



A presentation of what's up, what's rising and what's setting
In short...

“All of the Above”

By
David Whalen



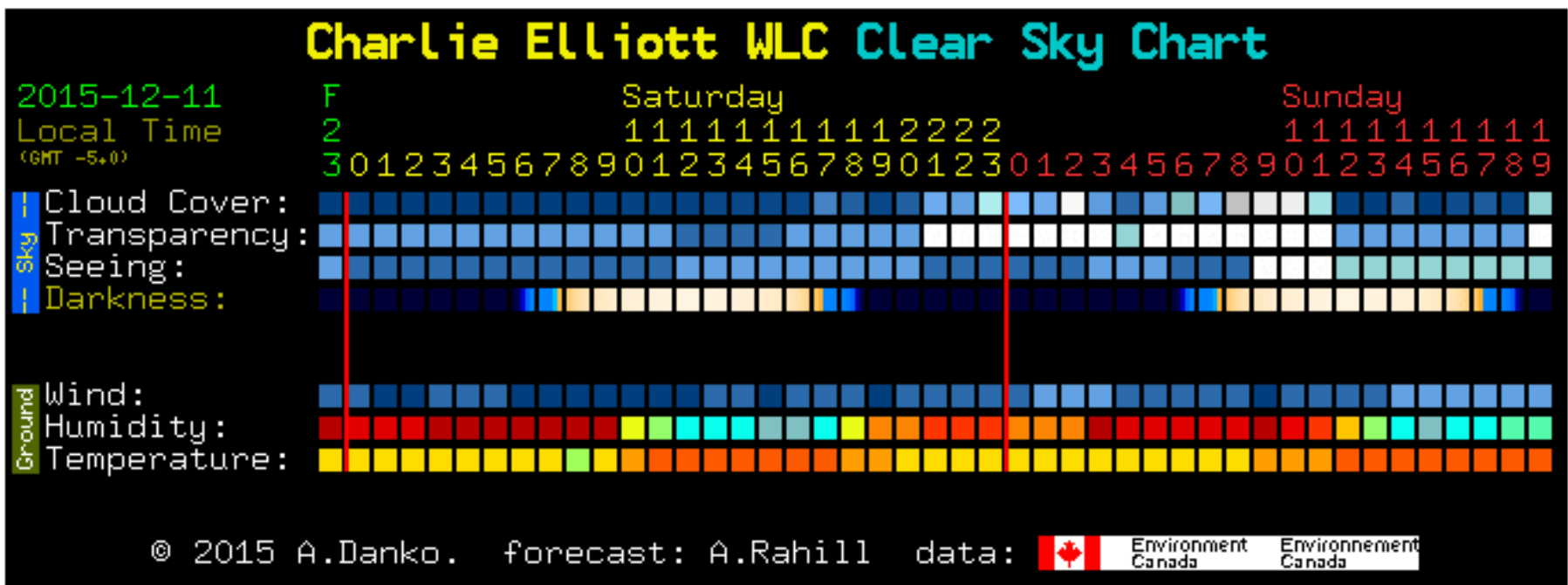


This Month's Sky: December 2015

- **Conditions over the Jon Wood Field**
- **The Solar System**
- **The Solar Update**
- **The Lunar Update**
- **Celestial Events**
- **The Constellations**
- **Target List**
- **Challenge Target**

