
The FOCAL POINT

Newsletter of the Atlanta Astronomy Club, Inc.
Volume V, Number V January 1993

THIS MONTH'S MEETING:

8:00 p.m., Friday, January 18th, 1993 at
Fernbank Science Center, Classroom 1.

The business portion of the meeting will begin at
8:00 p.m. followed by refreshments.

At 8:45 p.m. Club members will attend a special
program, *Insects in the Sky*, presented by David
Dundee of Fernbank Science Center.

SIDEWALK ASTRONOMY

The Tucker Recreation Center is hosting weekly
sidewalk astronomy sessions, weather
permitting, beginning Tuesday, January 12th,
1993 from 8:00 to 9:00 p.m.

The Recreation Center is located at 4898 LaVista
Road approximately two miles east of Northlake
Mall.

These sessions will provide an opportunity for
Club members to meet for informal observing
and to introduce the general public to amateur
astronomy.

For more information about these events please
call Jim Brant at 296-6334.

Bring your telescope!

TRIVIA

This month's questions:

- 1) How many astronauts have been to the moon
more than once?
- 2) How many of today's constellations are
named after arthropods?
- 3) Name the first aircraft carrier to be propelled
by nuclear energy.

The answer to last month's question, (What does
the X-15 aircraft have in common with some
premium quality solar filters?) is that the X-15
was made of Inconel-X and many glass solar

filters are coated with Inconel-X. For sun
watchers this alloy gives a pleasing yellow-
orange image rather than the blue color seen with
aluminum coatings. For X-15 pilots Inconel-X
provided an airframe that would not melt or burn
up at hypersonic velocities!

OBSERVATORY NOTES by David Riddle

LogBook

After getting a couple of requests for a new log
book for our observatory, I would like to
announce that we now have one. I will encourage
all visitors and guests to take a moment to sign
in and date the log. Any additional notes you
would like to make concerning observing
activities or conditions are optional but would be
of great interest to me. At the moment I have only
a very poor idea of how frequently the
observatory is used or who uses it. Your
cooperation in filling out the log book will go a
long way in solving this mystery!

Look for the log book on the table to the left as
you enter the observatory.

Request for Observations

A curious feature of the winter sky is the number
of optical supernovae remnants visible to amateur
astronomers. Roughly centered on the 6 hour
right ascension line and lying within 35 degrees
of each other, there are four remnants: Messier 1
(the Crab Nebula), IC 443 in Gemini, Simeis
147 in Taurus and Barnard's Loop in Orion. All
are plotted in Tirion's Sky Atlas 2000. Messier is
a binocular object if looked for with care, but the
other three clouds of debris will probably require
a ten-inch or larger telescope, although Walter
Scott Houston (of Sky and Telescope's Deep
Sky Wonders column) as reported an unaided
eye sighting of Barnard's Loop under exceptional
observing conditions.

As suggested by the few reports available on the
three more difficult remnants, an Oxygen III filter
would be invaluable in locating these ghostly
objects. I would welcome any observing reports

from people who have successfully located any of the four objects. If you are up for a challenge this winter, try finding these elusive grave markers among the stars.

A Look Ahead

With a new year before us, I suppose most people, like myself, will take a few moments to reflect on the past year and begin to plan for the coming year. Astronomical observing is an exact yet unpredictable science.

Eclipses, oppositions, conjunctions, occultations and transits can be predicted for centuries in advance with great precision. But who can be predict the visual appearance of these phenomenon? Will the lunar eclipse of November 1993 be a bright, colorful event or a somber dark eclipse? With Mars at opposition this month, only visual observers can confirm if a raging dust storm is obscuring the face of the planet. Will Jupiter's Red Spot return to prominence this year? Will Saturn's globe erupt a great white spot again? With the passing of Comet Swift-Tuttle, will the August Perseid shower turn into a great meteor stream? Maybe this will be the year of a Great Comet or the appearance of the long overdue supernova explosion in our own Milky Way.

Chances are good if one of these objects make their appearance in 1993, the announcement won't come from a major mountain top observatory but from an amateur astronomer's back yard. Even a casual look at the night sky carries the potential of a major discovery.

