

## **UK 8m Users Group meeting, Nottingham, 16 September 2008**

Minutes in original form by Jacco van Loon, 23 September 2008, approved after revision, 26 September 2008.

Present: Omar Almaini, Alfonso Aragon-Salamanca, Mike Barlow, David Clements, Chris Conselice, Tim Gledhill, Michael Merrifield (for the Gemini visiting Committee), Simon Morris, Pat Roche, Ray Sharples, Ilona Soechting, Jacco van Loon, and via telecon: Isobel Hook, Marie Lemoine-Busserolle and Aprajita Verma.

Apologies: Simon Berry, Colin Vincent, Andy Bunker, Paul Crowther, Roger Davies, Gerry Gilmore, Matt Jarvis, Phil Lucas, Patricia Sanchez-Blazquez, Steve Smartt, Mark Swinbank, Mark Wilkinson.

A further 6 UG members were absent. It was emphasized that the UG meetings are open to anyone to attend.

After a welcome and round of introductions, the agenda was discussed and approved. Meeting started at 10:45.

Relevant documents are on the UK 8m UG web: [http://gemini.physics.ox.ac.uk/Users/Users\\_Committee.html](http://gemini.physics.ox.ac.uk/Users/Users_Committee.html)

### **Items from the last meeting**

The last meeting was held via telecon on 20 March 2008.

- The discussions were dominated by the STFC consultation exercise, to which the UK 8m UG has since formulated a response (item closed).
- The UK 8m UG Chair was to draft a Terms of Reference document. This was done, circulated in advance of the meeting and discussed during the meeting (see below). Some modifications were suggested and a revised document will be circulated for approval via e-mail (item pending).
- In an effort to improve the visibility of the UK 8m UG, overviews of the Gemini (Ilona Soechting) and ESO (Jacco van Loon) observatories were presented at the National Astronomy Meeting in Belfast, April 2008, in session P23 “current facilities and new instruments” (item closed).

### **Gemini issues**

Ilona Soechting reported from Gemini operations.

There remain discrepancies between the way the oversubscription rates are computed for Gemini and, e.g., ESO-VLT. From 2009A on, the Gemini oversubscription rate is computed as time requested versus time charged, and accounts for weather losses (typically 30% but only known by the end of the semester). The rate computed in this way for the recent past is around 3-4. If the requested amount of

time is compared to the advertised amount of available time, the oversubscription rate is typically a factor 2. Out of the available time, only about 60% is charged – part of this is because calibrations are not charged to the time allocation. Poor-weather proposals are also not charged time, and the UK is capitalising on this relatively well. Completion rates are improving, e.g., of band 3 programmes around 50% are executed, which is not much below the execution rate of band 2 (it used to be much lower).

Only a few per cent of UK programmes are scheduled in classical (visitor) mode. Some other partners (e.g., USA and Canada) schedule more programmes in classical mode. There are clear cases where classical mode could enhance the probability of execution of a programme, for example when using GMOS and requesting unpopular gratings (e.g., R600, as two of three slots are usually occupied by the popular R400 and B600 gratings). This is not clearly advertised. There are no clear guidelines as to the scheduling policy, and is some (erroneous) perception that classical mode is not favoured by the panel.

GMOS remains the most requested and scheduled instrument (>50%), in both hemispheres. The exchange with Keck (HIRES) resulted in a rather low demand; the perception might be that it is hard to get time on Keck, and the opportunities and realistic expectations may need to be advertised better.

The Laser Guide Star system has been compromised significantly by the relatively heavy air traffic above Hawai'i, and by US space command restrictions. This problem will be addressed on the highest levels of AURA. Michelle is likely to stay on Gemini, but its use is compromised by the lack of a chopping secondary. Mid-IR programmes fare worse than for instance optical MOS/IFU, especially in band 3. This is often because mid-IR programmes need special observing conditions such as a low water vapour column, and because mid-IR instruments are not permanently mounted on the telescope due to the relatively low demand. The suggestion was made that either priorities of mid-IR programmes need to be adjusted and/or dedicated mid-IR campaigns need to be scheduled in order to balance the execution of highly rated programmes in the mid-IR versus those at other wavelengths.

Opportunities were advertised to attend the Gemini-Subaru science meeting in Kyoto, 18-21 May 2009. About 250 participants are expected, of which around 30 would come from the UK. There would be some STFC funding available for UK participants.

