SCIENTIFIC TECHNICAL COMMITTEE

59th Meeting

ESO, Garching, April 14 & 15, 2005

STC Recommendations
59th STC meeting  
April 14th and 15th 2005  
(P. Roche chairing on the 14th, J.L. Puget chairing on the 15th)

RECOMMENDATIONS

1- VLTI:
The STC welcomes the report of the VLTI Review panel, and the fact that it included external experts.
We were surprised by the extent of the problems identified by the panel which had not been identified or reported prior to the review.
We welcome the proposal to concentrate resources on understanding and analysing the problems and look forward to a progress report in 6 months time.

We endorse the proposal to continue discussions with the teams proposing near- and mid-infrared multi-beam 2nd generation instruments, with the aim of presenting recommended ways forward in 6 months time. By then, the VLTI recovery team may have identified the scale of the problems and perhaps some of the solutions for efficient operation.

Given the recovery activities it seems premature to consider instruments operating at visible wavelengths at this time.

Likewise, it is premature to consider Genie until the current VLTI infrastructure has been characterised and understood. The requirements for implementing a successful nulling experiment with Genie should be defined clearly. Only then could a recommendation on its suitability be formulated. The STC is concerned that ESO should not invest substantial resources in upgrades to the VLTI infrastructure to implement Genie without a compelling scientific case.

We note that VLTI is a world-leading facility as shown by the results obtained during the first period of VLTI opening to external users. Solving the problems identified by the review panel will substantially improve the scientific potential and allow more users to exploit it.

2- Second generation instruments: PlanetFinder

We congratulate the two teams for excellent presentation and for the very substantial efforts expended in the design studies for PlanetFinder. We note that developments in XAO are critical not only for the PF instruments, but also for future ELT developments. Characterisation of extrasolar planets is an extremely high scientific priority, and is also a key aim of ELT science.

Extreme AO coupled with differential imaging and integral field spectroscopy implemented on a reasonably short timescale would be a powerful, competitive
instrument. If the technical questions concerning integral field spectroscopy can be resolved, the STC believes that the addition of an IFS to the LAOG AO and CDI system would substantially enhance the PlanetFinder, and encourages collaboration between the two teams towards this goal. ZIMPOL polarimetry adds important complementary physical information, but on a relatively small number of planets and so is viewed as a somewhat lower priority. A strong coherent system and project management will be needed to deliver this successfully.

We are concerned that an XAO system coupled to a coronagraphic differential imaging instrument alone will not provide a sufficiently large gain over planned and existing instruments in 2009.

With anticipated stiff competition from other observatories, a PF instrument only makes sense if the main scientific programme, which will require hundreds of nights, can be conducted quickly. We therefore recommend that ESO explore the optimum way of achieving this, including the possibility of wider collaborations and public surveys with a view to conducting a large programme.

The STC recommends to ESO to proceed with the next phase with the LAOG team and to encourage and monitor discussions between the two teams to explore the feasibility and system implication of the implementation (possibly phased in time) of the IFS and ZIMPOL instruments.

3- APEX

We endorse the proposal for APEX SV. The successful applicants for the ESO time will be expected to participate in the processing and analysis of the SV data in collaboration with the instrument teams.

We are concerned that delays in the APEX schedule may compromise its ability to act as an Alma pathfinder. The availability of effective, user-friendly data reduction software will be crucial.

4- ALMA

We recognise the scientific importance of maintaining the minimum number of antennae near 50, and endorse the ASAC recommendations.

We are however concerned that uncontrolled cost overruns on ALMA would have a serious impact on the other high priority components of the ESO programme. We emphasize that ALMA’s costs must be contained within its allocation. If it is necessary to increase its budget, this should only be done after the most careful consideration by the ALMA Board and the ESO Council, taking full account of the wider implications, and ALMA should be built within its agreed (initial or revised) cost to completion.
European ALMA Regional Centre

We welcome the proposals to bring more resources and expertise from specialised institutes outside ESO to European ALMA exploitation and accept the rational for a distributed model. A multi-site, well-coordinated European regional centre must both compete with, and work effectively with, the US and Japan Regional Centres in supporting the scientific community. We are pleased that the post of ARC manager has been advertised; this will be a key position in ensuring the success of this model.

We welcome the FP6 funding for band 5 developments. However this development must not impact on the schedule of the baseline ALMA instrument and should not have a significant impact on the operational requirements (e.g. it should not require special reconfiguration).