



Chapter Meeting – July 13, 2013

“I love it when a plan comes together”

-- Hannibal Smith, *The A-Team*

or

“The benefits of preparing and using an astronomical observing plan”

-- Jack Fitzmier, *The B-Team*



- I. My introduction to Charlie Elliott Astronomy
- II. “Poking Around” versus “Sight Seeing”
- III. Elements and benefits of an observing plan
- IV. The Astronomical League
- V. Planning resources
- VI. Jack’s attempt at a “new celestial order”



I. My introduction to Charlie Elliott Astronomy

October 22, 2011

“Yo, Art!”

“What number?”

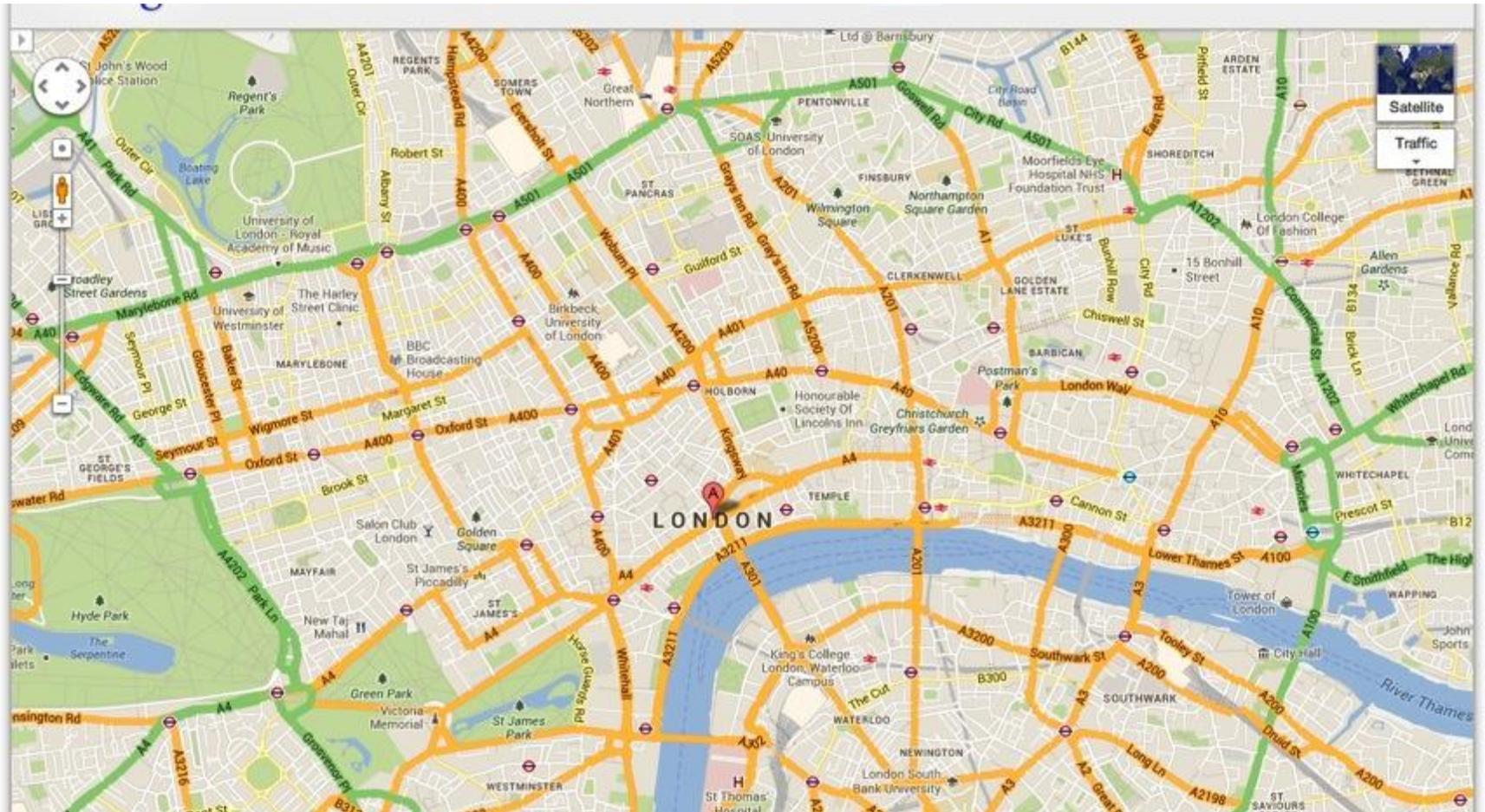
“119”





II. “Poking Around” versus “Sight Seeing”

A chance to explore London!