In response to a question about the PIT proposal preparation tool, it was clarified that by uploading a PDF file there was no longer a need for a facility to allow LaTeX files. This issue has been discussed in the past and the current situation was deemed fully adequate.

**Action items:**

- The Gemini operations are to draft guidelines for the time allocation panel and applicants with regard to classical mode observations, giving clear and unambiguous advice (Ilona).
- The Gemini operations to better advertise the opportunities and expectations of available time on other observatories such as Keck and Subaru (Ilona).

**Recommendation:**

- The Gemini operations to investigate the possibility of adjusting the priorities of approved programmes and/or scheduling dedicated campaigns for mid-IR programmes, in order to restore the balance in execution rate of highly-rated mid-IR programmes versus those at other wavelengths (Ilona/Isobel).

Simon Morris reported from Gemini Science Committee.

Simon currently chairs the GSC, but his term comes to an end this October when a non-UK member is expected to replace him as Chair. Ross McClure and Suzie Ramsay-Howatt also currently serve on the GSC. Also considering Suzie's move to ESO, there will be a need for new UK members of the GSC. The committee meets once a year.

A Long Range Plan has been drafted, which will also serve as a basis for bids for funding in the light of the renegotiation of the Gemini agreement. This would present “new” money, in the sense that money for Aspen has already been committed. Not surprisingly, STFC cannot make definitive statements at this stage about the UK's involvement in the long-term future of Gemini. Currently, the long-range plan does not foresee in the decommissioning of instruments.

Some concern was raised about the evident push away from the optical domain into the infrared. The optical is needed, for instance, to generate redshifts. Would an infrared GMOS be desirable? It would be expected that the results from large reviews such as the US decadal review, the European Astronet, and the STFC programmatic review would feed into the Gemini long-range plan, to define the optimal place of Gemini amongst the present and future large observing facilities.

The Aspen programme was discussed briefly. Presently, only GPI is actually being built. Although projected to be made available in the South, this would make it compete with ESO's Sphere instrument with similar science goals (finding planets). Coordination or a move to the North are being considered. The future of WFOS and GLAO (ground-layer adaptive optics) will be decided in 2009, which appears to be a critical year as also the long-range plan and Gemini agreement will be on the table. Aspen resulted in instruments designed to tackle specific big questions, but there is a danger to neglect the continued need for general-purpose, state-of-the-art “workhorse” instruments.

On shorter timescales, like last year(s) the GSC is to draw up a ranked list of priorities for Gemini operations to implement. The list from last year is publicly available; input into the new list is welcome until October 6. Flamingos was reviewed in August; failure on the cooling system and some other issues have led to delays. Also, GPOL is ready to be commissioned (for instance with NIRI). There is a clear interest from the UK community in this instrument and polarimetric modes in general (e.g., with Michelle).

**Action item:**

- At the GSC meeting suggest commissioning of GPOL and supporting of polarimetric modes (Simon).

Michael Merrifield invites anyone to comment on the Science coming out of Gemini, to feed into the Visiting Committee's report (management issues are more relevant to the mid-term review, for which Gerry Gilmore is the UK contact). How does the Gemini fare compared to other facilities, and what metrics would be most useful? For instance, the number of papers per unit telescope does not reflect too well on Gemini, although the citation rate is relatively good. It also is important to take into account the telescope commissioning date, although Keck's publication rate seems to be growing still.

With regard to progress in selling UK time on Gemini to meet STFC's goal of reducing UK's share by half, Isobel Hook reported that Australia have expressed interest in increasing their share and other options are being investigated. The target reduction of UK's share amounts to 12.5%.

## **ESO issues**

Jacco van Loon reported from the ESO Users Committee (slides are on the web).

The 32<sup>nd</sup> ESO Users Committee meeting was held in Garching on 14 and 15 April 2008. In response to an action point, the minutes of this meeting were made available and approved on 2 June 2008 (in other years the minutes were made available only shortly before the next annual meeting). At the end of this meeting, the serving Vice-Chair (van Loon) was elected the new Chair. This could present an opportunity to emphasize issues of particular concern to the UK community. The new Chair has also been asked to write an article on the ESO UC for The Messenger.

The new Director General, Tim de Zeeuw is keen on a constructive two-way interaction with the UC, and he invited the UC to also consider making recommendations about ESO features/activities that could be discontinued (to free up resources for other projects or requests from the UC).