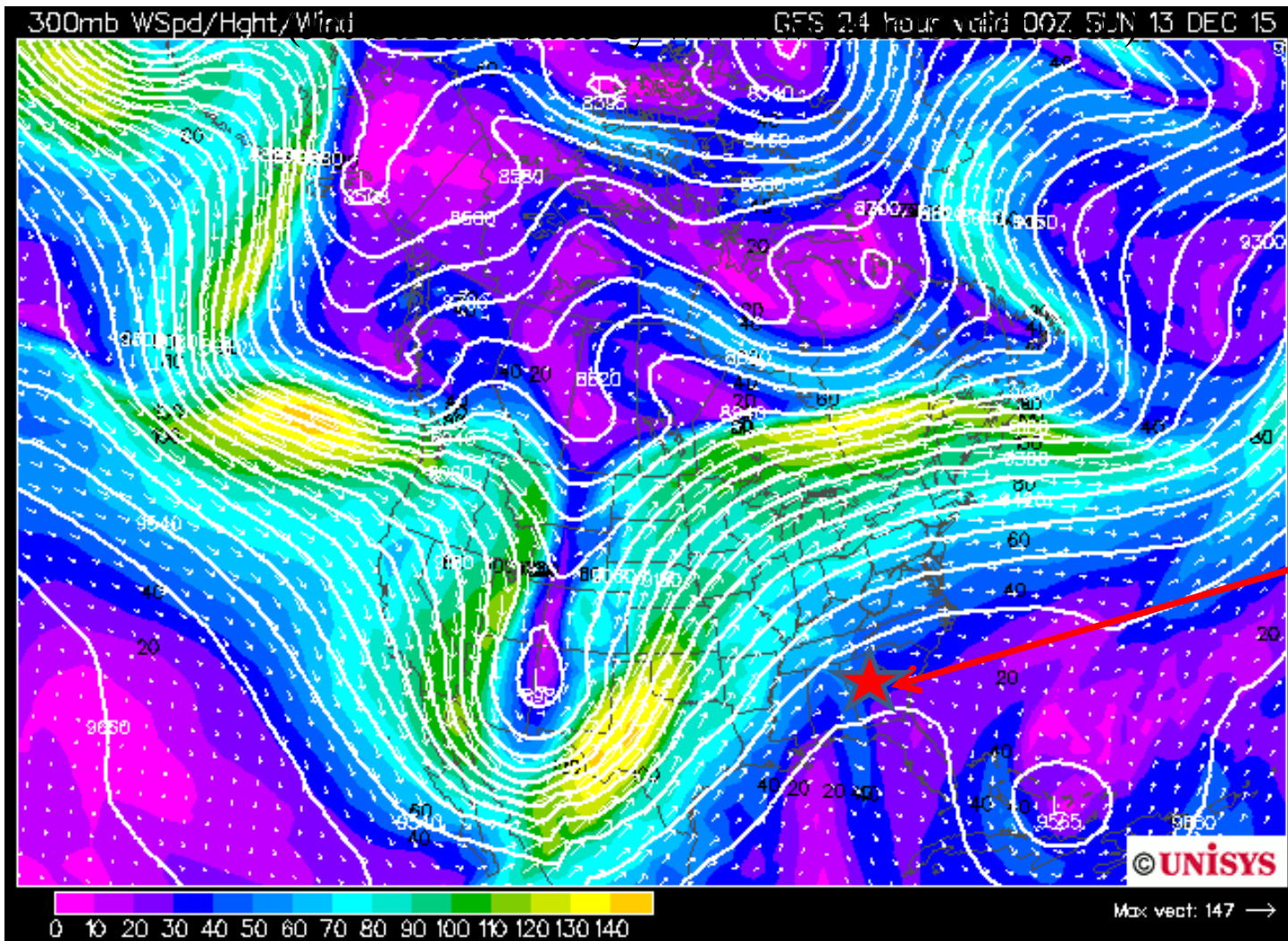


Current Conditions at Jon Wood Field





Current Conditions at Jon Wood Field

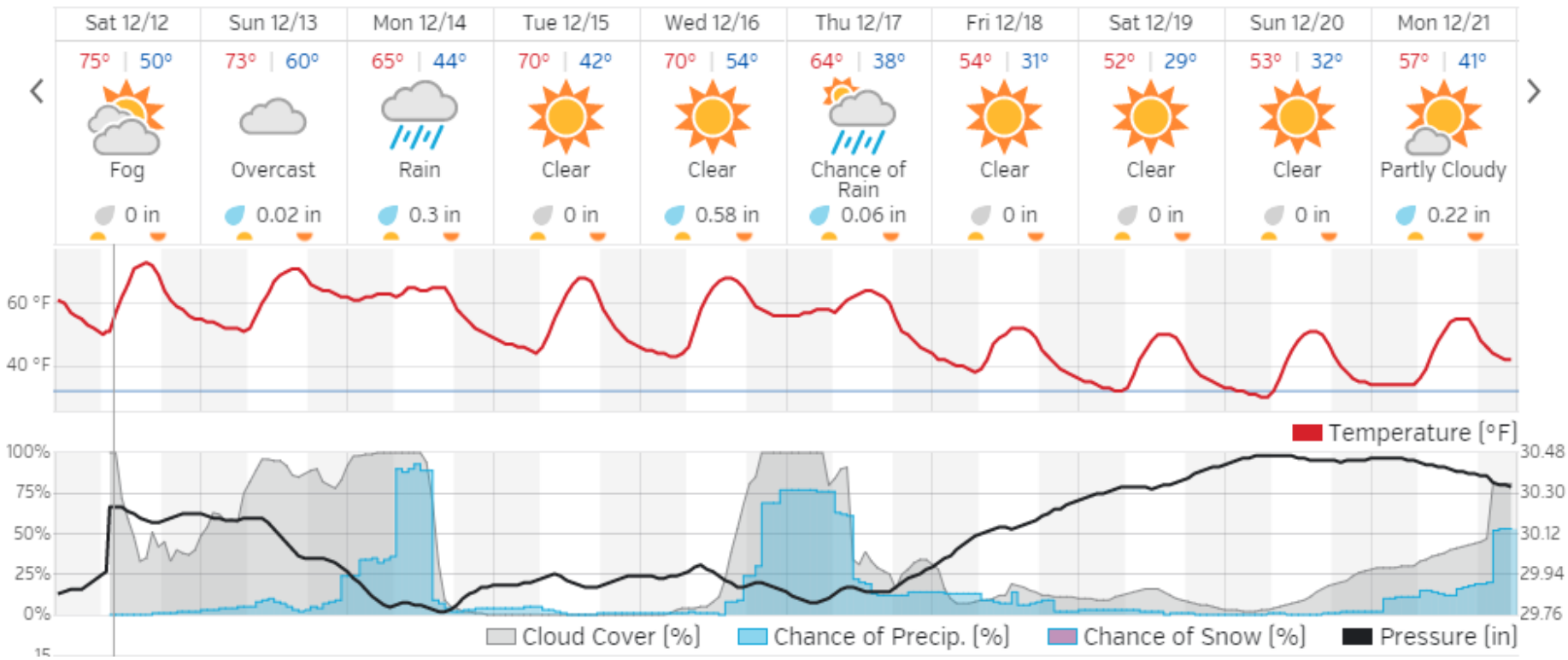


