

CAPE FEAR



Skies

The
Monthly
Newsletter of the
Cape Fear Astronomical Society

Volume 5 No. 9

Wilmington, NC

September 1990

The September Meeting

Sunday
September 9, 1990
7:00 PM

Bryan Auditorium
Morton Hall
UNCW Campus

The next meeting of the Cape Fear Astronomical Society will be held on Sunday September 9, 1990 in the Bryan Auditorium of Morton Hall on the UNCW Campus. The Business meeting will begin at 7:00 PM EDT.

The general meeting will begin at 7:30 PM. The program for this month's general meeting will be a presentation by member Ronnie Hawes. Ronnie will be speaking about his involvement in the Sun Search program. He call this presentation: *Looking for things that go bang in the night..*

Ronnie Hawes reported to the membership about the trip to Chapel Hill, and about the upcoming picnic and viewing session. Ronnie also spoke about preparations for a public viewing session to be held on Bald Head Island August 18th and a public display to be held at the MarketPlace Mall October 27 and 28th.

Tom Jacobs said that Comet Levy (1990_C) is shaping up and might be a good viewing comet. Martin Best told us that the comet was currently about 6th magnitude in his binoculars.

Alan said that he saw 2 meteors form the Epsilon Pegasus shower. He also reminded us on the celestial events upcoming in August.

The main program for the night was a presentation on the constellations of summer given by members Martin Best; Ronnie Hawes; and Alan Hilburn.

There were 10 members and 1 visitor present.

- Ronnie Hawes

Meeting Minutes from August

August 5, 1990

At 7:06 pm, Alan Hilburn called to order the meeting of the Cape Fear Astronomical Society.

Since Wayne Teachey was not at the meeting, we did not have a treasurer's report.

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Magellan Venus Probe Update

The radar mapping probe Magellan reached its destination during last month. Magellan has entered orbit about the second planet out from the Sun, Venus.

The space probe placed itself in orbit around Venus by firing a solid rocket motor. Earth based tracking of the probe shows that Magellan has achieved an orbit with periapsis of 294 km (183 miles) and with an apoapsis of 8472 km (5,252 miles). The orbit has a period of 3.26 hours and an inclination of 85.5°. These orbital values match the target values of periapsis 275 km; period 3.18 hours; and inclination 85.3° that an orbital correction maneuver scheduled for August 28 was canceled.

Magellan preformed the orbital insertion maneuver almost flawlessly. The only surprises up to this point being what the spacecraft had swapped from the primary gyroscope set to the backup. Later the spacecraft switched back from the backup to the primary gyroscope set. The Jet Propulsion Laboratory now thinks that there is no problem with the gyroscopes on board the Magellan. The spacecraft switched gyroscopes as the result of small disturbances in its attitude. The attitude disturbances resulted from forces generated by the separation of the spent solid rocket motor case and the switching of attitude thrusters.

The last (inter-planetary) cruise command sequence was completed at 8:00 AM PDT on Monday August 13th. At this time the spacecraft began to execute the first In-Orbit Checkout command sequence.

This first In-Orbit command sequence orders the spacecraft to preform a number of housekeeping chores. These activities include getting the high-gain antenna pointed at the Earth; transmitting back to Earth of the complete orbit-insertion telemetry; turning on the synthetic aperture radar; and other chores.

The transmitting of the insertion telemetry data began on Monday the 13th. after the high-gain antenna was successfully pointed at Earth.

The turning on of the synthetic aperture (map-

ping) radar was preformed on Wednesday August 15th. No problems were detected with the equipment and the people at the Jet Propulsion Laboratory planned to preform the first radar "bounce" test off of the surface on Venus during the afternoon of Thursday August 16th. as scheduled.

It was during the "bounce" testing of the mapping radar when the most troubling problem to date show up. Magellan had completed the second orbit of the synthetic aperture radar test. The spacecraft was trying to take a star fix to update its current navigation location when suddenly ...

Ground controllers at the Jet Propulsion Laboratory lost radio contact with the spacecraft.

Contact was restored 14 hours later when the Deep Space Network detected signals from the Magellan spacecraft using the medium-gain antenna. The information received from the spacecraft indicated that the probe had placed itself in its deepest lost communications safe mode.

After contact was restored controllers on the ground ordered the spacecraft to reestablish communication through the high-gain antenna. Once communications through the high-gain antenna was possible the ground controllers ordered the spacecraft to transmit information related to the loss of communications.

