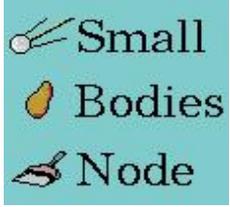


COSPAR Capacity Building Workshop on Planetary Science

Mike A'Hearn

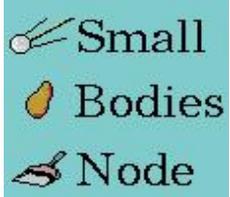


What Was It?

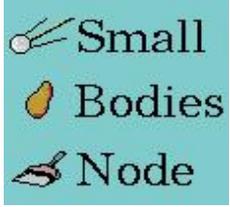
- One of a series, sponsored by COSPAR, to introduce the use of space-mission-data to young scientists in non-space-faring countries
- Previous ones have all been in X-Ray astronomy - this is the first in planetary science
- Organized by Gonzalo Tancredi (with help from numerous others) in Montevideo Uruguay
- 27 students from South America - consciously chosen to be several from each country, from senior undergrads to assistant professors
 - Argentina, Brazil, Chile, Paraguay, Peru, Uruguay, Venezuela
- Faculty - ~6 from S. America for background science, some were effectively students for other portions of the workshop. Space data covered by: A'Hearn, Li, McFadden (all UM, for Deep Impact and NEAR), Showalter (SETI, Rings), Vasquez (ESA, PSA and SPICE), Pio Rossi (ESA, MEX), Yoshikawa (JAXA-ISAS, Hayabusa)
- And did you realize that Uruguay isn't in summer in July?



Structure

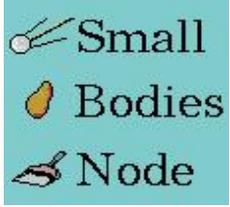


- Numerous lectures on background science
 - All day the first day and mornings of several subsequent days
- Lectures & On-line Demos on the various archives (PDS, PSA, and lecture only on JAXA) and on tools (at Rings node, SPICE, SBN IDL tools, NASAView, etc.)
- Presentations on possible research projects - Comets, asteroids, rings, spice, mars
- Work sessions much of the second week where students worked on small research projects
- Presentations by the students on the last day
- Hope that some of the projects are continued at home institutions
- And did you realize that the temperature never gets unpleasantly hot at this time of year in Uruguay?



How Did It Go?

- Mass chaos throughout, but despite this a great experience
 - Many oral stories about travel to Uruguay, but I had more problems getting to LA on Sunday afternoon
 - Oral stories about the temperature in the classrooms and offices (I was comfortable in a sweater one day!)
 - Many oral stories about the weekend tour to a cattle ranch and Punta del Este
- Everything broke - but much was repaired in near-real time
 - Rings node broke first because Mark talked first
 - SBN broke second because I talked second
 - But NASAView also broke then as did some EN searches, as did products from other nodes (imaging node, geo node - but not their fault)
 - I claim to be an equal opportunity breaker of systems
 - Numerous individual data products had problems
 - Individual students found problems in datasets - sorted them out with the help of the faculty
 - MEX images from PSA crashed all the computers in the workshop
 - The bandwidth of a portable, USB hard drive on an airplane still substantially exceeds the bandwidth of the internet

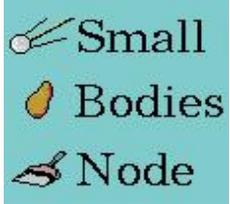


How Did It Go?

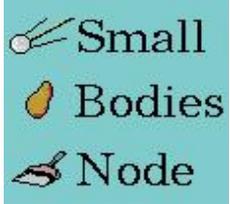
- Generally the students were enthusiastic to actually work with space-based data
 - Most of them made real progress in getting started on small projects
 - Some fraction, perhaps 50%, seem likely to continue projects after return to their homes.
 - Some of these projects may be done independently, but most are likely to rely on continued collaboration with the visiting faculty at the workshop
- Was it worth my time?
 - Absolutely!
 - Only cost to PDS was the (small) part of my salary that is paid from PDS. All other costs covered by COSPAR.



Conclusions & Lessons Learned



- We need more scientists working with our mission data to get the best return on our investment (this conclusion preceded the workshop)
- Novice users face a huge threshold in trying to work with mission data
 - This almost certainly applies to many US scientists as well as to those in other countries
 - One senior professor from the US had applied to be a student just for this reason
 - More opportunities to work with either mission scientists or PDS scientists are crucial
- Should PDS expend resources on this?
 - Should we seek separate funding for workshops under the DAPs?
 - Should we plan regular workshops at DPS meetings, at LPSC, or entirely independently?
 - SBN's attempt to run a one-day workshop at LPSC for the NEAR datasets many years ago drew little interest
 - This is not something for which we have planned budgets - probably better to encourage others to organize workshops



Conclusions & Lessons Learned

- We all know the data too well to find the logical holes in access to the data and other problems
 - Novice users will always find new ways to break the system
 - Web sites, tools, standards issues, data products
 - A help function should probably be posted on each web page
 - This is different from a gripe function! Both should be there.
 - Students with good computer skills are ideal candidates as novices
 - But, they can find ways around problems so they need to be in an environment where the problems get reported back to us rather than just being circumvented
 - Other scientists may just go away and complain to NASA HQ to take away the PDS budget
 - As Mark summarized earlier, bad data and metadata from projects will still get blamed on PDS
- “Summer” workshops should always be held in the other hemisphere, away from the sweltering heat of Washington!