I would like to encourage all club members, new and old alike, to visit our observatory at least once this coming year. Make this the year to learn how our observatory equipment works or go for your Messier or Herschel Certificate. The journey to the stars will begin with your first steps.

On January 23rd the observatory will be hosting visitors and guests who wish to see the night sky in detail.

See you there!

David Riddle 438-7818

OCCULTATION HIGHLIGHTS FOR 1993

by Mike Kazmierczak

Occultation Highlights for 1993

by Mike Kazmierczak

Once again, it is time for occultation highlights for the upcoming year. There are quite a few good grazes throughout 1993. There are more bright stars than last year. We also have two grazes during the lunar eclipse in November. For those members who might be new to occultations, let me describe them.

An occultation occurs when the moon's disk covers or uncovers a star. Technically, it could also be called a stellar eclipse, but I guess the term occultation sounds more scientific. When the moon covers a star, it is called a disappearance. When the star reappears, it is called a reappearance.

Two types of occultations are pictured in Figure 1. If the star makes a path tangent to the moon's limb (edge), such that there is little time between a disappearance and a reappearance (also called events), then this is a grazing occultation.

Let's define a few more terms. The terminator of the moon is the dividing line between the sunlit and dark parts of the moon. The cusp is where the terminator meets the edge of the moon's disk. The cusp angle of an occultation is the angle between the nearest cusp and the point where the event occurs. This is also illustrated in figure 1. If the event occurs on the bright limb, the cusp angle is negative.

The observability of a grazing occultation depends on several factors. These factors are brightness of the star, percentage of moon sunlit, moon and sun altitude and the cusp angle. Each factor has a differing effect, but a general rule is that a 7th magnitude star on a 70% sunlit moon which grazes 7 degrees on the dark limb should be observable using a 6-inch reflector.

When projected on the earth, these graze paths are 25 miles wide. Observers spaced along this distance can see a variety of multiple events. The moon's limb is not perfectly smooth and the star can reappear and disappear behind valleys and mountains at any time intervals, depending on the

moon's shape. Observers set up 500 apart can see quite different events based on the moon's profile. The data are sent to the International Occultation Timing Association (IOTA) for use in improving star positions and profile data to help predict future grazes. Not only are grazing observations exciting, but this is one area where amateurs make most of the valuable observations.

Now that I have you all fired up to observe a graze, the next question are when, where what equipment do I need? The table below lists the grazes remaining for 1993. The dates/times given below are Universal Time. %SNL is the percent of the moon sunlit. Low moon altitudes or a rising sun condition is listed in the comments column. In July, we have a daytime graze of ZC 465, right in my backyard!

I am planning to observe all grazes (weather permitting) listed. I usually don't travel much farther than 75 miles to see a graze, unless it happens to be a very favorable one. Equipment that you need includes a telescope of 4 inches aperture of more, a shortwave radio and a tape recorder. The shortwave radio is tuned to a time station like WWV or CHU so that the timings of

each event are known accurately. The tape recorder records the time signals and your voice comments for later data reduction.

If you are interested in joining me on one of these wonderful events, or just want more information, give me a call at 760-8502.

