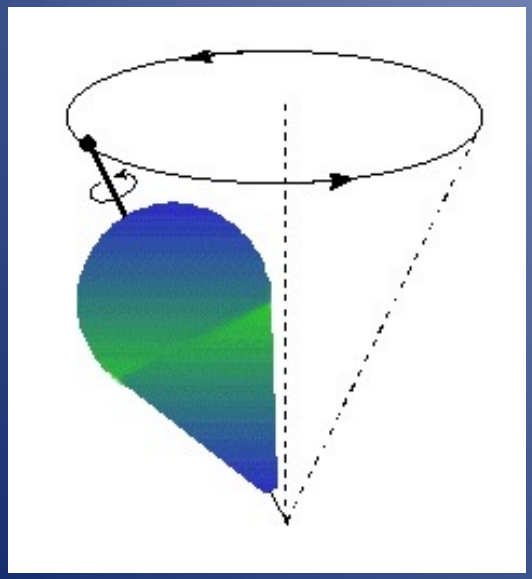
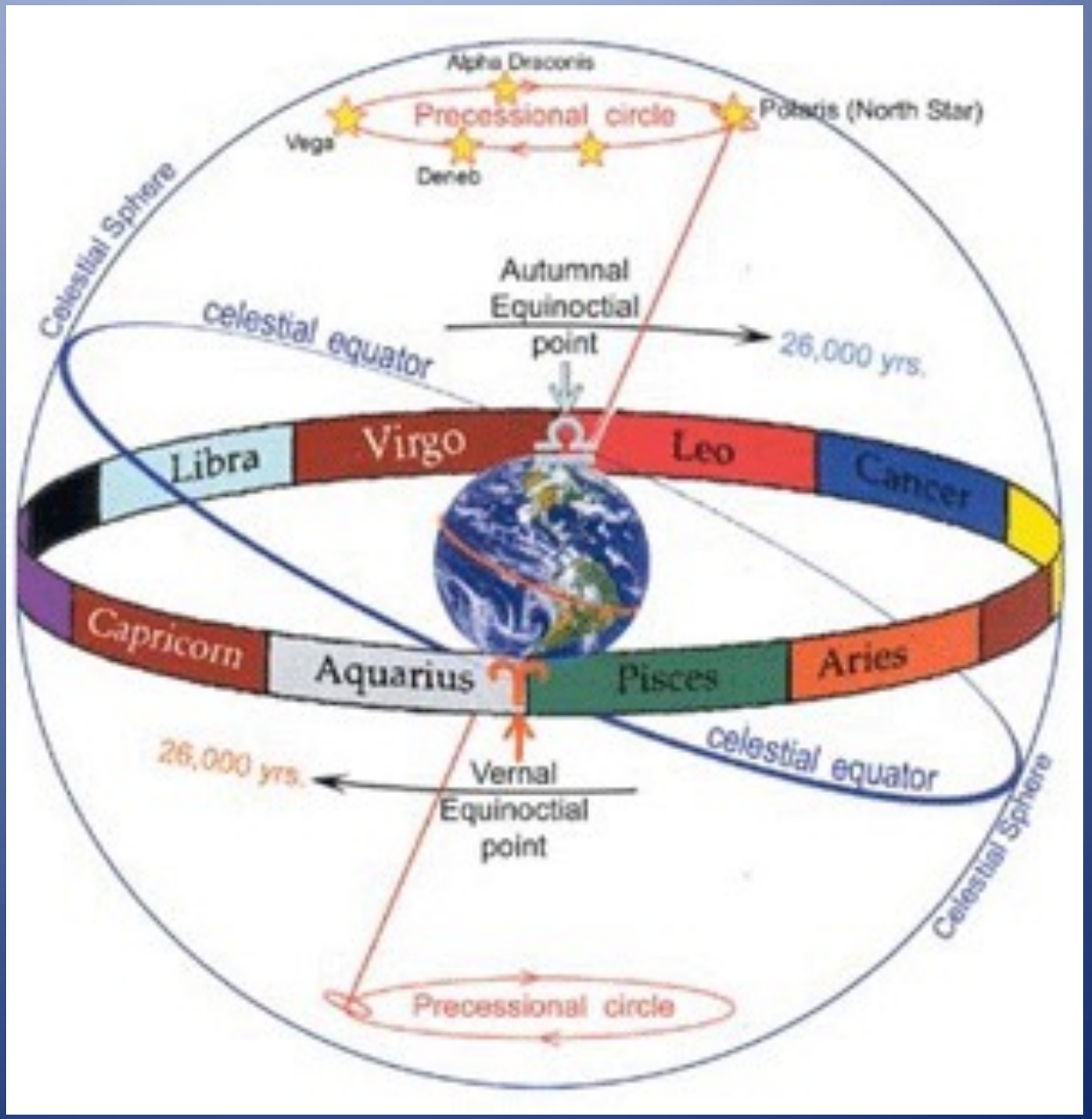
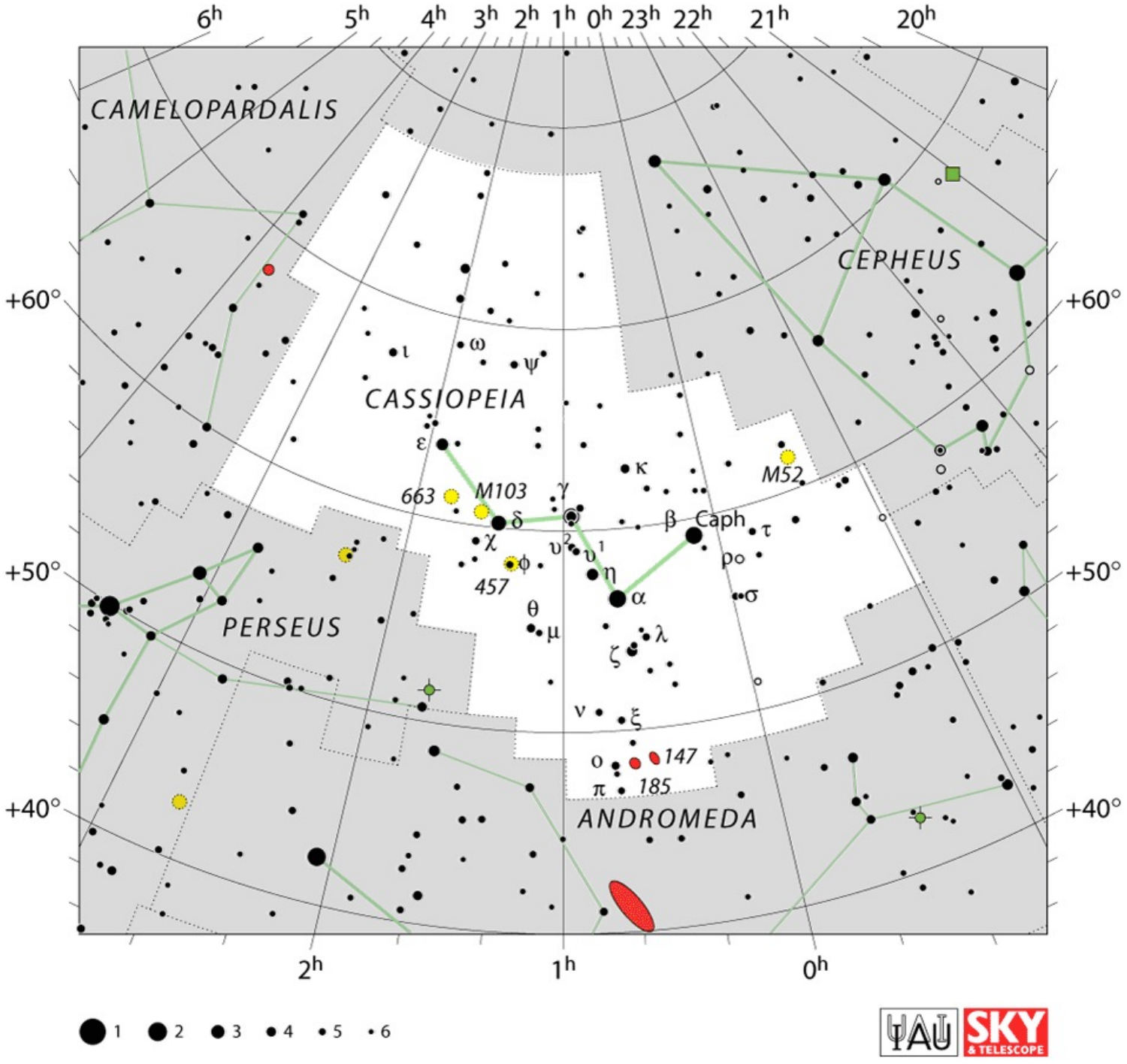
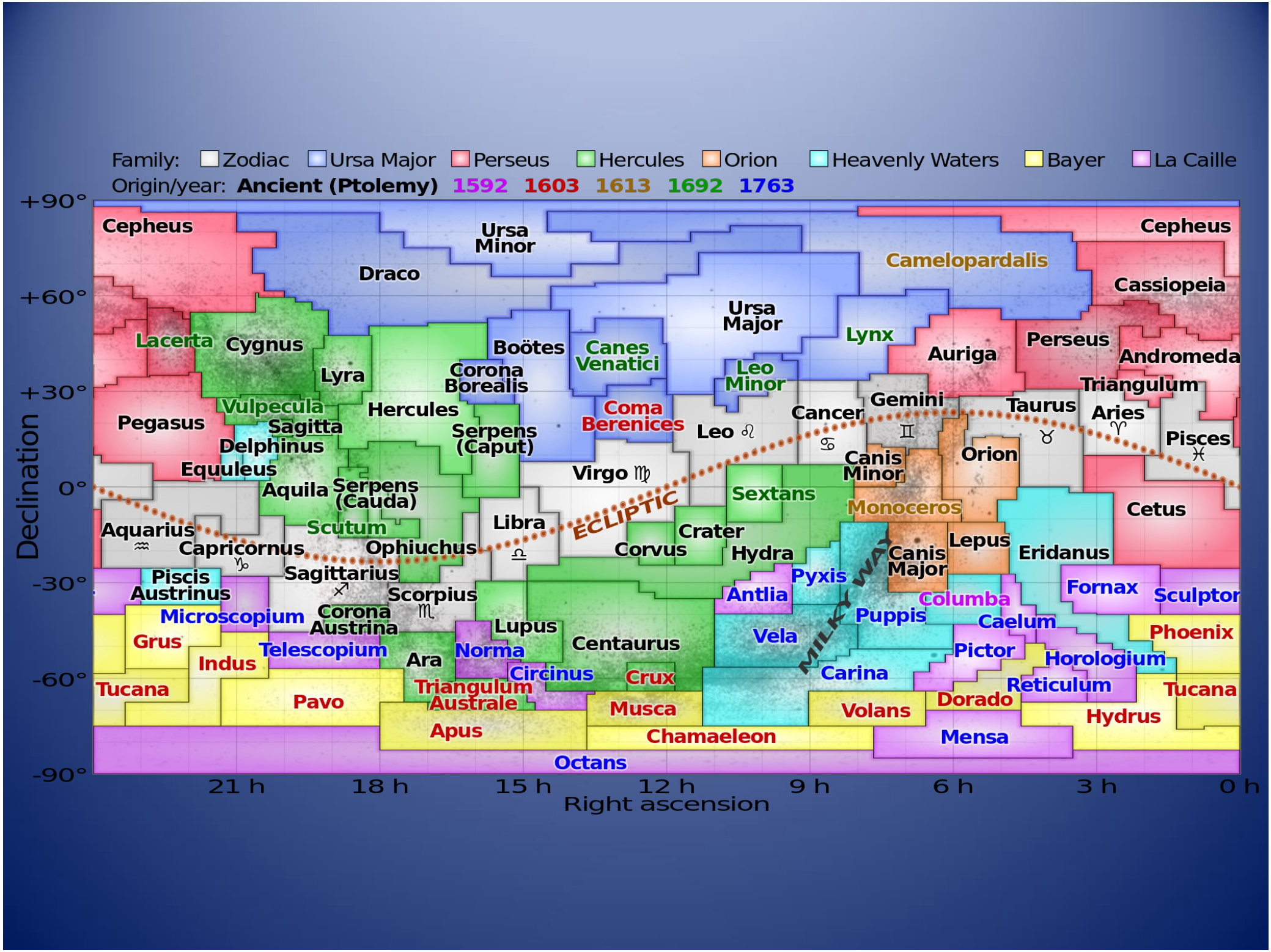
Hipparchus and the Precession of the Equinox






6h
5h
4h
3h
2h
1h
0h
23h
22h
21h
20h
CAMELOPARDALIS
CEPHEUS
CASSIOPEIA
PERSEUS
ANDROMEDA
+60°
+50°
+40°
663
M103
M52
457
147
185
β Caph
1
2
3
4
5
6
SKY & TELESCOPE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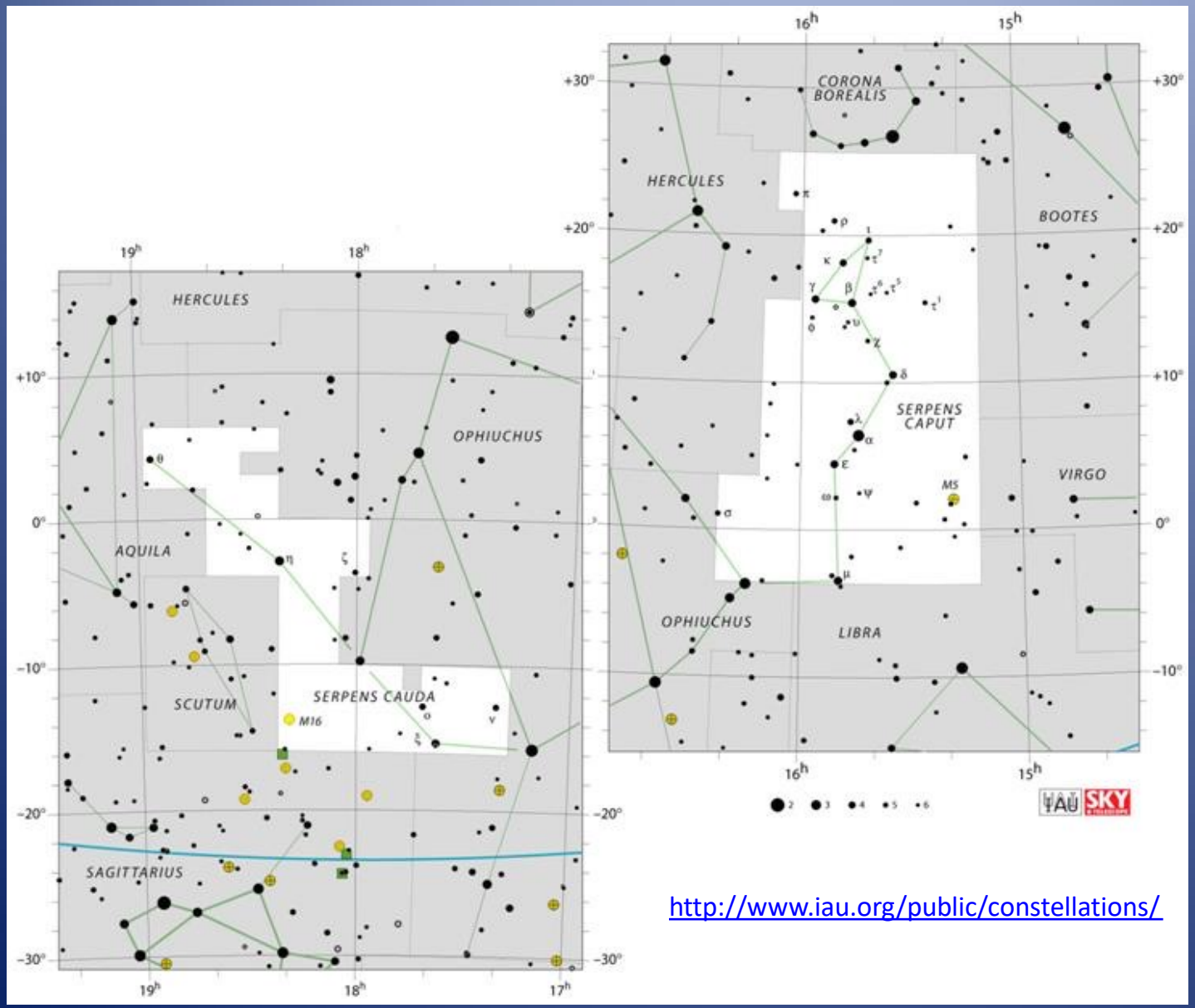
Carina
Tucana
Triangulum Australe
Reticulum
Tucana
Pavo
Musca
Volans
Dorado
Hydrus
Apus
Chamaeleon
Mensa
Octans
MILKY WAY

IAU Constellation Boundaries



http://www.iau.org/public/constellations/

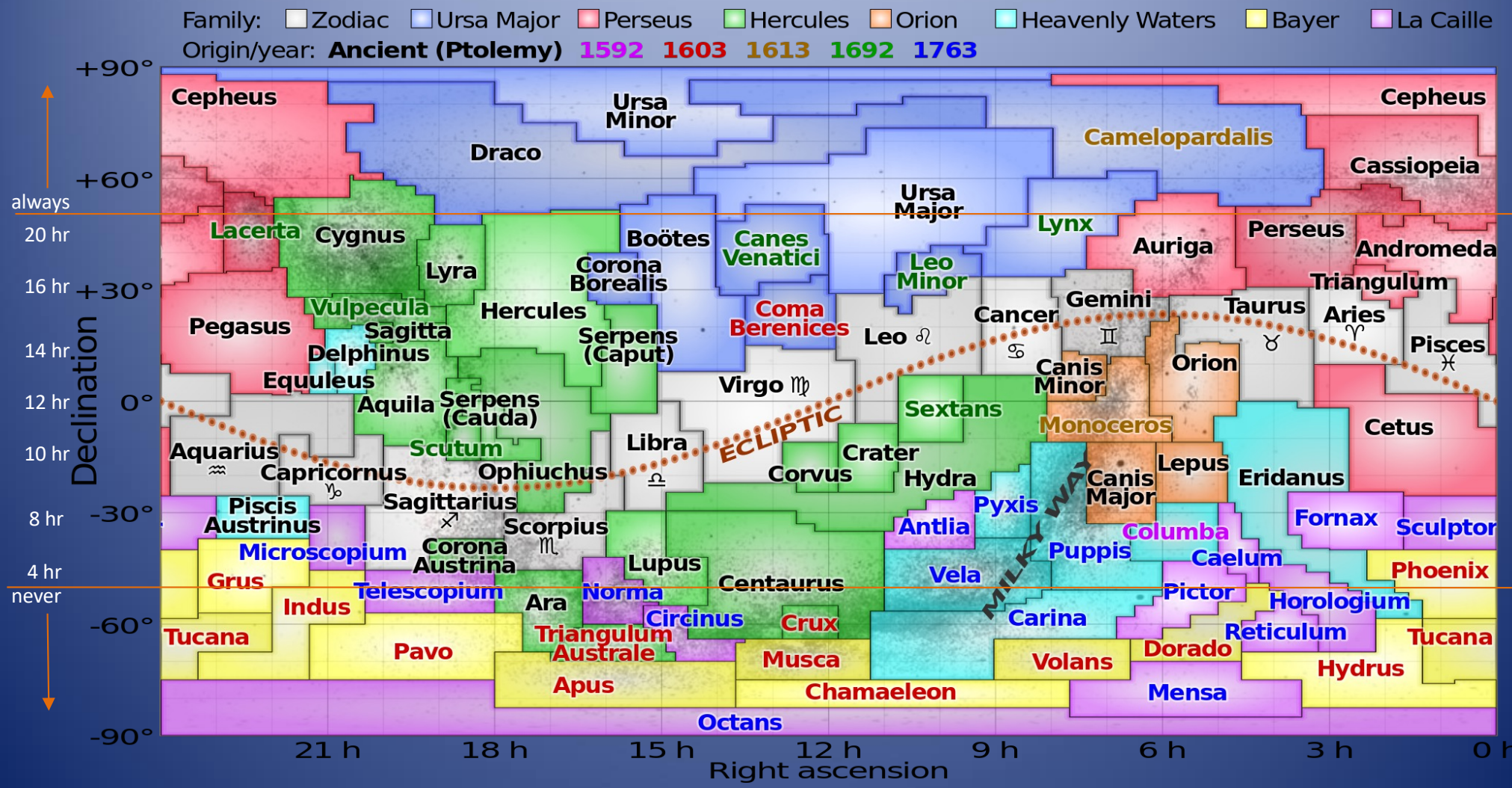
Serpens (Caput)

15 11 24.7229| -0.4742887|SER1
15 11 07.5567| 7.5253930|SER1
15 10 25.3179| 25.5246105|SER1
15 16 23.8839| 25.5380573|SER1
16 07 13.3763| 25.6641407|SER1
16 07 25.5781| 21.6644115|SER1
16 00 26.6418| 21.6459675|SER1
16 00 43.4577| 15.6463346|SER1
16 10 42.3912| 15.6728001|SER1
16 11 14.3203| 3.6735139|SER1
16 22 14.0628| 3.7033811|SER1
16 22 24.6306| -0.2963768|SER1
16 22 33.2133| -3.5461800|SER1
16 01 32.8689| -3.6025870|SER1
15 11 31.6683| -3.7241600|SER1

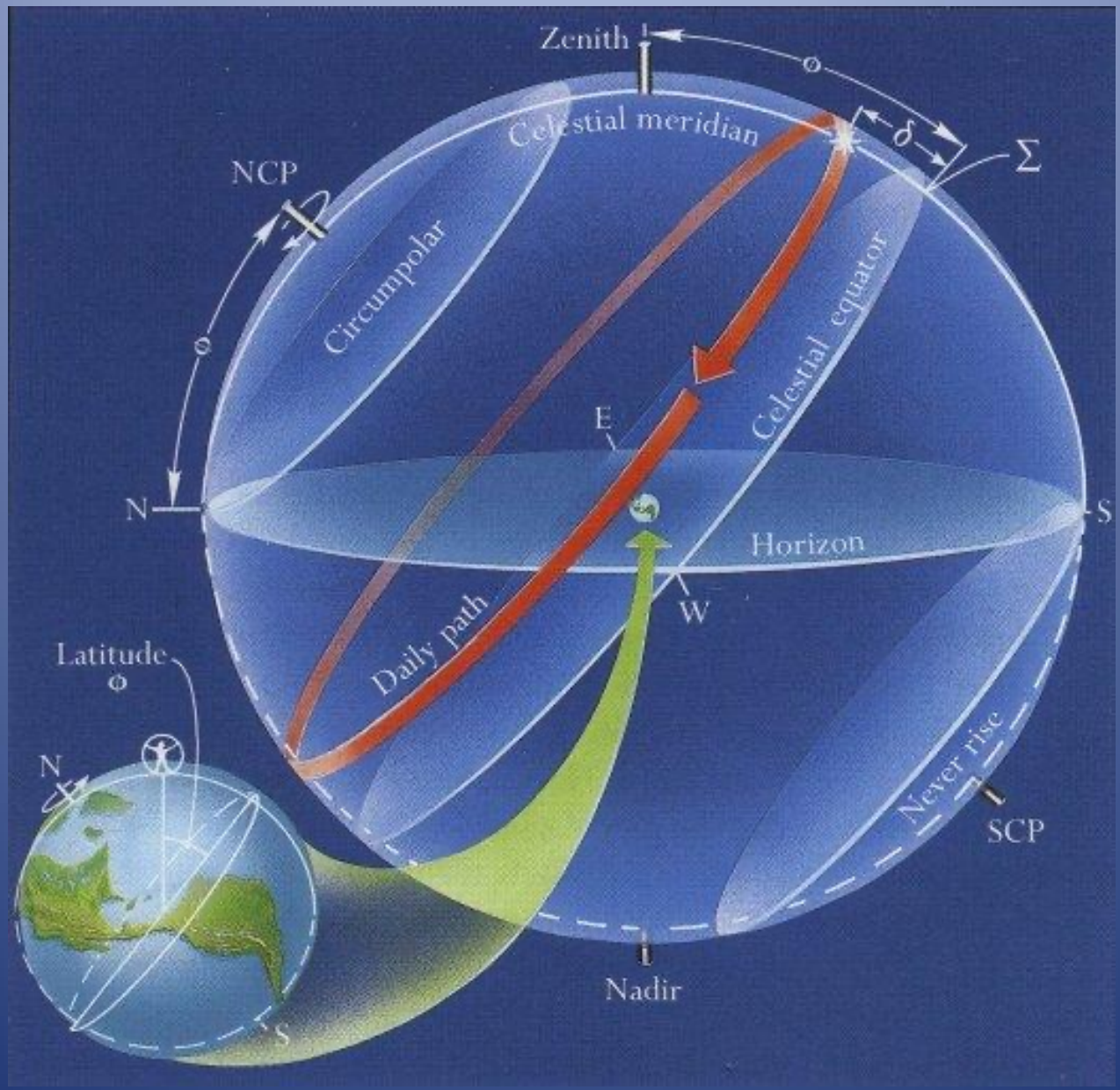
Serpens (Cauda)