You are Here



Current Conditions at Jon Wood Field

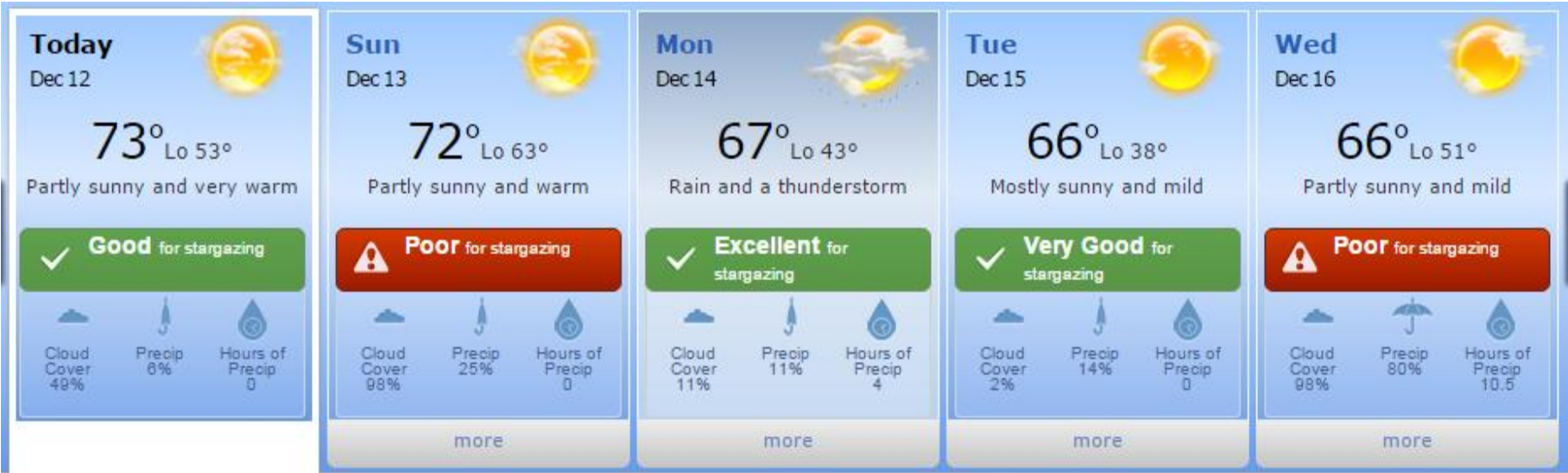
(Weather forecast data by www.wunderground.com)