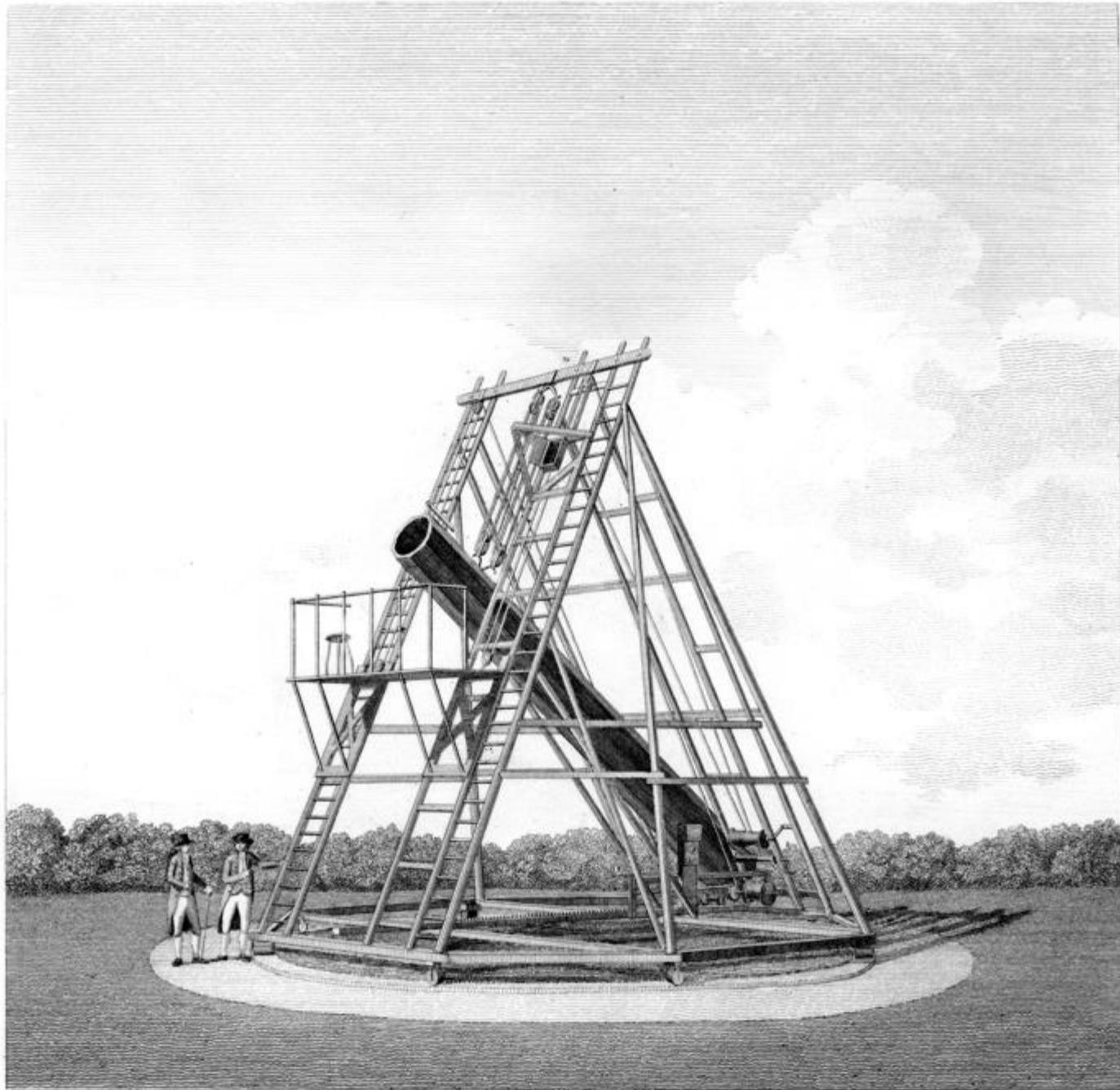




II. “Poking Around” versus “Sight Seeing”



















LONDON



THE GREEN GUIDE

Berlitz

London

pocket guide



Bloom's Literary Guide to

LONDON

Donna Dailey / John Tormey
Introduction by Harold Bloom





III. Elements and benefits of an observing plan

Elements of an observing plan

- What do you want to observe?
- When and where is the object visible?
 - Make a list or log for the evening
 - Create sketches to guide you
 - Observe and record



III. Elements and benefits of an observing plan

Benefits of an observing plan

- Requires you to study in advance of an observing session
- Because your preparation is structured, so is your learning
 - A plan allows you to measure and track your astronomical knowledge
- It provides a terrific sense of accomplishment!



IV. The Astronomical League

- What is the Astronomical League?
- History and Mission
- Publications and Activities
- The Observing Programs

Targets / Assignments

Logs, reports, sketches, images

Submission for evaluation

Recognition on completion

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Astronomical League Observing Programs

The Astronomical League provides many different observing programs. These programs are designed to provide a direction for your observations and to provide a goal. The programs have awards and pins to recognize the observers' accomplishments and for demonstrating their observing skills with a variety of instruments and objects.

As a quick reference, you can compare the programs in these lists:

- [Alphabetical Listing with images of the pins.](#)
- [Listing of the requirements for each program in a grid format.](#)
- [Listing of programs showing observer level \(novice, intermediate, advanced\).](#)
- [Listing of programs showing equipment needed \(naked-eye, binocular, telescope\).](#)

Each Program offers a certificate based upon achieving certain observing goals and is recognized with a beautiful award pin. You are required to observe a specific number of objects of a specific group with a specific type of instrument. Some programs have multiple levels of accomplishment within the program, and some permit observations of different types and note this on your certificate. There is no time limit for completing the required observing, but good record keeping is required.

The programs are designed to be individual effort. Each individual must perform all the requirements of each program themselves and not rely on other people to locate the objects. This technique is called "piggy-backing" and is not acceptable for logging objects for any of the programs. You are allowed to look through another observer's telescope to see what the object looks like, but you still need to locate and observe the object on your own.

When you reach the requisite number of objects, your observing logs are examined by an appropriate authority and you will receive a certificate and pin to proclaim to all that you have reached your goal. Many local astronomical societies even post lists of those who have obtained their certificates as does the Astronomical League.

When you complete a program by yourself, you should feel a sense of pride and great accomplishment for what you have just completed. Each program is designed not only to show you a variety of objects in the sky, but to also familiarize you with your telescope and how to use it, night-sky navigation (the ability to find the objects in the vastness of space) and to learn some eye-training techniques that will enhance your viewing of the objects of the programs.

Observing Program Planning Tools:

Aaron Clevenson, one of the AL National Observing Program Coordinators, has created two tools designed to help Astronomical League members manage their progress with the AL observing programs. One is a monthly publication (in Microsoft Word) that highlights objects by observing club that are visible in the evening sky that month. It is called "What's Up Doc?". The other is a large spreadsheet (in Microsoft Excel 2000) that lets you set your observing Latitude and Longitude as well as the Universal Time of your observation session and it will tell you information on which object for the various AL observing programs are visible. It lists the object from highest Altitude to lowest. IT has information on over 2100 objects and all of the AL Observing Programs. It is called "What's Up Tonight, Doc?". To get copies of the latest versions of these documents, please go to the [What's Up Doc? website](#).

 Search

Events

- [Mason Dixon Star Party \(MDSP\)](#)
2013-07-10 (All day) to 2013-07-14 (All day)
- [Astronomy Festival, Black Canyon of the Gunnison National Park](#)
2013-07-10 (All day) to 2013-07-14 (All day)
- [Sky Tour Bellvue Ohio](#)
2013-07-11 (All day) to 2013-07-14 (All day)
- [MAS - 6th annual Camping with the Stars](#)
2013-07-12 (All day) to 2013-07-14 (All day)
- [Rocky Mountain National Park Stargazing](#)
2013-07-12 20:45 to 23:30

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Observing Programs and Awards Arranged Alphabetically

	Analemma Program		Am Peculiar Galaxies Programs		
	Asterism Observing Program		Asteroid Observing Program		
	Binocular Double Star Program		Binocular Messier Program		Caldwell Program
	Carbon Star Program		Comet Observers Program		Constellation Hunter Programs
	Dark Nebulae Program		Dark Sky Advocate Award		Deep Sky Binocular Program
	Double Star Program		Earth Orbiting Satellite Observing Program		Flat Galaxy Program
	Galaxy Groups & Clusters Program		Galileo Program		Globular Cluster Program
	Herschel 400 Program		Herschel II Program		Local Galaxy Group and Neighborhood Program
	Lunar Program		Lunar II Program		Master Observer Award
	Messier Program		Meteor Program		NEO Program
	Open Cluster Program				
	Outreach Award		Planetary Nebula Program		Solar System Observers Program
	Sky Puppy Program		Southern Skies Binocular Program		Southern Sky Telescopic Program
	Sunspotter Program		Stellar Evolution		

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Observing Programs Arranged by Experience Level of Observer

Observing Experience: Beginner

[Analemma Program](#)[Binocular Double Star Program](#)[Binocular Messier Program](#)[Constellation Hunter Program](#)[Dark Nebula Program](#)[Deep Sky Binocular Program](#)[Galileo Program](#)[Messier Program](#)[Sky Puppy Program](#)[Stellar Evolution Program](#)[Universe Sampler Program](#)[Asterism Program](#)[Carbon Star Program](#)[Comet Observers Program](#)[Dark Sky Advocate Award](#)[Double Star Program](#)[Lunar Program](#)[Meteor Program](#)[Southern Skies Binocular Program](#)[Variable Star Program](#)

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Observing Experience: Intermediate

[Asteroid Observing Program](#)[Earth Orbiting Satellite Observing Program](#)[Herschel 400 Program](#)[NEO Award](#)[Planetary Observers Program](#)[Sunspotters Program](#)[Caldwell Program](#)[Globular Cluster Program](#)[Lunar II Program](#)[Outreach Award](#)[Southern Sky Telescopic Program](#)[Urban Observing Program](#)

Observing Experience: Advanced

[Arp Peculiar Galaxy Program](#)[Galaxy Groups & Clusters Program](#)[Local Galaxy Groups & Neighborhood Program](#)[Open Cluster Program](#)[Flat Galaxies Program](#)[Herschel II Program](#)[Master Observer Award](#)[Planetary Nebula Program](#)

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IV. The Astronomical League

Lunar II Program -- 100 Assignments

- 1 – 3 Sketch the full Moon

- 4 – 70 Observe and describe a list of craters, mountains, ridges, etc.