18 21 24.1437| 0.0552235|SER2
18 21 15.4167| 3.0550034|SER2
18 31 45.4137| 3.0867271|SER2
18 31 41.0535| 4.5866175|SER2
18 21 11.0427| 4.5548930|SER2
18 21 05.9065| 6.3047633|SER2
18 45 50.0565| 6.3791943|SER2
18 58 06.2364| 6.4156075|SER2
18 58 18.3421| 2.1659052|SER2
18 41 18.2958| 2.1153460|SER2
18 41 24.0501| 0.1154895|SER2
18 41 35.5650| -3.8842230|SER2
18 21 35.7894| -3.9444826|SER2
18 22 11.8863|-15.9435720|SER2
17 43 12.0457|-16.0618820|SER2
17 17 11.3827|-16.1399899|SER2
17 16 53.2967|-10.1404381|SER2
17 41 53.6377|-10.0653696|SER2
17 41 58.6569|-11.7319136|SER2
17 46 58.7280|-11.7167768|SER2
17 46 53.7017|-10.0502338|SER2
18 04 53.6919| -9.9956055|SER2
18 04 35.9217| -3.9960551|SER2
17 56 35.9289| -4.0203514|SER2
17 56 24.2491| -0.0206471|SER2

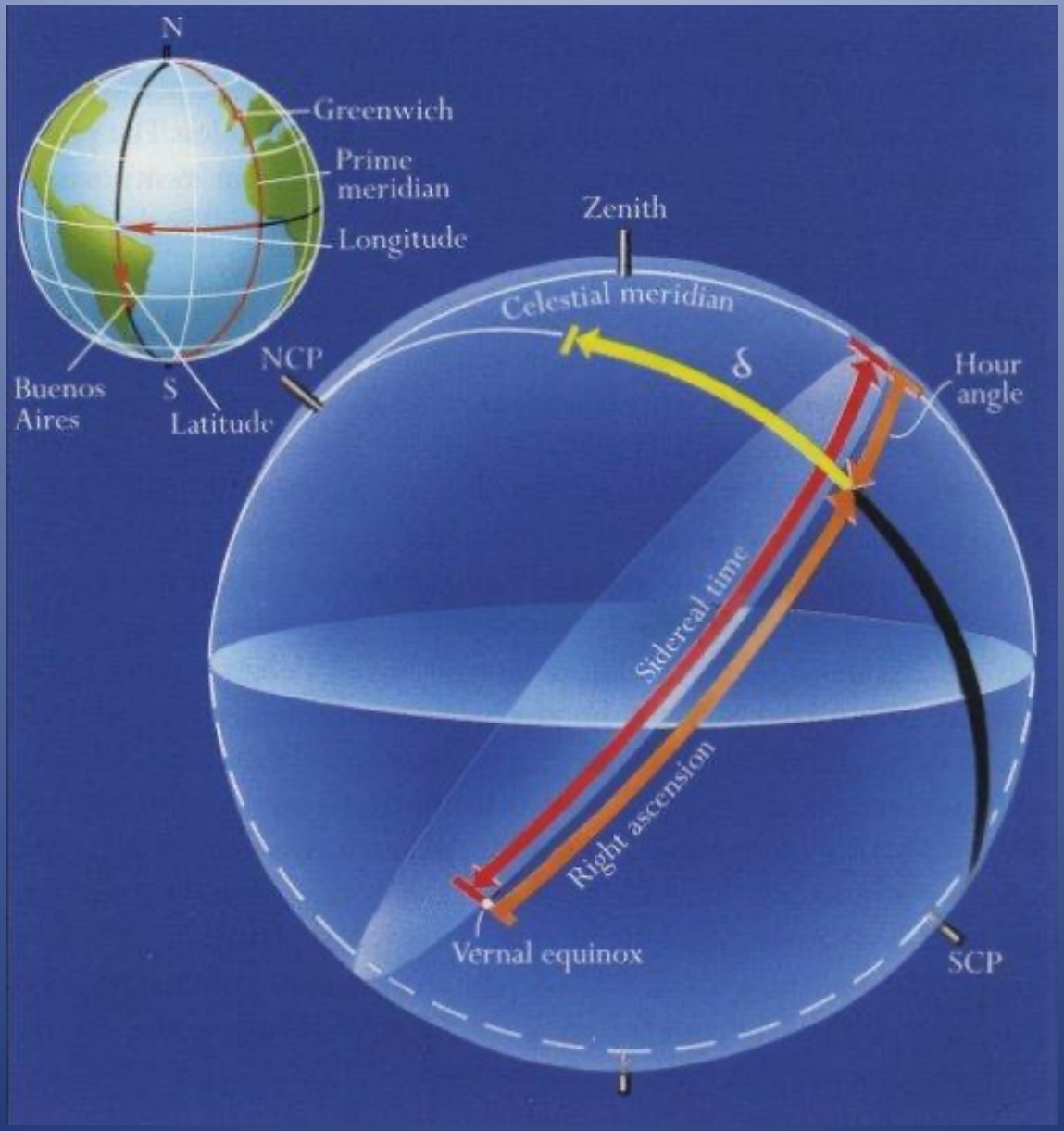
Time Above the Horizon at Latitude 40° 40’ 55” N



Celestial Sphere



Hour Angle

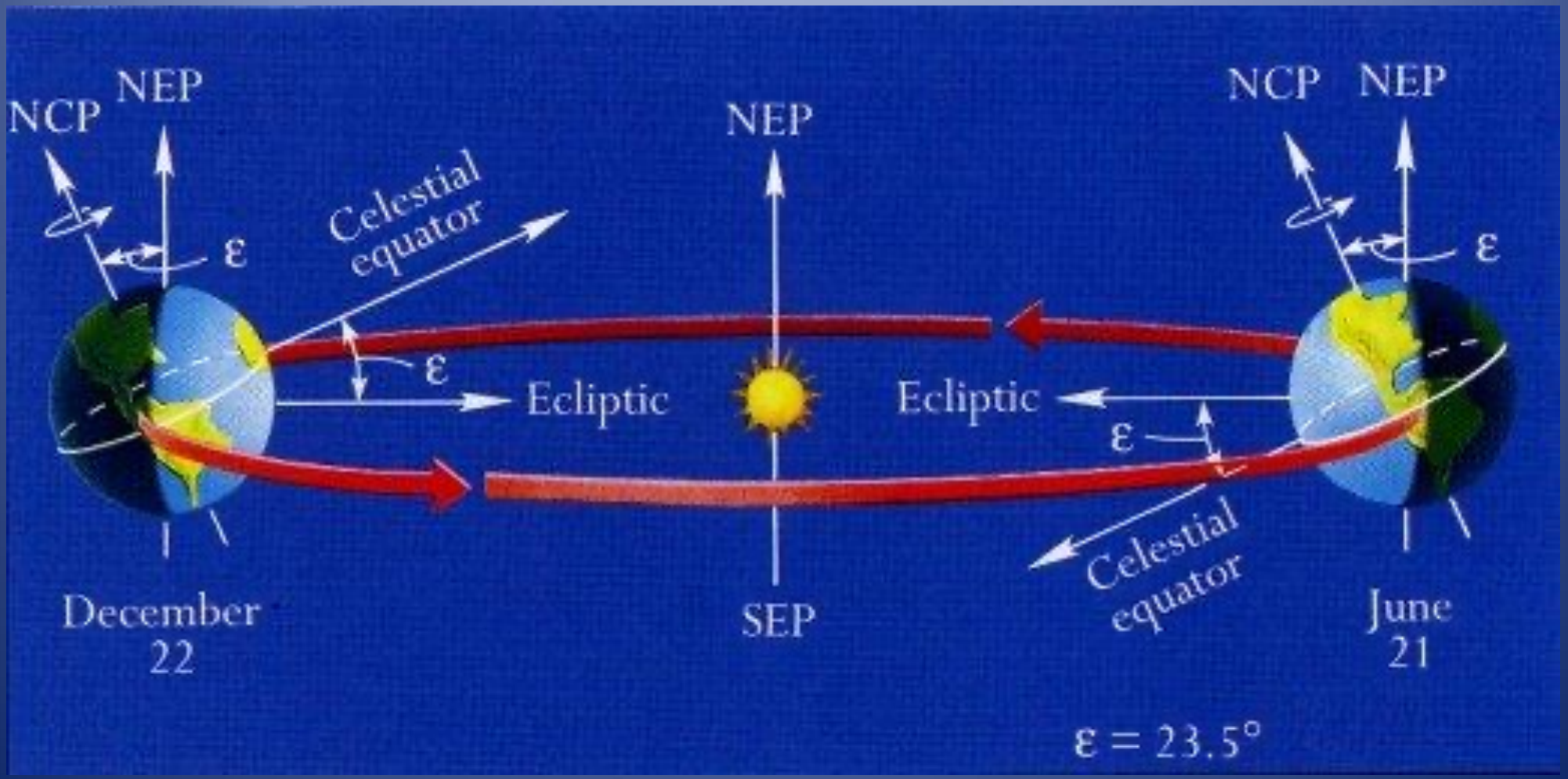

N
Greenwich
Prime meridian
Longitude
Buenos Aires
S
Latitude
NCP
Zenith
Celestial meridian
δ
Hour angle
Sidereal time
Right ascension
Vernal equinox
SCP

Time that a Star Spends above the Horizon Depends on the Star's Declination and the Observer's Latitude

Seasonal Constellations

- As the Earth revolves around the sun, the night side of the Earth is faces a different part of the sky from one season to the next.
- You hear and read about the stars and constellations of the different seasons. This refers to the stars that are in the sky shortly after nightfall.
- Even circumpolar stars are at different positions in the sky at nightfall at different times of the year.

Celestial Equator and Seasons



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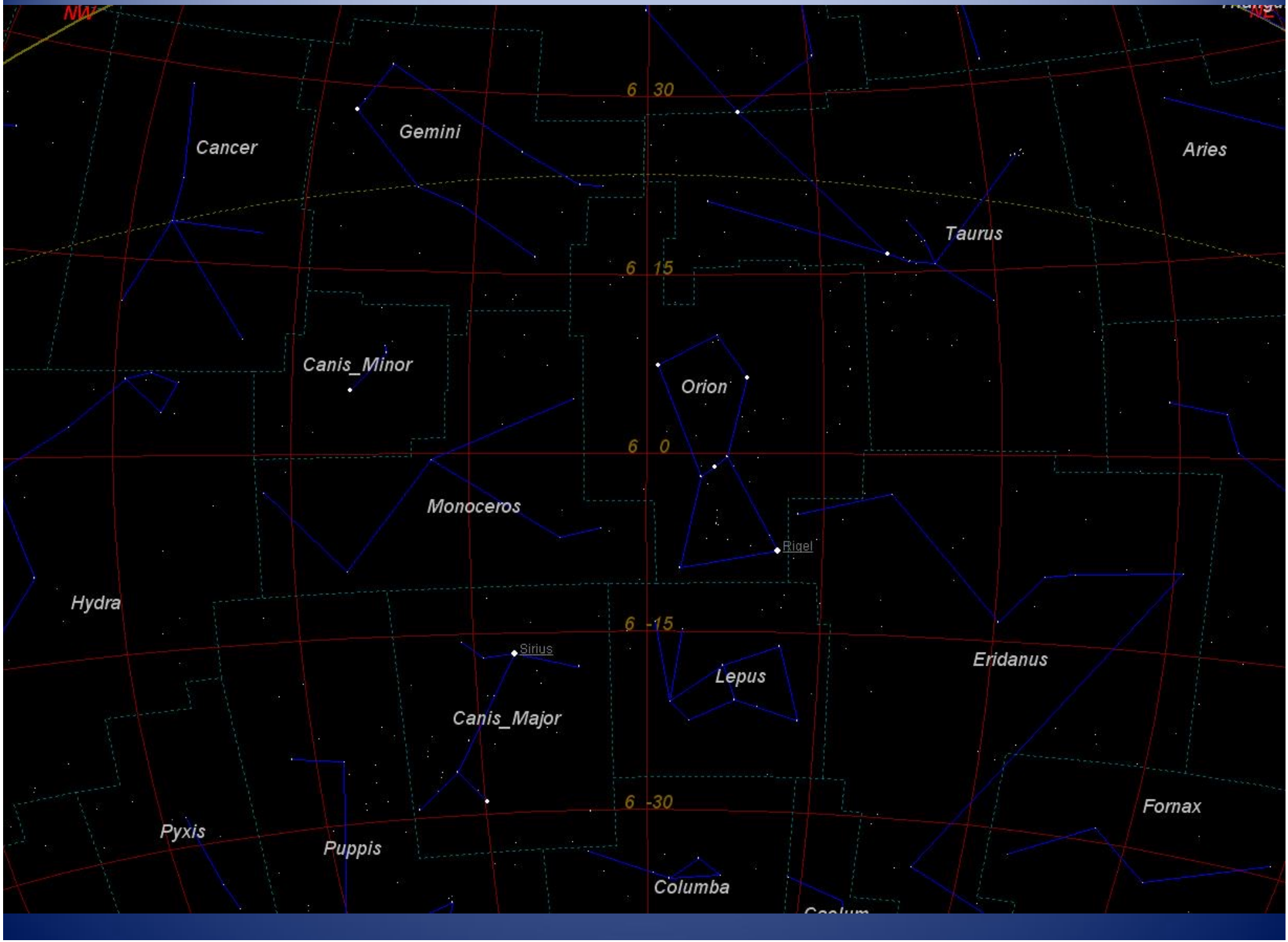
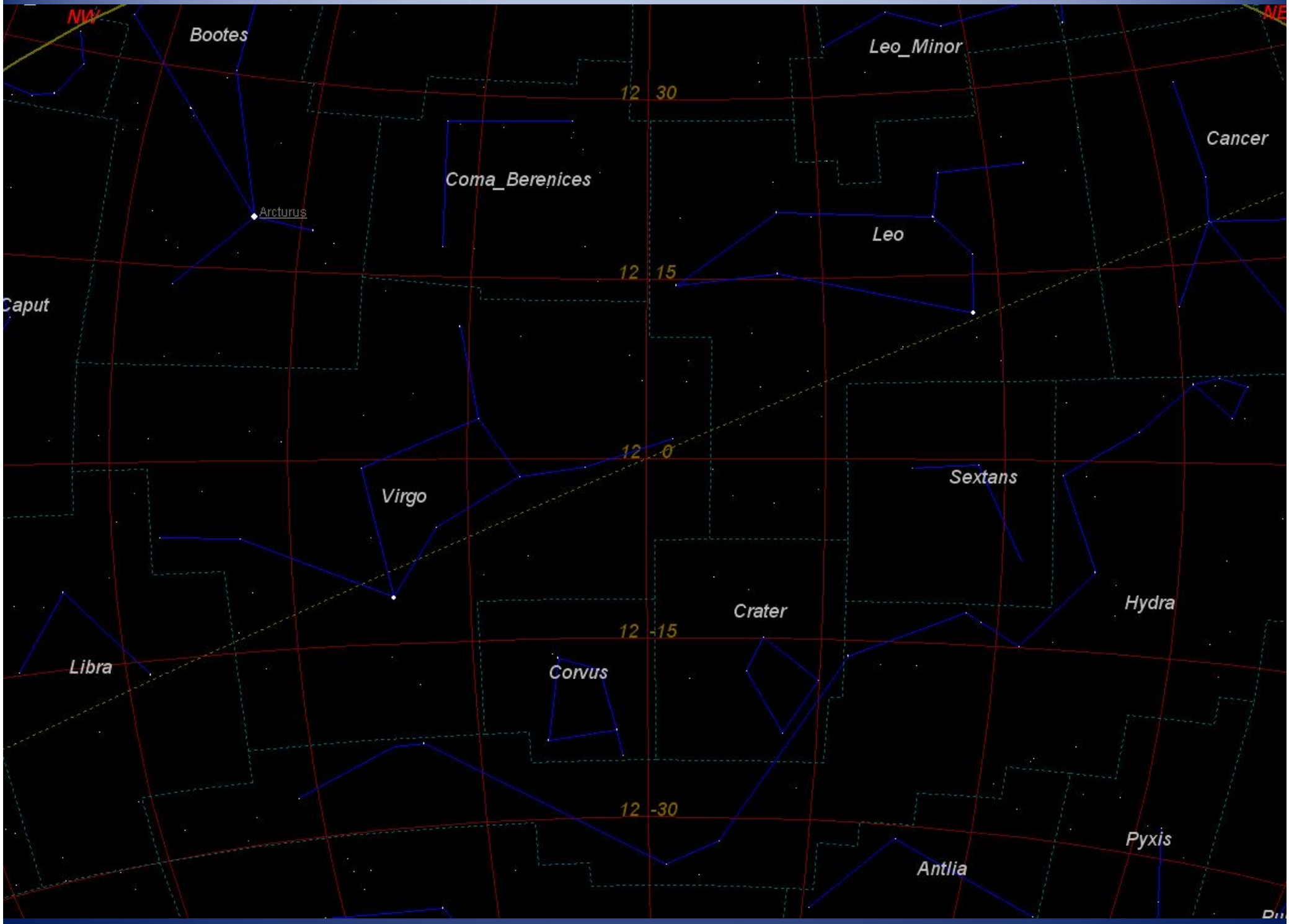
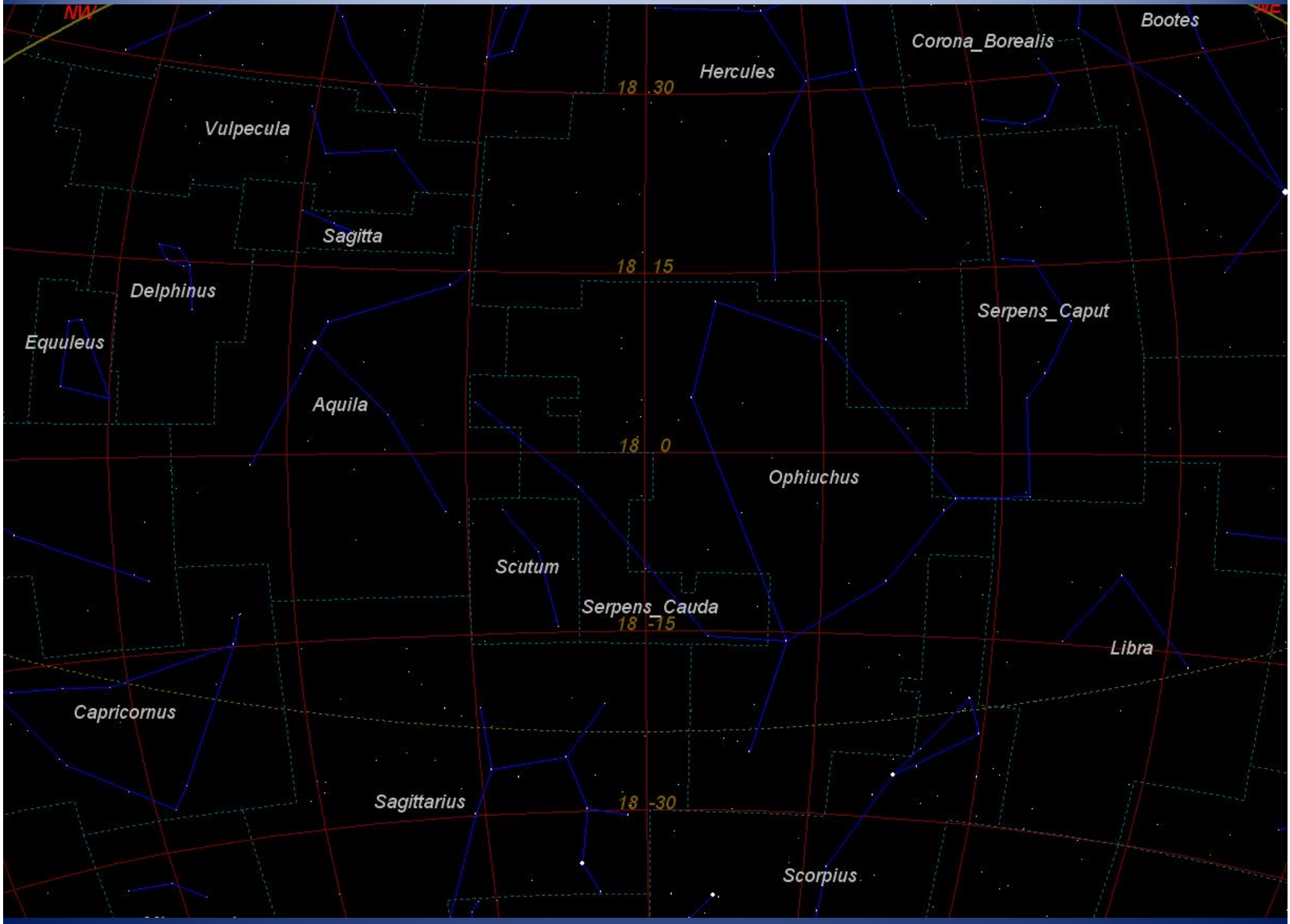
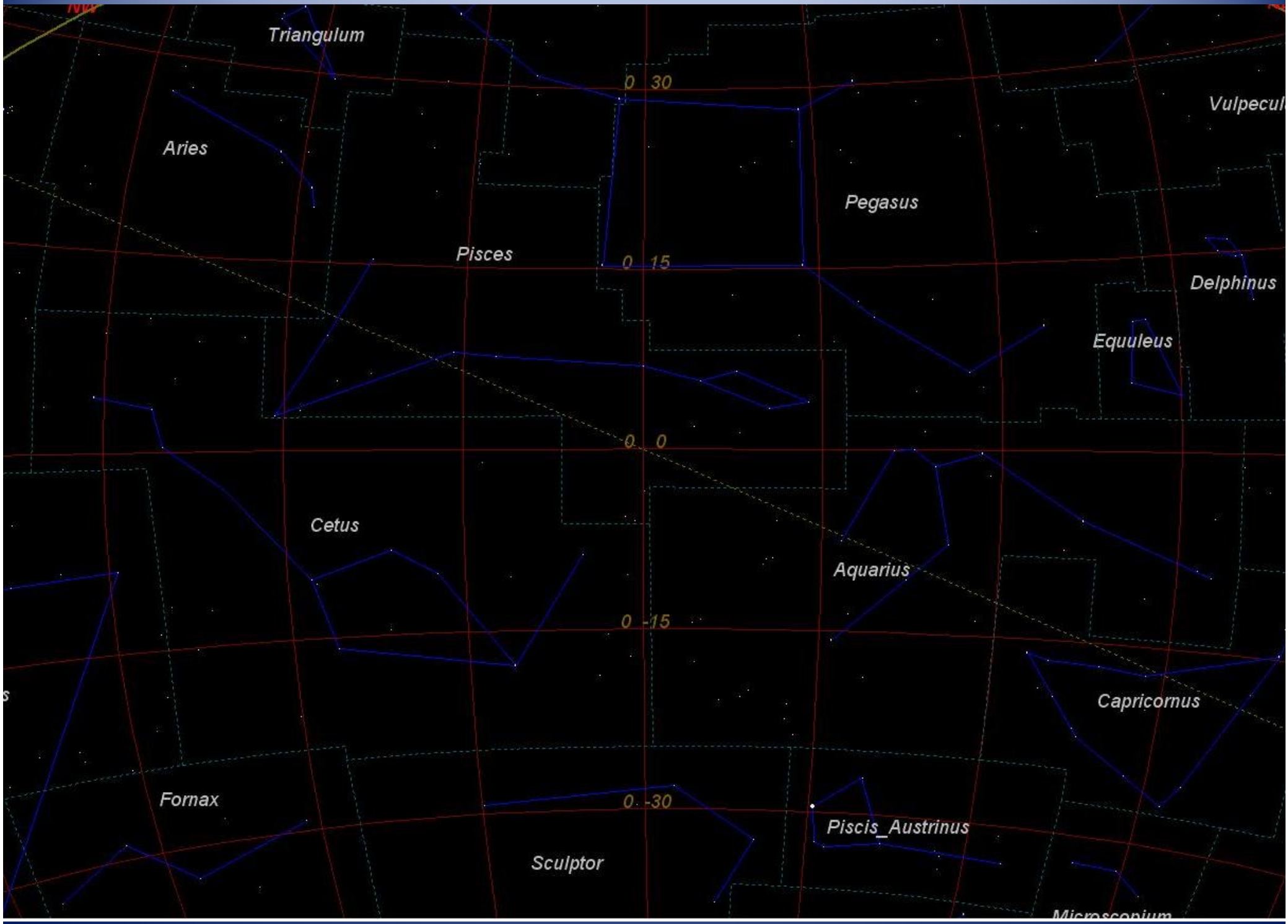
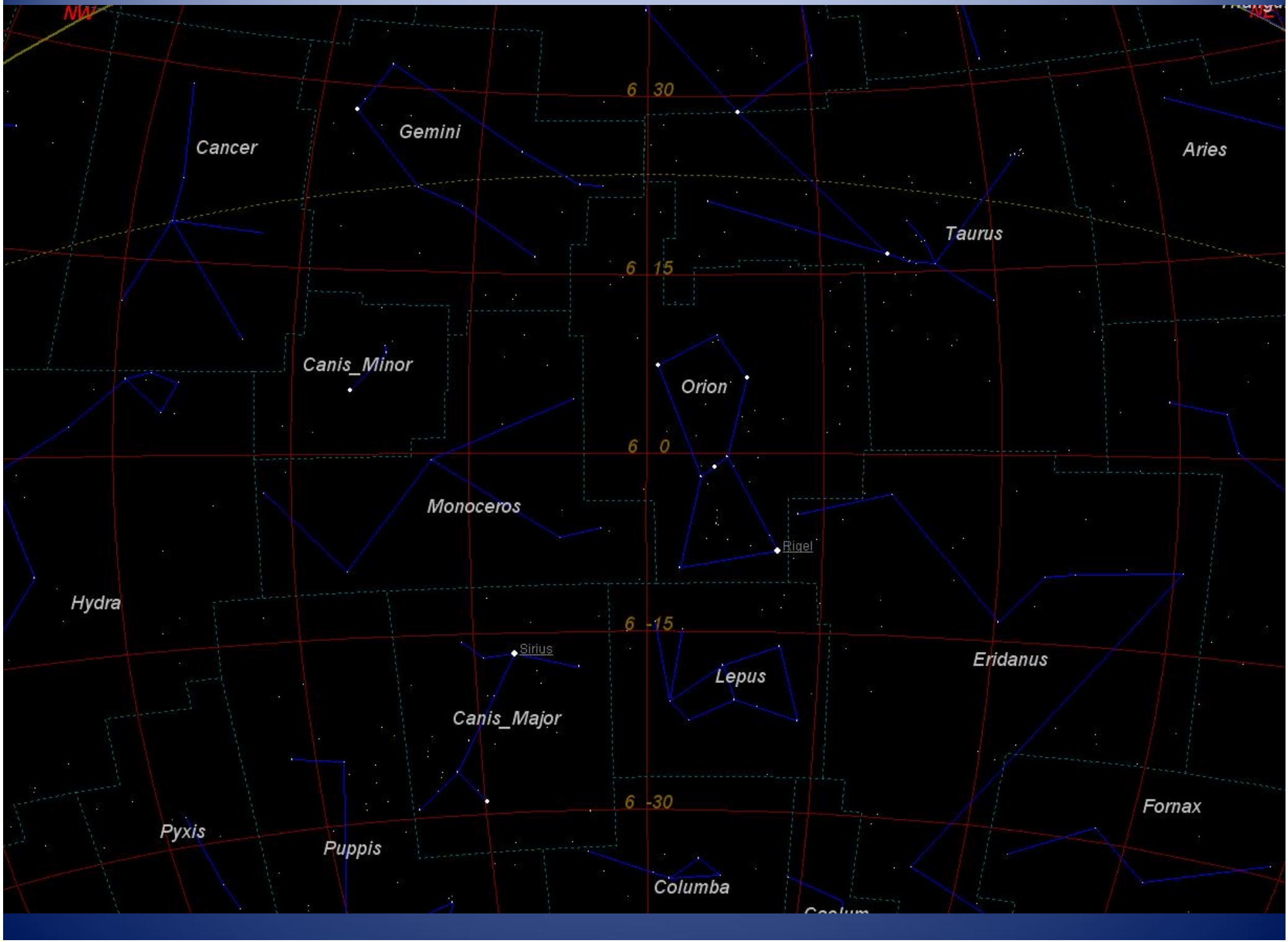