One of the main developments over the past year has been the launch of the User Portal, in November 2007. It was used for the Phase I proposal process in Spring 2008 (with 4000 active accounts at the time), and has since been the primary gate for users to ESO's resources. It has also facilitated access to service data, which are now available via the archive within 10-14 days. The proprietary time of 1 year starts counting from the moment data have been downloaded from the archive (or the end of the semester, whichever happens first).

Again emphasized were the importance of the Call for Proposals as the most up-to-date and authoritative source of information on ESO's instruments and their availability, and the [usd-help@eso.org](mailto:usd-help@eso.org) address as the first point of contact for any queries including making suggestions for the development of data reduction tools.

Tim de Zeeuw presented ESO's long-range plan, which features MCAO (multi-conjugate adaptive optics) and LGS (Laser Guide Star) development mainly with the ELT in mind, the VISTA (Autumn 2008) and VST (2009) survey telescopes, Apex and ALMA (as part of consortia), and the ELT (42m, fully funded design study of about 62 M€, with a construction proposal expected in 2010 for about 1 G€), as well as an additional building at the Garching Headquarters to be inaugurated by 2011.

ESO's goals for the next 5 years also feature the 2<sup>nd</sup> generation VLT(I) instruments and long-term programmes for unique science on La Silla.

On a shorter timescale, some re-organisation of management has taken place, with the installation of 4 directors of ALMA, programmes, operations, and science. The long-term strategy and implementation plan are to be defined by Autumn 2008. one challenge will be to generate the increased income needed to fund the ELT. Pat Roche remarked that this amounts to around 650 Meuro above the baseline contributions, and that in the case of the UK the Large Facilities budget might be able to make a contribution towards these costs.

Andreas Kaufer presented the La Silla 2010+ plan. ESO Council have endorsed the operation of La Silla on a 1.4 Meuro/yr budget from 2010 on. This implies a saving of 3 Meuro/yr on the current operations budget. These savings are to be achieved through decommissioning of instruments, and the streamlining and reduction of operations support (down to 15 ESO staff members). Only visitor mode observations will be scheduled, no "support astronomer" will be made available (although there will be a telescope operator who can give an introduction to the instrument), and large programmes are encouraged.

The offered facilities will be reduced to the NTT with EFOSC2 and a visitor focus, and the 3.6m with HARPS. The future of the 2.2m and SOFI as offered to the ESO community is uncertain.

Andreas Kaufer also presented an update on the Paranal instruments. One of the main developments is that FORS1 has now been decommissioned. Although the blue-sensitive CCD and polarimeter unit have been moved to FORS2, the pressure on optical imagers has now increased. The suite of instruments is as follows:

<i>Telescope</i>	<i>Nasmyth A</i>	<i>Cassegrain</i>	<i>Nasmyth B</i>
UT1	CRIRES	FORS2	ISAAC
UT2	FLAMES	X-SHOOTER	UVES
UT3	visitor	VISIR	VIMOS
UT4	HAWK-I	SINFONI	NACO

HAWK-I is the new near-IR imager, equipped with Y(Z), J, H, K, Br $\gamma$ , CH<sub>4</sub>, H<sub>2</sub>, NB1.061, NB1.187, NB2.090 filters. Compared to, e.g., ISAAC it has a larger field-of-view, 7.5'x7.5' at 0.1"/pix. FWHM=0.23" was achieved at an 0.5" optical seeing. The sensitivity in 1hr, S/N=5 is J=23.9 and K=22.3 (Vega magnitudes).

The HAWK-I and CRIRES cryocoolers cause vibrations which degrade the performance of NACO and make use of FINITO for VLTI fringe-tracking impossible. It was not clear whether improvements to the coolers could be made to avoid these vibrations.

The LGS only produced science during 34 out of 84 scheduled nights, which is below expectations. Reasons for this include an instable pump lasers, the necessity for frequent fine-tuning, and an instable Dye circulator. LGS observations no longer take precedence over other observations wanting the same area on sky.

Soon to come, X-Shooter will yield an echelle spectrum from 0.3 to 2.5  $\mu\text{m}$  in one go at a spectral resolving power of  $R > 4000$ , either with a 12" slit or the slit scrambled into an IFU configuration. Data reduction software will be supplied by the instrument consortium, to reduce the three echelle spectra (UV, optical, IR). Commissioning was originally foreseen for early Autumn 2008 although this now seems to have slipped to early 2009. A call for verification science is expected soon.

On the VLTI front, AMBER is now offered with FINITO, greatly enhancing its sensitivity at near-IR wavelengths. In the mid-IR, a recent highlight was the resolving with MIDI of a circumstellar dust shell surrounding a red supergiant in the Large Magellanic Cloud.