- 71 – 86 Observe and create sketches of interesting lunar features



IV. The Astronomical League

- 87 – 94 Observe and sketch / image lunar features at two different times
- 95 – 100 Observe and write reports on Apollo or Luna landing sites, occultation of a star by the Moon



IV. The Astronomical League

Six Optional Exercises

- A. Sketch / image phase / position change over 3 consecutive days

- B. Sketch / image Moon from the same location one month apart

- C. Sketch / image the difference in the size of the moon at apogee and perigee



IV. The Astronomical League

- D: Observe a solar eclipse and provide sketches or images of entry and event maximum

- E: Observe lunar lowlands with colored filters and create a report on results

- F: Create images at one hour intervals that show terminator passing over prominent feature

Jack Fitzmier's Observing Log for AL Lunar II Program

Targets 4 through 70 [Page 8 of 14]

39 Milichius Pi

Date: 1/22/13 Time: 8⁴⁴P Lunation Day: ~9 Scope: E Power: 6mm!
15mm

(F) Location: MM Conditions: 4⁺/5 Common Name: —

Notes: This was tough! In ETX, go right from Copernicus, past some hills/mts., and find little Milichius crater.

To its right is a bump or outcropping - Mil. Pi Needed 6mm to confirm!

40 Mons Gruithuisen Gamma & Mons Gruithuisen Delta [L-49]

Date: 3/4/13 Time: 5⁵⁰A Lunation Day: 22⁺ Scope: OST Power: 15mm
9mm (F)

Location: MM Conditions: clean/cold Common Name: Mt Gr. Gamma + Delta

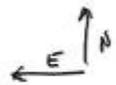
Notes: A mountainous region S. of Mairan. Delta is a dome - very rough terrain.

41 Mons Rümker (A.K.A. Rümker Hills) [L-65]

Date: 3/4/13 Time: 5²⁰A Lunation Day: 22⁺ Scope: OST Power: 15mm
9mm (F)

Location: MM Conditions: cold/clear Common Name: Mount Rümker & Rümker Hills

Notes: Mountains stick out from Sinus Aporis. Easy to spot.



Jack Fitzmier - Astronomical League Lunar II Program
Tasks 71 to 86 (Sketches of Lunar Features)

Task Number and Description: # 84 + 85 Sketch Libration

Observation -- Date: ^{9/22/12} 9/25/12 Time: about 8:15 PM

Scope / Power -- Orion ST 80MM 9MM e.p. = 44x

(F)

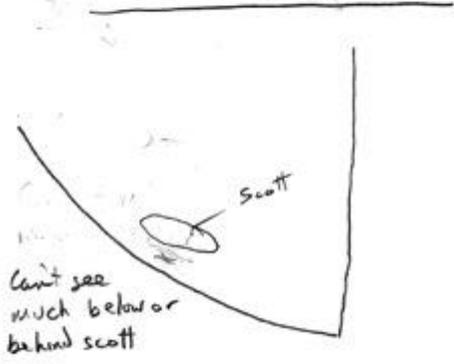
Location -- (MM) Latitude: _____ Longitude: _____

Conditions -- Transparency _____ Seeing _____

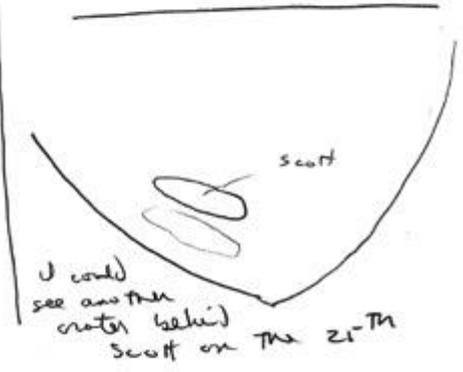
----- SKETCH -----

I used the Scott crater at 45°E / 81.9S for observation 71 (above/below 80°). I decided to continue observing Scott for this assignment. I will try and observe Scott for two days. I believe the moon will "tilt" up, toward me. Of so, I should be able to see more + more "behind" me.

Scott 9/22/12 L=7



Scott 9/25/12 L=10



Notice also - the terminator is also "running away" from Scott.

Funny - I can't seem to find the name of the other crater I saw on the 25th.