Current Conditions at Jon Wood Field

(Stargazing forecast by www.accuweather.com)





The Solar System: December 12, 2015

Body	Constellation	Rise	Set	When to View
Sun	Ophiuchus	7:33 AM	5:30 PM	When bats sleep
Moon	Sagittarius	8:21 AM	7:00 PM	Sunset
Mercury	Sagittarius	8:42 AM	6:20 PM	Not right now
Venus	Libra	4:12 AM	3:12 PM	Dawn
Mars	Virgo	2:33 AM	2:08 PM	Dawn
Jupiter	Leo	12:34 AM	1:00 PM	After Midnight
Saturn	Ophiuchus	6:38 AM	4:49 PM	Sunrise - maybe
Uranus	Pisces	1:57 PM	2:36 AM	Dusk-Midnight
Neptune	Aquarius	12:13 PM	11:25 PM	Dusk-Midnight
Pluto	Sagittarius	9:12 AM	7:17 PM	July 2014 ☹





The Solar Update





The Sun: December 12, 2015

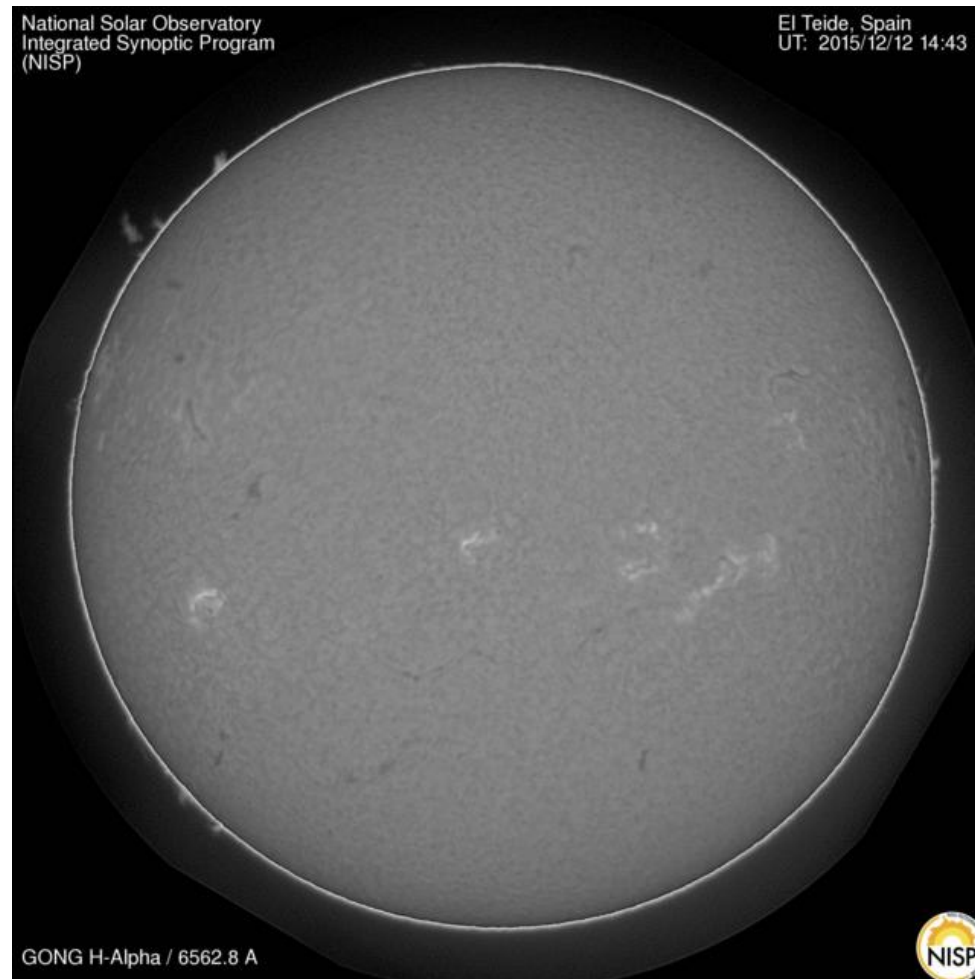
Solar image by www.spaceweather.com





The Sun-H α : December 12, 2015

Image by www.gong2.nso.edu – Cerro Tololo





The Lunar Update





The Moon: December 12, 2015



Lunation: 1.4 Days

Illumination: 2.2%

Distance:

237,545 mi

382,292 km

1.27 Light Second

Apparent Diameter: 31.2'

Location: Sagittarius

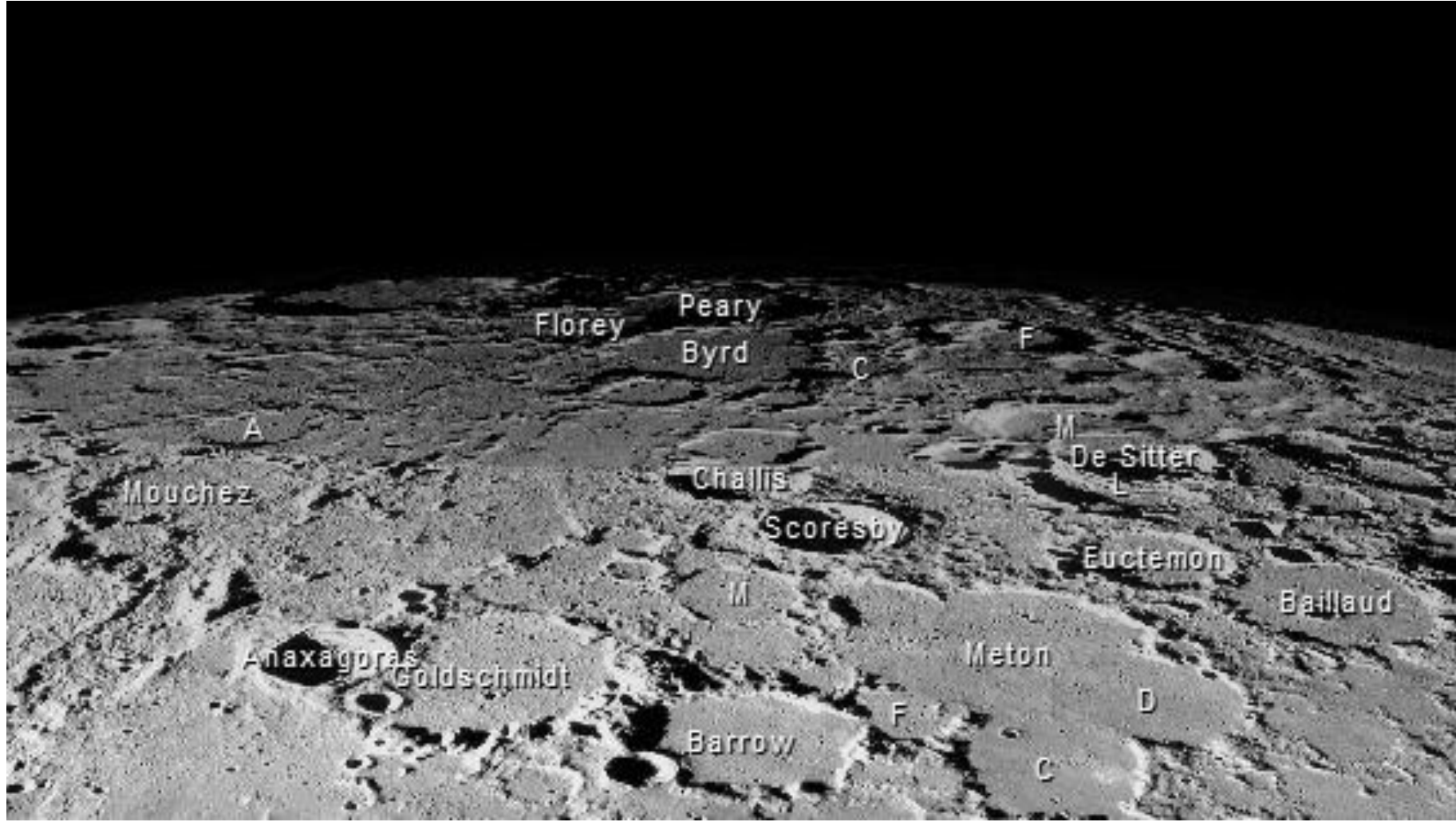


Lunar Events for December

- **December 7: Daylight Occultation of Venus – Did you see it?**
- **December 11: New Moon – Yesterday (you missed it)**
- **December 14: Moonset 8:58 PM for Geminid Meteors**
- **December 18: 1st Quarter**
Lunar “X” visible at 3:14 AM EST.
- **December 25: Full Moon**
Libration allows view of Byrd and Peary at Lunar north pole. Can you see Lunar Santa?