There have been several developments on Apex: the wobbler (chopping secondary) has been commissioned and is now offered (but only with the heterodyne receivers, not with the bolometer arrays); the 870  $\mu\text{m}$  bolometer array LABOCA has been commissioned as well (it has an 11'x11' field-of-view at 18.6"/beam); new is the SHFI heterodyne receiver, operating in the 211-500 GHz range as well as at 1.3 THz (*sic!*). To come soon, is the 350  $\mu\text{m}$  bolometer array SABOCA (which unfortunately has a much reduced field-of-view, 1'x1', compared to LABOCA, at 7.5"/beam). A call for science verification proposals with SABOCA was issued at the end of August via the ESO electronic newsletter, on rather short notice given the deadline of 15 September.

The ALMA infrastructure is being constructed rapidly. A building at Vitacura (Santiago) is to be inaugurated by 2010. Four USA and four Japanese antennae have arrived at the OSF (Operations Support Facility) down the hill from the ALMA site. All parts as well as software are being delivered. Rutherford-Appleton Laboratory hosts one of three front-end integration centers (others are hosted by NRAO and Taiwan). Regional ALMA Centers are hosted at Charlottesville, Tokyo, and Garching. Although there is no official mention of Jodrell Bank, there are clear benefits to hosting an ALMA support facility on UK soil.

The first interferometric spectrum was obtained at the ATF (ALMA Test Facility) in Socorro. The timeline is:

First interferometry at AOS	2009
Call for proposals and early science	2010
Full operations	2012

The ELT site is to be proposed by the end of 2009. The project is constrained by the following criteria: it must be affordable (similar in cost to the VLT, ALMA), timely (given, e.g., JWST, the first science must be delivered by 2017), and pose acceptable risks in terms of R&D. The main science drivers were identified as

- Imaging/spectroscopy of exoplanets (possibly at a distance of 5/15 pc for an Earth/Jupiter)
- Resolving stellar populations in Virgo
- Detecting the first galaxies
- Direct measure of cosmic deceleration (cm/s/yr requires ultra-high stability)
- Evolution of cosmic parameters
- Dark matter and dark energy

Workshops organised by ESO are an important platform to express interest in instruments and modes. A comment was made that at the recent JENAM meeting (Vienna, 2008) there was a call for community input into ELT science drivers and instrumentation: <http://www.eso.org/sci/facilities/eelt/science/drsp/> . An e-mail announcement is expected soon.

Gautier Mathys reported from Visas (Visiting Astronomers department). There is a steadily increasing number of proposals. From P80 onwards, ESO works with 4 C and 4 D subpanels besides the 2 A and 2 B subpanels, comprising 72 panel members in total. Short programmes (<10 hours, 1 instead of 2 pages for the science case) were introduced in P80; these were not more or less successful, but obviously quicker to read by the panel.

Besides quick data access, the other major concern of the UK community has been the availability and development of data reduction tools. ESO has a clear policy to develop “pipelines”, which it sees as a tool for data quality control. Data reduction tools, on the other hand, are going to be developed as well; these will be offered within the now adopted ESO-Reflex environment. Reflex is set to be released by the end of 2008. The users are strongly encouraged to read the article on Reflex in the March 2008 issue of The Messenger, and to have a look at [www.eso.org/pipelines](http://www.eso.org/pipelines) for manuals and cookbooks for the pipelines.

Pipelines implement the following types of processing:

- basic reduction (bias, dark, flat-field)
- stacking of jittered frames
- computation of photometric zero-points
- extraction of rectified and wavelength-calibrated spectra
- error propagation
- computation of QC parameters

but in an unsupervised manner: it requires breaking up into units and adding visualisation options to make them general-purpose scientific data reduction tools. Expressions of interest in certain data reduction tools, including offers to supply software, are strongly encouraged by ESO, and should be directed to the usual [usd-help@eso.org](mailto:usd-help@eso.org). The UC and its Chair were invited by the DG to visit the ESO software department in the future specifically to discuss the pipelines and data reduction tools in more detail.

UVES Advanced Data Products are the most requested ADPs, and currently being ingested into the archive. These ADPs include, for instance, robust procedures to account for CCD defects, and S/N-adaptive optimal extraction. Pis of large programmes are required to deliver ADPs (e.g., mosaics, calibrated spectra), which have to be VO compliant (raw data aren't, as there are no VO standards for raw data). A next generation archive interface is being developed as well.

