

Minutes for 2003 November 9-10 Magellan SAC Meeting
 prepared by Daniel Fabricant

SAC Members:

Institution	Official SAC Members	Attending
Carnegie	Alan Dressler, John Mulchaey, Ian Thompson	AD, JM, IT
Harvard/CfA	Robert Kirshner, Daniel Fabricant	DF
Arizona	Laird Close	LC
Michigan	Mario Mateo	John Monnier
MIT	Paul Schechter	PS

Other Attendees:

Institution	Attending
Carnegie	Alan Uomoto, Matt Johns, Steve Sheckman, Miguel Roth, Mark Phillips, David Osip, Frank Perez (telephone), Pat McCarthy, Greg Burley
Harvard/CfA	
Arizona	Dennis Zaritsky
Michigan	Mario Mateo (partial, telephone)
MIT	Jim Elliot (partial, telephone)

This meeting was the first chaired by Alan Dressler. Alan described his personal agenda as determining the appropriate levels of staffing for the Observatory. The next meeting date was chosen to be April 21st and 22nd, a Wednesday and Thursday, and the location is Tucson. This is a departure from the typical weekend schedule, but precedes the next Magellan Council (April 23rd). The SAC also proposes to place its meeting minutes and copies of Powerpoint presentations on the web site managed by David Osip at LCO. The minutes and presentations are to be made available to all Magellan institution members.

Presentation by Mark Phillips: Observatory Summary

Alan Uomoto took over from Matt Johns in September as Magellan Technical Manager. Marc Leroy, an electronics engineer, joined the Magellan staff to partially replace Oscar Duhalde, an instrument specialist, who moved to the small telescope staff. Currently there are 2 instrument specialists and 3 electronics engineers on the Magellan staff. At this time and later during the meeting, most SAC members expressed the opinion that more instrument specialists are necessary for smooth functioning of the Observatory. Luis Pizarro replaced Jorge Parra as the administrative mountain supervisor, and Luis

will help astronomers with nontechnical issues associated with LCO visits. Mark described instrument status and usage statistics. His Powerpoint presentation can be consulted for details. Overall, the total observation down time over last 18 months ranged between 2.6% and 6.1%, with 10-15% losses due to weather. The total up time ranged between 82% and 84%. All agreed that these are excellent numbers. Common problems include the instrument rotators, the guiders, the guide cameras, and the primary mirror supports.

Mark listed the software development priorities as the M3 turrets on both telescopes, non sidereal tracking with the guide probes, MIRAC guiding and ADC control software.

He presented seeing statistics derived from the guide cameras; details are in his presentation, but the median seeing appears to be $\sim 0.75''$ over the past 18 months.

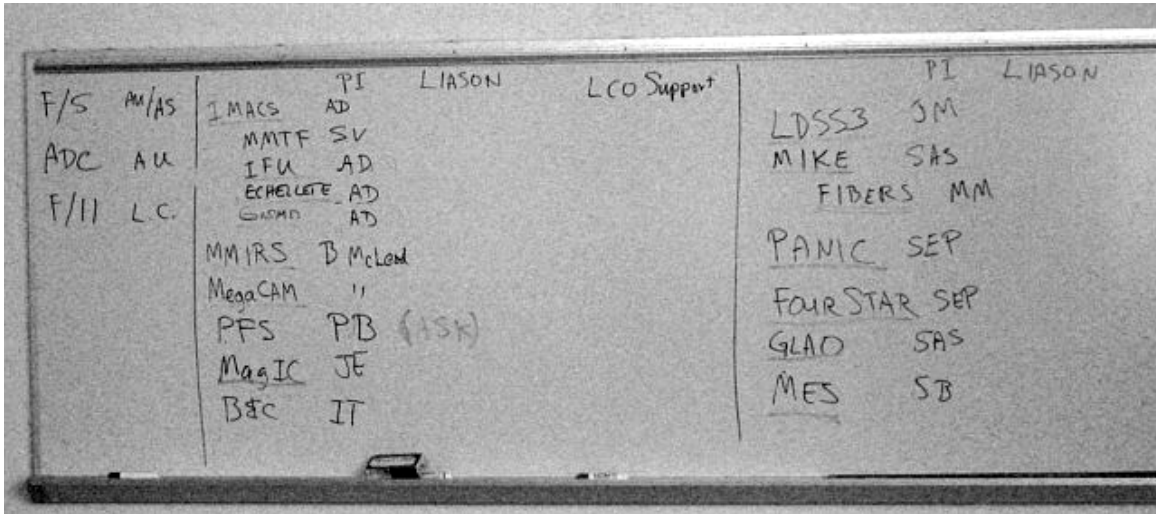
The Observatory has supported commissioning of IMACS and the MIKE fibers, and will need to support additional commissioning efforts for these instruments in the near future. Soon, the ADC and a seeing tower must be commissioned.