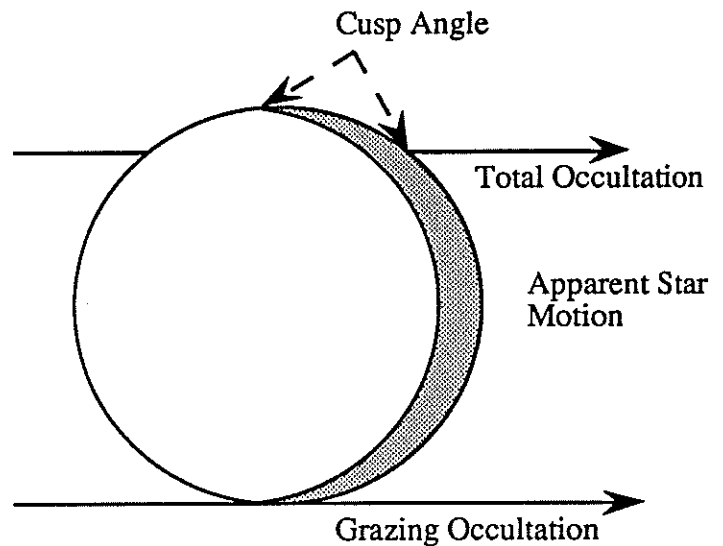


Figure 1. Occultation Schematic

Grazing Occultations for Atlanta and Vicinity for 1993

Date	Star #	Time(UT)	Mag	Cusp	%SNL	Dist	Rating	Comments
Jan 12	ZC 1590	8:45	6.9	8S	80-	7	Marginal	
Feb 2	ZC 660	4:15	4.3	10S	71+	8	Favorable	
Mar 1	ZC 599	2:57	4.5	11N	44+	36	Favorable	
Mar 28	X 4932	1:05	8.2	13N	19+	34	Marginal	
Mar 28	X 4953	2:12	8.3	13N	19+	19	Marginal	
May 7	ZC 2290	9:22	2.5	-12S	98-	17	Favorable	
May 10	ZC 2759	9:00	3.6	-4S	80-	18	Marginal	
May 12	ZC 3015	7:27	5.3	0S	61-	58	Favorable	MN12
May 15	ZC 3371	9:25	6.4	5N	32-	0	Favorable	MN18
Jul 10	ZC 3524	10:10	6.9	10N	65-	49	Favorable	
Jul 14	ZC 465	12:25	4.5	6N	26-	0	Favorable	SN17
Sep 1	ZC 3320	4:10	5.3	72S	100+	87	Favorable	
Sep 10	X 8325	10:30	6.9	0S	38-	84	Favorable	
Oct 8	Z 1034	11:05	7.9	5S	54-	65	Marginal	
Nov 9	ZC 1587	8:22	6.0	3S	27-	0	Favorable	MN11
Nov 11	ZC 1845	11:35	6.5	9S	8-	82	Favorable	MN13
Nov 23	ZC 3453	3:07	4.9	10S	69+	20	Favorable	
Nov 29	ZC 633	6:55	5.4	51U	13E	79	Favorable	
Nov 29	X 5624	7:35	7.1	62U	23E	3	Favorable	
Dec 4	ZC 1332	8:40	5.7	6S	74-	49	Favorable	

The *Focal Point* is published monthly by the Atlanta Astronomy Club, Inc. The AAC is a non-profit organization dedicated to the advancement of amateur astronomy.

Meetings are held on the third Friday of each month (the second Friday in December) at the Bradley Observatory of Agnes Scott College in Decatur, Georgia.

For up-to-date information on Club programs and activities please call the AAC's telephone hot-line at 621-2661.

Membership: \$20 annually for families and \$10 for students. Membership includes a subscription to the Astronomical League's *Reflector* and use of the Club's observatory in Villa Rica, Georgia. An optional subscription to *Sky and Telescope* is available for \$20 per year and to *Astronomy Magazine* for \$16 per year.

Article submissions are strongly encouraged; please deliver to the editor for consideration. The submission deadline for the February 1993 issue of the *Focal Point* is February 9th. Permission is granted to duplicate and redistribute in a non-profit manner, in part or whole, provided credit is given to the authors, the Club and this publication.

Editor: Bill Snell (404) 633-4050

Officers of the Atlanta Astronomy Club for 1992-93		
President.....	Bud Rosser	879-0304
Program Chairman	Steve Gilbreath	409-1915
Observing Chairman	Dave Riddle.....	438-7818
Corresponding Secretary	Bill Snell	633-4050
Recording Secretary.....	Hal Crawford.....	242-9995
Treasurer.....	Eugenia Abbey	634-1222



The FOCAL POINT

Newsletter of the Atlanta Astronomy Club, Inc.

FIRST CLASS

Please submit articles and address corrections to:

Bill Snell, Editor
222 Rimington Lane
Decatur, Georgia 30030

Please send membership renewals to:

Eugenia Abbey, Treasurer
1002 Citadel Drive
Atlanta, Georgia 30324

W. Tom Buchanan
105 Carriage Station Cir.
Roswell, GA 30075