

<h1>THE STAR E-MESSENGER</h1> <p>Newsletter of The North Georgia Astronomers</p>		
July - August 2009	Kevin Walsh, Editor	
<p align="center">Celebrating the International Year of Astronomy, IYA 2009</p> <p align="center">The Universe: <i>Yours to Discover</i></p>		
<p align="center">NGA GENERAL INFORMATION</p> <p align="center">Membership open to everyone exploring Time and Space</p>		
President:	Robert Webb, Elachee Nature Center	
Treasurer:	David Yenerall	
Planetarium Programs:	Dr. Joe Jones, NGCSU	
<p align="center">Please submit newsletter articles, questions, comments etc. to: nga.moonrunner@yahoo.com</p>		

☼ ☼ PLANET EVENTS THIS MONTH ☽ ☼

The **Moon** commemorated the 40th anniversary of the Invasion from Planet Earth on July 20th. On this day in 1969 two US astronauts landed their fragile spacecraft 'Eagle' on the Sea of Tranquility. Their landing met little resistance from the local citizenry.

Mercury is an evening object, low on the horizon for most of the August. It reaches GEE on August 24th.

Venus remains a morning object for the rest of the year, slowly sinking toward the horizon as each day passes.

Jupiter is at opposition on August 14th. Its disk will be 49" of arc across and its magnitude will be -2.9.

Saturn is in low in the west at sunset. Beginning on August 10th and continuing until Sept. 4 the Sun and Earth will be on opposite sides of Saturn's ring plane – so rather than seeing the surface of the rings sunlight, we will see 'the dark side' of the rings. The rings are nearly edge on (and will become edge on Sept. 4) so the rings will be seen (if seen) as a thin dark line against the planet's disk. *** Meeting Notice, next page***

Neptune is only a few degrees East of Jupiter, and comes to opposition just a few days later, on the 17th.

The **Moon** will be New on July 22, and at 1st Q on the 28th. It will be Full on Aug 6th; Last Q on the 13th; New on the 20th; and at 1st Q again on the 27th .

The annual **Perseid Meteor Shower** peaks during the day on Aug 12th, so best seeing could be either the morning of the 12th or the 13th. This year's shower will be spoiled somewhat by the Last Quarter Moon.

***** MEETING NOTICE ---- OBSERVING SESSION *****

There will be an Observing session at NGAO on August 15th (Saturday) to view the “Dark Side of the Rings”. Saturn will be low in the west at sunset, so the session will begin before sunset. (Check the NGA bulletin board on Yahoo.com for exact starting time.) Jupiter and Neptune will also be well placed for observing. The Moon will be past last Q, so it will be a good night for Dark Sky Objects. There may be a few lingering Perseid meteors, as well.

A REMINDER ABOUT the Georgia Regional Astronomers Meeting (**GRAM**) to be held at NGCSU in early November this year. The tentative date for it is Friday and Saturday, the 6th and 7th. We need to be thinking about activities we can help with and/or attend ourselves.

The following is a presentation on the **Association of Lunar and Planetary Observers (ALPO)** written by Dr. Julius Benton, Jr., head of the Saturn section of ALPO. Memberships start for as low as \$12 per year. Their website URL is: <http://alpo-astronomy.org/index.htm>

Association of Lunar and Planetary Observers

Founded by Walter H. Haas in 1947, ALPO membership is international and includes both amateur and professional astronomers.

The official publication of the ALPO is *The Journal of the A.L.P.O.* (formerly *The Strolling Astronomer*) and is issued approximately 4 times a year. The new *Digital J.A.L.P.O.* was introduced in 2001.

Membership is open to anyone interested in lunar and planetary observing, regardless of experience.

Novices participate in the *Lunar and Planetary Training Program*, which offers instruction and practical exercises in basic techniques for recording observations.

A.L.P.O. Website: <http://www.lpl.arizona.edu/alpo/>

ALPO Sections

Youth Programs Section	Minor Planets Section
Eclipse Section	Meteorite Section Training Section
Mercury Section	Remote Planets Section
Mars Section	Saturn Section
Meteor Section	Comets Section
Jupiter Section	Instruments Section
Solar Section	Computing Section
Lunar Section	Historical Section
Venus Section	Mercury/Venus Transit Section

Guiding Principle of the ALPO

To encourage and coordinate regular, systematic investigations of the Sun, principal planets, and other members of our solar system with instrumentation normally available to amateur astronomers.

The ALPO has observers all over the world

Instrumentation and Accessories

In general, a telescope with excellent, precisely-aligned optics, and an aperture of at least 10.2cm. (4.0in.) for refractors or 15.2cm. (6.0in.) for reflectors.

Some programs only require binoculars or RFT (e.g., comet-seeking), and other programs can even be carried out with the unaided eye (e.g., meteor observing).

Color filters (Wratten or Schott) of known wavelength transmission, plus a variable-density polarizer.

