

**Minutes of the ION Washington Section
May 21, 2007 -- Evening Meeting**

26 members of the Institute of Navigation's (ION) Washington Section met at Goddard Space Flight Center on the 21st of May 2008. The meeting took place between 6pm and 9pm. Sandwiches and drinks were provided for happy hour which preceded our business meeting, talk, and tour. As advertised the Section election was held during the business meeting. Afterwards Mr. Rivers Lamb spoke about the Lunar Reconnaissance Orbiter (LRO). At the end of his talk, a tour of the test facility and the various spacecraft under construction (including the LRO) was given for the benefit of the Section members. The meeting had the followed agenda:

AGENDA:

6:00 - 7:00 Happy Hour/Dinner
7:00 - 7:30 Section Business Meeting (Elections)
7:30 - 8:00 Speaker
8:00 - 8:30 Tour of NASA spacecraft and testing facilities

BUSINESS MEETING:

Election of New Officers

The first item of business was the Section Election. The nominating committee (Jim Simpson and Jim Doherty) provided a slate of 4 people to serve as the officers for the coming year. The nominees were:

Section Chair: Chuck Schue
Vice Chair: John Carl Adams
Treasurer: Karen Barker
Secretary: Christopher Varner

Nominations from the floor were requested. None were received, and by general consent the nominated officers were elected to serve for the coming year.

Treasurer's Report and Future Events

Chuck Schue, the past Treasurer, reported the Section had \$874.78 on hand. Of that, \$334.25 was targeted for section scholarships -- leaving \$540.53 available.

Jim Simpson, the past Chair, provided some insight into possible upcoming speakers and topics. These include a speaker from Virginia Tech who is hoping to talk about the DARPA Urban Challenge this summer, a discussion by Jamen Greebalm on the Fast Track Receiver, and Navigating in China -- a talk by John McHale.

Section members were reminded that The GNSS meeting in September is in Savannah, Georgia and that abstracts for the International Technical Meeting are due in October. The International Technical Meeting will be held in Anaheim California.

"NAVIGATING AROUND THE MOON" LECTURE:

Rivers Lamb from Goddard Space Flight Center was the featured speaker. His talk was about NASA's Lunar Reconnaissance Orbiter (LRO). Mr. Lamb is the Flight Dynamics Ground System Lead for LRO, which is a robotic mission that will map out the surface of the moon to prepare for future manned flights. Like many other NASA missions, ground-based antennas will provide tracking, telemetry, and control capabilities for the LRO spacecraft. Range and Doppler tracking data will be sent to the NASA Goddard Flight Dynamics Facility (FDF) which performs navigation functions on a daily basis. In addition, LRO will collect laser ranging data from ground-based laser sites as well as altitude data from the LOLA science instrument. Periodically, this data will

be used by the science team to create a new gravitational potential model of the moon. FDF will use these models as they become available for the daily navigation support. In addition, the laser tracking data will be used by FDF twice during the mission to produce an accurate definitive mission ephemeris. Mr. Lamb also said that the FDF will be supporting all flight dynamics functions for LRO, including maneuver planning and navigation.

SPACECRAFT TOUR:

Lunar Reconnaissance Orbiter, Solar Dynamic Observatory (SDO), and flight equipment as part of the Hubble Space Telescope (HST) Servicing Mission 4 (SM4) are all currently undergoing testing and integration within Buildings 7, 10, and 29 at the Goddard Space Flight Center. After the navigation presentation, the group was given a tour of the test facilities and viewed each spacecraft through the clean room windows. Each spacecraft were preparing for, or had just begun, their spacecraft level environmental tests. The LRO spacecraft was about the size of a large sport utility vehicle automobile with a total a mass of over 4,000 lbs (1818 kg). The SDO spacecraft was even larger with a mass of about 7,700 lbs (3,500 kg). During the tour, the group learned that the HST SM4 mission will be replacing the Wide Field Camera and Cosmic Origins Spectrograph while also repairing the Space Telescope Imaging Spectrograph (STIS) and the Advanced Camera for Surveys (ACS). It was an unusual time for Goddard because a large number of different spacecraft were being prepared for launch at the same time here in the DC Metro area.