



Observatory Issues

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Effect of NSF Proposal Downsizing on Observatories

- FY2002 request of \$10.7M → \$8.9M
- Staffing of 60 pared to 56, staffing increases deferred in FY2002
- No explicit outreach funding
- No LSC support
- Deferred LDAS maintenance

Issues That Keep Observatory Heads From Sleeping At Night

- Both Observatories:
 - » Do we have what it takes to operate observatories?
 - » Can we find/retain adequate staff?
 - » Can we provide intellectual environment to keep staff growing or will they become “obsolete”?
 - » Can we continue to do outreach w/o losing our soul?
- LHO in Particular:
 - » Can we get local university support?
 - » What will be our intellectual strengths?
 - » What will be our involvement in future LIGO R&D?
- LLO in Particular:
 - » Will we have sufficient strength in controls (CDS)?
 - » How do we handle increased seismic noise?

Do We Have What It Takes to Operate Observatories

- 7x24 operation turning on yet this year
- Cannot cover 2-operator staffing of control room full time, so will have lapses
- Safety concerns require 2-person staffing
- Science/engineering personnel will need to cover operator shifts in addition to pursuing science investigations
- We will need to rely heavily on LIGO-Lab visitors and LSC visitors

Coping With Two Interferometers at LHO

- Twice the commissioning activities
- Twice the repairs, modifications to electronics, etc.
- Twice the lasers to maintain
- Larger Control and Data System (CDS) plant to maintain
- Larger on-line Data Analysis System (LDAS) plant to maintain
- Less experimental resources provided by local universities than at LLO
- Staff is spread very thin

Coping With Larger-Than-Expected Ambient Seismic Noise

- Vibrations at LLO 30-50X Larger Than LHO during day
- Dominant cause appears to be commercial logging near observatory
- Work arounds:
 - » Early implementation of LIGO-II active seismic stages
 - » Extension of LIGO-I feedforward compensation past 1st stack resonances
 - » Recombine by day, recycle by night to maintain commissioning progress

Growth in Capability & Intellectual Environment

- High power laser facility at LLO to study LIGO-II optics
 - » MOU in place with UF to share 2 FTEs
- Active seismic isolation development for LIGO-II at LLO
 - » Dedicated engineer, project management, J. Giaime (LSU)
- MOU with Southern U. for materials work at LLO
- New appointments (Pullin/Gonzalez) at LSU
- Bose appointed Ass't Prof. in physics at WSU
 - » Boost in data analysis, astrophysics interpretation
- UW astronomy dept. also “sniffing” LIGO theory candidates
- Steady presence of students/personnel, e.g. U. Oregon, U. Michigan, U. Rochester at LHO @LHO

Outreach Activities

- What works:
 - » Our track record during early operations got rave reviews by NSF visiting committee
 - » Extremely successful REU program ~20 students/year
 - » Popular informal education tours of facilities (1000's visitors)
 - » Successful pilot project to embed LIGO research into high school science curriculum: ~30+ students/yr in 9th-12th grade at Gladstone High School, OR
 - » In-service teacher training and internships
 - » Good coupling with local school districts, other science outreach efforts
 - » Public Lecture Series a hit
 - » Ground work to develop resources for science centers associated with observatories

Outreach Concerns & Recent Developments

- Despite outreach successes in practice, we have not gotten outreach and science off a collision course
 - revenue - uncertain year to year
 - proposal materials (>1/2 doz) distracts manpower from significant science
 - many significant science issues
 - program officers to coordinate funding request for multifaceted
 - and African- & Native-American outreach programs with Southern U., Salish-Kootenai College
 - Kootenai College
 - education Internships finished last in “peer” review; we do not do not review well with EH&R
 - until LIGO-I works; try to keep current outreach activity alive; eventually figure out some new approach to legitimize outreach with its own funding so we can expand activity.
 - going so we can expand activity.

Summary

- Crunch time is now in Hanford and Livingston
- Observatories are still standing and progress is being made
- Observatory heads still twist and turn at night
- We are open to good advice