

Laser Ranging Ground System

- **Progress**

- One-way system delay measurement at NGSLR has been completed and documented in February.
- Successful independent timing test at NGSLR with Instrument Scientist was completed 1/12/2009.
- End to End test with LOLA performed 1/21/2009. Everything looked good except for some data transfer and some lingering clock issues.
- LOLA science team has independently verified that the NGSLR laser is being fired so that the pulses will arrive at LRO when the LOLA Earth Window is open.
- Requirements Verification document completed and turned in.
- SCLK subroutines and documentation (for ILRS participating stations that will fire synchronously) have been delivered and are in use.
- Successful LRO test with Hersmonceux, Zimmerwald, MLRS and NGSLR on 3/25/2009 and also with MOBILAS-7 on 5/22/2009 (with Go/NoGo flag).
- Training for operators for LR at NGSLR has been completed.

- **Risks and Issues**

- NENS to SCNS contract transfer may occur at the beginning of LRO-LR operations. Could result in substantial down-time for NGSLR.

Global LR Ground Stations

	<u>Synch?</u>	<u>FireRate</u>	<u>Events/sec in Window</u>	<u>Scheduling & Participation</u>
NGSLR	YES	28Hz	28	Prime
MLRS	NO	10Hz	2 to 4	Secondary
Zimmerwald	YES	28Hz	28	Testing complete
Herstmonceux	YES	14Hz	14	Testing complete
Wetzell	Maybe	7 or 10Hz	2 to 7	Accepted
MOBLAS-5	NO	5Hz	1 to 2	Will participate
MOBLAS-6	NO	5Hz	1 to 2	Will participate

- Herstmonceux and Zimmerwald have signed Agreements and have passed all LR tests.
- A safe configuration for Wetzell laser ranging to LRO has been determined and an Agreement with them is in progress.
- MLRS has established a safe configuration for laser ranging to LRO, and an Agreement with them is in progress.
- A new computer and timing card have been tested at MOBLAS-7 and LR performance looks good. MOBLAS-5 and MOBLAS-6 will use this subsystem design to range to LRO.