The *Astronomical Almanac* and the *ALPO Solar System Ephemeris* are sources for accurate ephemerides of solar system objects.

35mm camera, CCD video camera, or CCD imager.

PC with software for capturing, manipulation, and processing of images.

Why Observe the Solar System?

Most solar system objects are relatively bright and easy to find.

Most can be viewed from almost anywhere despite light pollution (travel to a remote site is usually not necessary).

The Sun and Moon have substantial image size, and significant detail can be seen with small apertures with good optics.

Mercury and Venus show phases like the Moon, and Venus exhibits peculiar cloud patterns, phase anomalies, and dark hemisphere phenomena (e.g., Ashen Light) in different color filters.

Mars, Jupiter, and Saturn are dynamic worlds that exhibit variable phenomena that can be monitored with moderate apertures (Mars and Saturn display seasonal effects).

The Galilean satellites of Jupiter (plus a few of Saturn's moons) undergo transits, eclipses, and occultations that can be seen in smaller apertures.

Asteroids change in brightness, and they periodically occult stars; amateurs continue to discover new minor planets.

Uranus and Neptune are quite faint and remote, but variations in their brightness can still be recorded using small-to-moderate apertures.

Meteors enter our atmosphere with variable frequency, color, velocity, and brilliance (most observations can be carried out with the unaided eye).

Comets vary in appearance and brightness, and optimum views occur with binoculars and RFT's (amateur comet-seekers discover most new comets).

The Significance of Amateur Observations

Amateurs are free to observe solar system objects of their choice for extended periods of time, unlike professionals who typically work under severe time and funding constraints.

Systematic observations using standardized methods are of vital importance as a means of keeping a long-term, continuous record of changing aspects of solar system objects. Due to fortuitous improper positioning of spacecraft cameras or unfavorable solar illumination, space probes were not always able to give optimum views of moons or planets. Thus, amateur work has been relied upon by professionals for more complete observational coverage.

Remote-sensing of moons and planets by spacecraft has yielded remarkable results, yet most views are isolated “snapshots” in time. Systematic work by amateurs often provides vital “missing links” in the data.

The amateur astronomer’s greatest potential for making useful contributions to planetary science continues to be: *A systematic, long-term, and simultaneous monitoring of the Sun, Moon, principal planets, satellites, comets, and meteors at wavelengths of light to which the eye has greatest sensitivity.*

Observers should always keep careful records of their work and submit copies to an appropriate repository (e.g., ALPO) for analysis and subsequent publication.

Observations that are widely-spaced in time, or those that are poorly-planned, are of very limited scientific value.

Systematic observations typically produce data that are more consistent in quality and reliability.

Observing programs should begin early in an apparition when a planet has just emerged from the solar glare, continuing until it again nears conjunction with the Sun.

Simultaneous observations are independent, systematic studies by two or more observers using similar methods and equipment on the same time and date. Such teamwork is essential to confirm visual results and improve objectivity.

Keys to Meaningful Results

An Example of Gleanings from Amateur Work: *ALPO Saturn Observations 1947-2001*

Regular visual observations have demonstrated that distinct belts and zones are not just occasionally seen on Saturn.

Elusive detail in Saturn’s belts, zones, & Ring System is more obvious if appropriate color filters & variable-density polarizers are used.

Cassini's and Encke's divisions are not the only such features in Saturn’s rings; i.e., several "intensity minima" in the rings were routinely seen by amateurs *prior* to the *Voyager* missions.

Amateur visual observations confirmed that Ring C can be seen at the ansae as well as in front of the Saturn’s globe with small-to-moderate apertures.

Amateur observations of long-enduring spots on Saturn have shown there is a definite variance in the rotation rates of the SEB and NEB.

Analysis of long-term data of recurring dark spots, festoons, and prominent white spots have revealed a pattern to atmospheric outbursts on Saturn.

Over a Saturnian year (29.5 Earth-years), data on subtle changes in belt and zone intensities have confirmed that there is a definite seasonal effect on the planet.

The existence of a very tenuous Ring E external to Ring A was suggested by amateurs *prior* to the *Voyager* flybys.

Amateurs identified a remarkable series of dusky radial "spokes" in Ring B (sometimes suspected in Ring A) *prior* to *Voyager*.

Amateurs have routinely observed, drawn, and even photographed the curious bicolored aspect of Saturn's ring ansae (i.e., difference in brightness of the E and W ansae when compared in alternating R and B filters and Integrated Light).

What's Next?

- The future of the ALPO depends a great deal on the successful recruitment of young, talented observers.
- One of the lasting accomplishments of the ALPO has been to provide challenging projects and guidance for youngsters, some of whom eventually became professional astronomers. This service must continue.

A.L.P.O. U. S. Membership Rates:

\$ 12.00 (Digital Journal; 4 issues, email address required)

\$ 20.00 (Digital Journal; 8 issues, email address required)

\$ 30.00 (Paper Journal; 4 issues)

\$ 54.00 (Paper Journal; 8 issues)

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