NW
NE
6 30
6 15
6 0
6 -15
6 -30
Cancer
Gemini
Aries
Taurus
Canis_Minor
Orion
Monoceros
Rigel
Hydra
Sirius
Eridanus
Lepus
Canis_Major
Fornax
Pyxis
Puppis
Columba


NW
NE
Bootes
Leo_Minor
12 30
Cancer
Coma_Berenices
Arcturus
Leo
12 15
Caput
12 0
Virgo
Sextans
Crater
Hydra
12 -15
Libra
Corvus
12 -30
Pyxis
Antlia


Bootes
Corona_Borealis
Hercules
18 30
Vulpecula
Sagitta
18 15
Delphinus
Serpens_Caput
Equuleus
Aquila
18 0
Ophiuchus
Scutum
Serpens_Cauda
18 -15
Libra
Capricornus
Sagittarius
18 -30
Scorpius


Triangulum
0 30
Vulpecul
Aries
Pegasus
Pisces
0 15
Delphinus
Equuleus
0 0
Cetus
Aquarius
0 -15
Capricornus
Fornax
0 -30
Piscis_Austrinus
Sculptor
Microscopium


NW
NE
6 30
6 15
6 0
6 -15
6 -30
Cancer
Gemini
Aries
Taurus
Canis_Minor
Orion
Monoceros
Rigel
Hydra
Sirius
Eridanus
Lepus
Canis_Major
Fornax
Pyxis
Puppis
Columba

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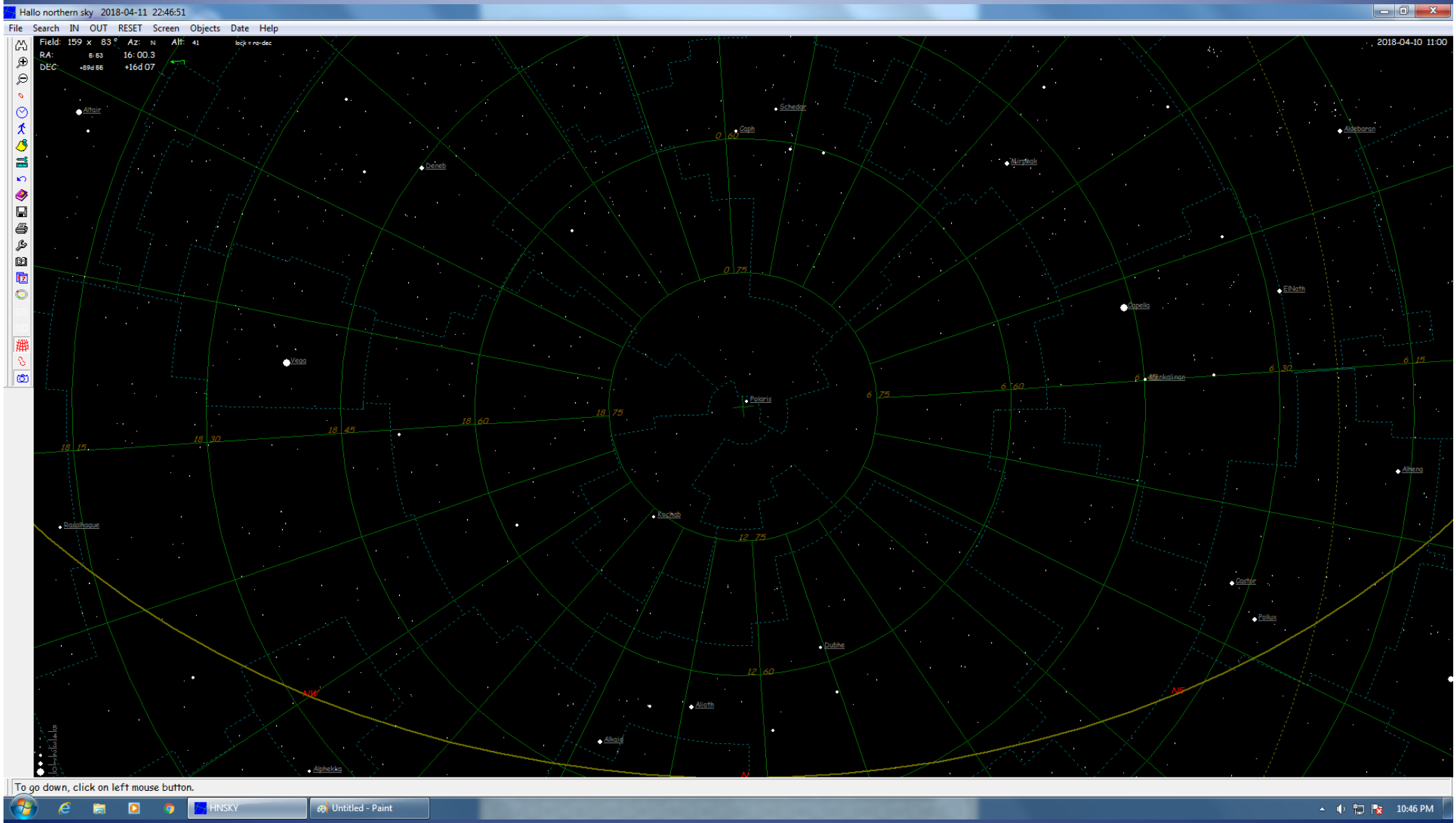

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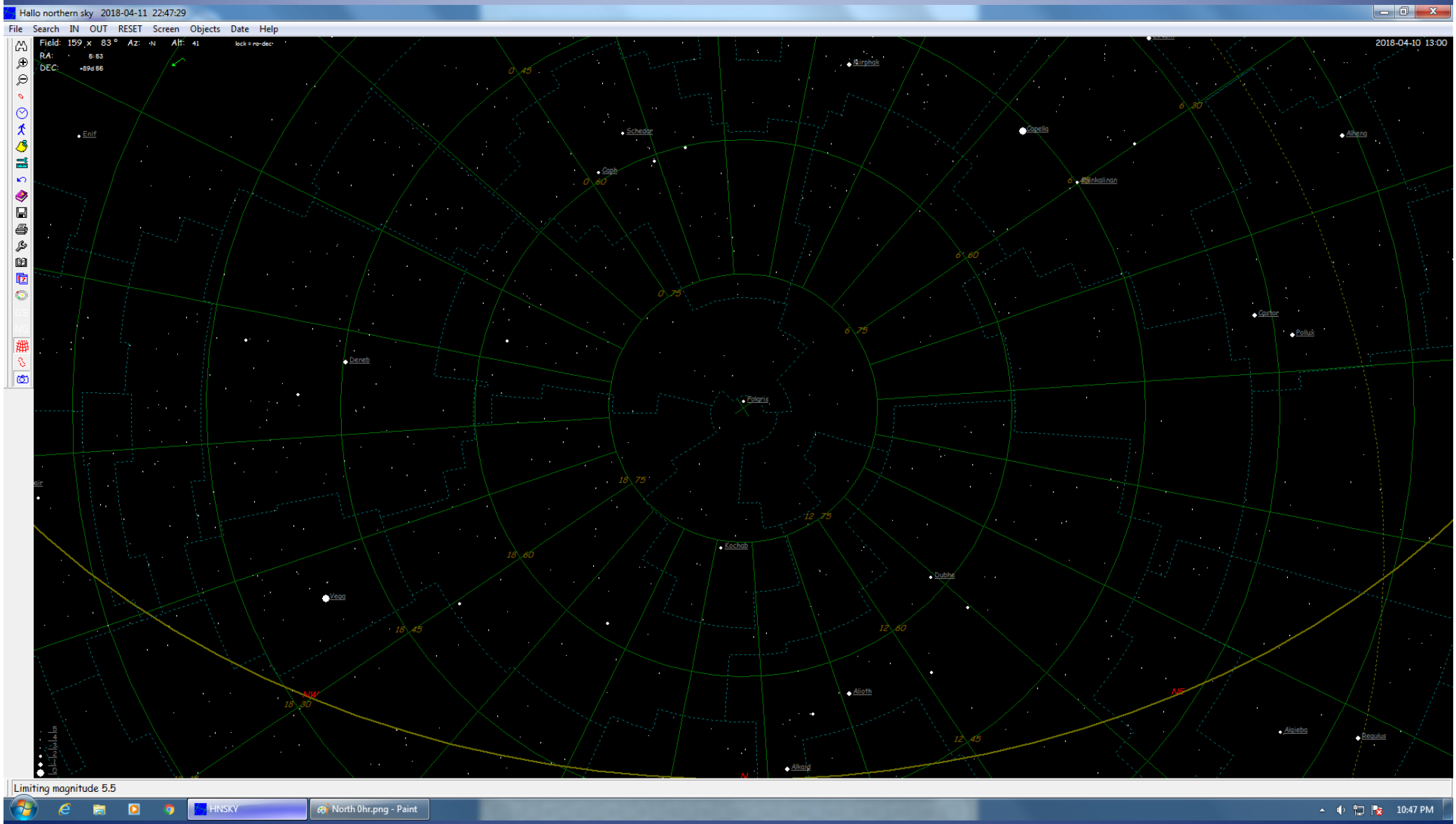
HNSKY | Untitled - Paint | 10:46 PM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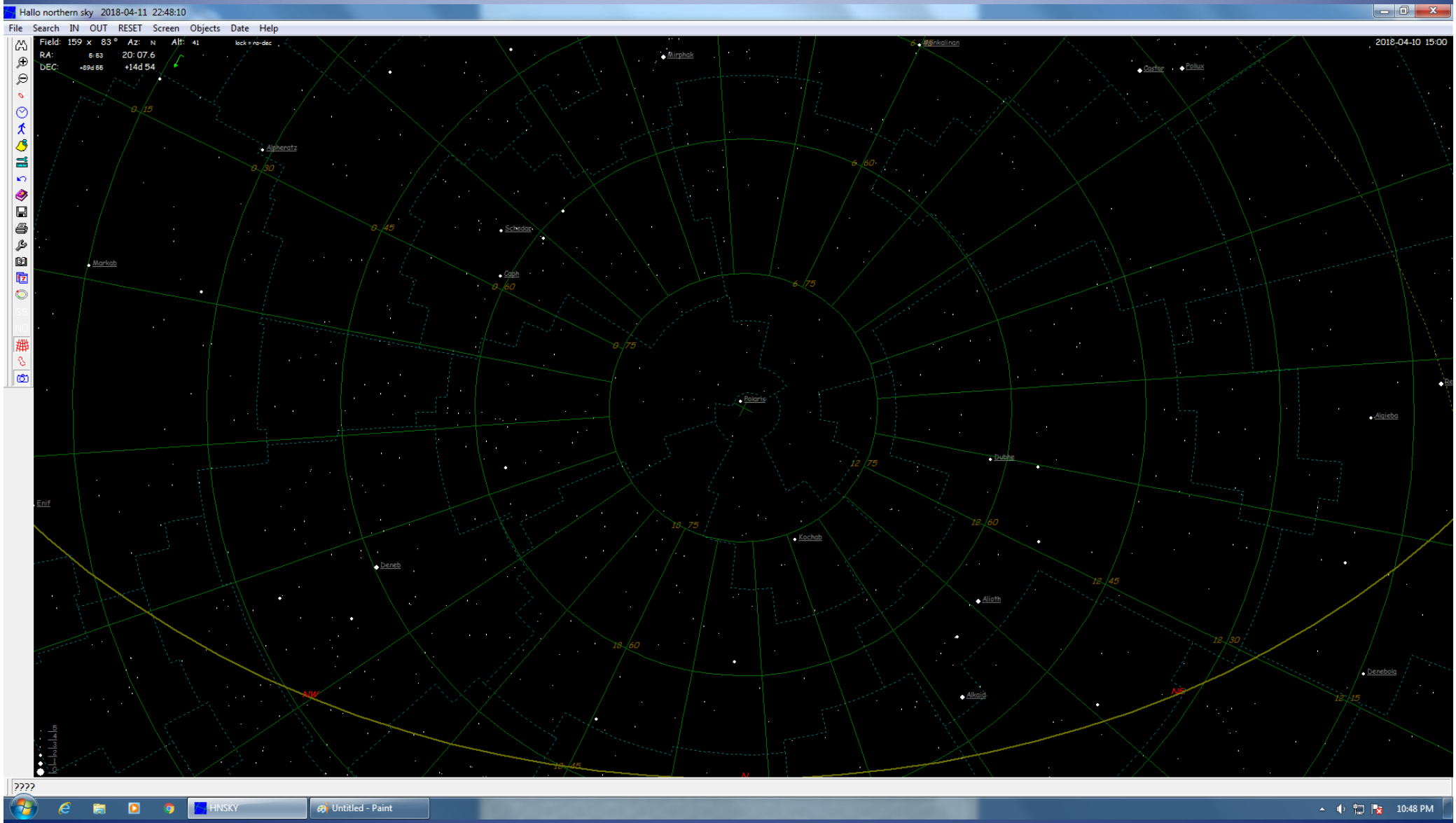
File Search IN OUT RESET Screen Objects Date Help
Field: 159 x 83 ° Az: Alt:
RA:
DEC:
2018-04-10 13:00
Mirphak
Enif
Schedar
Capella
Alhena
Caph
Alkaid
Deneb
Polaris
Castor
Pollux
Kochab
Dubhe
Vega
Alioth
Algieba
Regulus
Alkaid
0 45
0 60
0 75
6 30
6 60
6 75
18 75
12 75
18 60
18 45
12 60
18 30
12 45
NW
NE
N
Limiting magnitude 5.5
HNSKY
North 0hr.png - Paint
10:47 PM


Hallo northern sky 2018-04-11 22:48:10
File Search IN OUT RESET Screen Objects Date Help
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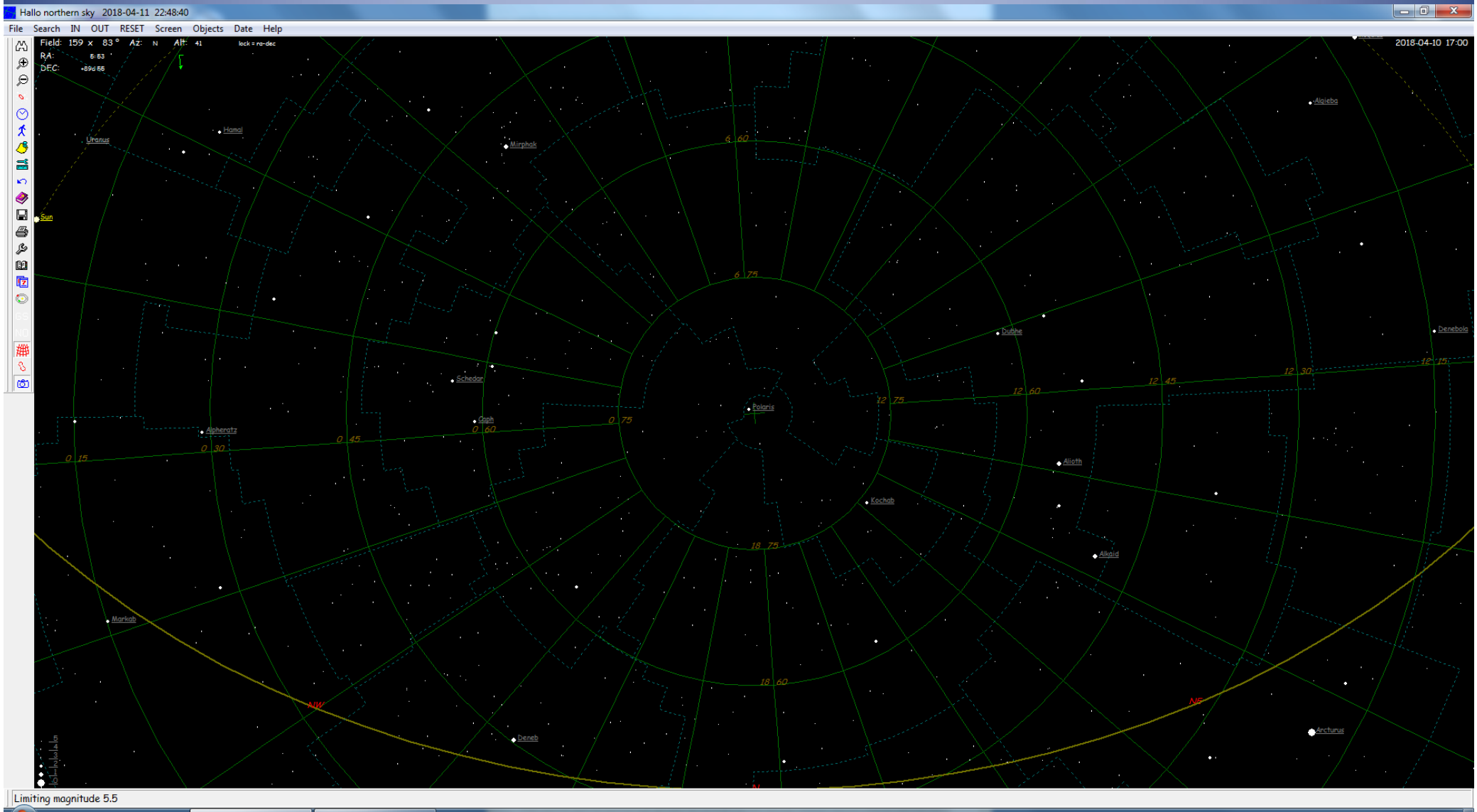
RA: 6:53 20: 07.6
DEC: +89d 66 +14d 54
2018-04-10 15:00
Mirphak
Menkalinan
Castor
Pollux
Alpheratz
Schedar
Caph
Markab
Polaris
Algieba
Dubhe
Enif
Kochab
Deneb
Alioth
Denebola
Alkaid
NW
NE
N
0 15
0 30
0 45
0 60
0 75
6 60
6 75
12 75
12 60
12 45
12 30
12 15
18 75
18 60
18 45

????