The Moon: December 25, 2015





Comet Update

Catalina (C/2013 US10) Update

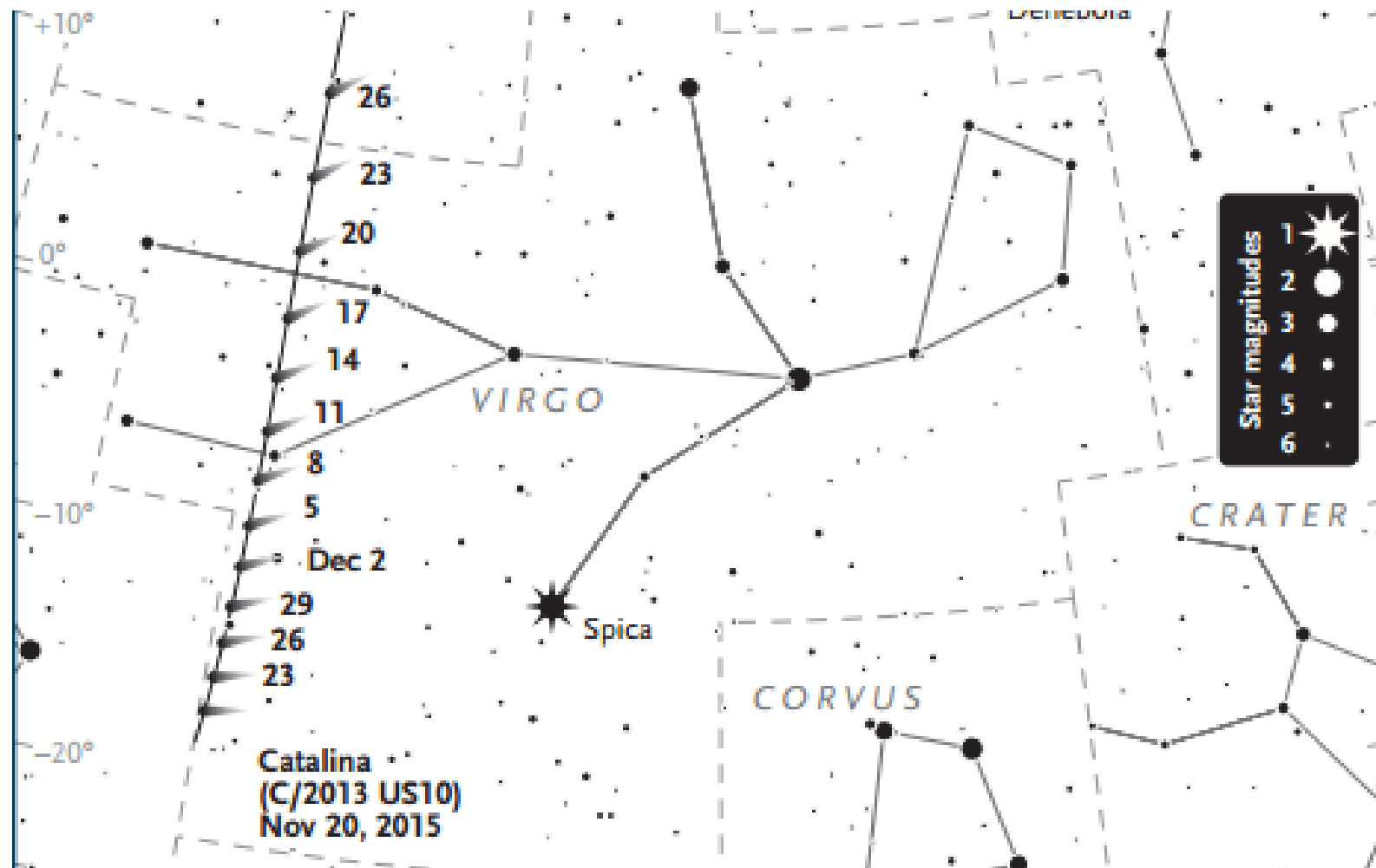
- Now visible in the correct hemisphere
- Located in Virgo and moving into Bootes
- Look low in the East just before sunrise.
- Perihelion: December 15



