

Ground Based Facilities Review Panel
Town Meeting, held in the Lecture Theatre at the Royal Astronomical Society,
Thursday 9 July 2009.

The meeting was opened by the chair Michael Rowan-Robinson who introduced the panel and outlined why the report has been requested by STFC.

The review was set up with aims of:

- establishing the key UK science aims of STFC's GB astronomy community, in collaboration with NUAP and FUAP
- setting a strategic framework for future investment decisions (for example in new instrumentation projects) for our facilities based on those science aims
- guiding STFC strategy with regard to membership of international organisations and telescope facilities, and major projects

MRR also provided a recap of the terms of reference and outlined the schedule that prompted the review:

- the need for a decision as to whether the should remain in the Gemini partnership (in advance of Nov 2009)
- the need for a decision regarding the UK's role in E-ELT (in advance of Dec 2010)
- the need for a decision relating to the SKA (~ 2011)
- current facilities such as WHT, UKIRT & JCMT have funding agreed until 2012

It was noted that a funding request for the E-ELT may have to be submitted to the Large Facilities Capital Fund (LFCF) by the end of 2009.

The panel will publish a draft report on 2 October using the findings from the online questionnaire, before publishing a final report on 30 October 2009. MRR stated the importance of the questionnaire and that a substantial response is required. At the time of the meeting, there were 95 responses and to gain a good overall understanding of people's thoughts, a response of 400+ is desired. The closing date for responding is 31st July.

Strategic Issues.

Does the UK want to commit to E-ELT and/or SKA?

- Community will need to back the projects similarly as the Particle Physics community did for CERN
- A strong case will have to be produced to get UK funding, in addition support from other Research Councils will be required
- Knowledge transfer, Economic Impact and outreach cases will be crucial to gain support
- There will be a need to demonstrate some form of juste retour

Does the UK want to remain part of the Gemini partnership?

Southern hemisphere or northern hemisphere

- VLT, ALMA and VISTA are in the southern hemisphere, but there is significant UK community interest in programmes in the north.
- Need coherent northern hemisphere strategy and be able to follow up the surveys on Spitzer, Herschel, UKIDDS, e-Merlin, GAIA etc.
- 8M Gemini North, Gran Te Can, Subaru
- 4M WHT, UKIRT

- 2M LT, INT
2009/10 spend ~ £10.4m

Key instrumentation requirements:

- Need for a wide-field multi-object spectroscopy instrument
- Need for a sub-millimetre astronomy strategy (JCMT(?), ALMA, APEX, CCAT)
- Need a strategy for Radio Astronomy (e-Merlin, JIVE)

University Initiatives

- There is a strong tradition of university-led facilities: VISTA, e-MERLIN, LT
- A strength of UK astronomy that universities willing to provide funding to initiate new facilities. Can lead to pressure on STFC programme.
- Current examples: DES, PanSTARRS-1, MROI, SALT, LOFAR, SuperWASP
- Future interest: PanSTARRS-4, LSST, EST ?

MRR reiterated the importance of the questionnaire and that a good response is required. At the time of the meeting, there were 95 responses and to gain a good overall understanding of people's thoughts and opinions, a response of 400+ is desired, which was the response to the Ward Report.

The questionnaire is available at: <http://www.stfc.ac.uk/forms/gbfreqquest.aspx>

Discussion and Question & Answer Session

Initially there was a request for any specific questions about processes, the review, the questionnaire etc.

Dave Carter: What did you mean when you said that everything was 'up for grabs'? Are we going to renegotiate our ESO subscription?

Tom Marsh: On the questionnaire, why are we asked to vote for UK access to the facilities? Are we doing this on behalf of STFC or for our own requirements?

MRR: There are two questions per facility. The first is about its usefulness for your own research, whilst the second question is about whether it would be strategically useful for the UK.

Boris Gaensicke: You said that the cost of ELT is ~£100 million. Is this on top of the ESO subscription?

MRR: ESO has some money for the project and is also hoping for new members to join. The UK's subscription to ESO is €22 million per year for the next 10 years. Further funding might come from an increase in subscriptions although that is not certain at the moment. It would be good if funds could be made available from the LFCF.

Pat Roche: The preferred model for ESO is a 2% year on year increase in subscriptions for 10 years which will help fund the ELT and future projects, plus a capital contribution from partners of €250 million and expected contributions from new partners.

Gavin Dalton: You separated ESO and ALMA. Access to ALMA is now through ESO.

MRR: I separated them as an example when discussing strategy.

Simon Garrington: How will the opinions of international users be treated?

MRR: That issue wasn't addressed. Do we need to do so?

Simon Garrington: There are European members of VLBI that have opinions about e-Merlin.

MRR: They are welcome to respond to the questionnaire and provide an opinion.

Marc Balcells: Are the panel interested in the view the ING user community, regarding future instrumentation?

MRR: Yes, we are interested in their views. We will also be seeking input from the ING director.

Paul Crowther: Is the aim of the review to create a ranking list of all facilities? How will this impact on the STFC's budget?

