TAAS Fabulous Fifty

Saturday November 5, 2016

1900 MST (7:00 pm)

2000 MST (8:00 pm)

All TAAS members and other *new* and *not so new* astronomers are invited to participate.

Photo Courtesy of Naoyuki Kurita

Cassiopeia
List of 50 night sky objects

1. Beginner can locate with the naked eye.

2. Showcases the night sky for the year.

3. Beginning observer will remember from one observing session to the next.

4. Once observed will be the basis for knowing the night sky.
1. Divide the observing activities into the four seasons:

   a. winter – Dec – Jan – Feb
   b. spring – Mar - Apr – May
   c. summer – Jun - Jul – Aug
   d. fall – Sep - Oct – Nov
2. Begin with the *bright and easy to locate* stars and associated constellations.

3. Add the other constellations for each season.


5. *Planets* when they appear
Tonight’s process

1. We will first look at a “free” Skymap. It can be downloaded at
   http://skymaps.com/

2. We will examine each constellation and its bright star(s) in detail.

3. Observe outside.
Hold map so the direction you are looking is at the bottom.
About the Celestial Objects
Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars. They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

Tips for Observing the Night Sky
When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it’s always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today’s large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

Astronomical Glossary
Conjunction – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.
Constellation – A defined area of the sky containing a star pattern.
Diffuse Nebula – A cloud of gas illuminated by nearby stars.
Double Star – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (').
Ecliptic – The path of the Sun’s center on the celestial sphere as seen from Earth.
Elongation – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.
Galaxy – A mass of up to several billion stars held together by gravity.
Global Star Cluster – A ball-shaped group of several thousand old stars.
Light Year (ly) – The distance a beam of light travels at 300,000 km/sec in one year.
Magnitude – The brightness of a celestial object as it appears in the sky.
Open Star Cluster – A group of tens or hundreds of relatively young stars.
Opposition – When a celestial body is opposite the Sun in the sky.
Planetary Nebula – The remnants of a gas shell blown off by a star.
Universal Time (UT) – A time system used by astronomers. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT.
Variable Star – A star that changes brightness over a period of time.

Useful astronomical information

The Evenying Sky Map (ISSN 1839-7753) Copyright © 2000–2016 Kyon Thassadakul. All Rights Reserved,
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Fall

Cassiopeia

Shedar
Fall

Cassiopeia

Shedar

East

Photo Courtesy of Naoyuki Kurita
Fall

Pegasus
ball diamond
Alpheratz
in Cassiopeia
Fall

Pegasus

ball diamond

Alpheratz

in Cassiopeia
Andromeda

Alpheratz

Mirach

M 31 Andromeda Galaxy

2.5 million light years
Fall

Andromeda

Alpheratz

Mirach

M 31 Andromeda Galaxy

Photo Courtesy of Naoyuki Kurita
Fall

**Perseus**

- Mirfak
- Algol

the "**Demon Star**"
The star Algol takes its name from an Arabic word meaning “the Demon’s Head.”

This star is said to depict the terrifying snake-y head of the Medusa monster.

This star brightens and dims with clockwork regularity.

Algol A and B orbit each other in just under three days.

Algol is easy to observe with just the unaided eye.

At its brightest, Algol shines about three times more brightly than at its faintest.
Fall

*Perseus*

Mirfak

Algol

Photo Courtesy of Naoyuki Kurita
Piscis Austrinus

Fomalhaut

Only bright star in this part of the southern sky
Fall

*Piscis Austrinus*

Only bright star in this part of the southern sky

Photo Courtesy of Naoyuki Kurita
Fall

Cassiopeia

Pegasus

Andromeda

Perseus
### TAAS Fabulous 50 (cont.)

#### Fall

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Summer Review

Lyra

Cygnus \rightarrow Summer Triangle

Aquila
Summer

Lyra “the Lyra”

Vega

Photo Courtesy of Naoyuki Kurita
Summer

*Cygnus*

“the Swan”

Deneb

Albireo

Photo Courtesy of Naoyuki Kurita
Summer

Aquila

“the eagle”

Altair

Photo Courtesy of Naoyuki Kurita
The Summer Triangle

“an asterism”

Vega

Deneb

Altair

Photo Courtesy of Naoyuki Kurita
Begin to dark adapt by closing one eye before you go outside.

Bring with you

1. A **red light** (cell phone app)
2. Sky Map