Photo credit: Van Macatee



Comet Catalina Location





Constellation Action

Last Chance for 2015

Cygnus
Aquarius
Cepheus

Pegasus
Lacerta

High in the Sky (Chiropractor time for binocular users):

Perseus
Andromeda
Aries
Triangulum

Cetus
Taurus
Auriga
Cassiopeia

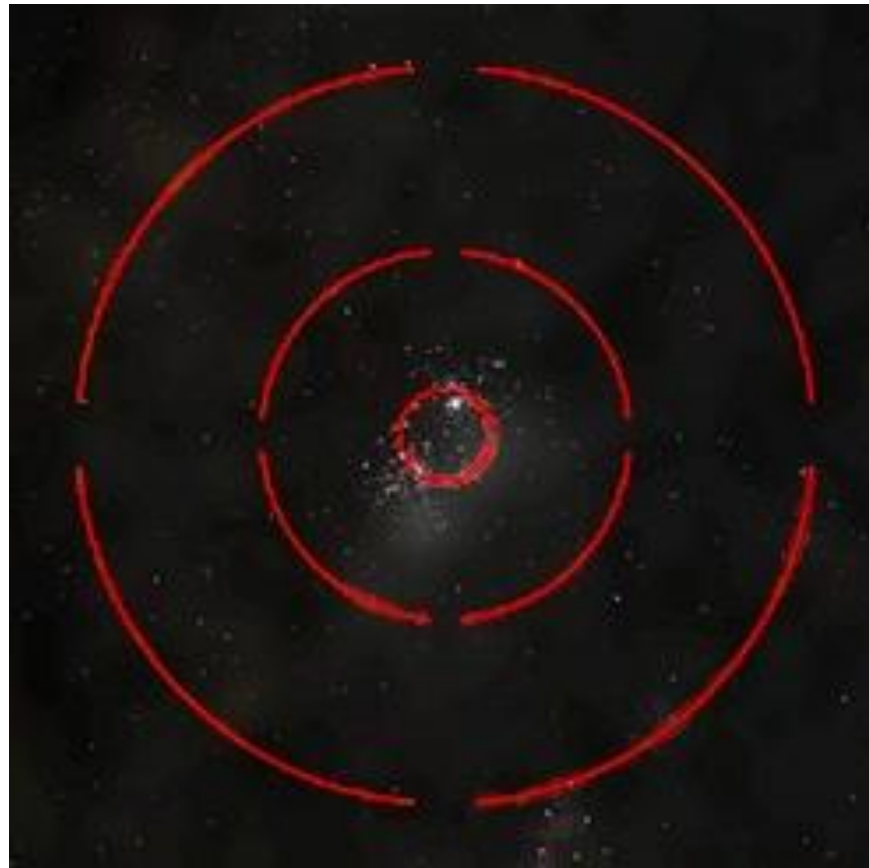
New to the game:

Orion
Gemini
Camelopardalis

Lynx
Eridanus
Lepus






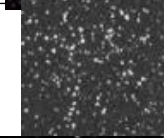

Target Lists





December Target List: Relaxing

Naked Eye and Binocular

Target	Type	Constellation	Notes	Image
Caldwell 41	OC	Taurus	Hyades – Massive open cluster around Aldebaran	
M36	OC	Auriga	Pinwheel Cluster in Auriga, Mag+6.0	
M37	OC	Auriga	Bright open cluster in Auriga, Mag+5.5	
M38	OC	Auriga	Starfish Cluster in Auriga, Mag+6.4	
NGC 1245	OC	Perseus	Mag +8.4, 40', 30-50 stars visible in Binoculars to small scopes	








December Target List: Intriguing

Small to medium telescopes

Target	Type	Constellation	Notes	Image
M76	PN	Perseus	Little Dumbbell Nebula	
M77	GX	Cetus	Cetus A – Spiral Galaxy	
NGC 1535	PN	Eridanus	Cleopatra's Eye – Mag+9.4, .8'x.7'	
Gamma Ceti	DS	Cetus	Kaffaljidhma – Mag+3.5, +6.2 Separation 2.3"	
Iota Cas	DS	Cassiopeia	Tripple star in Cassiopeia, Mag +4.5, +6.7@2.6", +8.5@7.3"	