MRR: We are not matching facilities to budgets, but will provide a strategic review of requirements. This review is different to the Ward Report which was commissioned in response to a financial crisis. We are looking at a 10 year strategy, thinking how priorities and requirements may change and also what does the STFC need/want us to plan for. The report will be used to inform strategic decisions in 2010/11. We also have to accept that the prioritisation the report comes up with, will be used to inform decisions on closure.

Sebastian Oliver: I accept that a yes or no decision has to be made about being on or out of Gemini, but what is it measured against?

MRR: To continue in Gemini, will cost £5 million per year. It would also mean that Gemini would probably be in competition with the ELT /SKA for funding. It would also impact decisions that need to be made about UKIRT etc. We are not setting a budget, but making a strategy.

Dave Clements: There is a General Election next year. To what extent will the message of this panel carry through to the next government? Would this exercise have to be repeated in another 5 years?

MRR: We have stress the importance of the report, and to make the case for astronomy as an dynamic and exciting science, with an important contribution to make, so that any Government would want to support it.

Pat Roche: I wish the panel the best of luck with the review, but the Ward panel did the same thing a year and it was ignored by PPAN. What guarantee do we have that the same thing won't happen again?

MRR: I was surprised that PPAN accepted so few of the Ward report's recommendations. However in the end the budget cuts were not as severe as first thought and there were no immediate closures. This time we will also be reporting to Science Board and I expect our recommendations to be taken very seriously.

Boris Gaensicke: How will spending on ground-based facilities be measured against spending on Space-based facilities?

MRR: ESA have increased their subscriptions. If this occurs within STFC's fixed budget, some things will have to be cuts in spending. The report has to make the case that cuts should not fall solely on ground-based astronomy.

Iona Soechting: Is there a possibility that we might withdraw from ESO and other large facilities that require subscriptions?

MRR: Subscriptions are an ever increasing part of the programme, so we have to make a positive decision to remain in the organisation. We have to make the right choice that will beneficial to science as a whole.

Dave Clement: Is it worth looking at how much other countries pay subscriptions and how they handle this?

MRR: That is beyond the scope of this report. But we will comment on the subscription issue in the report.

Dave Clement: Changes in exchange rates puts pressure on the budget plus the UK could pay more but get less.

MRR: This tends to cancel out over 10 years. You could maybe argue that STFC's budget should be a fraction of GDP. But this is not a straight forward issue.

Tom Hartquist: I will bring some of these issues to the NUAP meeting later this afternoon.

John Richer: How much weight will be attached to the result of the questionnaire and will they be published?

MRR: Yes we will publish the results. The weight given to the questionnaire will depend on the number of responses. If we only receive 100 this is not a good indication. Again I urge you and your colleagues to submit your views.

Discussion on the "Big questions/issues"

ESO Subscription, Gemini Subscription, e-ELT and SKA.

People were could make statements for and against, but were limited to 3 minutes.

Hona Soechting: To clarify a few issues regarding Gemini. It is not just the UK showing concerns over the way Gemini operates, the whole membership under discussion. Gemini is now operating better than it was, so all considerations should be based on current performance rather than the past. What else could we access if we stay in Gemini? It is not just an in or out issue.

Sebastian Oliver: Community backing is vital for either ELT or SKA. We will probably end up with both gaining lots of support so we need to know the community's view. How would a consensus be reached as to which one will get built?

MRR: Don't know, but we have to have a view/opinion.

David Carter: With regards to ESO subscriptions, we need to become more "streamlined" in our spending as we are paying for things that we don't use for example Garching. Is there any way we can get things cut back?

Isobel Hook: There is lot's happening at Garching at the moment and ESO is doing well in a number of projects.

Gerry Gilmore: UK subs to ESO are a fraction of GDP, which cannot be altered. There have been discussions about international facilities and they have to be undertaken as part of the global community. Any decision we take regarding Gemini, affects all the partners, not just the UK.

On ELT & SKA, Astronet declared that Europe needs a 20% increase in the science budget to afford them. So even if the UK gets funding, another 17 partners are required.

Better not to impose critical deadlines for spending decisions, since the UK is only one member of a partnership.

Colin Vincent: We do have to make a decision about Gemini in November. To do that we have to be well-informed and clear about what the UK wants to do, so that we can agreed on a strategy.

MRR: I don't agree that we don't have to make a decision about the ELT yet – we do have to have a UK viewpoint.

Ian Robson: It seems that in effect we would like to have everything! Astronet struggled hard on ELT and SKA, as they are both great projects that will produce great science. How do we

in the UK do both? We could phase them in so we could be involved in both of them by doing the ELT first and continue with the R & D for the SKA.

Boris Gaensicke: Is it true that the community wants both, if everything else has to close as a result?

Dave Clements: A large telescope doesn't operate on its own. It needs instruments to link into it, and process results/data. It also needs infrastructure to deliver objects for the big telescopes to study.

NB: SKA is a phased development build

MRR: Is a summary then, go for the ELT first and start the SKA at the end of the decade?

Simon Garrington: Not too happy about that, as both telescopes could be built simultaneously.

MRR: But to do that, large amounts of money need to be available to build them.

Aprajita Verma: Don't neglect the current momentum for ELT instruments.