New Templates Open Save Print Cut Copy Paste Format Undo Redo Show Sidebar Toolbox Media 200% Zoom Help Select Objects Line Style Explosion 1
 Search in Document Quick Search
 Normal Cambria (Bo... 14 B I U ABC A A₂ A₃ A₄ A₅ A₆ A₇ A₈ A₉ A₁₀ A₁₁ A₁₂ A₁₃ A₁₄ A₁₅ A₁₆ A₁₇ A₁₈ A₁₉ A₂₀ A₂₁ A₂₂ A₂₃ A₂₄ A₂₅ A₂₆ A₂₇ A₂₈ A₂₉ A₃₀ A₃₁ A₃₂ A₃₃ A₃₄ A₃₅ A₃₆ A₃₇ A₃₈ A₃₉ A₄₀ A₄₁ A₄₂ A₄₃ A₄₄ A₄₅ A₄₆ A₄₇ A₄₈ A₄₉ A₅₀ A₅₁ A₅₂ A₅₃ A₅₄ A₅₅ A₅₆ A₅₇ A₅₈ A₅₉ A₆₀ A₆₁ A₆₂ A₆₃ A₆₄ A₆₅ A₆₆ A₆₇ A₆₈ A₆₉ A₇₀ A₇₁ A₇₂ A₇₃ A₇₄ A₇₅ A₇₆ A₇₇ A₇₈ A₇₉ A₈₀ A₈₁ A₈₂ A₈₃ A₈₄ A₈₅ A₈₆ A₈₇ A₈₈ A₈₉ A₉₀ A₉₁ A₉₂ A₉₃ A₉₄ A₉₅ A₉₆ A₉₇ A₉₈ A₉₉ A₁₀₀ A₁₀₁ A₁₀₂ A₁₀₃ A₁₀₄ A₁₀₅ A₁₀₆ A₁₀₇ A₁₀₈ A₁₀₉ A₁₁₀ A₁₁₁ A₁₁₂ A₁₁₃ A₁₁₄ A₁₁₅ A₁₁₆ A₁₁₇ A₁₁₈ A₁₁₉ A₁₂₀ A₁₂₁ A₁₂₂ A₁₂₃ A₁₂₄ A₁₂₅ A₁₂₆ A₁₂₇ A₁₂₈ A₁₂₉ A₁₃₀ A₁₃₁ A₁₃₂ A₁₃₃ A₁₃₄ A₁₃₅ A₁₃₆ A₁₃₇ A₁₃₈ A₁₃₉ A₁₄₀ A₁₄₁ A₁₄₂ A₁₄₃ A₁₄₄ A₁₄₅ A₁₄₆ A₁₄₇ A₁₄₈ A₁₄₉ A₁₅₀ A₁₅₁ A₁₅₂ A₁₅₃ A₁₅₄ A₁₅₅ A₁₅₆ A₁₅₇ A₁₅₈ A₁₅₉ A₁₆₀ A₁₆₁ A₁₆₂ A₁₆₃ A₁₆₄ A₁₆₅ A₁₆₆ A₁₆₇ A₁₆₈ A₁₆₉ A₁₇₀ A₁₇₁ A₁₇₂ A₁₇₃ A₁₇₄ A₁₇₅ A₁₇₆ A₁₇₇ A₁₇₈ A₁₇₉ A₁₈₀ A₁₈₁ A₁₈₂ A₁₈₃ A₁₈₄ A₁₈₅ A₁₈₆ A₁₈₇ A₁₈₈ A₁₈₉ A₁₉₀ A₁₉₁ A₁₉₂ A₁₉₃ A₁₉₄ A₁₉₅ A₁₉₆ A₁₉₇ A₁₉₈ A₁₉₉ A₂₀₀ A₂₀₁ A₂₀₂ A₂₀₃ A₂₀₄ A₂₀₅ A₂₀₆ A₂₀₇ A₂₀₈ A₂₀₉ A₂₁₀ A₂₁₁ A₂₁₂ A₂₁₃ A₂₁₄ 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AI Lunar II Program
 Task 97 – Observe and Report on Apollo 17 Landing Site
 Southeastern Edge of Mare Serenitatis / Apennine Mountains
 Date of observation: April 1, 2012, 10:01 PM (–Lunation Day 10)
 Location: Mason Mill Road, Decatur, GA
 By Jack Fitzmier



Apollo 17 Logo™

Apollo 17 was NASA's last mission to land astronauts on the Moon. Eugene Cernan was in command of the mission. Ronald Evans served as the Command Module Pilot and Harrison Schmitt served as the Lunar Module Pilot. Liftoff from the Kennedy Space Center took place on December 7, 1972 at 12:33 AM – the only Apollo mission to be launched at night. The lunar landing took place on December 11, and the mission returned to Earth on 19 December. Astronauts spent about 75 hours on the lunar surface and did three extravehicular tours of the surface, spending a total of 22 hours outside the spacecraft.

The landing site chosen for the mission was a valley called Taurus-Littrow in the southeast corner of Mare Serenitatis, near the Montes Taurus Mountains. The valley points northwest toward the center of Serenitatis. Large mountains called the North, South, East, and West Mastala surround it. The crew examined large boulders that were photographed by the Apollo 15 crew. These apparently rolled down into the valley from higher regions in the mountains.

The length of the mission allowed the crew to perform a number of scientific experiments. These included measurements of the lunar gravitational field, use of a spectrometer to measure radiation and stellar emissions in the lunar atmosphere, measurements of thermal emissions from the lunar surface, an experiment to determine the electrical properties of the lunar surface and sub-surface, and many others. The crew brought back over 100 kilograms of lunar samples for scientific research back on Earth.

The crew did extensive photography, using still cameras as well as a color TV camera. The crew traveled a total of 36 kilometers in the rover and took samples from over 20 locations. The rover is shown below as a map showing the astronauts routes across the lunar surface.



(All images are in the public domain.)



V. Planning Resources

By frequency of use ...

Daily: Weather, conditions, and phases

Weekly: Sky and Telescope online

Monthly: Sky and Telescope paper copy

Regularly: Computer programs

Just before observing: Published resources

New on my horizon: Astro Planner!

Daily

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United States WEATHER Decatur, GA LOCAL WEATHER AREAL FLOOD WATCH ENTERTAINING ASTRONOMY

Now 12:11 pm EDT Weekend Extended Month

Cloudy
76°
Stargazing
Current Weather
Visibility 6 mi Cloud Cover 100% Ceiling 4500 ft

Today Jul 6	Tomorrow Jul 7	Monday Jul 8
82° Hi A couple of p.m. t-storms	81° Hi A couple of thunderstorms	87° Hi Mostly cloudy with a t-storm
Poor for stargazing	Poor for stargazing	Poor for stargazing
Cloud Cover 92% Precip 62% Hours of Precip 6	Cloud Cover 76% Precip 40% Hours of Precip 4.5	Cloud Cover 59% Precip 65% Hours of Precip 8
Day Details >	Day Details >	Day Details >

Thunderstorms in the area Monday morning through Monday evening

7/6	7/7					7/7
Now: 12:11pm	PM 12-4				PM 5-10	PM 11-4 AM 5-10
12pm Cloudy	1pm Cloudy	2pm Mostly Cloudy	3pm Mostly Cloudy	4pm Thunderstorm	5pm Cloudy	<> <> <>

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Daily

Fernbank Observatory Clear Sky Chart

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legend page

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3. Display color legend:

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Fernbank Observatory Clear Sky Chart

2013-07-06 Saturday Sunday

Local Time 11111111112222 11111111112

GMT -4:00 12345678901234567890123012345678901234567890

Cloud Cover: [Grid]

Transparency: [Grid]

Seeing: [Grid]

Darkness: [Grid]

Wind: [Grid]

Humidity: [Grid]

Temperature: [Grid]

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[Observatory](#) of the [Fernbank Science Center](#). In Decatur.

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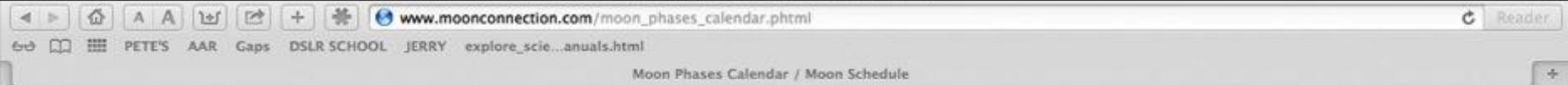
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Nifty Links:	Sun & Moon Data	Road Map	Sat Image	Topo Map	Satellite Predictions
	Star Map	CalSky	Light Pollution map		

What is it?