Presentation by Alan Uomoto: Technical Manager's Report

Alan's full presentation is available as a Powerpoint file. Two of Alan's immediate technical management tasks are to oversee antireflection coating the Baade ADC lenses and to finish negotiating the f/5 secondary polishing contract with the Steward Observatory Mirror Lab. In addition, he has gathered a large list of telescope tasks required for smooth running of the telescope, including the rotator and guider issues described above.

Alan presented an organizational chart in which he reports directly to Wendy Freedman and the Magellan Site Manager (Frank Perez) reports to him. This structure is parallel to the LCO chain of command (Miguel Roth, Mark Phillips and David Osip). This chart was discussed but no one seems sure that this is the optimum structure. At this time, and later during the meeting, the appropriate balance between LCO-based and Pasadena-based staff is not yet clear. Several attendees felt that a "tiger-team" structure is necessary to avoid the constant distraction of operations from preventing the solution of the knottier telescope problems. Alan mentioned two priorities for additional staff: a telescope scientist/engineer and an electronics engineer/instrument specialist.

Alan made a list of new instruments:



The underlined instruments, essentially every one on the list, are proposed as facility instruments. Operating and commissioning these instruments was universally thought to be impossible without augmenting the existing staff.

Alan asked the SAC to think about the appropriate priorities among this list, but no conclusions seem possible without knowing more about the schedule mesh between these instruments.

Alan Dressler: IMACS Report

Alan and his team experienced a relatively smooth commissioning with excellent support from the LCO Magellan staff. The aperture mask cutting laser seems to be performing well, and mask alignment procedures seem to work. Test masks exposed for 2.5 hours using the f/2 (short) camera resulted in usable redshifts for about 2/3 of the 20th to 23rd magnitude galaxies. Preliminary commissioning of the IFU was carried out, but the IFU holder needs to be shifted since the image of the IFU fiber slit falls in the CCD gaps currently. David Osip and Mark Phillips have become familiar with IMACS observing, but the IMACS team needs to train the LCO more widely, particularly for instrument setup and maintenance. The off-axis Shack Hartmann wavefront sensor has not performed to spec so far, but the origin of the problem is unclear. The throughput of the instrument and telescope combination is about 25%, a very good number but a bit below predictions. Some of this throughput loss may be due to deteriorated antireflection coatings.

David Osip: Instrument Report

David Osip reviewed the status of the B&C spectrograph, LDSS-2, MAGIC, MIKE, and PANIC. The instruments are performing well in general. David requested that observers

read the daytime logs to get an early warning of problems, and that they document night time problems more thoroughly in the nightly operator reports and in their run summaries. He stressed that writing data to tapes and other removable media is the observer's responsibility. The Observatory currently backs up data for the short term but does not maintain a data archive.

Laird Close: Magellan Adaptive Optics

Laird reviewed the AO Development Program proposal. The proposal is to build a 1.3 meter AO secondary for Magellan with 672 actuators (compared to the MMT's 0.6 meter secondary with 336 actuators). The Magellan secondary will have a robust 3 mm thick faceplate. The Magellan secondary will be an f/11 Gregorian secondary in hopes that this will allow more compatibility with Magellan instruments, allow easier secondary testing, and allow a wide field for ground layer AO (GLAO) corrections because the Gregorian design conjugates accurately to the ground layer. The total budget for the secondary and GLAO program is \$7.5 million. Four operating modes are planned: 1) Near IR AO with 0.08" images over a 30" FOV, 2) Mid IR AO with very high Strehl in the 8 to 20 μm band, (3) AO nulling interferometry, and 4) GLAO with 0.25" images over a 30' FOV. The GLAO is perhaps the most unique capability for the present generation of large telescopes. Further funding is required to provide a complement of AO compatible instruments.

Support of the AO system will require adding at least 1 AO expert to the staff to operate the AO system. Additional staff will be required for maintenance.

Alan Uomoto: Moving from Construction to Operations

We continued the discussion that began during Alan Uomoto's previous presentation. Paul Schechter expressed his opinion that the Magellan staff ought to concentrate on the telescope and not the instruments. Steve Sheckman and Miguel Roth made the case that support groups for the telescope be built up at the home institutions. Mark Phillips felt that this is a good idea, and this was seconded by Frank Perez, who stated that he had seen a fall-off in contact. Alan Uomoto expressed an interest in hiring a junior scientist who might have the qualities of Steve Sheckman or Matt Johns.