HNSKY
Untitled - Paint
10:48 PM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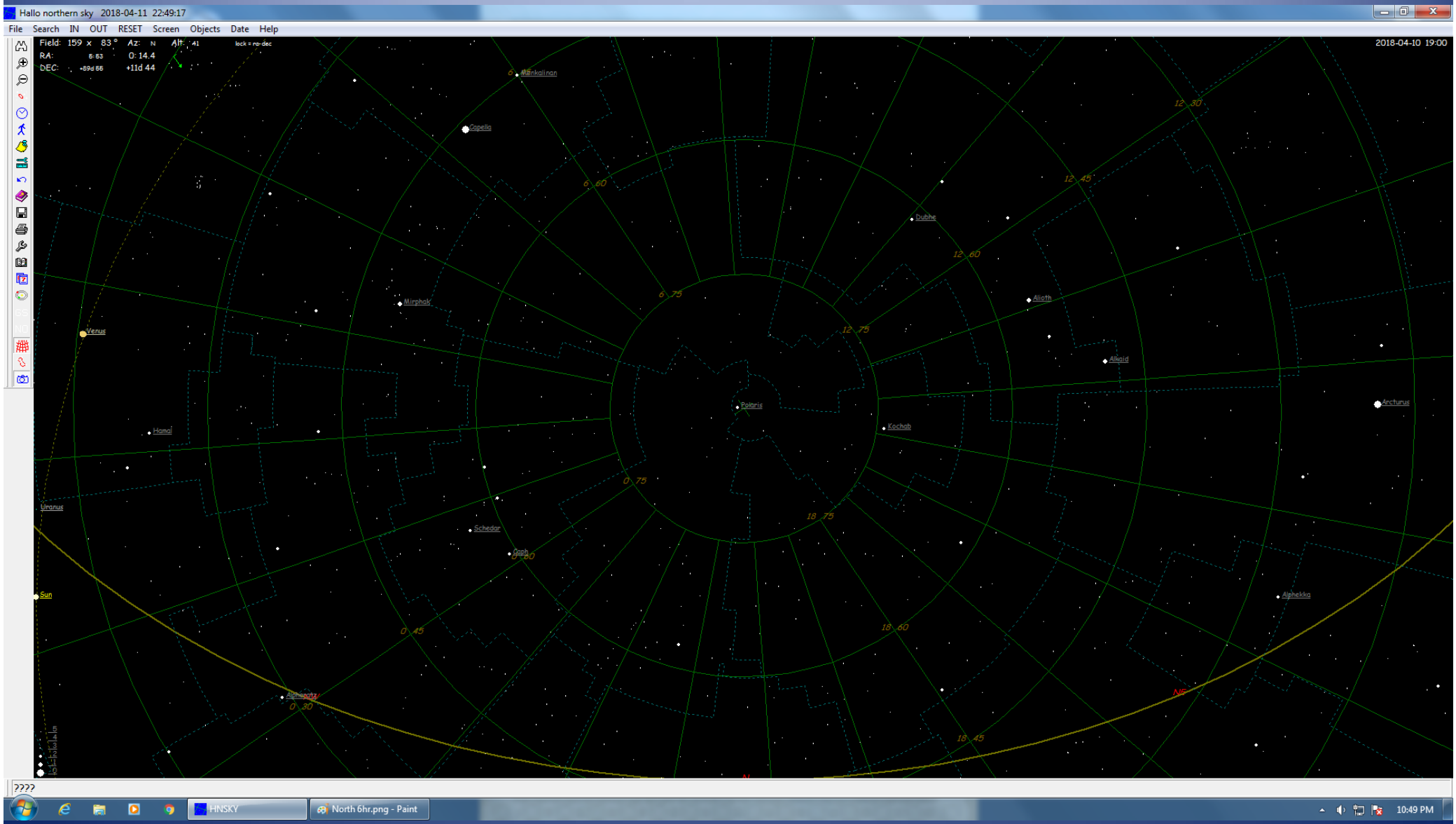
RA: 6h 53
DEC: +89d 66
2018-04-10 17:00
Uranus
Hamal
Mirphak
Algieba
Sun
Dubhe
Denebola
Schedar
Polaris
Gaph
Alpheratz
Alioth
Kochab
Alkaid
Markab
Deneb
Arcturus
NW
NE
6 60
6 75
12 60
12 75
12 45
12 30
12 15
0 75
0 60
0 45
0 30
0 15
18 75
18 60
Limiting magnitude 5.5
HNSKY
North 4hr.png - Paint
10:48 PM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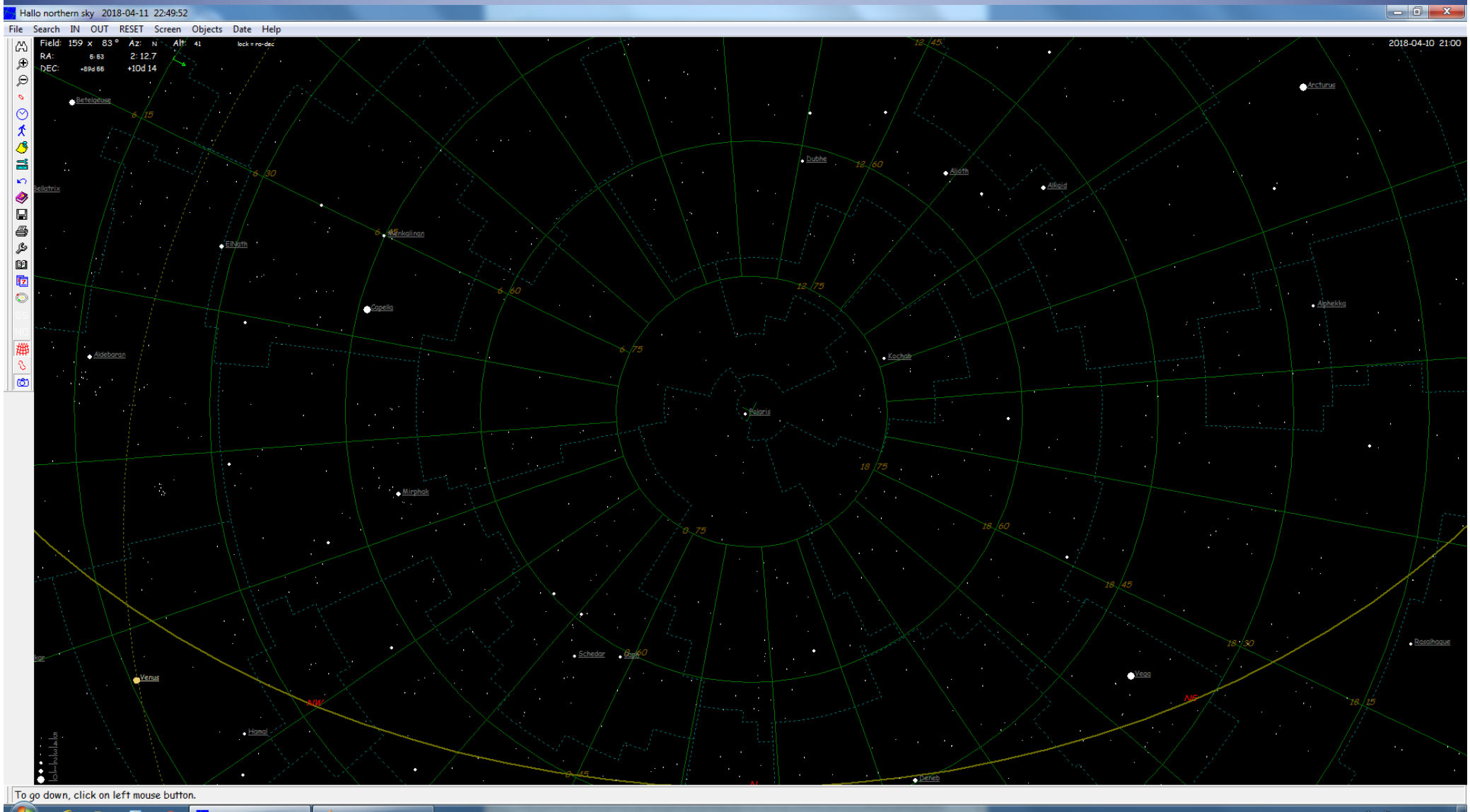
Field: 159 x 83 ° Az: N Alt: 41 lock = ra-dec
RA: 6h 53 0: 14.4
DEC: +89d 66 +11d 44
2018-04-10 19:00
Capella
Mirphak
Venus
Hamal
Uranus
Sun
Schedar
Caph
Algenib
Polaris
Kochab
Dubhe
Alioth
Alkaid
Arcturus
Alphekka
6 60
6 75
0 75
0 45
0 30
12 30
12 45
12 60
12 75
18 75
18 60
18 45
NE
N
????
HNSKY
North 6hr.png - Paint
10:49 PM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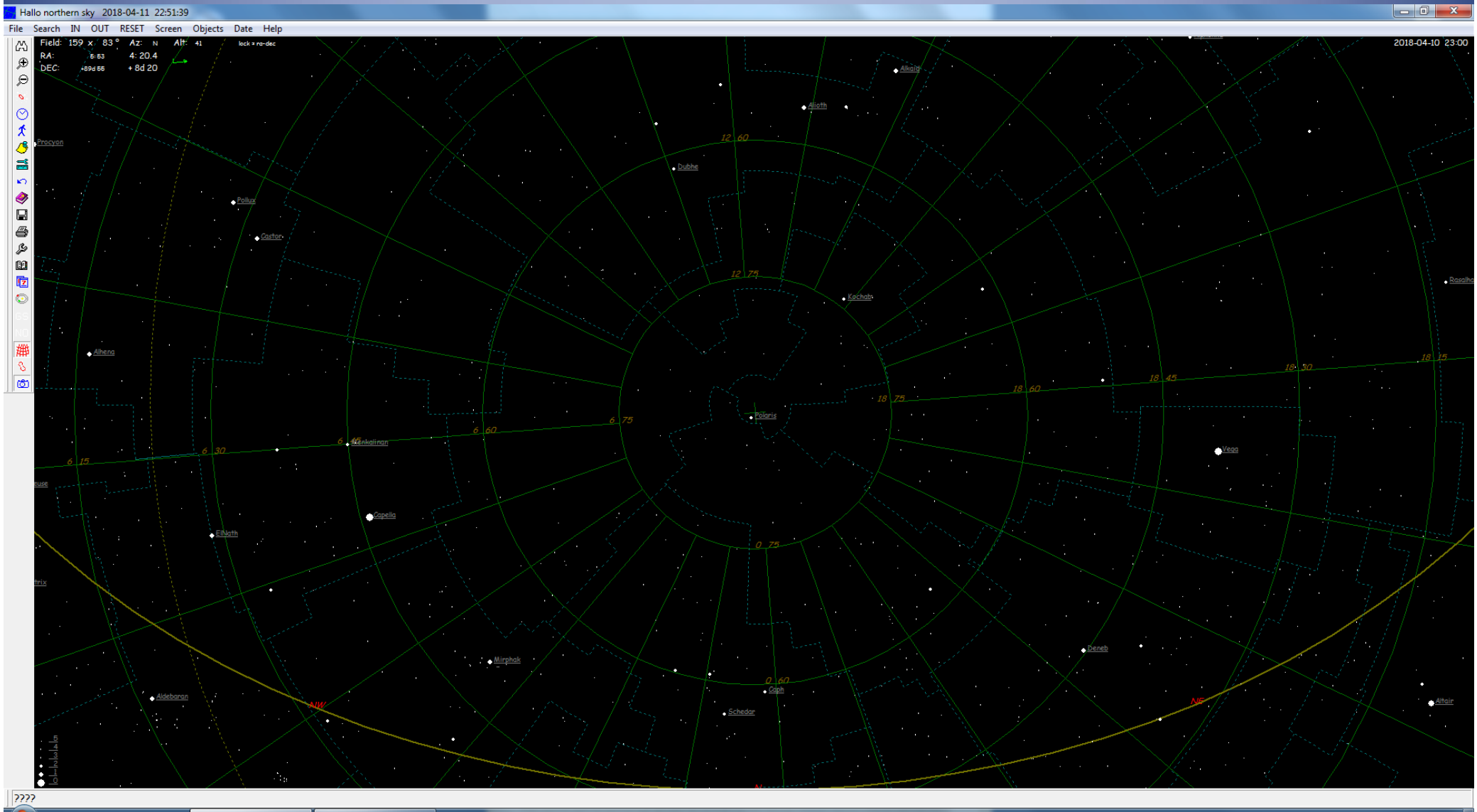
DEC: +89d 66 +10d 14
2018-04-10 21:00
Betelgeuse
Bellatrix
Elnath
Menkalinan
Capella
Aldebaran
Mirphak
Schedar
Caph
Venus
Hamal
Deneb
Vega
Rasalhague
Kochab
Polaris
Alioth
Alkaid
Dubhe
Arcturus
Alphekka
6 15
6 30
6 60
6 75
12 45
12 60
12 75
18 75
18 60
18 45
18 30
18 15
0 75
0 45
NW
NE
To go down, click on left mouse button.
HNSKY
North 10hr.png - Paint
10:49 PM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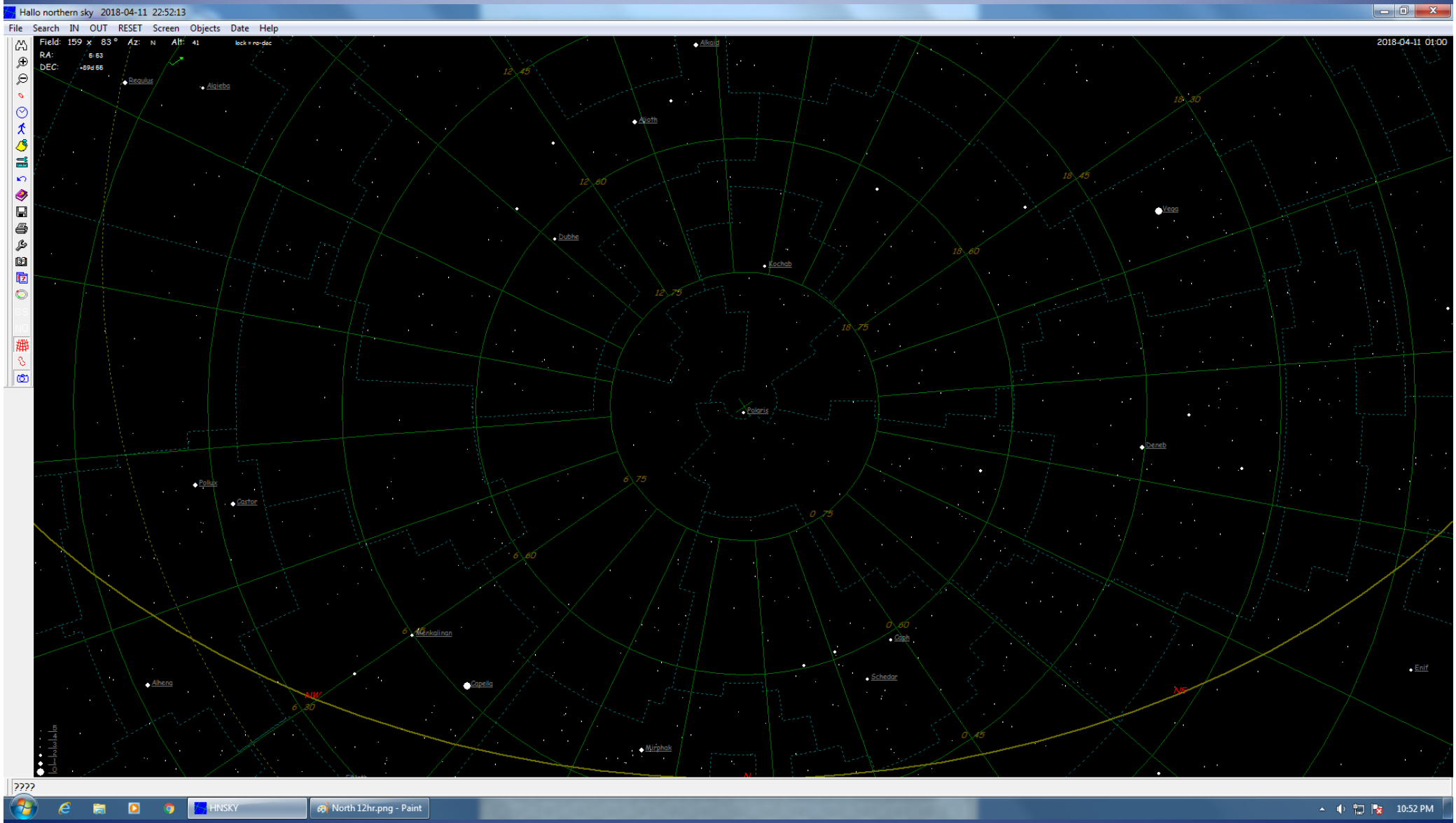
Field: 159 x 83 ° Az: N Alt: 41 lock = ra-dec
RA: 6:53 4: 20.4
DEC: +89d 66 + 8d 20
2018-04-10 23:00
Procyon
Alkaid
Alioth
Dubhe
Pollux
Castor
Kochab
Rasalhe
Alhena
Polaris
Vega
Capella
Eltanin
Mirphak
Deneb
Aldebaran
Caph
Schedar
Altair
12 60
12 75
18 60
18 75
18 45
18 30
18 15
6 75
6 60
6 30
6 15
0 75
0 60
NW
NE
????
HNSKY
North 8hr.png - Paint
10:51 PM