It's the astronomer's forecast. At a glance, it shows when it will be cloudy or clear for up to the next two days. It's a prediction of when Fernbank Observatory, GA, will

Daily



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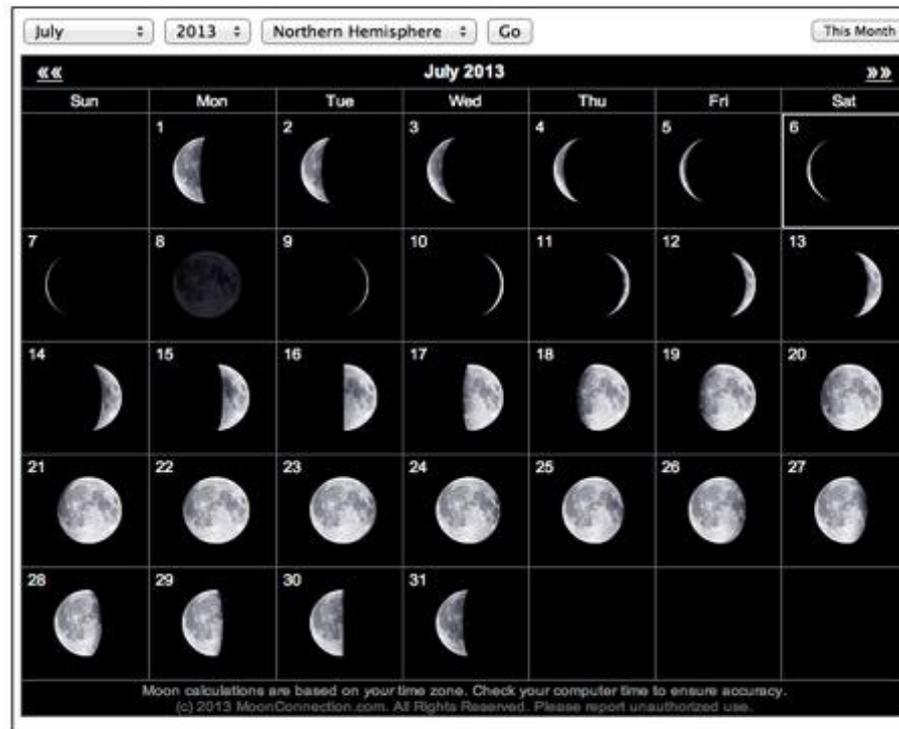
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Moon Phases Calendar

This moon phases calendar tool or moon schedule is an easy way to find out the lunar phase for any given month. Simply select a month and year, and click "Go", and it will show you what the moon will look like for any day that month. The internal phase calculator is very accurate, but the images are approximations. Moon calculations are based on your time zone as specified by your computer.



Looking for more detail like moonrise/set or full/new times? Consider [QuickPhase Pro](#) software.

Want a similar moon calendar for your website? Email me: mooncalendar@moonconnection.com

Weekly

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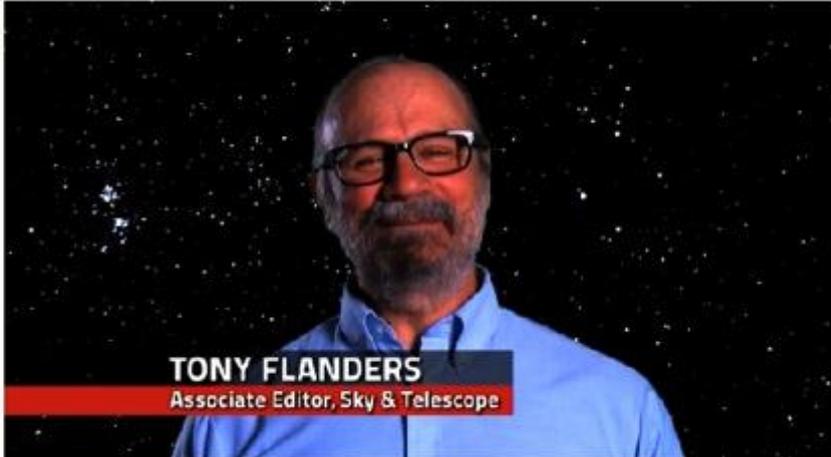
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TONY FLANDERS
Associate Editor, Sky & Telescope

Three spectacularly close approaches take place in the heavens this week. The Moon meets the stars Spica and Zubenelgenubi, and Venus passes close to Regulus.

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This Week's Sky at a Glance

Some night sky sights for July 5 - 13

by Alan M. MacRobert

Friday, July 5

- Venus, the "Evening Star," is very gradually brightening and moving higher above the west-northwest horizon in twilight. Keep watch through the summer and fall!
- During dawn Saturday morning, look low in the east-northeast for the waning Moon. It guides your way to Mars, Jupiter, Aldebaran, and Beta Tauri, as shown at right. Binoculars will help.
- Earth is at aphelion, its farthest from the Sun for the year (only 1/30 farther than at perihelion in January).

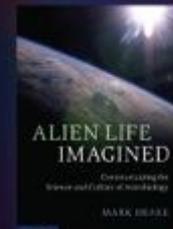
Saturday, July 6

- Two hours after sunset, after darkness is truly complete, the east-northeast horizon bisects the Great Square of Pegasus across two of its opposite corners. By midnight the whole Great Square is up in good view, balanced on its bottom corner.

Sunday, July 7

- When the stars begin to come out these evenings, the Big Dipper hangs straight down from its handle high in the northwest, while the dim, elusive Little Dipper stands straight up on its

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CAMBRIDGE

Top 5 Most Recent Articles

- THIS WEEK'S SKY AT A GLANCE
- IRIS TACKLES CORONAL MYSTERY

Dawn, July 5-6
30 minutes before sunrise



Looking East-Northeast
© 2013 Sky & Telescope

A very thin waning Moon hangs low in bright dawn on Saturday morning the 6th, amid other low sights. Bring binoculars.

Weekly

S&T SkyWeek for iPhone, iPod touch, and iPad on the iTunes App Store

itunes.apple.com/us/app/s-t-skyweek/id398252674?mt=8

PETE'S AAR Gaps DSLR SCHOOL JERRY explore_scle...anuals.html

S&T SkyWeek for iPhone, iPod touch, and iPad on the iTunes App Store



Description

SkyWeek is the new, interactive, mobile version of Sky & Telescope magazine's super-popular "This Week's Sky at a Glance" web page — a day-by-day calendar of events to observe in the changing night sky. "This Week's Sky at a Glance" has been Sky & Telescope's most popular online offering for 21 years. The S&T SkyWeek application gives

[S&T SkyWeek Support >](#) [...More](#)

What's New in Version 1.3

- Simplified display of viewing direction and width angle in sky charts associated with each event.

[View In iTunes](#)

This app is designed for both iPhone and iPad

Free

Category: [Education](#)

Updated: Jul 26, 2012

Version: 1.3

Size: 15.6 MB

Seller: Sky & Telescope Media, LLC

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Rated 4+

Requirements: Compatible with iPhone, iPod touch, and iPad. Requires iOS 4.0 or later.