Day 2

Paul Schechter asked Alan Uomoto how Alan viewed his role. Alan replied that he feels that the instrument support is lagging the telescope support and that he needs to concentrate on the instruments. Alan Dressler asked about the SAC's role as a conduit for communication between the telescope and Pasadena, but Mark Phillips and Alan Uomoto pointed out that they are in weekly communication. They suggest keeping the SAC informed in the current fashion.

Alan Uomoto reviewed the facilities instrument policy and suggested some reordering of the procedures, but the SAC sentiment was to work with the current procedures a bit longer before implementing changes. Alan pointed out that none of the instruments delivered so far have complied with the facilities instrument policy. Alan Dressler affirmed his interest in trying to do so for IMACS. The SAC then turned to the question of a Users Instrument Policy, and Alan Uomoto agreed to draft a modified policy for user instruments by the next SAC meeting, with the intent of circulating a draft prior to the meeting.

Mario Mateo: Mike Fibers

Mario described his two night of commissioning Mike fibers. All seems to be in order except the handling cart and some fixtures. He believes that the fibers are ready for scientific use. The fiber throughput is down about 1 magnitude from the direct MIKE.

Daniel Fabricant: f/5 System

Dan described the f/5 system that will include a 1.7 meter secondary, a large refractive corrector with ADC for the spectroscopy configuration, and handling fixtures. The first light instruments will be MMIRS, a wide-field NIR imager and spectrograph, and Megacam, a 36-CCD imager with a 24' by 24' FOV. Alan Uomoto will be supervising the polishing of the f/5 secondary at the SOML; the remainder of the work will be undertaken at the CfA. Andrew Szentgyorgyi is the PI, Mark Ordway is the Project Engineer, and Tim Norton is the Project Manager. These three recently visited LCO to discuss facility interface issues. This meeting was judged to be very productive from both the CfA and LCO perspectives.

Sylvain Veilleux: Maryland-Magellan Tunable Filter

Sylvain described this NSF-funded augmentation to the IMACS spectrograph: a Fabry-Perot tunable filter. The bandwidth is between 5 and 50 Å, with approximately 80% throughput between 5000 and 9000 Å. The FOV is 22' with a 50 Å bandwidth and 10' with a 10 Å bandwidth.

Computer Support

Alan Uomoto and Mark Phillips then raised the issue of computer support at Magellan. Currently only 10% of Skip Schaller is available for systems administration, and this is not enough to satisfy all user requests. Mark reminds observers to apply for user accounts in advance of their runs.

CFHT 12K Camera: Steve Sackett

Christian Veillet, the executive director of CFHT, approached Steve to ask if there might be a home for the CCD camera built by Gerry Luppino. This instrument has been

replaced at CFHT by their Megacam. After a discussion of various possibilities, no compelling Magellan role for this instrument was identified.

General Operations Discussion

Mark Phillips expressed the view that too much optimism was present in commissioning schedules. Alan Dressler acknowledged that this had been the case with IMACS.

The SAC discussed information flow to observers at the Magellan institutions. It was decided to create mailing list fanouts to directly reach scientists at the partner institutions. In addition, some feed back mechanism to reduce the arrival of unprepared observers was discussed. Contacting the TAC chairs at each institution to report problems seems to be the best avenue.

Miguel Roth showed that the weakening of the dollar against the Chilean peso in recent months will result in an increased expense to the partner institutions. This reverses the trend of several years in which the dollar strengthened against the peso and money had been returned to the partner institutions.

Miguel then reviewed the prospects for increasing the internet bandwidth between LCO and North America. His conclusion is that increasing the bandwidth much above the current 1 Mbps will be prohibitively expensive since new infrastructure would be required.

The SAC briefly discussed prospects for intervention observing. The changeover speed is still too slow (20 minutes each way) to start intervention observing now, but Carnegie will run some internal trials to accommodate Carnegie observers. This trial will exercise the Bank software to transmit observing scripts. A report will be presented to the SAC at the next meeting.

Alan Uomoto and Frank Perez suggest, with SAC support, to concentrate on the telescope problems with rotators, guiders, mirror actuators and drives.

Paul Schechter raises his concern that the current scheduling algorithm is imperfect. The SAC decides to reconvene a scheduling subcommittee consisting of Mario Mateo, Ian Thompson, Paul Schechter, and Dennis Zaritsky.

The SAC returned to the staffing discussion, and decides to draft a resolution to the Magellan Council on this topic. The resolution will recommend that each instrument provide 1 year of an on-site scientist or engineer to support each facility instrument, and advise the Council that the AO secondary will require an additional \$300K of on-site support each year it is operated.

The idea of a “tiger team” to deal exclusively with telescope problems rather than operations was raised by Steve Shtetman and generally endorsed by the SAC. Matt Johns reported that money remains in the construction budget and in an improvements

fund. These funds could be applied toward solving telescope problems. Alan Uomoto will report on this possibility at the next SAC meeting.