

## Report of the Magellan SAC to the Magellan Council

Alan Dressler -- 23 April, 2004

The SAC met April 21 & 22, 2004 in Tucson, at Steward Observatory.

As is customary, the SAC heard reports on the state of the Magellan Observatory, including information on efficiency and “challenges,” and reports on the performance and use of major instrumentation.

The principal task at this meeting was to finalize recommendations to the Council in response the Council’s request for staffing plan for the next five years, consistent with the scientific aspirations and proposed instruments and capabilities. This discussion began at the September, 2003 meeting of the SAC and was summarized in a document by Dressler and Uomoto. This report (“Staffing at Magellan”) was reviewed and amended and has been submitted to the Council at today’s meeting.

As part of that discussion, considerable time at the SAC meeting was spent on a review of proposals for new instrumentation, their scientific capabilities, and impact on support and operations. These highlighted the need for substantially increased technical and scientific support to accommodate the growth at Magellan, as described in our report.

## ***Proposed Facility Instruments – approved.***

“The SAC heard a detailed description by Sylvain Veilleux of the Maryland-Magellan Tunable filter, a powerful addition to IMACS that will open new observational capabilities. A plan has been developed for installation of the MMTF, which is expected around November, 2004, and this plan has been reviewed and approved by the Magellan staff. The SAC recommends that the Magellan Council approve the MMTF upgrade for IMACS.”

“The SAC approves the Magellan Echellette as a new facility instrument for Magellan. This instrument offers new capabilities, in particular, full optical wavelength coverage from 3100Å to 1μ. Based on the presentation made to the SAC, the impact of this instrument on operations at Magellan will be minimal after commissioning, especially if MagE is destined for a folded port on Clay, which we very strongly recommend.”

## *Other related Facility Instrument issues*

Andy McWilliam gave a progress report on MOE – the Multi-Object-Echelle for IMACS. This is a unique capability for studies of the metal abundance of stars and clusters in the Milky Way and nearby galaxies, at the rate of a dozen at a time with full spectral coverage at  $R \sim 20,000$ . It is an addition to an (unapproved) Facility Instrument – IMACS – and does not require any further approval by the SAC.

The SAC heard a presentation by Rob Simcoe, a post-doc at MIT for a proposed Facility Instrument – an IR Echelle. This is, again, a potentially unique capability (an IR version of ESI on Keck) for a large-aperture telescope. The SAC deferred approval of this instrument pending a more complete description of the obligation of support from MIT.

## ***Beginning an important upgrade of the Magellan guiders for Nasmyth and Folded Ports.***

“The guider systems are a crucial component of the Magellan telescopes: they provide the Shack-Hartmann wavefront sensing and control that has enabled the excellent image quality these telescopes deliver. Although these units are fully functional, there are intermittent problems with both the mechanics and the guide-cameras. The Magellan SAC recommends that the Council allocate \$100,000 from the Magellan Telescope Improvements Fund in order to bring one of the units back to Pasadena for additional engineering. The goal is to make modifications that will improve the performance and add capabilities, for example, non-sidereal tracking). The goal is to apply these upgrades to all the guiders now in use.”

As the Council requested, the SAC discussed the adequacy of the level of support at Magellan at present and for the next five years. The document submitted summarizes our discussions and conclusions. As part of this exercise, Alan Uomoto presented a schedule of additional staffing that would be required to implement the existing and new instrumentation, and new telescope facilities, over this period. The SAC considers this a reasonable, perhaps even conservative assessment of the needs for 2004-2008 inclusive.

As alternatives to increased support at Magellan, the SAC discussed:

- 2) More support from scientists/engineers at home institutions
- 3) Substantial changes in scheduling that would reduced operating activities, at the cost of scientific flexibility, e.g., long blocks with dedicated instrumentation
- 4) Stretching the schedule, or even halting the development of new instruments and telescope capabilities. F/5 and AO were identified as the 800-pound gorillas in this jungle.

We are victims of our own success. A bounty of new instruments and capabilities is under development for Magellan, most of it funded from outside sources. Three years ago we were wondering how we would generate enough instrumentation on Magellan. That is no longer a problem. However, we cannot exploit this hard work and good fortune within our present operation and support level. We are already unable to keep up with the tasks: without significant additional staffing, there will be unfortunate consequences for both our staff and our scientific aspirations.