Customer Ratings

Current Version:
★★★★ 18 Ratings

All Versions:
★★★★ 170 Ratings

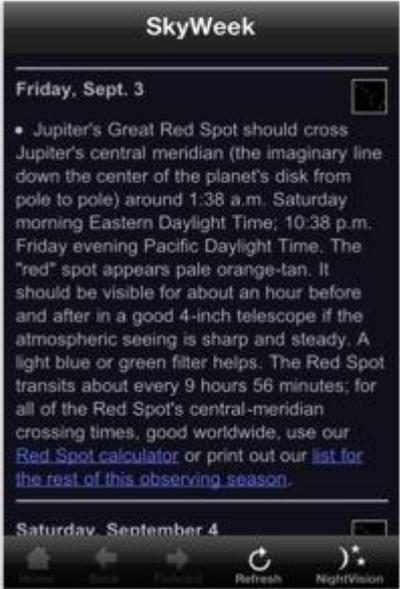
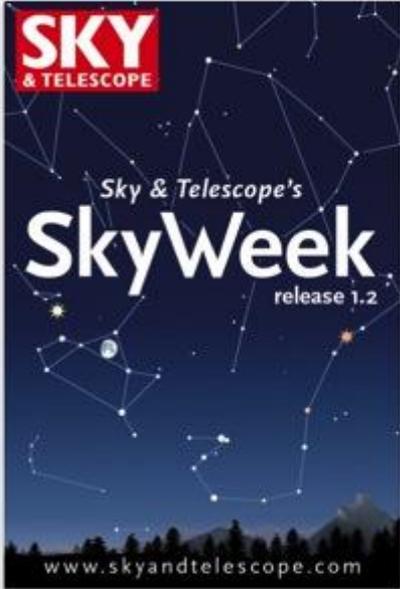
More by Sky & Telescope Media, LLC



[SaturnMoons](#)
[View In iTunes >](#)

Screenshots

iPhone | iPad



SkyWeek

Friday, Sept. 3

- Jupiter's Great Red Spot should cross Jupiter's central meridian (the imaginary line down the center of the planet's disk from pole to pole) around 1:38 a.m. Saturday morning Eastern Daylight Time, 10:38 p.m. Friday evening Pacific Daylight Time. The "red" spot appears pale orange-tan. It should be visible for about an hour before and after in a good 4-inch telescope if the atmospheric seeing is sharp and steady. A light blue or green filter helps. The Red Spot transits about every 9 hours 56 minutes; for all of the Red Spot's central-meridian crossing times, good worldwide, use our [Red Spot calculator](#) or print out our [list for the rest of this observing season](#).

Saturday, September 4

Refresh NightVision

Customer Reviews



Virtual Moon Atlas

File Configuration Help Zoom: 1:1

Information Notes Ephemeris Terminator Tools Setup

LANGRENUS

Find Find Next

Outline

LANGRENUS

Type: Crater
 Geological period: Eratosthenian (From -3.2 billions years to -1.1 billions years)

Size:
 Dimension: 136.0x136.0Km / 80.0x80.0M
 Height: 2400.0' / 730.0M
 Height/Wide ratio: 0.0157

Description:
 Circular formation deformed to the South.
 Very steep and somewhat slopes supporting Lohse Langrenus C and E to the South Sommerville to the North-East and Acosta to the North.
 High walls with terraces deformed to the South.
 Extensive flat floor more tormented to the North-West. Double central mountain 1000 m high. Hills and craters.

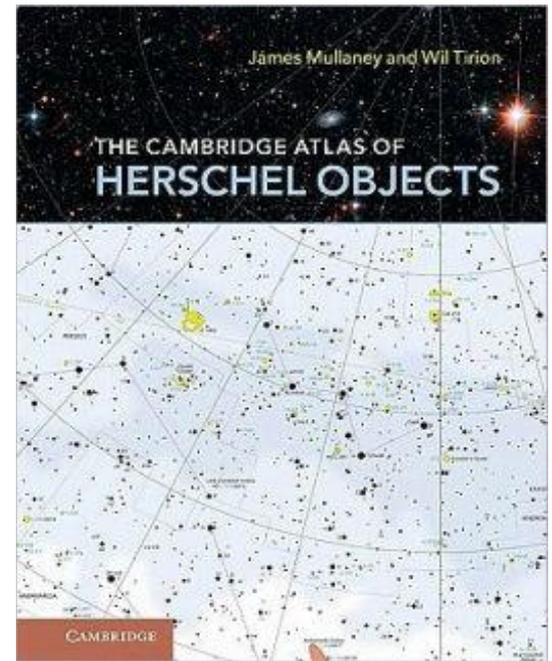
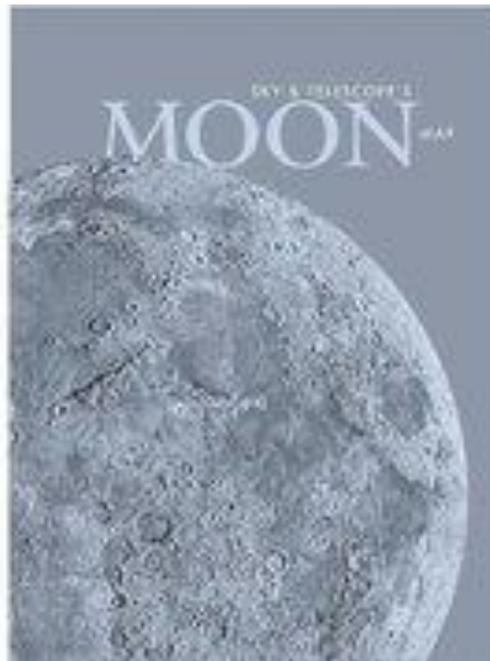
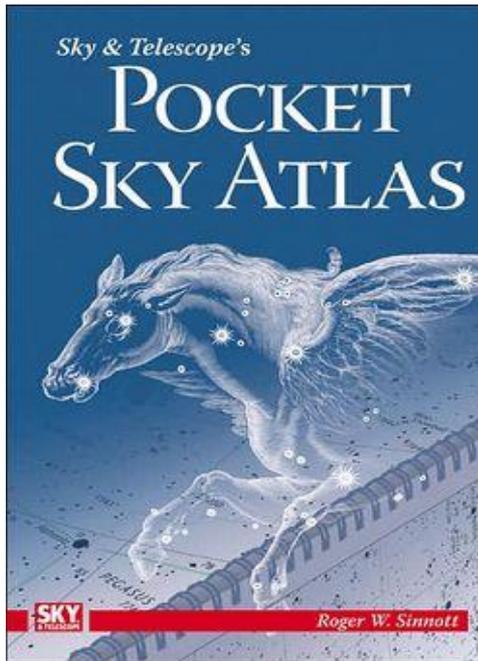
Observation:
 Interest : Exceptional formation
 Observation period: 3 days after New Moon or 2 days after Full Moon
 Minimal instrument: 10x binoculars

Position:
 Longitude: 60.3° East
 Latitude: 6.5° South
 Quadrant: South-East
 Area: Moon East-imb

Atlas:
 Rull map: 43 Langrenus
 Vascandy page: 130
 Hatfield map: 1306
 Westfall Atlas: 303C/3 309C 313C 099C 109C 112C 119C
 Charles Wood article: M4109
 Lunar Orbiter: [N-046-H1](#) [N-046-H2](#) [N-053-H1](#) [N-053-H2](#) [N-184-H1](#)

Name Origine:
 Detailed Name: Michel Firsiroti von Langren
 17 th century Belgian engineer and mathematician born in Belgium
 Born at: ? in 1600
 Dead at: ? in 1675
 Important Facts: Author of the first lunar map with nomenclature.
 Name: Author: Langrenus (1645)
 Name by Langrenus: Langrenus
 Name by Hevelius: Insula Major
 Name by Riccioli: Not named

Longitude: Latitude: Date: 2013-07-12 Time: 10:29:13 Field:39° Zoom:1.9 Level:1



AstroPlanner
© 2002-13 iLanga, Inc.