Hallo northern sky 2018-04-11 22:52:13
File Search IN OUT RESET Screen Objects Date Help
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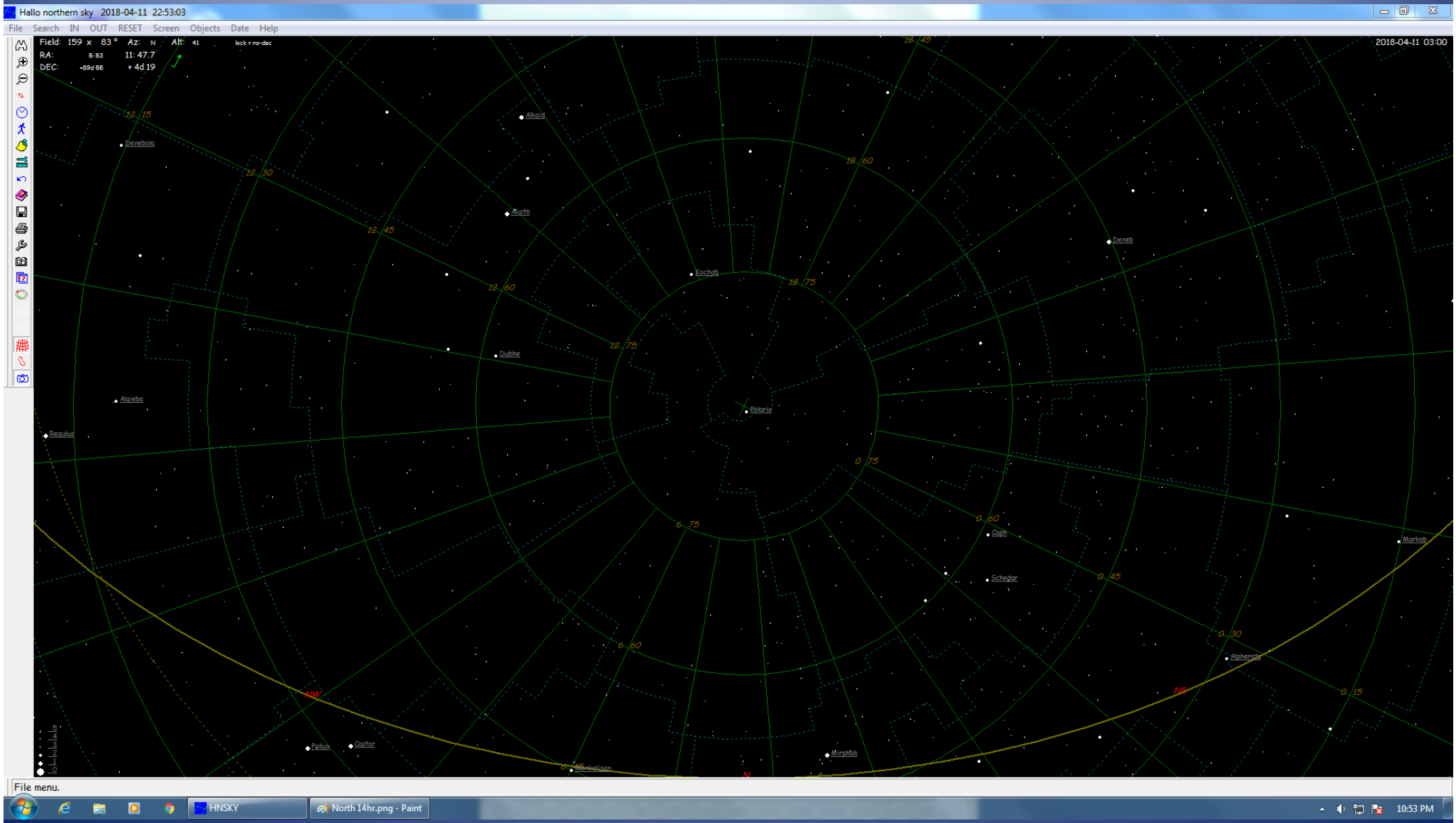
RA: 6h 53
DEC: +89d 66
2018-04-11 01:00
Alkaid
Regulus
Algieba
Alioth
Dubhe
Kochab
Vega
Polaris
Deneb
Pollux
Castor
Menkalinan
Capella
Alhena
Schedar
Caph
Enif
Mirphak
12 45
12 60
12 75
18 30
18 45
18 60
18 75
6 75
0 75
6 60
0 60
6 30
0 45
NW
NE
????
HNSKY
North 12hr.png - Paint
10:52 PM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RA: 6h 53 11: 47.7
DEC: +89d 66 + 4d 19
2018-04-11 03:00
Alkaid
Benebola
Alioth
Kochab
Dubhe
Algieba
Regulus
Polaris
Deneb
Caph
Schedar
Markab
Alpheratz
Pollux
Castor
Mirphak
NW
NE
N
File menu.
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North 14hr.png - Paint
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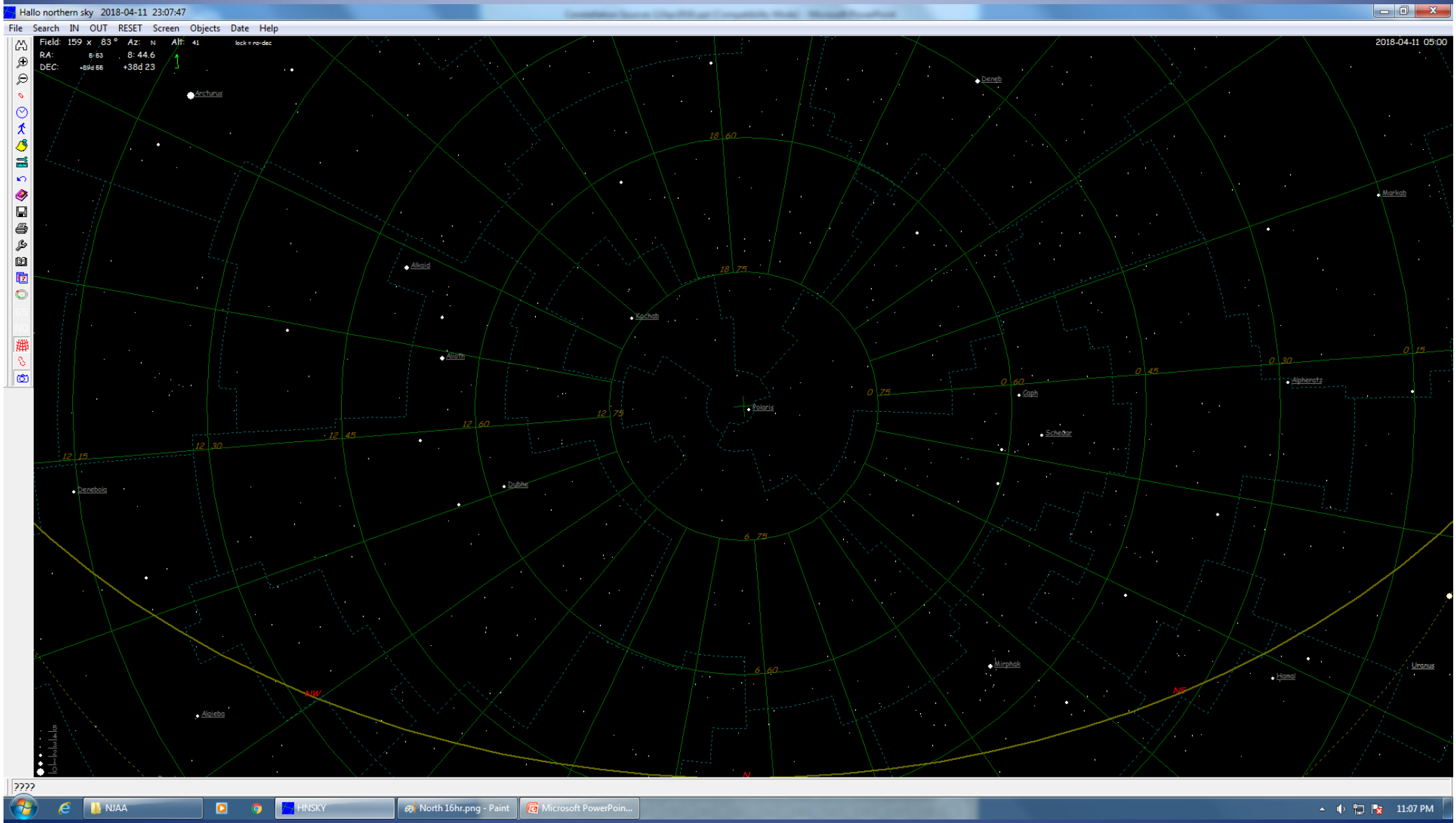
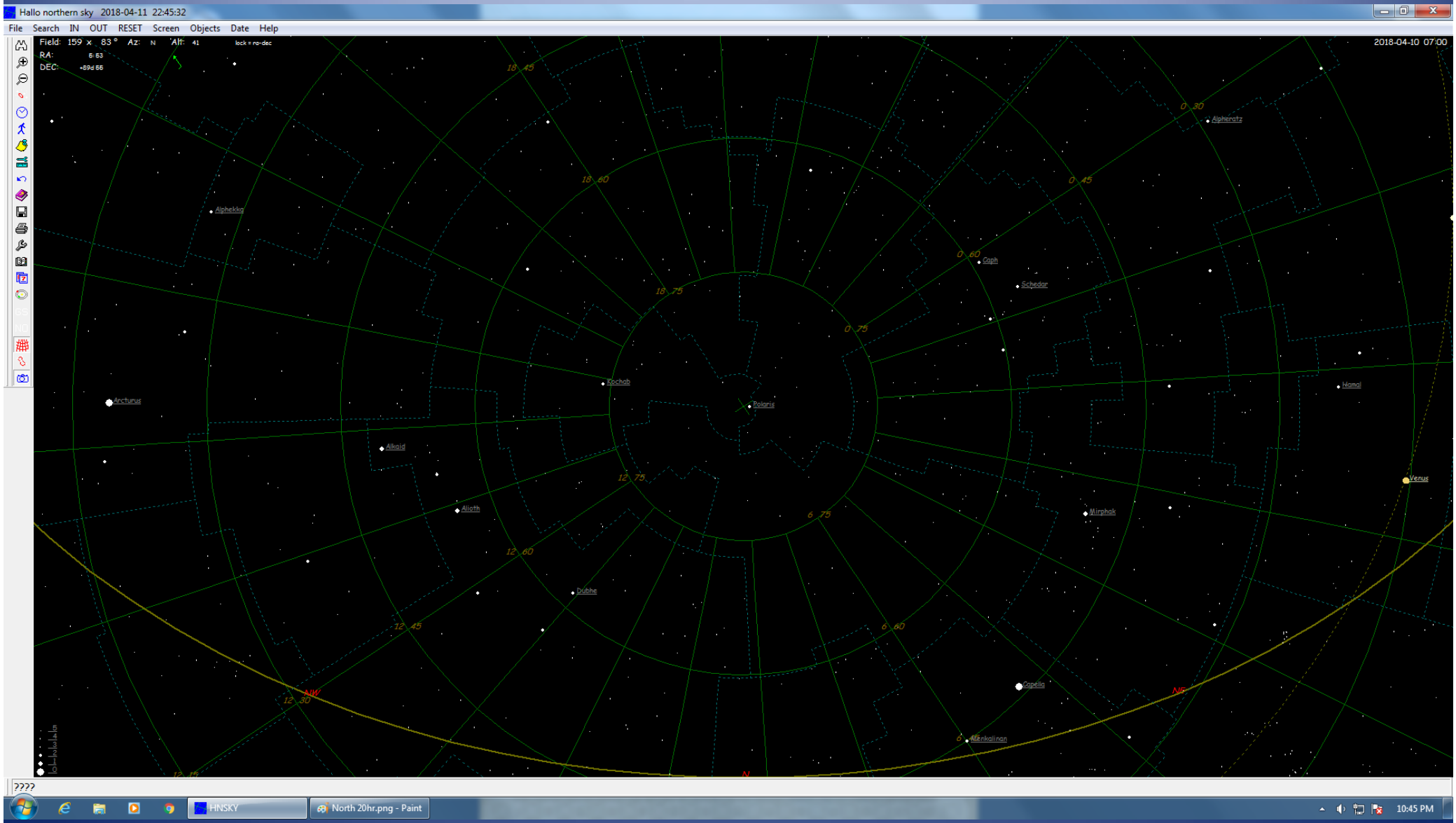
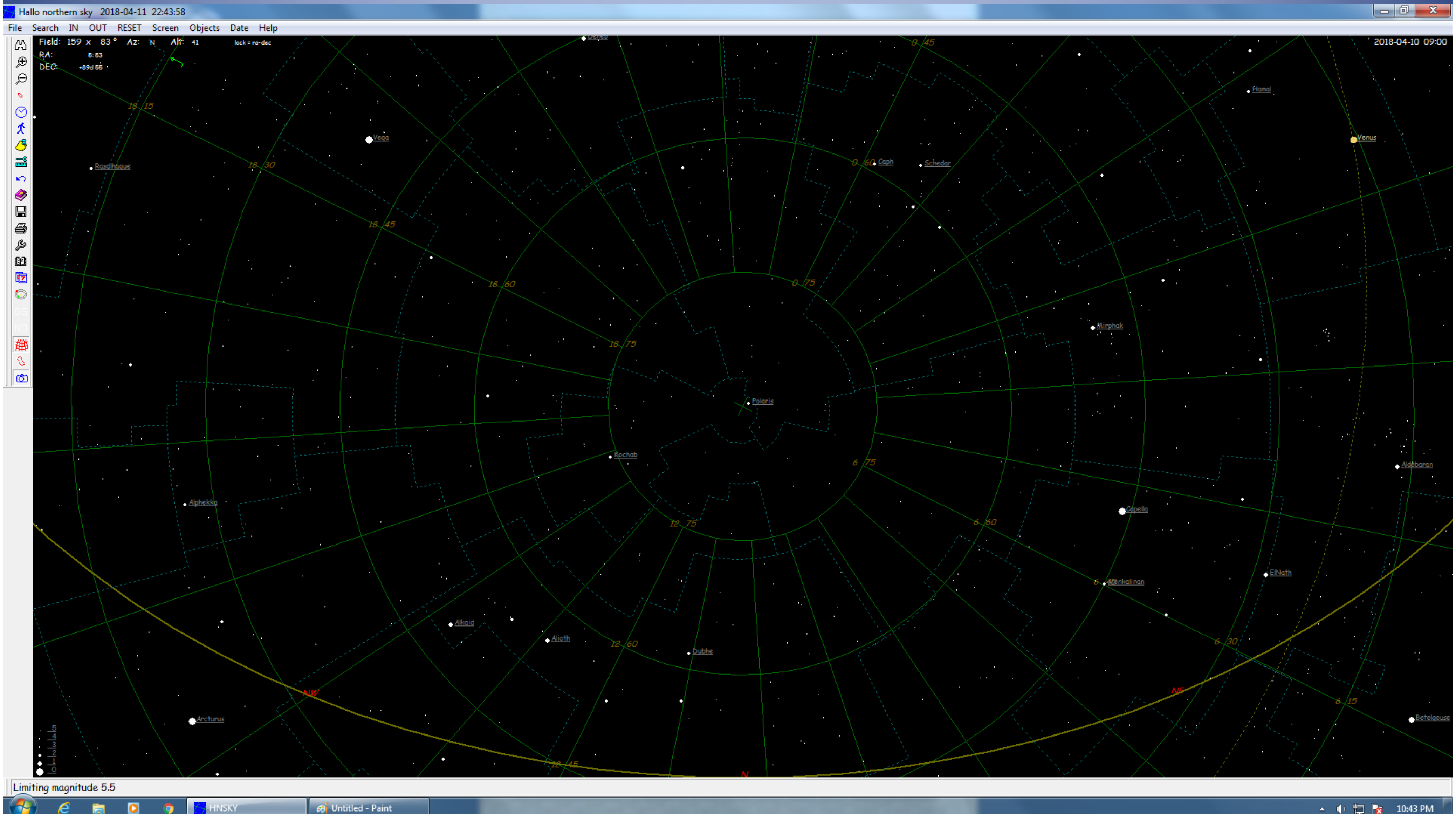
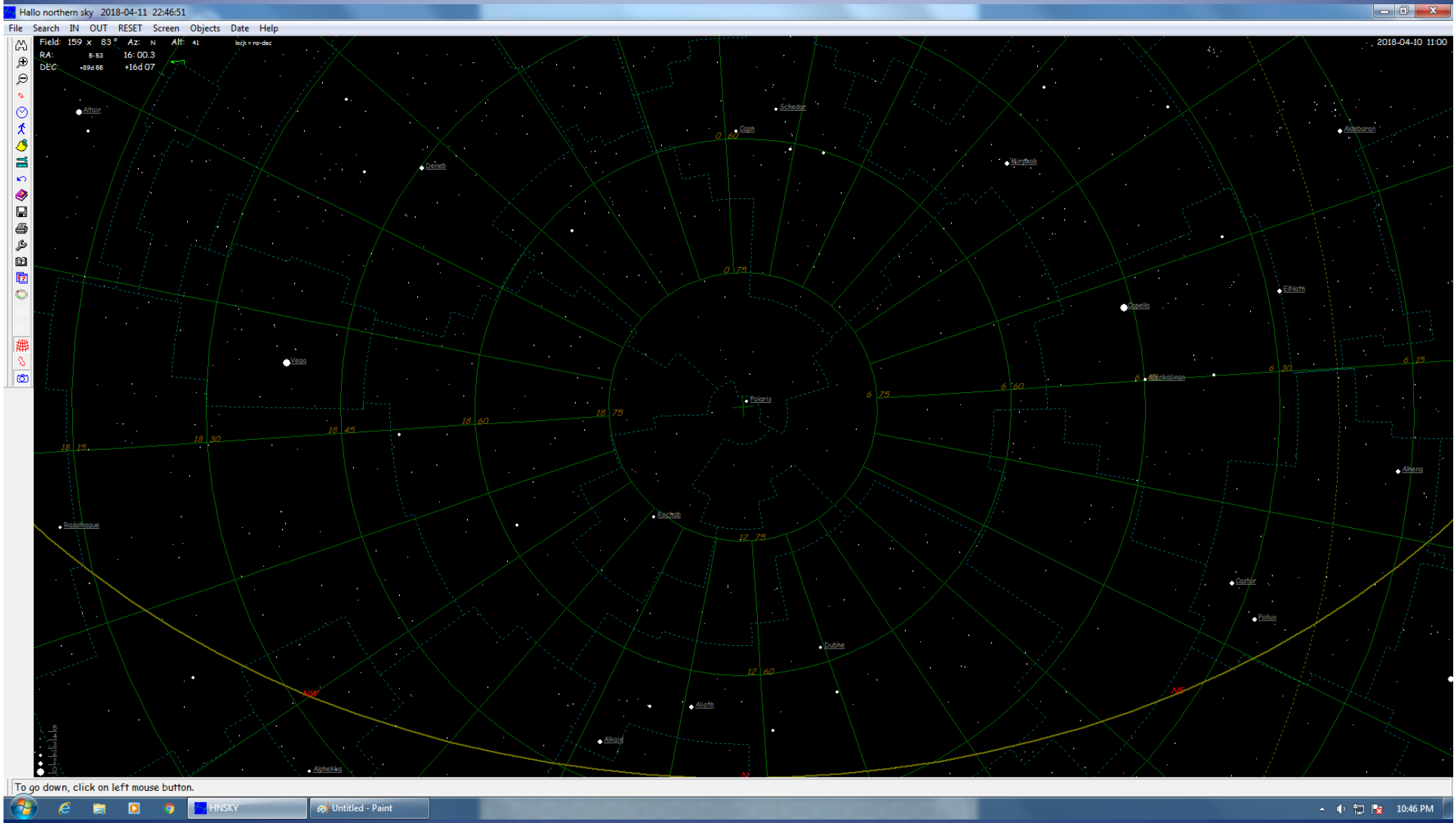

Hallo northern sky 2018-04-11 23:07:47
File Search IN OUT RESET Screen Objects Date Help
Field: 159 x 83 ° Az: N Alt: 41 lock = ra-dec
RA: 8: 44.6
DEC: +38d 23
2018-04-11 05:00
Arcturus
Deneb
Markab
Alkaid
Kochab
Alioth
Polaris
Caph
Schedar
Alpheratz
Denebola
Dubhe
Mirphak
Hamal
Uranus
Algieba
NW
NE
N
????
NJAA
HNSKY
North 16hr.png - Paint
Microsoft PowerPoin...
11:07 PM


Hallo northern sky 2018-04-11 22:45:32
File Search IN OUT RESET Screen Objects Date Help
Field: 159 x 83 ° Az: N Alt: 41 lock = ra-dec
RA: 6h 53
DEC: +89d 66
2018-04-10 07:00
18 45
18 60
18 75
0 30
0 45
0 60
0 75
12 75
12 60
12 45
12 30
6 75
6 60
Alpheratz
Alphekka
Caph
Schedar
Kochab
Polaris
Arcturus
Alkaid
Alioth
Dubhe
Mirphak
Hamal
Venus
Capella
Menkalinan
NW
NE
N
????
HNSKY
North 20hr.png - Paint
10:45 PM



Hallo northern sky 2018-04-11 22:43:58
File Search IN OUT RESET Screen Objects Date Help
Field: 159 x 83° Az: N Alt: 41
RA:
DEC:
2018-04-10 09:00
Vega
Rasalhague
Caph
Schedar
Hamal
Venus
Mirphak
Polaris
Kochab
Aldebaran
Alphekka
Capella
Menkalinan
ElNath
Alkaid
Alioth
Dubhe
NW
NE
N
Arcturus
Betelgeuse
Limiting magnitude 5.5
HNSKY
Untitled - Paint
10:43 PM



To go down, click on left mouse button.

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How to Find Constellations

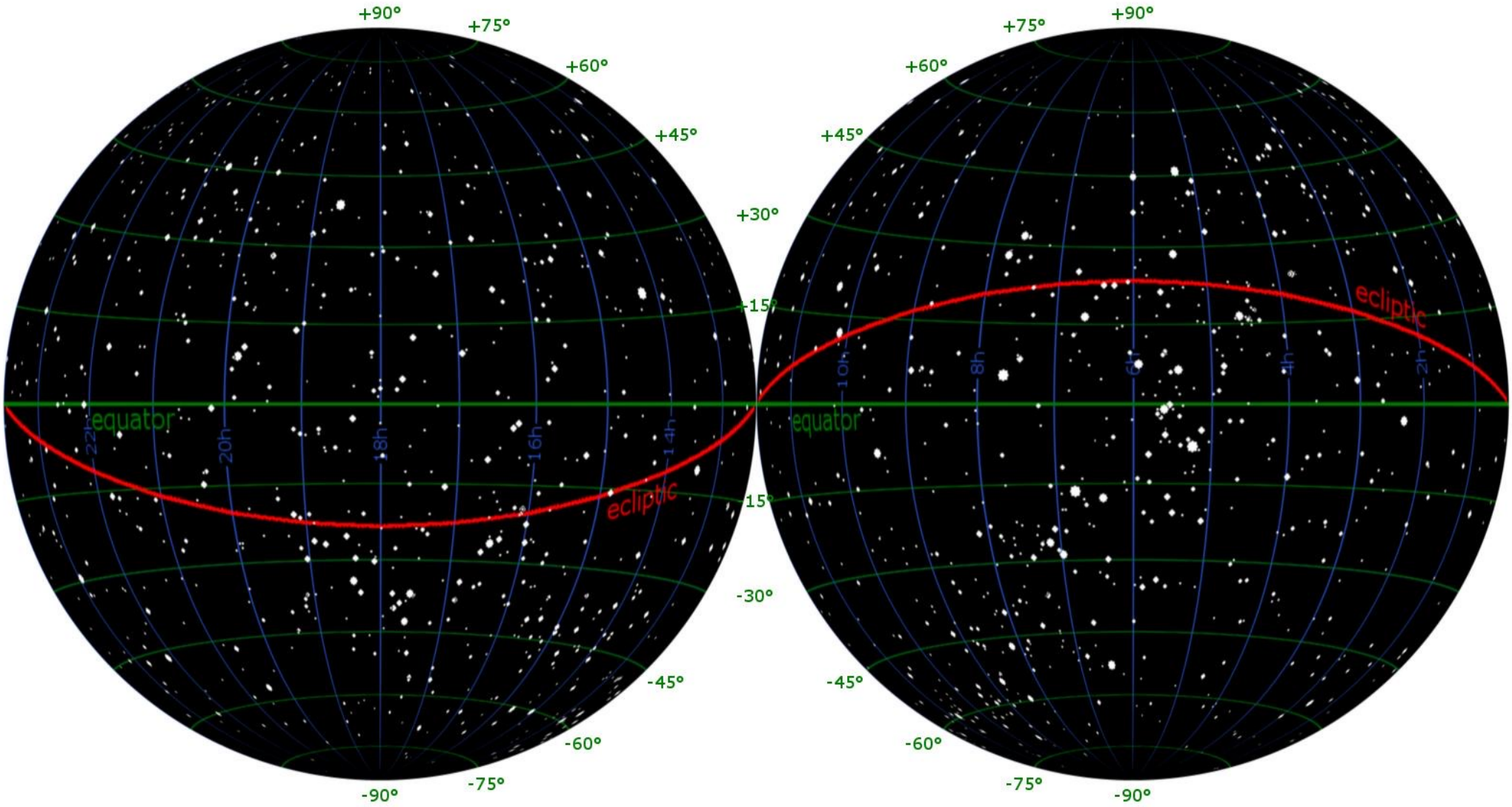
1. If necessary, wait for it to get sufficiently dark for the brighter stars to become visible. This would be about 5 PM in December, 6:30 PM (Std. Time) or 7:30 PM (DST) in March, 9:15 PM in June, and about 7:30 PM in September.
2. Determine which constellations ought to be above the horizon, based on the time and date: If its spring and just after nightfall, look for the spring constellations. If it's 2 AM, look for the summer constellations. If it's almost first light, look for fall constellations rising in the east.

How to Find Constellations

3. Each season has it's own bright stars or easy-to-identify asterisms high enough to find easily, if you know where to look. For example:

- At nightfall in the Winter: The Big Dipper standing on its handle; Gemini in the east; Capella overhead; Orion in the southeast; Pleiades in the south.
- At nightfall in the Spring: Arcturus in the northeast; Orion in the southwest; Capella in the northwest; Gemini overhead; the Big Dipper high in the sky; Sirius very bright in the south.
- At nightfall in the Summer: Vega in the northeast; Arcturus in the northwest; Altair in the southeast; the Big Dipper standing on its bowl.
- At nightfall in the Fall: Summer Triangle in the west; the Great Square overhead; Pleiades in the east; the Big Dipper low in the north.

Celestial Equator and Ecliptic

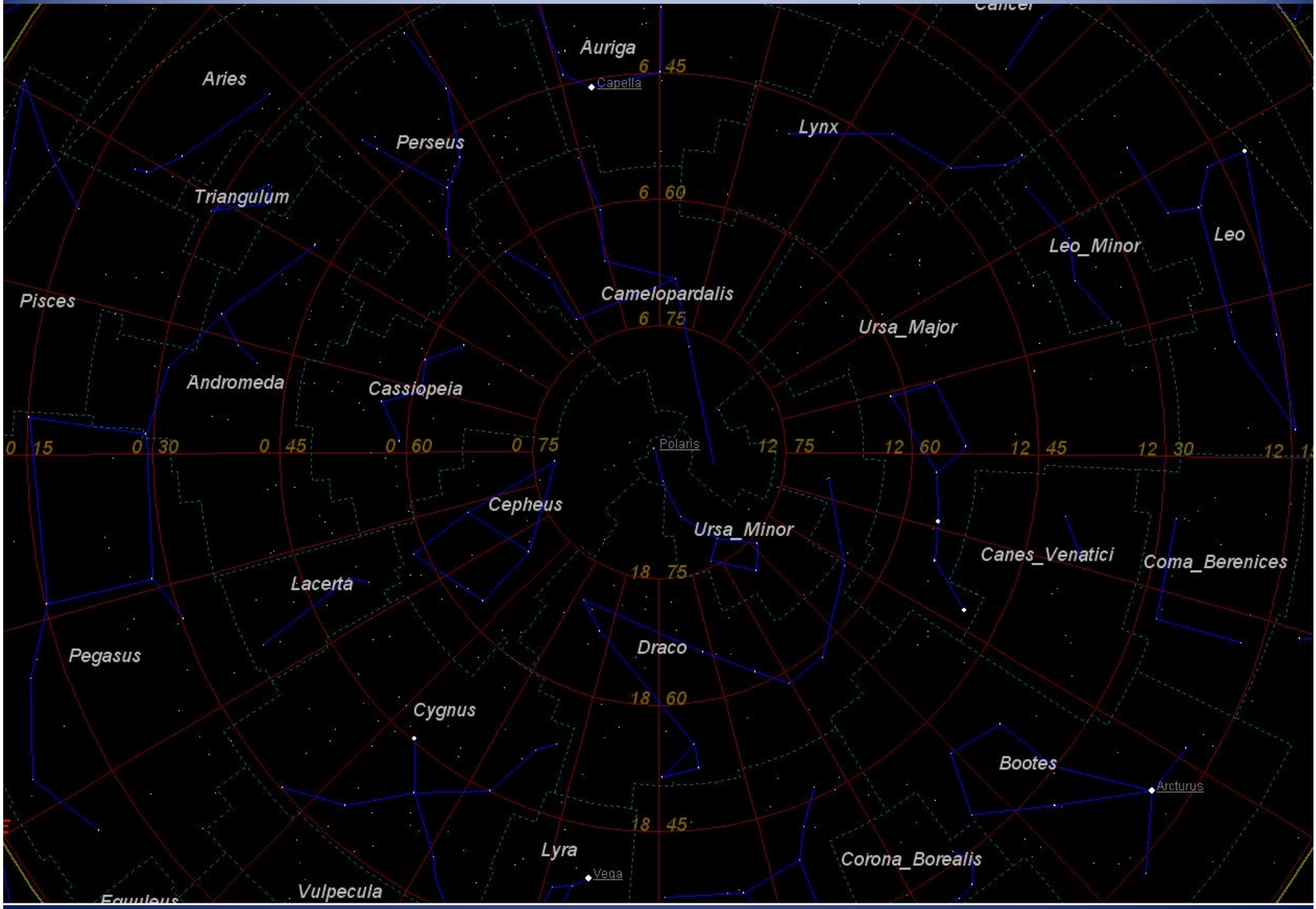


4. Avoid the Ecliptic, if you are seeking bright stars to help you find the constellations, unless you know where the planets are tonight.

From the Big Dipper:

- The Pointers: draw a line from Merak (β UMa) through Dubhe (α UMa) to Polaris (α UMi).
- Continue through Polaris and find Caph (β Cas). Note: the big dipper and Cassiopeia are opposite one another.
- The pointers point backward to Leo and the line through them would pass less than 15 degrees east of Regulus (α Leo). Note: the Sickle, when it gets darker.