A delicate issue remains ESO's (lack of) support for Mac OS X; this is being considered, but no promises are made as it depends on the availability of resources. E.g., priorities may need to be set as to what is more urgent: development of data reduction tools, or support for Mac OS X? Some UK 8m UG members found it hard to believe that there is a lack of (wo)manpower within the ESO software department to deal with both.

Following the first telecon between the previous ESO UC Chair, OPC Chair and Head of Visas, a second such

telecon was held on 13 May 2008, between the new ESO UC Chair (Jacco), the new OPC Chair (Monica Tosi) and Gautier Mathys (Visas). It was agreed to meet in telecon again before the Autumn OPC meeting. The minutes were agreed to be public, but not to be advertised widely.

No changes to the proposal evaluation and feedback process were accepted, but quotes from the Users' Poll would be used to illustrate users' responses to feedback when briefing the OPC at the start of their meeting. The Head Of Visas plans to write an article for the Messenger detailing the OPC evaluation process. This is hoped to pre-empt many of the queries/complaints from users.

The OPC Chair and Visas Chair confirmed that no political decision making takes place when allocating time for competing GRB proposals.

ESAC and the ESO Apex Programme Scientist (Carlos de Breuck) oversee Apex programmes to avoid duplication; where appropriate MPIfR data will be made available through the ESO archive.

Proposals under the Grantecan time-sharing agreement were evaluated in essentially the same manner as other ESO large programmes. Further calls are expected in September 2008, March 2009 and March 2010.

A 2<sup>nd</sup> and final call for the MAD experiment was issued (followed by a 3<sup>rd</sup>, really final call for August 2008).

The first year of VISTA operations would be entirely dedicated to approved Public Surveys.

The UK-ESO Committee met by telecon on 28 May 2008, in advance of the June ESO Council meeting. Present at the telecon were: R. Wade, P. Roche, J. van Loon, C. Vincent, S. Berry, M. Cooper.

The Laser Guide star performance was being evaluated.

The financial situation at ESO was considered healthy.

The ALMA Board was being reorganised to make it more efficient.

The UK in-kind contribution (VISTA and related software) seemed sound.

There would be a vote on Austria's succession to ESO (which was approved).

**Action items:**

- Enquire about steps being taken to reduce the vibrations caused by the cryo-coolers of HAWK-I and CRIRES (Jacco).
- Enquire about the Call for Proposals for 3<sup>rd</sup> generation VLT instruments (Jacco).
- Continue to work with ESO to find ways to support Mac OS X and to develop data reduction tools (Jacco).



## Terms of Reference and scope of the UK 8m UG

The draft Terms of Reference were discussed, in conjunction with the membership criteria and scope of the UK 8m UG. Suggestions for rephrasing some of the terms were made, such as with regard to the reporting to STFC and the community. Two other major points were discussed briefly:

- Membership is more balanced now after the revisions carried out by the Chair in response to the action item arising from the October 2007 UG meeting, but it was found desirable to continue this process and to aim for one representative per department (who could be replaced on an *ad hoc* basis if unavailable for a meeting). The Terms of Reference have been adapted to reflect this.
- The past year's discussions within the fragmented UK astronomical community in the light of the STFC programmatic review begs the question whether the UG must limit its remit to 8m-class groundbased telescopes, or widen its scope to include, for instance, all of groundbased astronomy. Although the current lack of strong, united representation of the latter was perceived to be a weakness (the RAS could, in principle, serve that rôle), there was no consensus. Warnings were expressed against the UG losing focus and thus becoming less useful and effective in representing the UK interests in its 8m-class facilities.

It was suggested to open a forum. There was some discussion about the scope of such forum; although there was support for a forum on which users could share software and data reduction tips, *et cetera*, it was not decided that the UK 8m UG should host such forum. Instead, a forum for discussion of strategic issues was deemed more appropriate. No decision was made about the timescale and format for implementation, nor on the person(s) responsible for this. Due to lack of resources the Chair declined setting up the forum himself.

It was suggested that the UK 8m UG nominate someone from the UG onto the STFC advisory panel.

### **Action items:**

- Circulate revised Terms of Reference along with the minutes of this meeting, to be approved by consensus via e-mail (Jacco).
- Continue the process revising UG membership to one representative per department (Jacco).
- Invite nominations from UK 8m UG members to serve on the STFC advisory panel (Jacco).

The meeting was adjourned at 16:40.

The Nottingham delegates were thanked for making the excellent local arrangements.