Local Date: 1/9/14
Local Time: 17:00:00
Local Sidereal: 23:39:54
Julian Date: 2,456,667.41667
GMT/UTC: 22:00:00
GMST: 05:17:26

Telescope: Explore Scientific 102 APO Triplet
Can't connect: Date fixed
Telescope not connected

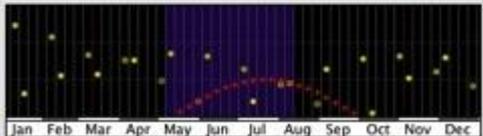
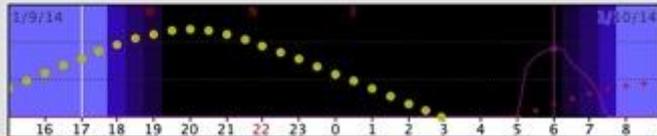
SUN & TWILIGHT
Set: 5:44 PM
Rise: 7:44 AM
Alt: 7.6°
Civil: 6:12 PM
Naut: 6:44 PM
Astr: 7:14 PM
Civil: 7:15 AM
Naut: 6:44 AM
Astr: 6:15 AM

MOON
Waxing
Next Set: 2:55 AM
Next Rise: 1:45 PM
Age: 9.1 d
Phase: Gibbous
Illum: 67.8%
Alt: 46.8°

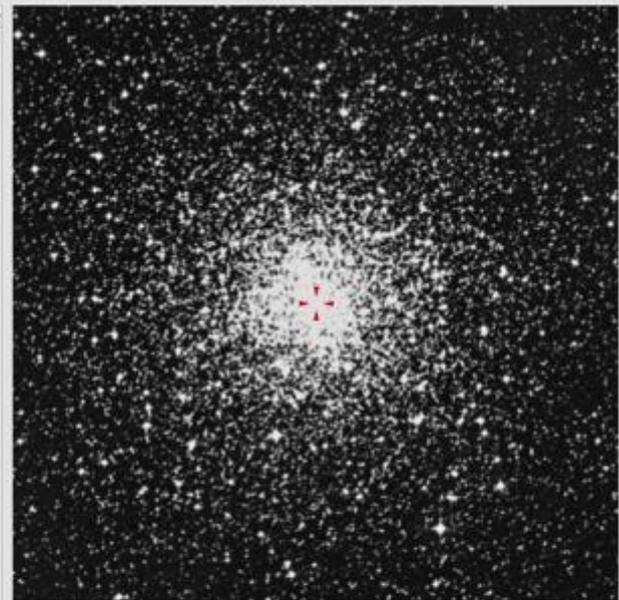
Site: ATLANTA,GA
Seeing: Not specified
Highlight: Observed

Date/Time: 1/9/14
Julian: 2456667.4167
5:00:00 PM
UT Fix date

Objects Observations Field of View Sky



ID	Images	Name	Type	RA	Dec	Azimuth	Altitude	Chart#	Mag	Size	Pos...	Rise	Transit	Set	Rating	Cor
M1		Crab Nebula, Taurus A, ...	SNR	05h 34m 3...	+22°00.8'	72°	13°	14	8.4	6x4	0	3:52 PM	10:58 PM	6:04 AM		
M2		NGC7089	Globular	21h 33m 2...	-00°49.3'	227°	44°	77	7.5	12.9	0	8:56 AM	2:57 PM	8:57 PM		
M3		NGC5272	Globular	13h 42m 1...	+28°22.5'	331°	-21°	44	7.0	16.2	0	11:37 PM	7:05 AM	2:33 PM		
M4	D	Cat's Eye, NGC6121	Globular	16h 23m 3...	-26°31.5'	256°	-29°	57	7.5	26.3	0	5:02 AM	9:47 AM	2:32 PM		
M5		NGC5904	Globular	15h 18m 3...	+02°04.9'	293°	-27°	55	7.0	17.4	0	2:33 AM	8:42 AM	2:50 PM		
M6	D	Butterfly Cluster, NGC6...	Open	17h 40m 2...	-32°15.2'	242°	-17°	58	4.5	15	0	6:40 AM	11:04 AM	3:27 PM		
M7	D	Scorpius's Tail, Ptolemy...	Open	17h 53m 5...	-34°47.6'	239°	-16°	58	3.5	80	0	7:04 AM	11:17 AM	3:30 PM		
M8		Lagoon Nebula, Dragon...	Open+D...	18h 03m 4...	-24°22.7'	246°	-9°	67	5.0	90	0	6:34 AM	11:27 AM	4:20 PM		
M9	D	NGC6333	Globular	17h 19m 1...	-18°31.0'	257°	-14°	56	9.0	9.3	0	5:31 AM	10:42 AM	3:54 PM		
M10	D	NGC6254	Globular	16h 57m 0...	-04°05.9'	273°	-11°	56	7.5	15.1	0	4:29 AM	10:20 AM	4:12 PM		
M11		Wild Duck Cluster, Scut...	Open	18h 51m 0...	-06°16.1'	255°	11°	67	7.0	14	0	6:28 AM	12:14 PM	6:00 PM		
M12	D	Gumball Globular, NGC...	Globular	16h 47m 1...	-01°56.8'	276°	-12°	56	8.0	14.5	0	4:13 AM	10:10 AM	4:08 PM		
M13		Hercules Globular Clust...	Globular	16h 41m 4...	+36°27.5'	308°	9°	52	7.0	16.6	0	2:03 AM	10:05 AM	6:07 PM		
M14	D	NGC6402	Globular	17h 37m 3...	-03°14.7'	268°	-2°	56	9.5	11.7	0	5:07 AM	11:01 AM	4:55 PM		
M15		Great Pegasus Cluster, ...	Globular	21h 29m 5...	+12°10.0'	242°	53°	75	7.5	12.3	0	8:17 AM	2:53 PM	9:29 PM		
M16		Eagle Nebula, Star Quee...	Open+D...	18h 18m 4...	-13°48.3'	253°	0°	67	6.5	35	0	6:17 AM	11:42 AM	5:07 PM		
M17		Omega Nebula, Swan N...	Open+D...	18h 20m 4...	-16°10.3'	251°	-1°	67	7.0	46	0	6:26 AM	11:44 AM	5:02 PM		
M18		Black Swan, NGC6613	Open	18h 19m 5...	-17°06.1'	250°	-1°	67	8.0	9	0	6:28 AM	11:43 AM	4:59 PM		
M19	D	NGC6273	Globular	17h 02m 3...	-26°16.0'	252°	-22°	56	8.5	13.5	0	5:40 AM	10:26 AM	3:12 PM		
M20		Trifid Nebula, The Clov...	Open+D...	18h 02m 4...	-22°58.2'	248°	-8°	67	5.0	29	0	6:29 AM	11:26 AM	4:23 PM		
M21		NGC6531	Open	18h 04m 1...	-22°29.3'	248°	-8°	67	7.0	13	0	6:29 AM	11:27 AM	4:26 PM		
M22		Great Sagittarius Cluste...	Globular	18h 36m 2...	-23°54.2'	243°	-2°	67	6.5	24	0	7:05 AM	12:00 PM	4:54 PM		
M23		NGC6494	Open	17h 57m 0...	-18°59.1'	252°	-7°	56	6.0	27	0	6:10 AM	11:20 AM	4:30 PM		
M24		Small Sagittarius Star CL...	Open	18h 18m 2...	-18°24.3'	249°	-2°	67	4.5	80x35	0	6:30 AM	11:42 AM	4:53 PM		
M25			Open	18h 31m 4...	-19°07.0'	247°	0°	67	6.5	40	0	6:46 AM	11:55 AM	5:04 PM		
M26		NGC6694	Open	18h 45m 1...	-09°23.0'	253°	8°	67	9.5	15	0	6:31 AM	12:09 PM	5:46 PM		
M27		Dumbbell Nebula, Appl...	P Neb	19h 59m 3...	+22°43.2'	272°	41°	64	7.5	15.2	0	6:15 AM	1:23 PM	8:31 PM		
M28		NGC6626	Globular	18h 24m 3...	-24°52.1'	243°	-5°	67	8.5	11.2	0	6:57 AM	11:48 AM	4:39 PM		
M29		Cooling Tower, NGC6913	Open	20h 23m 5...	+38°30.5'	291°	51°	62	9.0	7	0	5:35 AM	1:47 PM	10:00 PM		
M30		NGC7099	Globular	21h 40m 2...	-23°10.7'	211°	26°	77	8.5	11	0	10:07 AM	3:04 PM	8:00 PM		
M31		Andromeda Galaxy, NGC...	Galaxy	00h 42m 4...	+41°16.1'	54°	75°	3	4.3	189.1x6	35	9:38 AM	6:06 PM	7:34 AM		