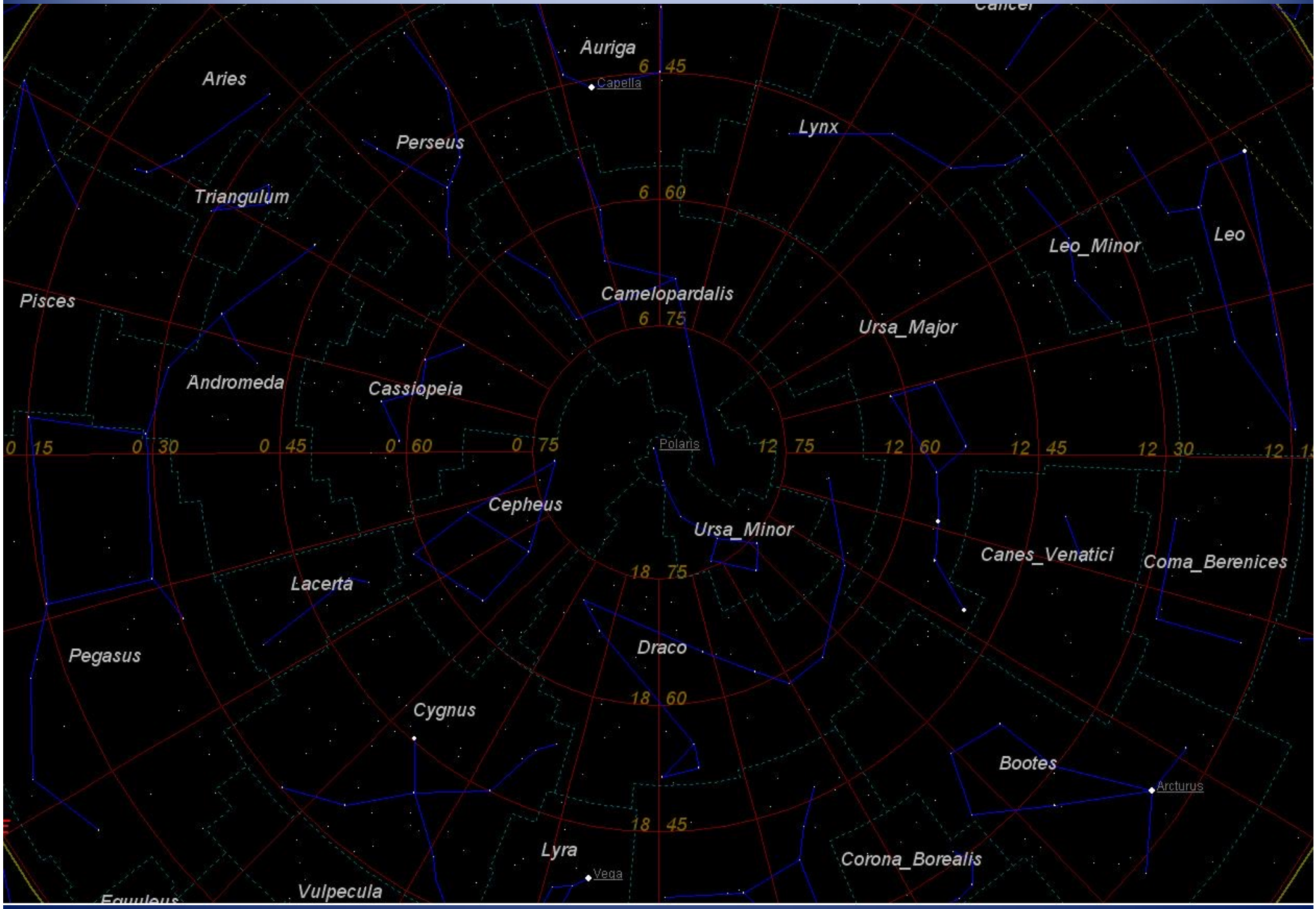
- The Handle: draw a line from Megrez (δ UMa) through Alioth (εUMa) to Alphecca (α CrB).
- Follow Curvature of the handle to Arcturus (α Boo) and Spica (α Vir).
- Arcturus, Spica and Denebola (β Leo) form an equilateral triangle.
- A line drawn from Spica through Regulus will bring us to the neighborhood of Pollux (β Gem). Note: if you've found Pollux, Castor (α Gem) should be near enough to confirm you're in Gemini.


Auriga
Aries
Capella
Perseus
Lynx
Triangulum
Leo_Minor
Leo
Camelopardalis
Pisces
Ursa_Major
Andromeda
Cassiopeia
Polaris
Cepheus
Ursa_Minor
Canes_Venatici
Coma_Berenices
Lacerta
Pegasus
Draco
Cygnus
Bootes
Arcturus
Lyra
Corona_Borealis
Vega
Vulpecula
6 45
6 60
6 75
0 15
0 30
0 45
0 60
0 75
12 75
12 60
12 45
12 30
18 75
18 60
18 45

From the Big Dipper:

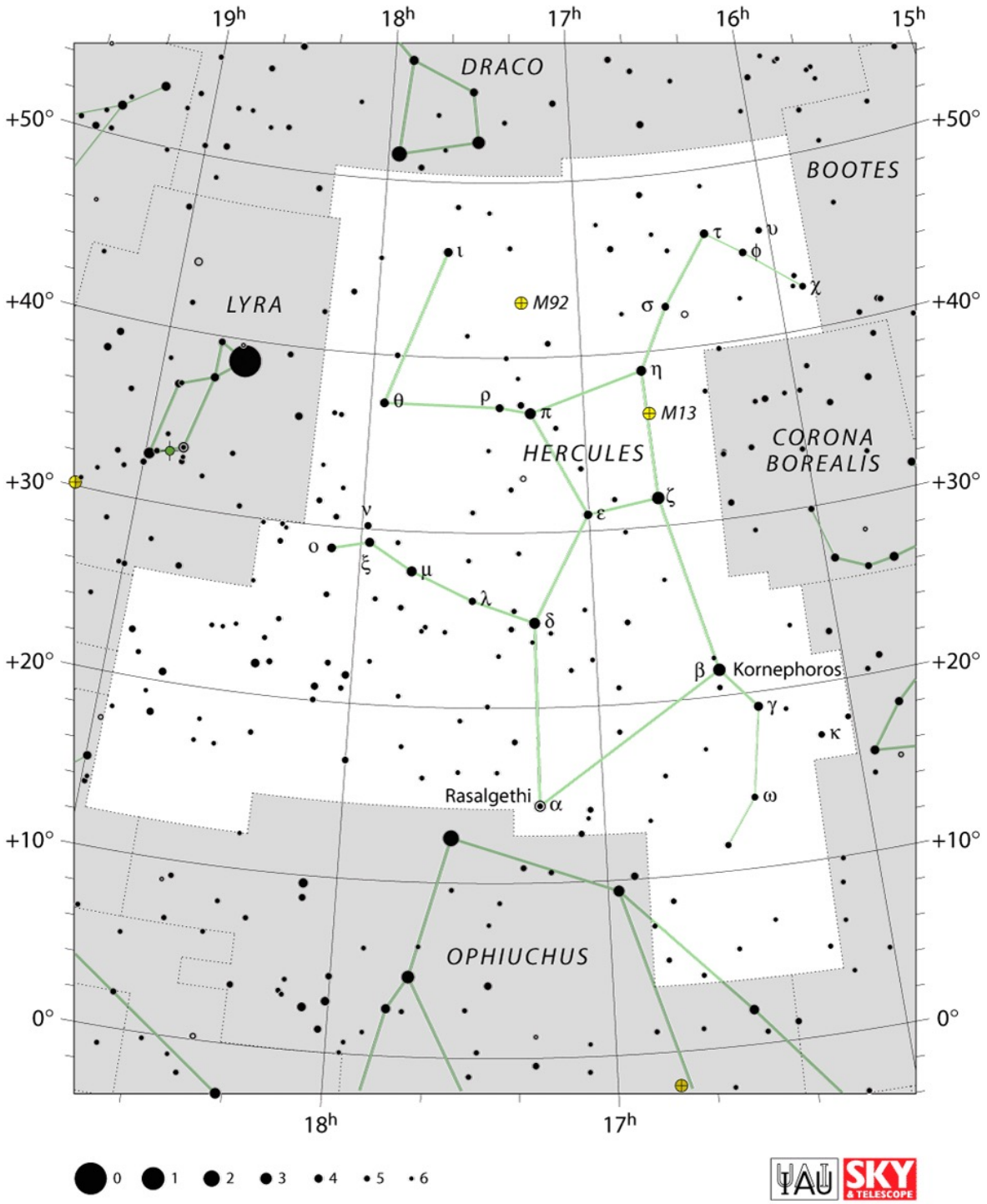
- The Pointers: draw a line from Merak through Dubhe to Polaris.
- Continue through Polaris and find Caph. Note: the big dipper and Cassiopeia are opposite one another.
- The pointers point backward to Leo and the line through them would pass less than 15 degrees east of Regulus. Note: the Sickle, when it gets darker.

- The Handle: Draw a line from Megrez through Alioth to Alphecca.
- Follow Curvature of the handle to Arcturus and Spica.
- Arcturus, Spica and Denebola form an equilateral triangle.
- A line drawn from Spica through Regulus will bring us to the neighborhood of Pollux. Note: if you've found Pollux, Castor should be near enough to confirm that you've found Gemini.


Auriga
Aries
Capella
Perseus
Lynx
Triangulum
Leo_Minor
Leo
Camelopardalis
Pisces
Ursa_Major
Andromeda
Cassiopeia
Polaris
Cepheus
Ursa_Minor
Canes_Venatici
Coma_Berenices
Lacerta
Pegasus
Draco
Cygnus
Bootes
Arcturus
Lyra
Corona_Borealis
Vega
Vulpecula
6 45
6 60
6 75
0 15
0 30
0 45
0 60
0 75
12 75
12 60
12 45
12 30
18 75
18 60
18 45

Hercules and the Summer Triangle

- Going east from Corona Borealis will bring you to Hercules, which can be identified by its three brightest stars Kornephoros (β Her), Sarin (δ Her), and ζ Herculis (the southwest star in the Keystone), which form an equilateral triangle.
- The Keystone in Hercules is immediately north of this triangle and Vega (α Lyr), which is a bright blue star in Lyra, is about 20 degrees east of the Keystone.
- The center of Cygnus, Sadr (γ Cyg) lies about 25 degrees east of Vega and Deneb (α Cyg) is about 7 degrees northeast of Sadr.
- Altair (α Aql) is about 30 degrees south of Sadr and can be confirmed by the presence of Tarazed (γ Aql) and Alshain (β Aql), which are short distances on opposite sides of Altair.
- Vega, Deneb, and Altair form the Summer Triangle, which is in the east at nightfall in the summer and not far west of the meridian in the fall.


19h
18h
17h
16h
15h
+50°
+40°
+30°
+20°
+10°
0°
DRACO
BOOTES
LYRA
HERCULES
CORONA BOREALIS
OPHIUCHUS
M92
M13
Kornephoros
Rasalgethi
0
1
2
3
4
5
6
IAU
SKY & TELESCOPE

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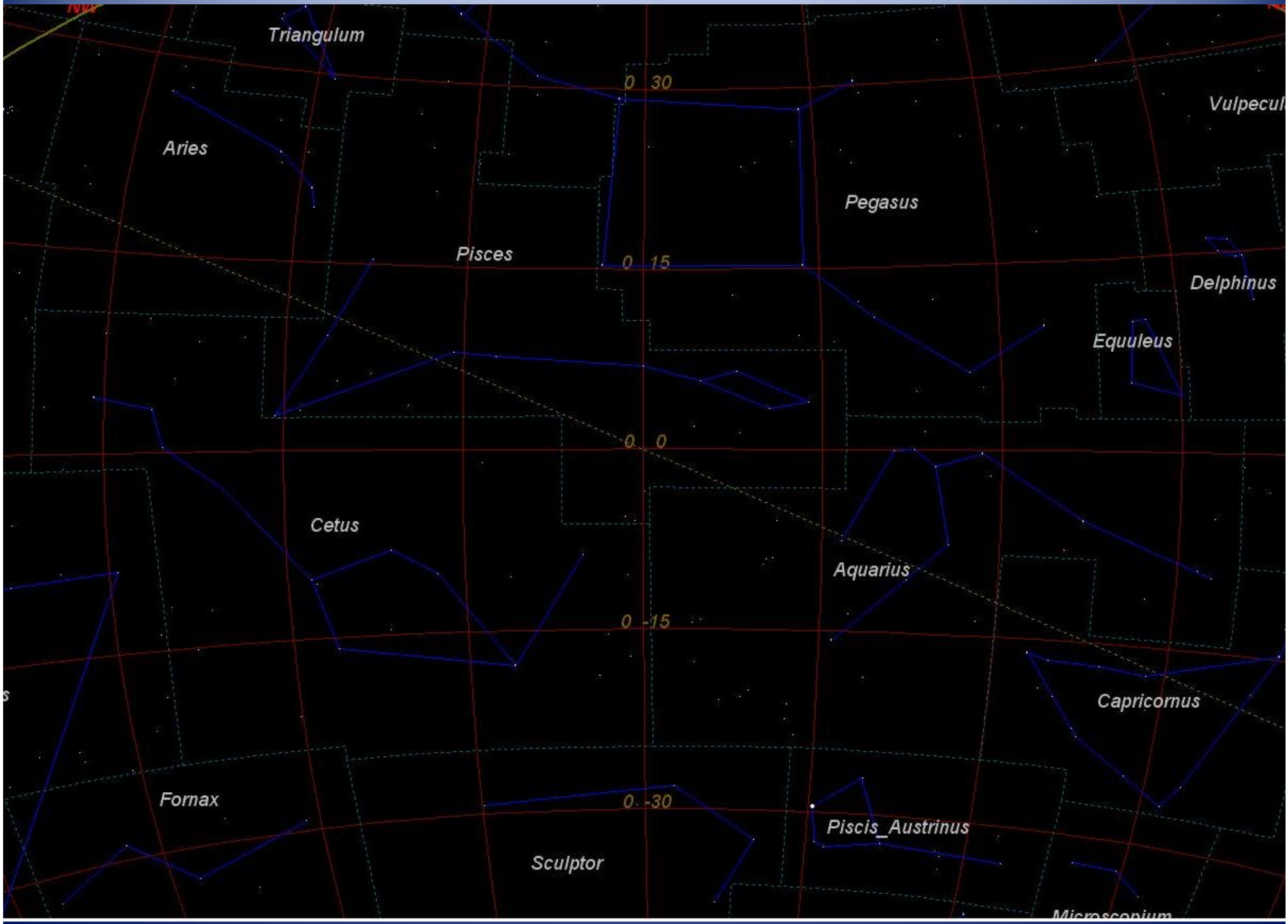
Lacerta
Deneb
Cygnus
Vega
Lyra
Hercules
Vulpecula
Pegasus
Sagitta
Rasalhague
Delphinus
Southern ι-Aquariids
Altair
Equuleus
Aquila

From the Great Square of Pegasus:

- Alpheratz (α And) is at the northeast corner and Markab (α Peg) is at the opposite corner.
- A line drawn south from Alpheratz through the southeast corner, Algenib (γ Peg), will point to Deneb Kaitos (β Cet).
- A line drawn from the northwest corner, Sheat (β Peg) through the Markab can be extended to Fomalhaut (α PsA).
- Alpheratz is the head of Andromeda. Draw a curve from Sheat through Alpheratz to the next bright star northeast of Alpheratz, Mirach (β And) and then follow the curvature, bringing you to Almach (γ And).
- One step further and you will find Mirfak (α Per) and the constellation Perseus.
- One more step will bring you to Capella in Auriga (if it's risen yet).


Triangulum
0 30
Vulpecul
Aries
Pegasus
Pisces
0 15
Delphinus
Equuleus
0 0
Cetus
Aquarius
0 -15
Capricornus
Fornax
0 -30
Piscis_Austrinus
Sculptor
Microscopium

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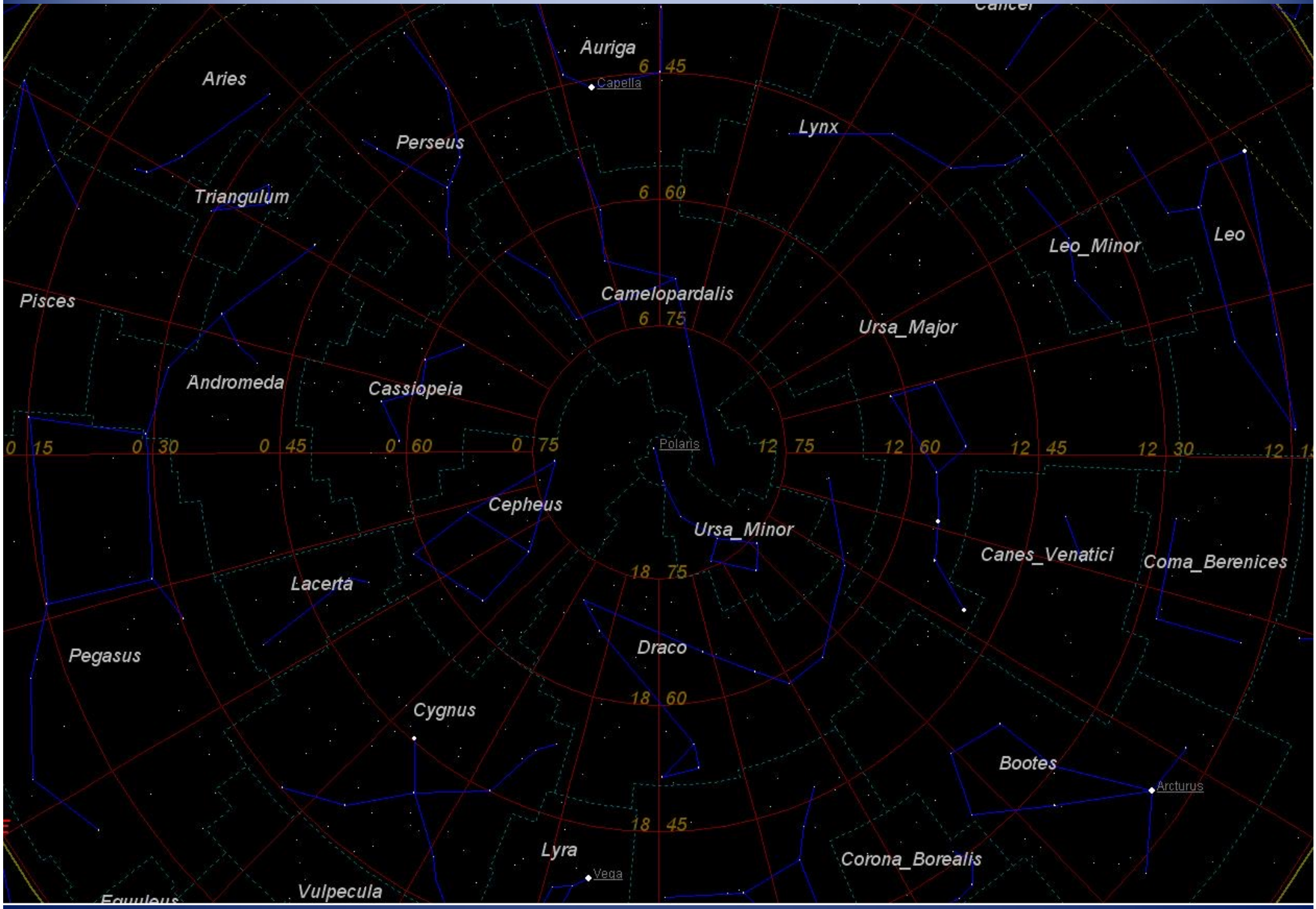
Auriga
Aries
Capella
Perseus
Lynx
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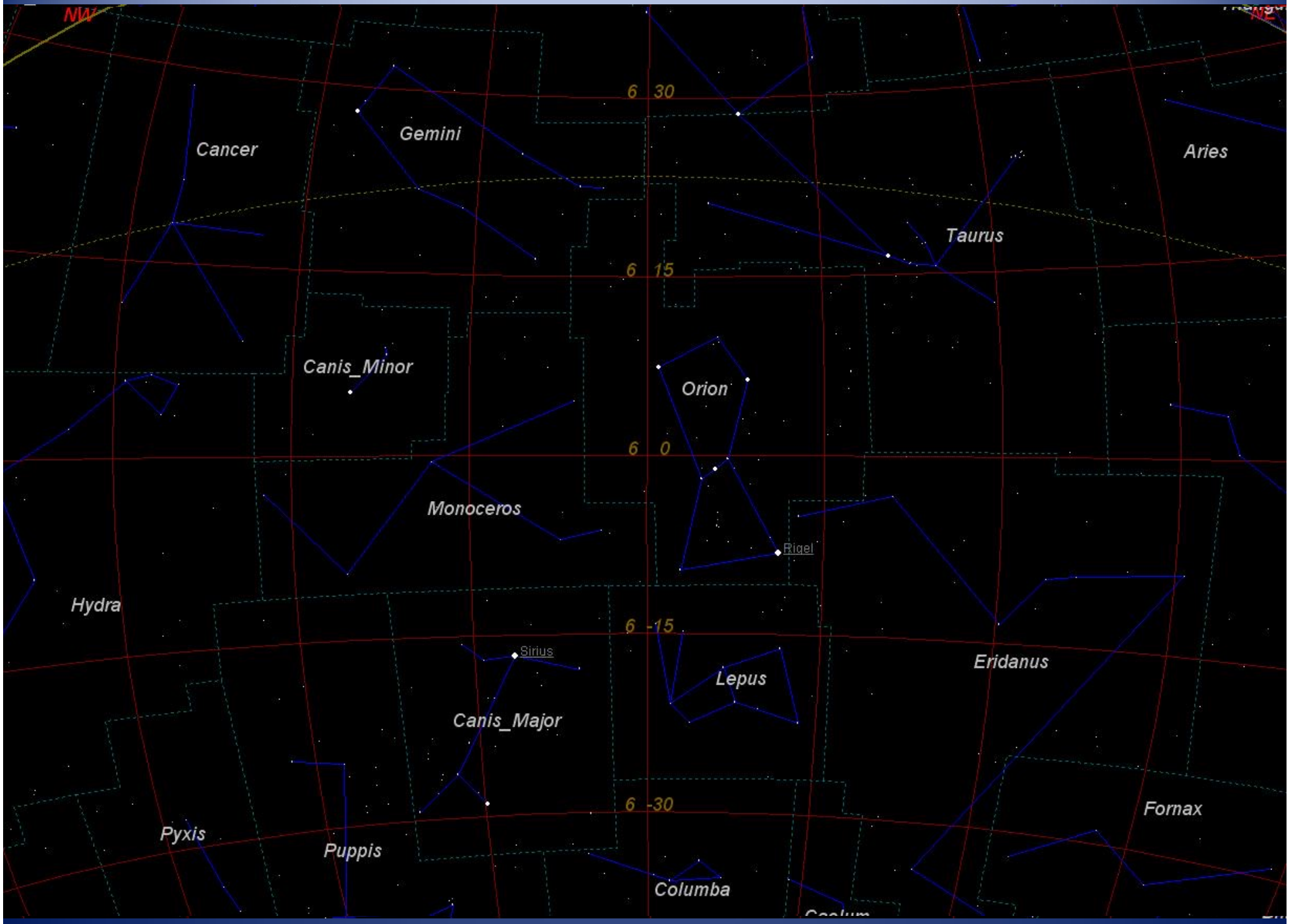
Camelopardalis
Pisces
Ursa_Major
Andromeda
Cassiopeia
Polaris
Cepheus
Ursa_Minor
Canes_Venatici
Coma_Berenices
Lacerta
Pegasus
Draco
Cygnus
Bootes
Arcturus
Lyra
Corona_Borealis
Vega
Vulpecula
6 45
6 60
6 75
0 15
0 30
0 45
0 60
0 75
12 75
12 60
12 45
12 30
18 75
18 60
18 45