MRR: STFC is the lead agency on the PrepSKA programme, but that does not imply that it has a preference.

Paul Crowther: If we rate ELT or SKA highly, how do we persuade STFC to put forward? How do we convince other Research Councils to help with a bid to the LFCF?

MRR: We need to put forward a strong science case.

MMG: We have to make the case that the science produced would be of great interest to other Research Councils. We would also have to seriously engage in the Economic Impact and Knowledge Exchange areas and not just pay "lip service" to them.

Northern Hemisphere Strategy

Iona Soechting: The Japanese are keen to continue with WFMOS either with or without Gemini. We can use our Gemini share as we want, so we could work out something with the Japanese. So for example if we needed more access in the northern hemisphere we could offer Gemini south's time to them in return for Subaru.

Gavin Dalton: We have access to FMOS so good idea to negotiate Gemini S/Subaru time share.

Ian Steele: PanSTARRS etc would require follow-up and preparatory work in the northern hemisphere.

Ian Robson: There are a number of reasons why Gemini has not realised its full potential scientifically.

Isobel Hook: Although there have been problems at Gemini it is now working well and also has a queue mode and a rapid response mode. We need to keep access to a facility with such a system in the northern hemisphere.

Jim Hough: We entered in the Gemini project 10 years ago, but I have been disappointed with its output. Not sure what Gemini is leading to, but joining ESO gives us lots of future potential.

Pat Roche: We need to be cautious of joining GTC and going through the same commissioning problems we experienced with Gemini.

NB: UK still has control of UKIRT, plus plans for the future.

Fraser Clarke: It would cost £22 million per year for the UK to take over Gemini – more than the subscription to ESO. We will have a 30M telescope by 2020. To make the decision to stay with an 8M telescope now, is the equivalent of deciding (10 years ago) that we need to build 2M telescopes.

John Richer: I'm not convinced about north v south hemisphere argument. I think it would be better to have top specification instruments over all wavelengths for 1 hemisphere.

MRR: Should the UK be shifting its scientific focus to the southern hemisphere?

- ESO (VLT, ALMA etc). Plus the SKA & ELT are likely to be built in the south.
- We currently have surveys going on with UKIDSS, e-Merlin etc.

In 2020 when these surveys are complete, should our strategy be to move to the southern hemisphere?

Niranjan Thatte: Don't forget instrument build. If we build the instruments, then we can drive the science.

NB: GAIA will be operational in ~2015 and will require north and south telescopes to follow up, especially 4M.

Boris Gaensicke: Maybe we should concentrate more on the instruments and what they can deliver rather than the telescopes?

Marc Balcells: The Spanish community carried out the exercise of finding out what science would be lost if Europe moved all their operations to the southern hemisphere. It was concluded that among the strongest north-south asymmetries was the lack of access to M31, M32 and M33 from Chile. The Galactic Centre is visible from La Palma, albeit at low elevations.

Isobel Hook: The science plan for the ELT looked at both the northern and southern hemispheres for a suitable site. The only argument was about the Galactic centre, but more important to the site decision will be the available follow up facilities.

Gerry Gilmore: We are discussing the science problems of today. In 2015 though, GAIA will be operational, we will be leading at precision cosmology, so we need to keep 4M telescopes. In addition all the grade A facilities will be in the south (ELT/SKA).

Paul Crowther: If the elite instruments and telescopes are in the south, the surely follow up also has to be in the south? There is a time gap though between the end of UKIDSS etc and the elite instruments coming on line.

Simon Garrington: Although the SKA will be in the south, all other radio instruments are in the north.

Other issues raised

John Richer: ALMA is a very narrow field of view instrument, which means that it cannot be "fed" a target. Because of this we need the wide field surveys (JCMT/SCUBA2) to act as a discovery telescope. ALMA cannot act as its own discovery telescope.

David Buscher: 'In return for STFC's investment in MROI to date (and assuming the Cambridge rolling grant support continues till the completion of the telescope), there are an agreed 30 night per year for 10 years to the UK.

This is in the form of an MOU with Cambridge and there has not yet been an agreement with STFC on the split between the PI group and open access to the UK community. Additional nights could become available in return for extra investment by STFC in instrumentation on MROI

Simon Garrington: There was a combined group effort to produce a radio astronomy strategy last year

MRR: Please submit the strategy to the panel.

Sebastian Oliver: Sub-mm group have also done something similar (which includes CCAT)

MRR: Again, please submit this to the panel.

Ian Robson: The UK are maintaining a watching brief on CCAT. The idea is to eventually move SCUBA2 to CCAT in exchange for a fraction of the time.

Gerry Gilmore: No point having elite facilities if you don't have the infrastructure to use it – students grants etc.

MRR: We stressed the importance of grants in our consultative document and will again in our final report.

David Burscher: Also need instrumentation groups.

Andy Longmore: Particle Physics and Space based communities have got their acts together to demonstrate the results of industrial/economic impact of their findings thus enabling collaborations easier to create.

MRR Final comments: Thank you to all for attending and providing comments. There were a wide variety of views, with no obvious consensus. I stress again the importance of completing the on line questionnaire.

End