15' x 15' 2nd Gen All Sky Blue

Highlighting: Observed

+ - Home Quick Obs New Observation Lookup Show Catalogue Search Catalogue/s Sort List... Add Special Delete Slew To



VI. Jack's "new celestial order"

In pursuit of six AL Observing Programs:

Messier *

Herschel 400 *

Double Star *

Urban

Stellar Evolution

Binocular Deep Sky

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Section Break (Continuous)

ANDROMEDA /21

□	→	M	→	M110	→	205	→	GX	→	0h40.4m / 41°41'	→	10	→	< -- >
												17' x 10'		
												→ 3		[2]
□	→	H	→	V-18	→	205	→	GX	→	0h40.4m / 41°41'	→	10	→	< -- >
												17' x 10'		
												→ 2, 6		[3]
□	→	M	→	M32	→	221	→	GX	→	0h42.8m / 40°52'	→	10	→	< -- >
												8' x 6'		
												→ 3		[4]
□	→	U	→	M32	→	221	→	GX	→	00h42.7m / +40°52'	→	9	→	< -- >
												7.6' x 5.8'		
												→ 3		[5]
□	→	M	→	M31	→	224	→	GX	→	0h42.8m / 41°16'	→	4.5	→	< -- >
												178'		
												→ 3		[6]
□	→	U	→	M31	→	224	→	GX	→	00h42.7m / +41°16'	→	4.4	→	< -- >
												180' x 63'		
												→ 3		[7]
□	→	H	→	II-224	→	404	→	GX	→	1h9.5m / 35°43'	→	12	→	< -- >
												4' x 4'		
												→ 6		[8]

□	→	H	→	VII-32	→	752	→	OC	→	1h57.8m / 37°41'	→	6.5	→	< -- >
												50.0'		
												→ 2, 6, 7		[9]
□	→	U	→	NGC 752	→	752	→	OC	→	1h57.8m / 37°41'	→	5.7	→	< -- >
												50'		
												→ 2		[10]
□	→	B	→	NGC 752	→	752	→	OC	→	01h57.8m / +37°41'	→	5.7	→	< -- >
												50.0'		
												→ 2, 6, 7		[11]
□	→	H	→	V-19	→	891	→	GX	→	2h22.6m / 42°21'	→	11.5	→	< -- >
												===		
												→ 6, 7, 12, 13		[12]
□	→	H	→	IV-18	→	7662	→	PN	→	23h25.9m / 42°33'	→	9	→	< -- >
												17" x 14"		
												→ 2, 6		[13]
□	→	S	→	<u>Blu Snoball</u>	→	7662	→	PN/WD	→	23h25m54s / 42°32'06"	→	8.3	→	< -- >
												===		
												→ 2, 6		[14]
□	→	U	→	NGC 7662	→	7662	→	PN	→	23h25.9m / +42°33'	→	8.3	→	< -- >
												32" x 28"		
												→ 2, 6		[15]
□	→	H	→	VIII-69	→	7686	→	OC	→	23h30.2m / 49°8'	→	8	→	< -- >
												15.0'		
												→ 2, 6		[16]
□	→	D	→	<u>γ And</u>	→	★★	→	DS	→	2h3.9m / 42°20'	→	2.3, 5.5	→	< -- >
												9.8" / 63°		
												→ 2		[17]



□	→	U	→	<u>γ</u> And	→	★★	→	DS	→	02h03.9m / +42°20'	→	2.3, 5.5	→	< -- >
	→		→		→		→		→		→	9.8"	→	
	→		→		→		→		→		→	2	→	[18]
□	→	S	→	<u>Mirach</u>	→	<u>β</u> Ande	→	RG	→	01h09m44s / +35°37'13"	→	2.1	→	< -- >
	→		→		→		→		→		→	===	→	
	→		→		→		→		→		→	3	→	[19]
□	→	S	→	<u>Gliese 67</u>	→	HIP 7918	→	MSLM	→	01h41m48s / +42°36'46"	→	5	→	<G >
	→		→		→		→		→		→	===	→	
	→		→		→		→		→		→	6	→	[20]
□	→	S	→	Mu And	→	SAO 54281	→	COLS	→	00h56m45s / +38°29'58"	→	3.9	→	<A >
	→		→		→		→		→		→	===	→	
	→		→		→		→		→		→	3	→	[21]
□	→	S	→	HD14633	→	SAO37987	→	COLS	→	02h22m54s / +41°28'48"	→	7.5	→	<O >
	→		→		→		→		→		→	===	→	
	→		→		→		→		→		→	6	→	[22]

AQUILA / 10

□	→	U	→	NGC 6709	→	6709	→	OC	→	18h51.5m / 10°21'	→	6.7	→	< -- >
	→		→		→		→		→		→	13	→	
	→		→		→		→		→		→	65	→	[23]
□	→	B	→	NGC 6709	→	6709	→	OC	→	18h51.5m / +10°21'	→	6.7	→	< -- >
	→		→		→		→		→		→	13.0'	→	
	→		→		→		→		→		→	65	→	[24]