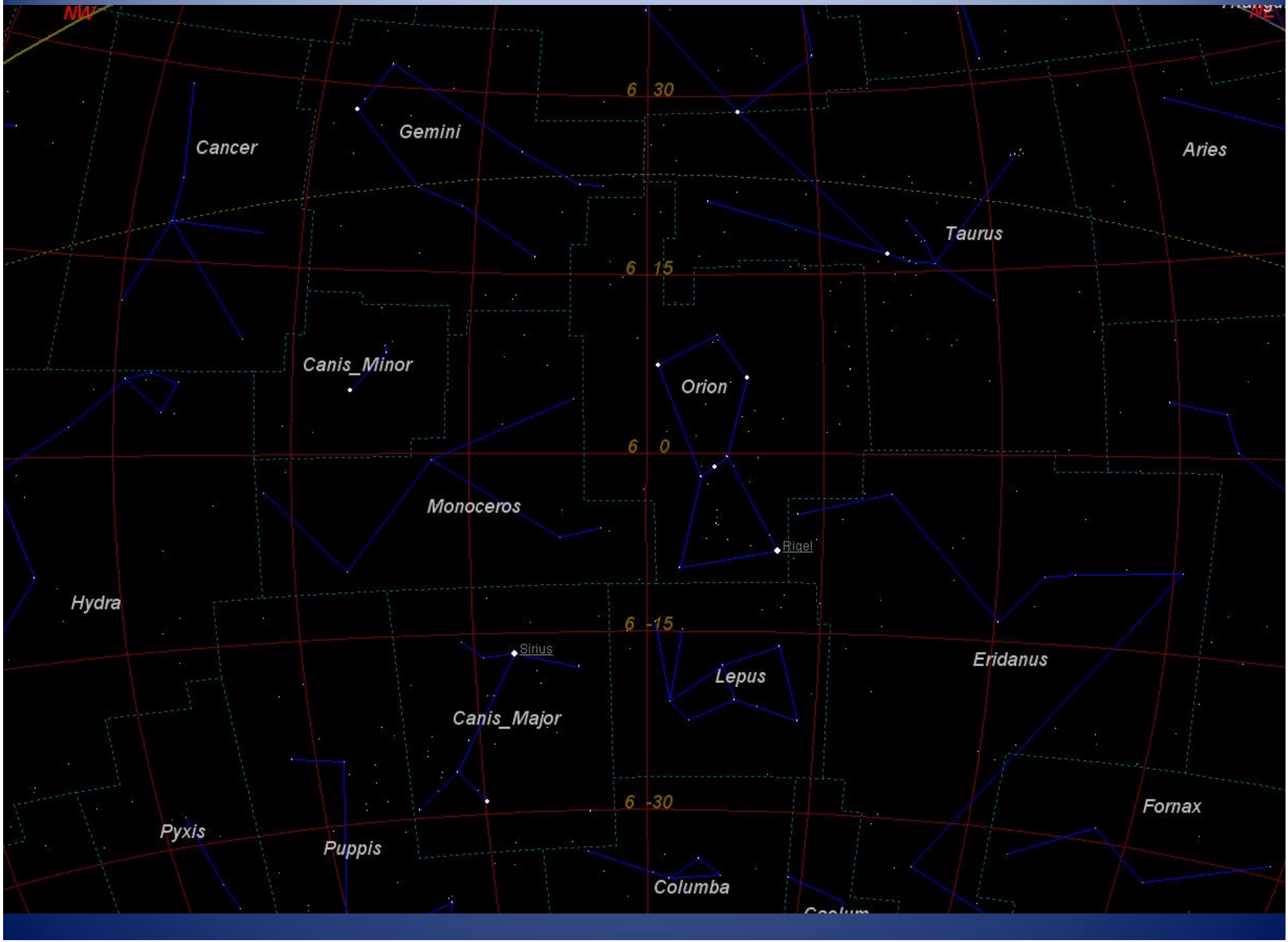
From Orion:

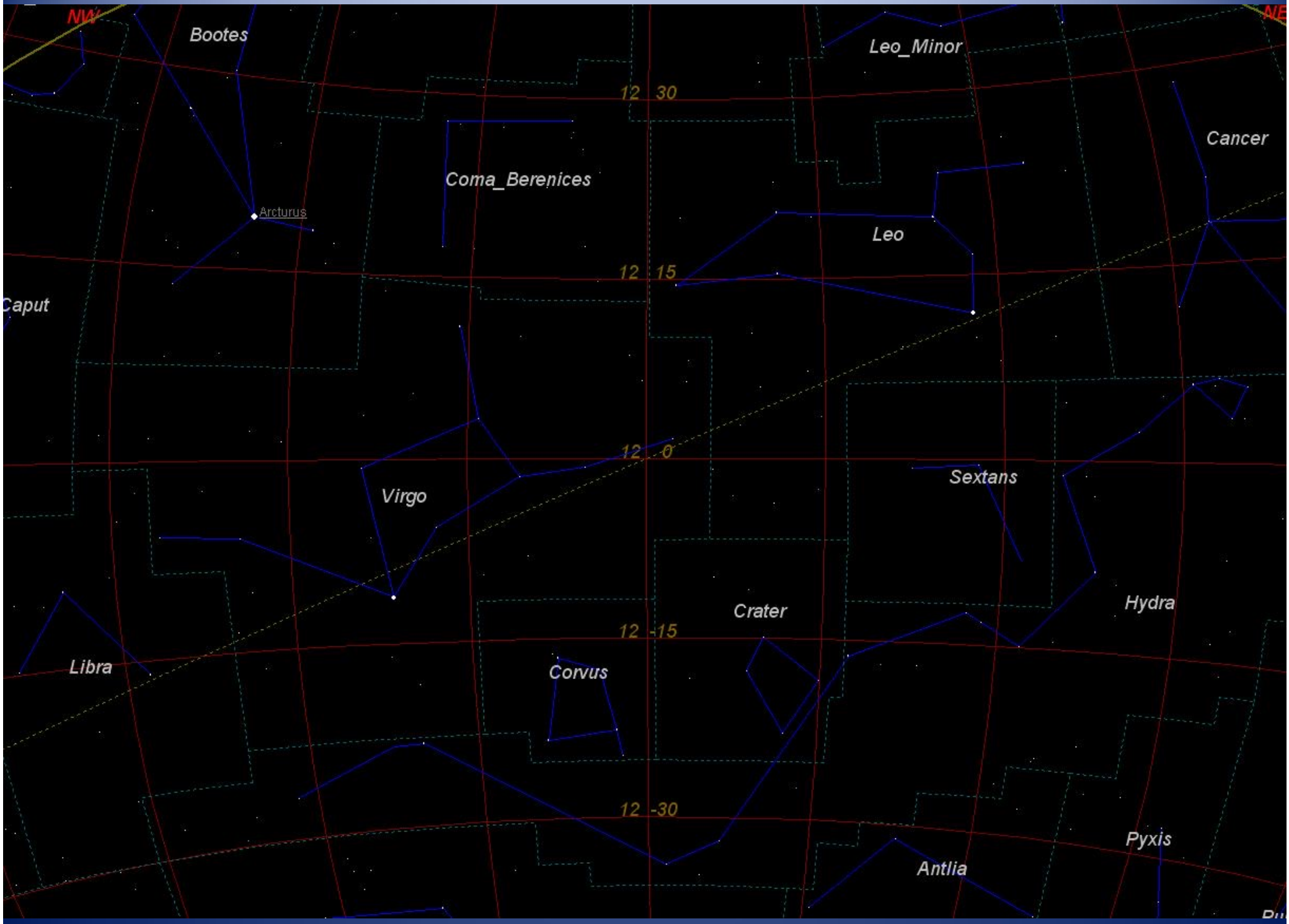
- The Belt of Orion is easy to find in the winter and spring.
- Betelgeuse (α Ori) is toward the northeast from the belt.
- Rigel (β Ori) is toward the west.
- A line draw through the Belt toward the southeast passes near Sirius (α CMa).
- Procyon (α CMi) is just east of a line drawn from Sirius to Pollux.
- If you draw a curve from Sirius through Procyon, through Pollux and continue beyond Pollux, you come to Capella (α Aur) .
- A line drawn from Sirius through Bellatrix (γ Ori) will arrive at Aldebaran (α Tau) and the Hyades.
- A line drawn from Betelgeuse through Aldebaran will pass near Hamal (α Ari) in Aries. Note: the great square of Pegasus is just to the west.

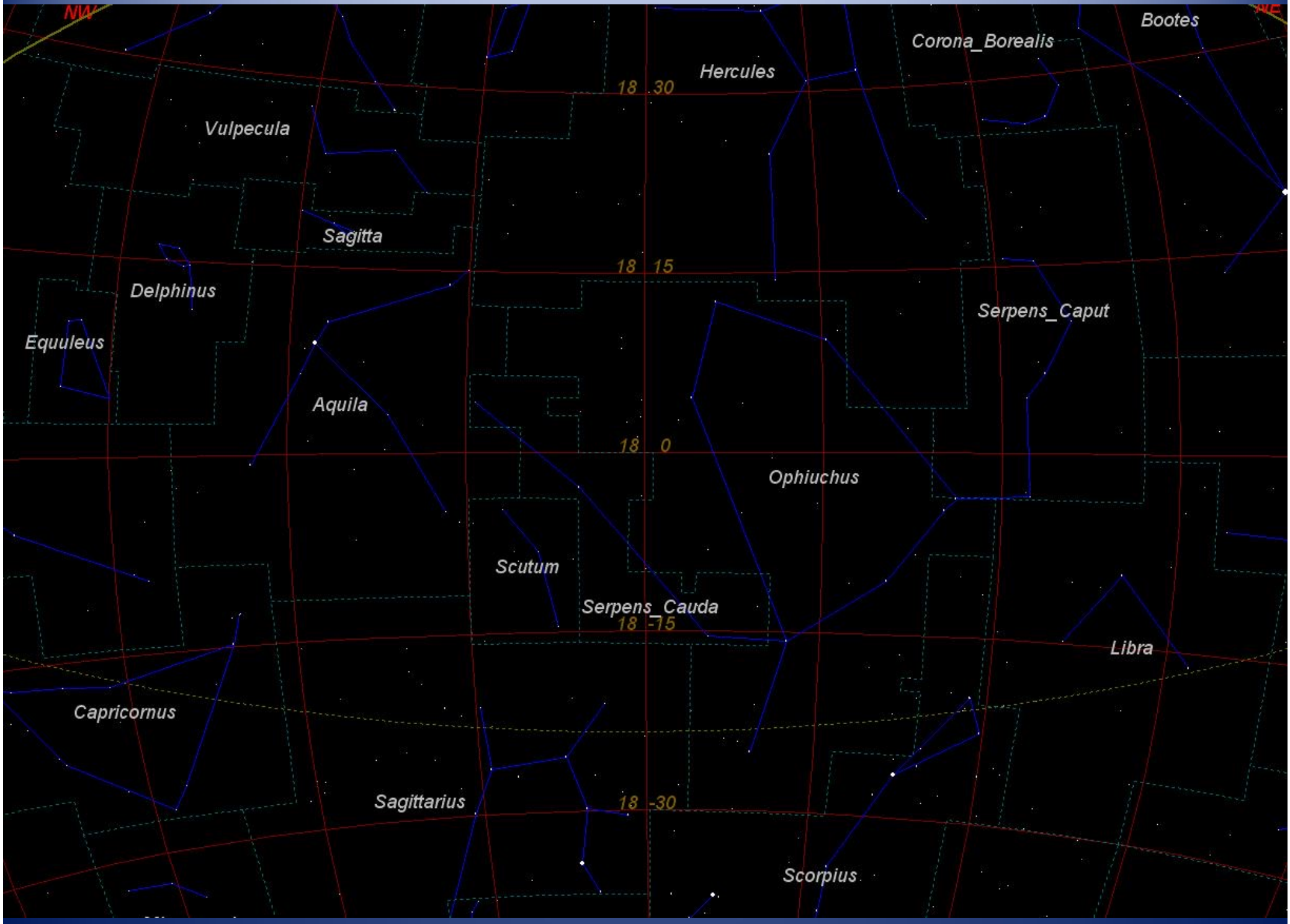

NW
6 30
Gemini
Cancer
Aries
Taurus
6 15
Canis_Minor
Orion
6 0
Monoceros
Rigel
Hydra
6 -15
Sirius
Eridanus
Lepus
Canis_Major
6 -30
Fornax
Pyxis
Puppis
Columba

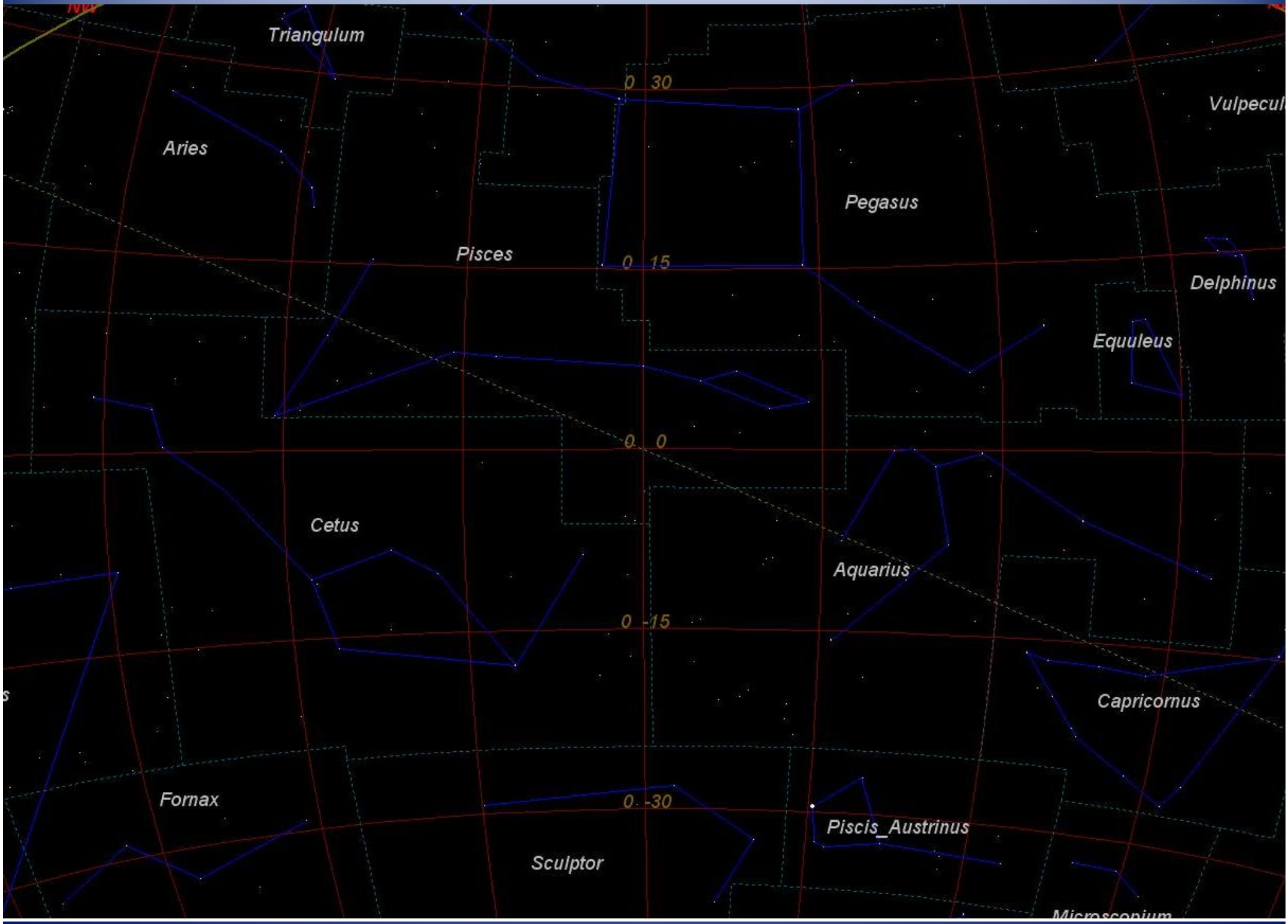
To Find the Rest:

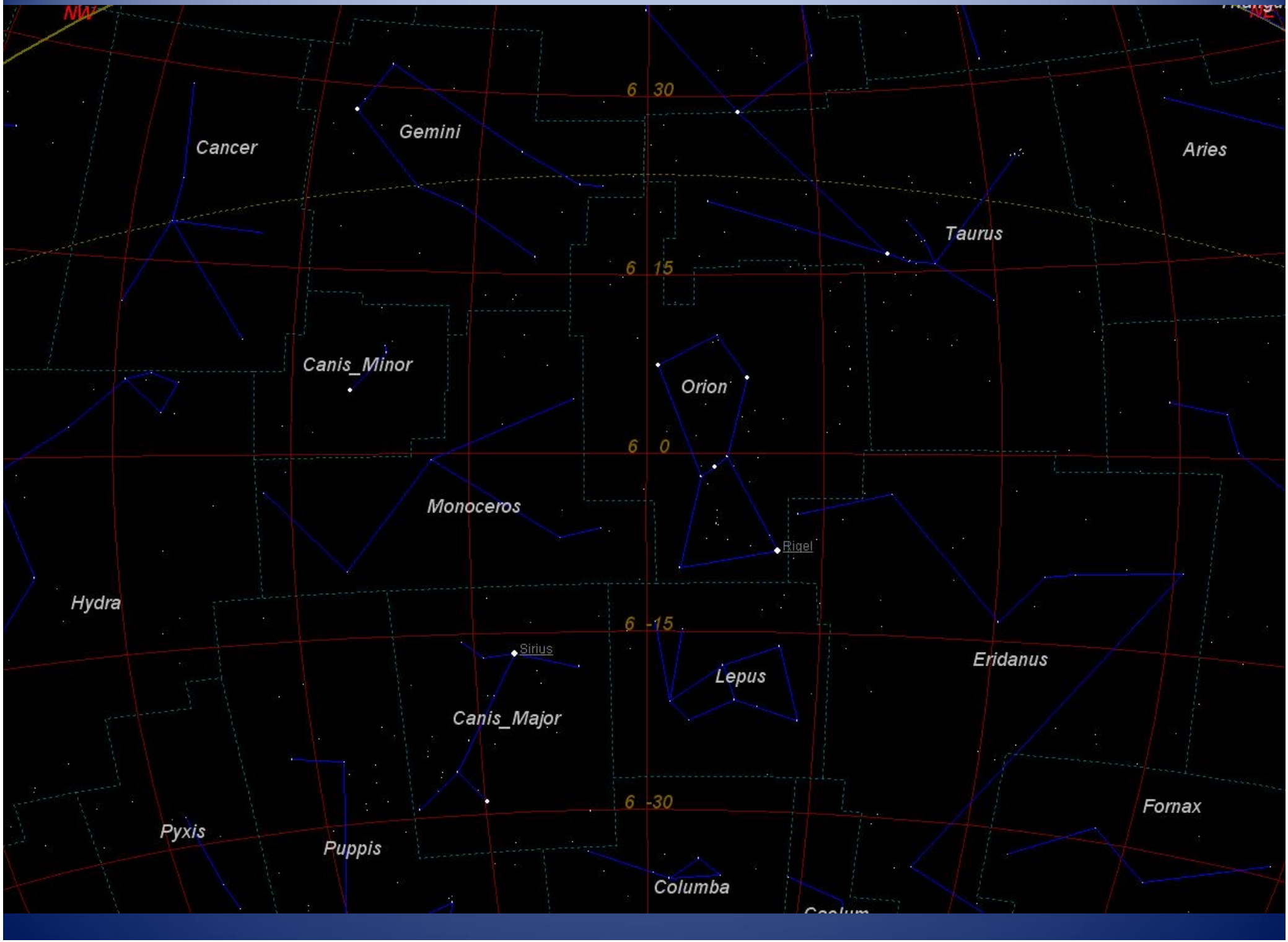
- Refer to your seasonal constellation charts and look for the neighbors of these bright stars and asterisms.
- Spend some time studying the pertinent charts before an evening of viewing.
- Try to familiarize yourself with the sky as it revolves overhead. Bring a (red) flashlight and star charts with you, when you are stargazing.
- Become acquainted with individual bright stars first (15 should be an excellent start). Know where in the sky to expect them at different times of the year at the hours when you will be viewing.
- As you learn more about the sky, learn their approximate coordinates. This could come in handy if you're ever without cell service.