The people at the Jet Propulsion Laboratory were still trying to analyze the information on the loss of signal problem when on Tuesday August 21st communications with Magellan was again lost.

Communications with the Magellan spacecraft was once again reestablished on Wednesday August 22nd. Once again when the Deep Space Network detected the spacecraft, Magellan had placed itself in its deepest lost communications mode.

The Magellan flight team is now working to determine the cause of the loss of contact problems.

Images from the radar testing had been released to the press.

Sky Calendar for September 1989

(All times are given in Eastern Time. Times preceded with the "±" symbol are ±30 minutes of the time listed.)

Saturday: Sep 1

5:16 Astronomical twilight begins.
6:44 Sunrise.
19:37 Sunset.
21:03 Astronomical twilight ends.
— Pioneer 11 becomes the first space probe to Saturn on this date in 1979.

Sunday: Sep 2

5:17 Astronomical twilight begins.
6:44 Sunrise.
19:35 Sunset.
21:02 Astronomical twilight ends.

Monday: Sep 3

5:18 Astronomical twilight begins.
6:45 Sunrise.
19:34 Sunset.
21:00 Astronomical twilight ends.
— Labor Day

Tuesday: Sep 4

5:19 Astronomical twilight begins.
6:46 Sunrise.
19:33 Sunset.
20:59 Astronomical twilight ends.
21:46 • Full Moon called the "harvest" Moon.
— Saturn is at it's descending node.

Wednesday: Sep 5

5:20 Astronomical twilight begins.
6:46 Sunrise.
19:31 Sunset.
20:57 Astronomical twilight ends.

Thursday: Sep 6

5:21 Astronomical twilight begins.
6:47 Sunrise.
±17:00 Venus passes 0.2° south of Regulus.
19:30 Sunset.
20:55 Astronomical twilight ends.
— Lyncids Meteor: Radiant is located at right ascension 6:40; declination +58°; ZHR = 1 or 2.

Friday: Sep 7

5:22 Astronomical twilight begins.
6:48 Sunrise.
19:29 Sunset.
20:54 Astronomical twilight ends.
— Epsilon Perseids Meteor: Radiant is located at right Ascension 4:08; declination +37°; ZHR < 10

Saturday: Sep 8

0:00 Mercury is in inferior conjunction with the Sun; moves into the morning sky.
5:23 Astronomical twilight begins.
6:48 Sunrise.
19:27 Sunset.
20:52 Astronomical twilight ends.

Sunday: Sep 9

5:23 Astronomical twilight begins.
6:49 Sunrise.
±7:00 Moon at perigee. Distance from the Earth is 57.7 Earth-radii.
19:26 Sunset.
20:51 Astronomical twilight ends.
— Piscids Meteors: radiant is located at right ascension 0:36; declination +7°; ZHR = 10.

Monday: Sep 10

5:24 Astronomical twilight begins.
6:50 Sunrise.
±19:00 Mars passes 6° south of the Moon.
19:25 Sunset.
20:49 Astronomical twilight ends.

Tuesday: Sep 11

5:25 Astronomical twilight begins.
6:50 Sunrise.
16:53 • Moon at last quarter.
19:23 Sunset.
20:48 Astronomical twilight ends.
— The International Comet Explorer ICE-1, becomes the first space probe to reach a comet on this date in 1985.

Wednesday: Sep 12

5:26 Astronomical twilight begins.
6:51 Sunrise.
19:22 Sunset.
20:46 Astronomical twilight ends.
— Comet P/Honda-Mrkos-Pajdusakova at perihelion. Distance from the Sun is 0.54 au.

Thursday: Sep 13

5:27 Astronomical twilight begins.
6:52 Sunrise.
19:20 Sunset.
20:45 Astronomical twilight ends.

Friday: Sep 14

5:28 Astronomical twilight begins.
6:53 Sunrise.
±11:00 Mercury passes 3° south of Venus
±15:00 Uranus is stationary in right ascension; resumes direct motion.
19:19 Sunset.
20:43 Astronomical twilight ends.

Saturday: Sep 15

±2:00 Jupiter passes 0.3° north of the Moon
Occultation.
5:29 Astronomical twilight begins.
6:53 Sunrise.
19:17 Sunset.
20:41 Astronomical twilight ends.