December Target List: Taxing Light Buckets

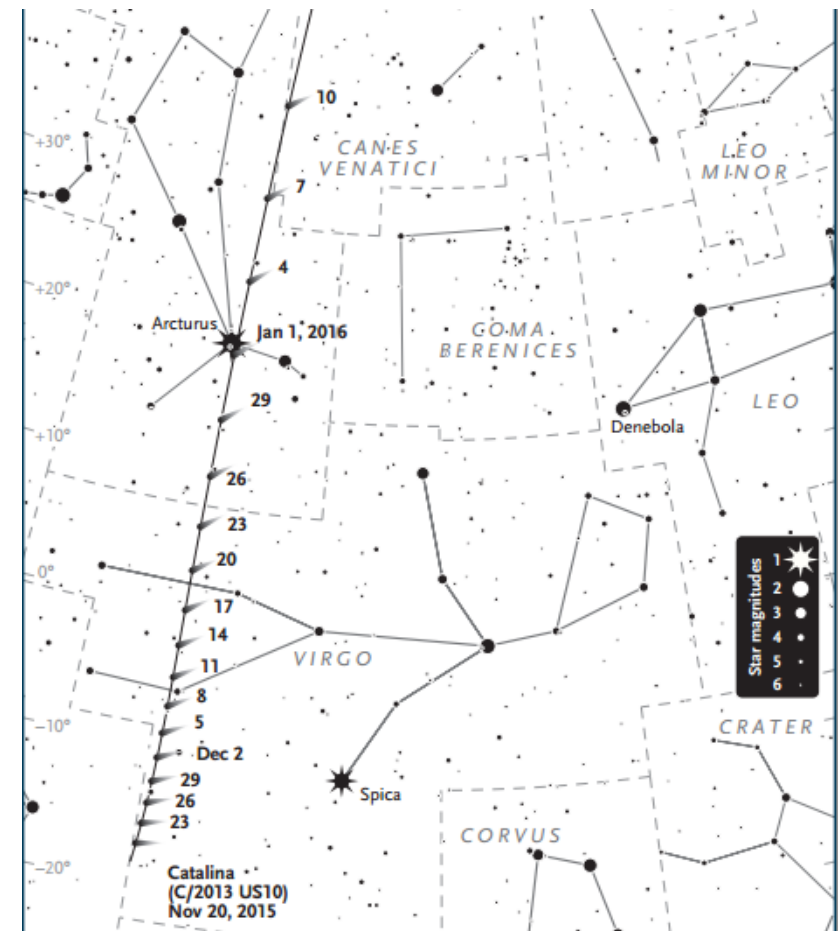
Target	Type	Constellation	Notes	Image
IC 405	NB	Auriga	Flaming Star Nebula in Auriga, Mag+6-8, 40'. Need wide FOV	
Abell 4	PN	Perseus	Planetary Nebula in Perseus, 22", Mag+14.8. Must use filter	
NGC 246	PN	Cetus	Skull Nebula - Mag+10.4, 4'x3.5'	
NGC 891	GX	Andromeda	Edge-on spiral galaxy – Mag+9.9, 11.7'x1.6'	
NGC 1501	PN	Camelopardalis	Mag+11.9, OIII filter helps a lot. Don't be afraid of the +11.9!	



December Observing Challenge Object: Comet Catalina C/2013 US10

As I said earlier...

- Located in Virgo now
- Moving into Bootes on 12/25
- In the East just before sunrise
- Conjunction with Arcturus on January 1st
- Send any cool images to Van





Van Macatee's Astrophotography Targets

**For the budding enthusiast:
M45 - Pleiades**



Photo Credit: Van Macatee

**For the nocturnal masochist:
IC405 – Flaming Star Nebula**



Photo Credit: Van Macatee



Celestial Events to Note:

- **December 14: Peak of Geminid Meteor Shower**
- **December 25: Libration favors lunar pole observations**
- **January 1: Catalina conjunction with Arcturus**
- **January 9: The next episode of “All of the Above”**



Clear Skies!