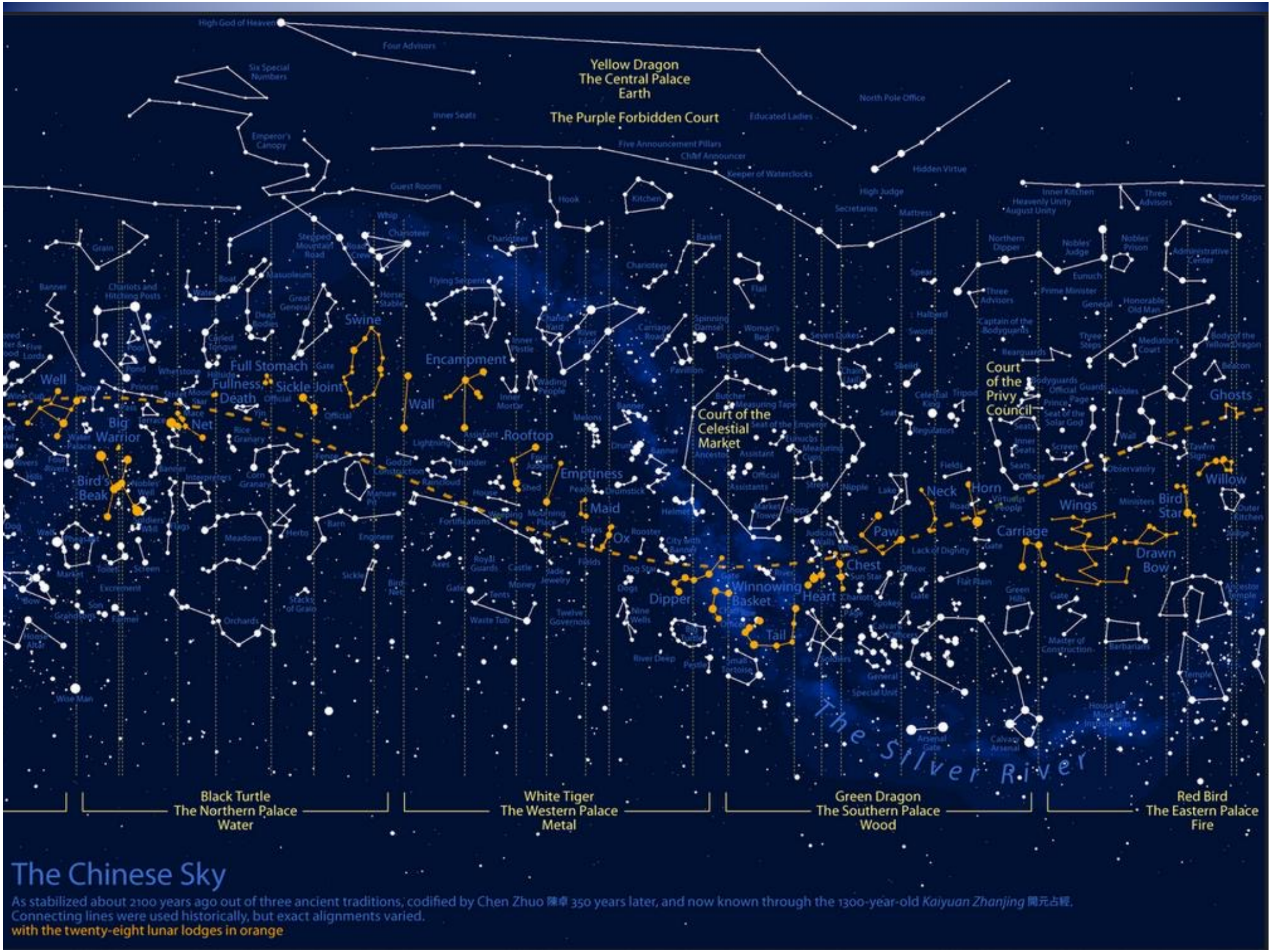

NW
NE
6 30
6 15
6 0
6 -15
6 -30
Cancer
Gemini
Aries
Taurus
Canis_Minor
Orion
Monoceros
Rigel
Hydra
Sirius
Eridanus
Lepus
Canis_Major
Fornax
Pyxis
Puppis
Columba


NW
NE
Bootes
Leo_Minor
12 30
Cancer
Coma_Berenices
Arcturus
Leo
12 15
Caput
12 0
Virgo
Sextans
Crater
Hydra
12 -15
Libra
Corvus
12 -30
Pyxis
Antlia


Bootes
Corona_Borealis
Hercules
18 30
Vulpecula
Sagitta
18 15
Delphinus
Serpens_Caput
Equuleus
Aquila
18 0
Ophiuchus
Scutum
Serpens_Cauda
18 -15
Libra
Capricornus
Sagittarius
18 -30
Scorpius


Triangulum
0 30
Vulpecul
Aries
Pegasus
Pisces
0 15
Delphinus
Equuleus
0 0
Cetus
Aquarius
0 -15
Capricornus
Fornax
0 -30
Piscis_Austrinus
Sculptor
Microscopium


NW
NE
6 30
6 15
6 0
6 -15
6 -30
Cancer
Gemini
Aries
Taurus
Canis_Minor
Orion
Monoceros
Rigel
Hydra
Sirius
Eridanus
Lepus
Canis_Major
Fornax
Pyxis
Puppis
Columba

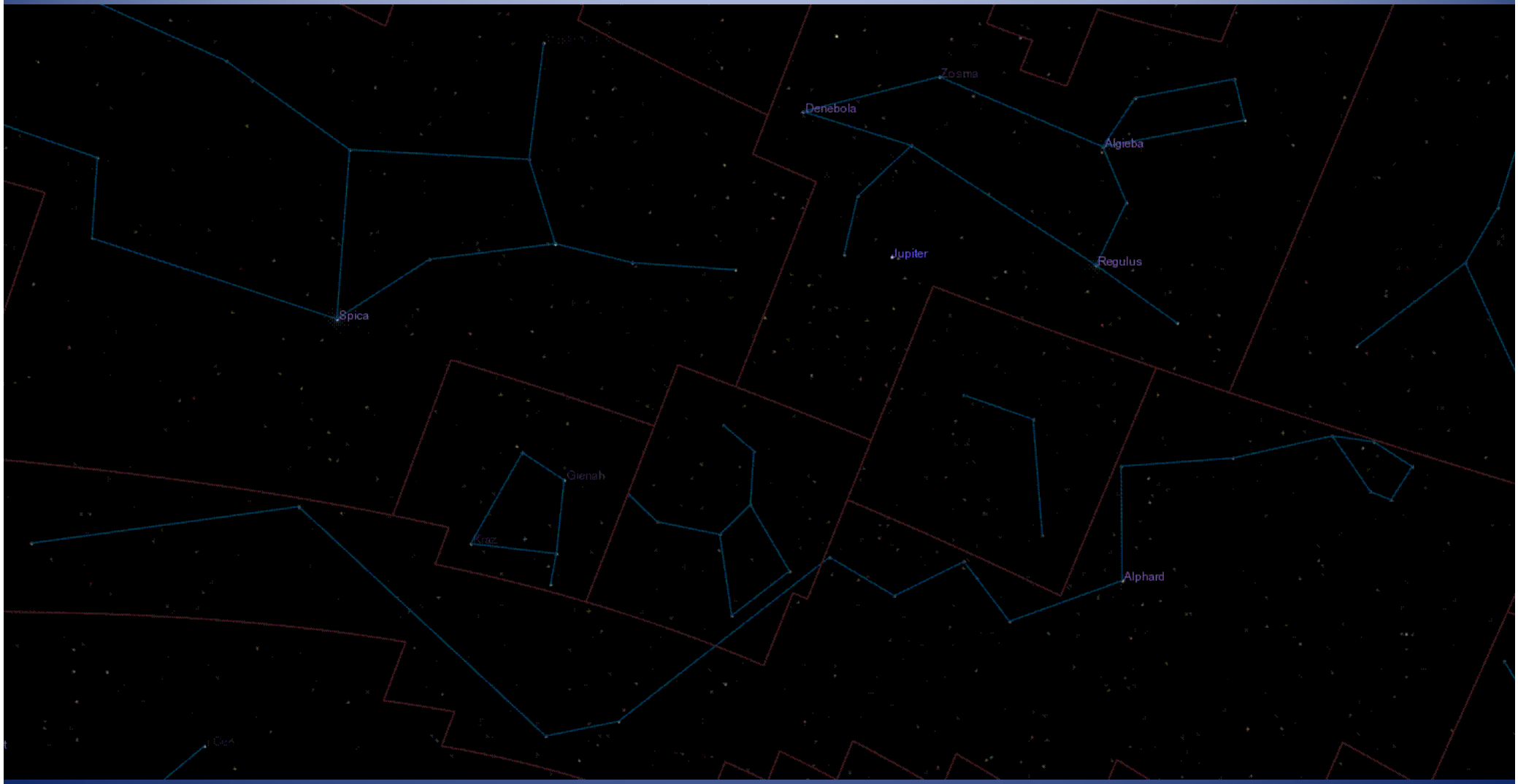


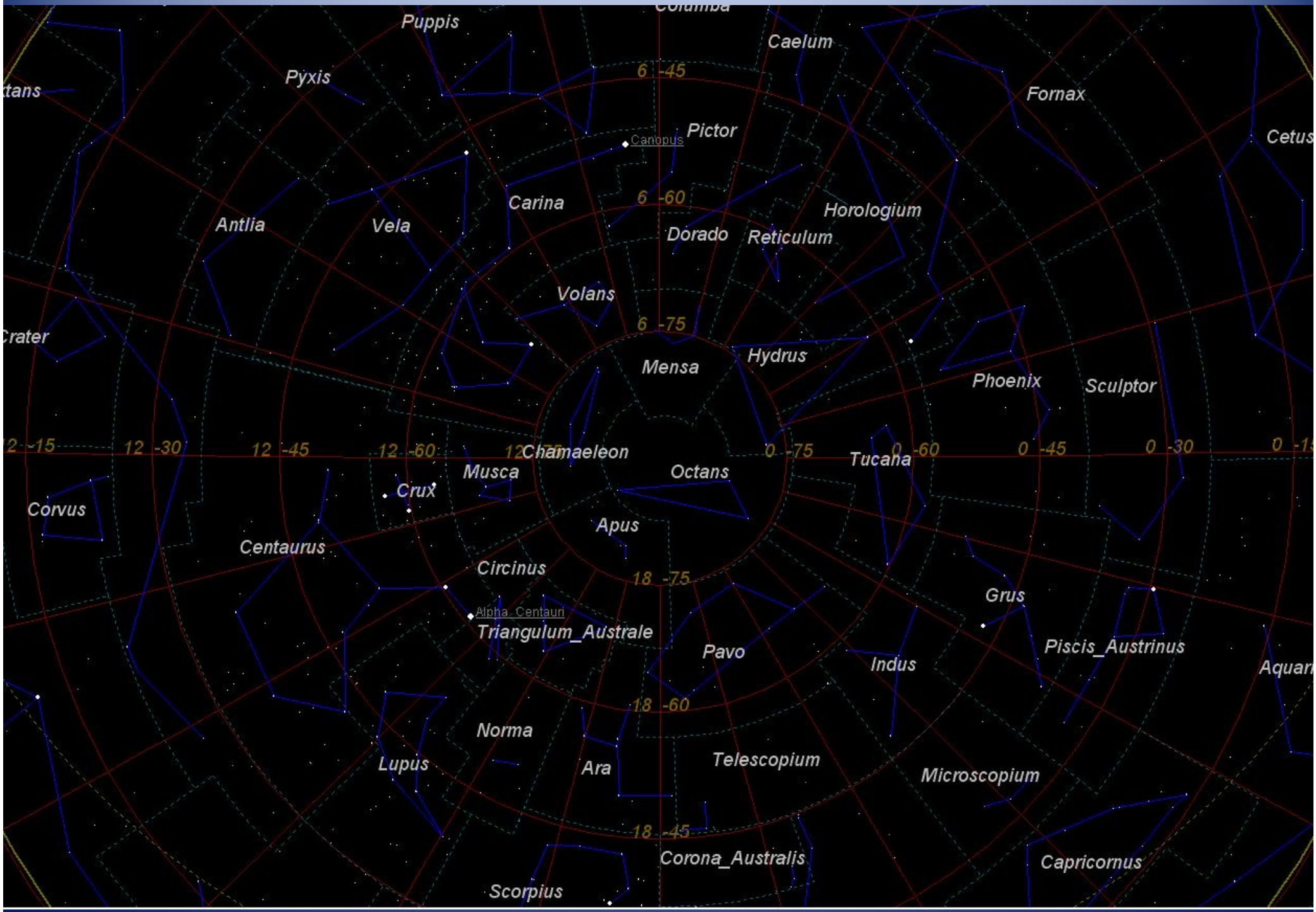
The Chinese Sky

As stabilized about 2100 years ago out of three ancient traditions, codified by Chen Zhuo 陳卓 350 years later, and now known through the 1300-year-old *Kaiyuan Zhanjing* 開元占經.
Connecting lines were used historically, but exact alignments varied.
with the twenty-eight lunar lodges in orange

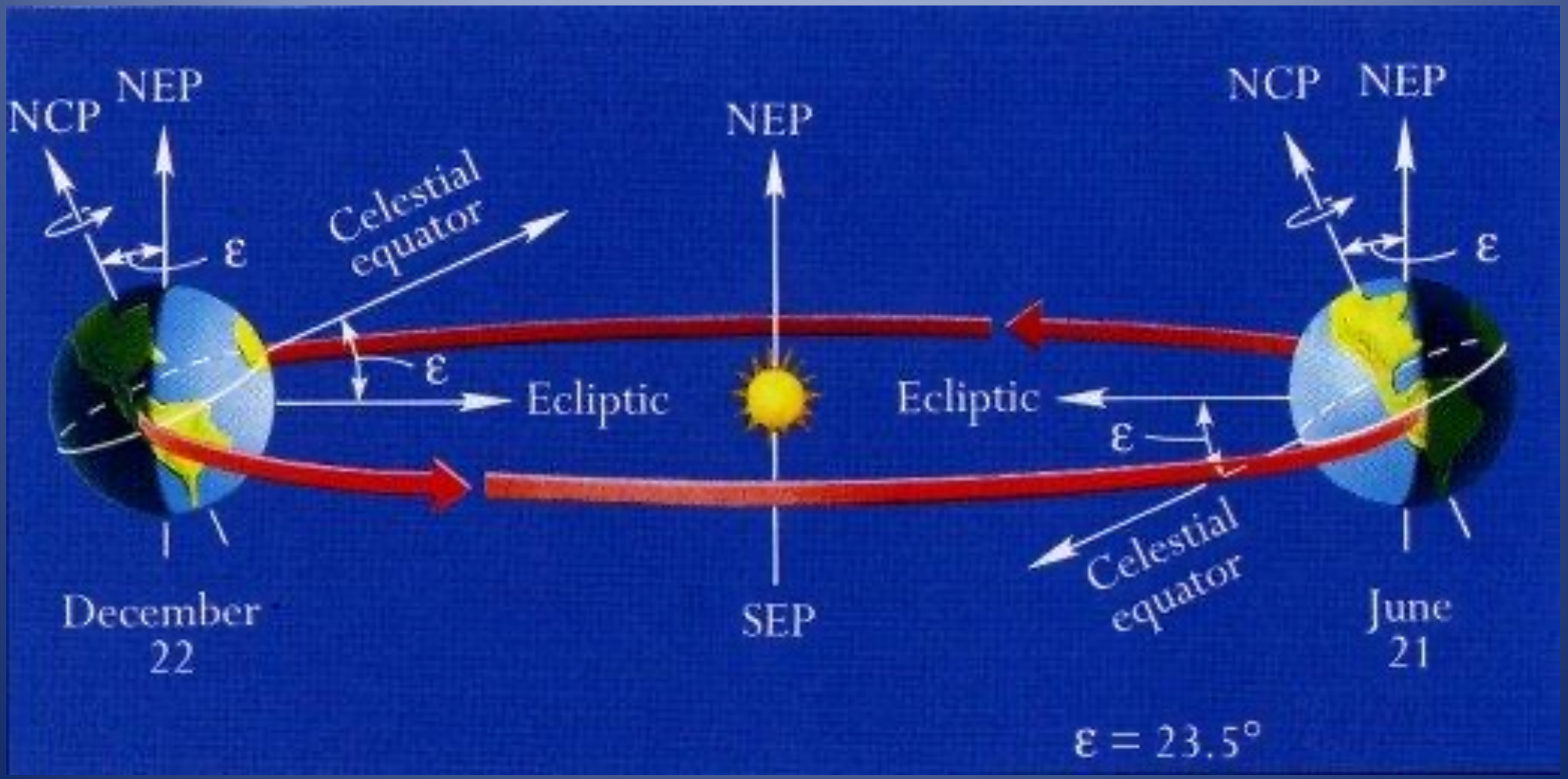
How to Calculate Sidereal Time (+/- 10 minutes) In Your Head

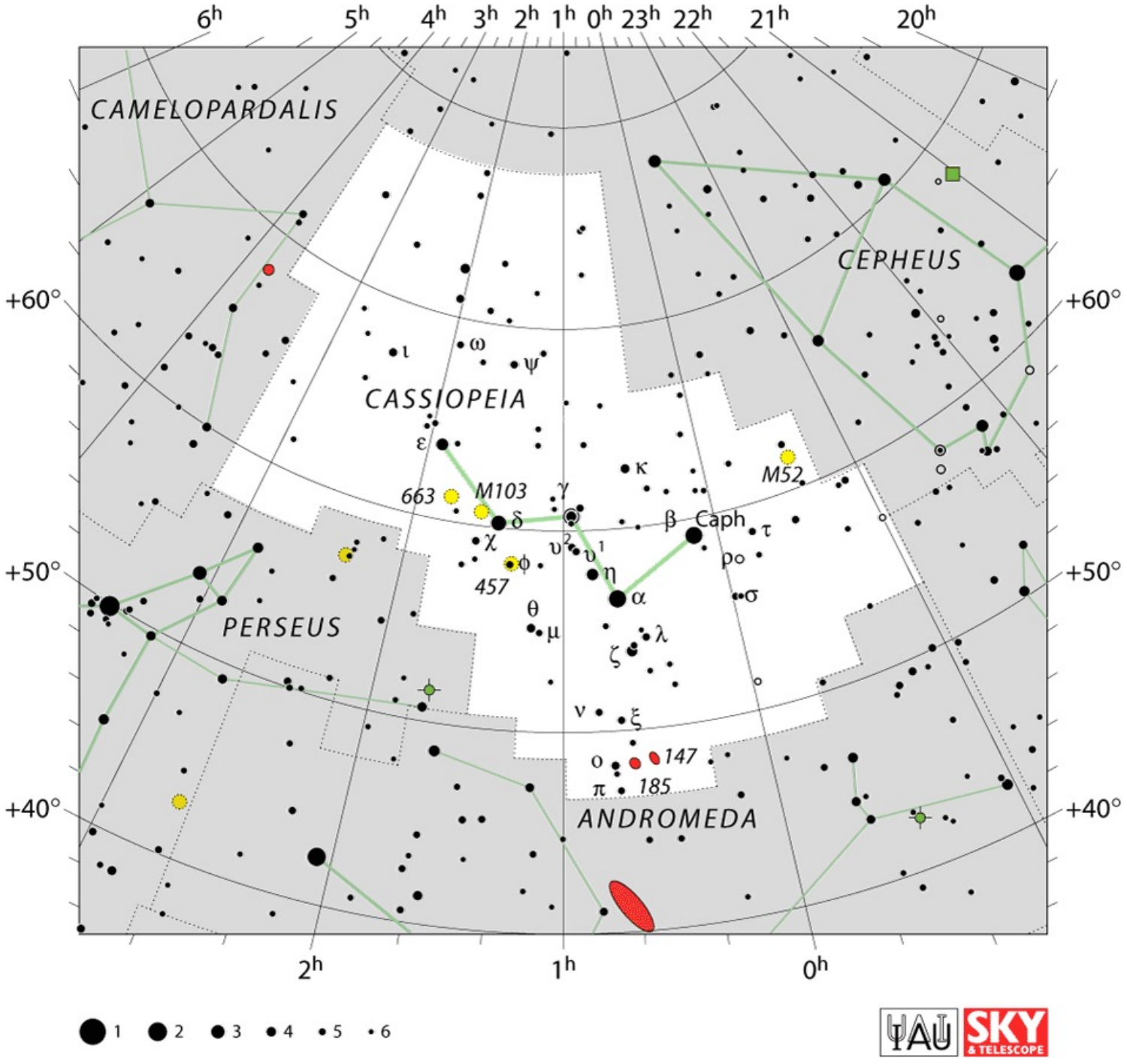
1. Assign a number to the current month (January = 1, February = 2, etc.) and multiply this number by 2. This is the hour of sidereal time for the first half of the month at 7:30 PM Std Time (8:30 PM DST).
2. Take the a number of the day of the month and multiply it by 4. This is the number of minutes of sidereal time after the hour for the month. Add it to the hour from step 1. If there are more than 60 minutes, subtract 60 minutes from the number of minutes and add one hour to the count of hours.
3. Add the hours and the remaining minutes, then add 6 minutes to adjust for NJAA's being a little east of the centerline for its time zone. This is the sidereal time for 7:30 PM Std Time (8:30 PM DST). Then subtract the difference (hours and minutes) between the 7:30 PM and the current time.

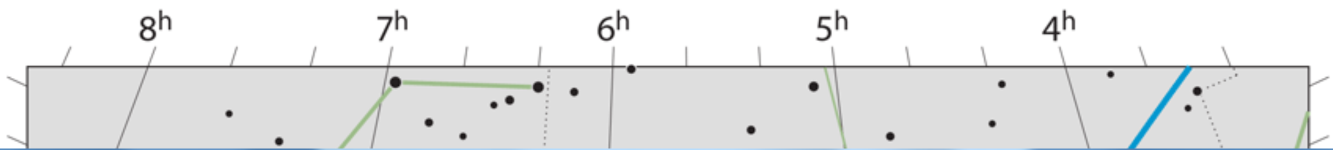

Zosma
Denebola
Algieba
Jupiter
Regulus
Spica
Gienah
Kraz
Alphard

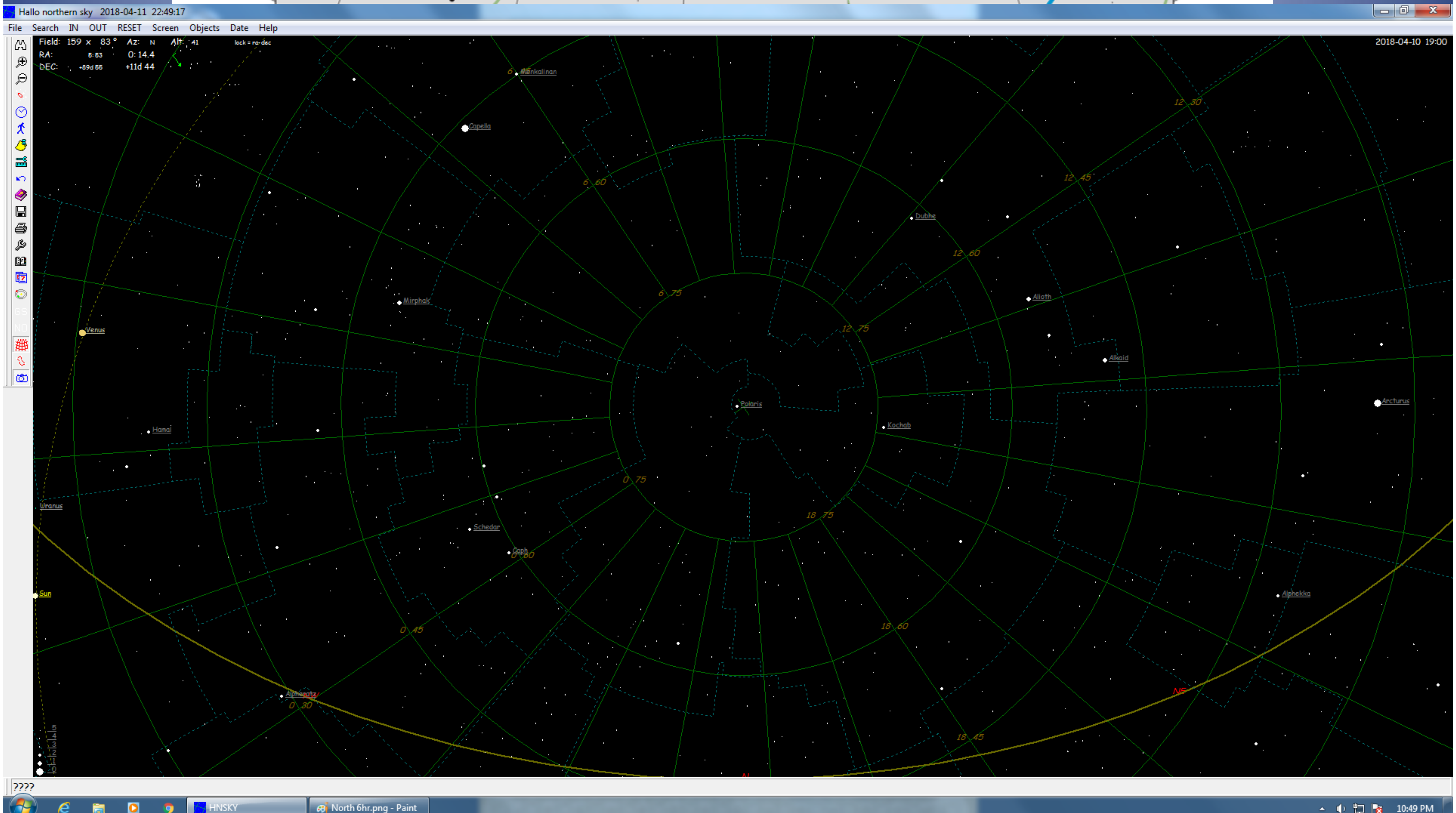

Puppis
Columba
Caelum
Pyxis
6 -45
Fornax
Pictor
Canopus
Cetus
Carina
6 -60
Horologium
Antlia
Vela
Dorado
Reticulum
Volans
6 -75
Hydrus
Mensa
Phoenix
Sculptor
12 -15
12 -30
12 -45
12 -60
Chamaeleon
0 -75
0 -60
0 -45
0 -30
Tucana
Musca
Octans
Crux
Corvus
Apus
Centaurus
Circinus
18 -75
Grus
Alpha Centauri
Triangulum_Australe
Pavo
Indus
Piscis_Austrinus
18 -60
Norma
Lupus
Ara
Telescopium
Microscopium
18 -45
Corona_Australis
Capricornus
Scorpius

Celestial Equator and Seasons




6h
5h
4h
3h
2h
1h
0h
23h
22h
21h
20h
CAMELOPARDALIS
CEPHEUS
CASSIOPEIA
PERSEUS
ANDROMEDA
+60°
+50°
+40°
663
M103
M52
457
147
185
β Caph
1
2
3
4
5
6
SKY & TELESCOPE


8h
7h
6h
5h
4h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Menkalinan
Capella
Dubhe
Mirphak
Venus
Alioth
Alkaid
Polaris
Kochab
Arcturus
Hamal
Uranus
Schedar
Caph
Sun
Alphekka
Alpheratz
????
HNSKY
North 6hr.png - Paint
10:49 PM


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4
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6