Sunday: Sep 16

5:29 Astronomical twilight begins.
6:54 Sunrise.
±12:00 Mercury is stationary in right ascension; begins retrograde motion.
19:16 Sunset.
20:40 Astronomical twilight ends.

Monday: Sep 17

5:30 Astronomical twilight begins.
6:55 Sunrise.
±16:00 Mercury passes 2° north of the Moon.
19:15 Sunset.
20:38 Astronomical twilight ends.

Tuesday: Sep 18

5:31 Astronomical twilight begins.
6:55 Sunrise.
19:13 Sunset.
20:37 Astronomical twilight ends.
20:46 • New Moon. Lunation number 838

Wednesday: Sep 19

5:32 Astronomical twilight begins.
6:56 Sunrise.
19:12 Sunset.
20:35 Astronomical twilight ends.

Thursday: Sep 20

5:33 Astronomical twilight begins.
6:57 Sunrise.
19:10 Sunset.
20:34 Astronomical twilight ends.
— Rosh Hashanah

Friday: Sep 21

5:33 Astronomical twilight begins.
6:58 Sunrise.
19:09 Sunset.
20:32 Astronomical twilight ends.
— Kappa Aquarids Meteors: Radiant is located at right ascension 22:25; decli-

nation -5°; Slow speed.

Pescids Meteors: Radiant is located at right ascension 0:24; declination 0°; ZHR = 5.

Saturday: Sep 22

5:34 Astronomical twilight begins.
6:58 Sunrise.
19:08 Sunset.
20:31 Astronomical twilight ends.
±23:00 Saturn is stationary in right ascension; resumes direct motion.

Sunday: Sep 23

2:55 September Equinox (Earth at descending node). Fall begins in the Northern Hemisphere.
5:35 Astronomical twilight begins.
6:59 Sunrise.
±12:00 Neptune is stationary in right ascension; resumes direct motion.
19:06 Sunset.
20:29 Astronomical twilight ends.
— Alpha Aurigids Meteors: Radiant is located at right ascension 4:56; declination +42°

Monday: Sep 24

0:00 Mercury at it's greatest western elongation 18°
5:36 Astronomical twilight begins.
7:00 Sunrise.
±18:00 Moon at apogee. Distance from the Earth is 63.5 Earth-radii.
19:05 Sunset.
20:28 Astronomical twilight ends.
±21:00 Antares passes 0.4° south of the Moon
Occultation.

Tuesday: Sep 25

±3:00 Mars passes 4° north of Aldebaran.
5:37 Astronomical twilight begins.
7:00 Sunrise.
19:03 Sunset.
20:26 Astronomical twilight ends.

Wednesday: Sep 26

5:37 Astronomical twilight begins.
7:01 Sunrise.
19:02 Sunset.
20:25 Astronomical twilight ends.
22:06 • Moon at first quarter.

Thursday: Sep 27

±2:00 Uranus passes 2° north of the Moon.
5:38 Astronomical twilight begins.
7:02 Sunrise.
±14:00 Neptune passes 3° north of the Moon.
19:01 Sunset.
20:23 Astronomical twilight ends.

Friday: Sep 28

±4:00 Saturn passes 1.5° north of the Moon.
±4:00 Vesta is stationary in right ascension; begins retrograde motion.
5:39 Astronomical twilight begins.
7:03 Sunrise.
18:59 Sunset.
20:22 Astronomical twilight ends.

Saturday: Sep 29

5:40 Astronomical twilight begins.
7:03 Sunrise.
18:58 Sunset.
20:21 Astronomical twilight ends.
— Yom Kippur

Sunday: Sep 30

5:41 Astronomical twilight begins.
7:04 Sunrise.
18:56 Sunset.
20:00 Current Julian date is 244 8164.5
20:19 Astronomical twilight ends.

Upcoming Events for September 1990

Monthly Meeting of the Cape Fear Astronomical Society
Sunday September 9, 1990; 7:00 PM - Bryan Auditorium; Morton Hall

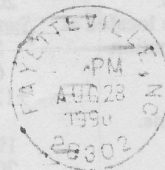
Group Viewing Session
Saturday September 15, 1990; Dusk until "?" - Hampstead Site

Group Viewing Session
Saturday September 22, 1990; Dusk until "?" - Hampstead Site

Public Viewing Session - Saturn
Saturday September 29, 1990; 8:00 PM until "?" - Site

Deadline for the October issue of *Cape Fear Skies*. is
Saturday September 15, 1990

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