

GAC report May 2011

GAC members are unchanged from last year, although the initial terms of some have expired. CASCA should review the GAC membership and terms, to get the membership renewal started. The current membership, along with location and related associations and original term date are as follows:

J Hutchings (chair)	DAO	(LRPIC)	2011
G Holder (co-chair)	McGill		2011
C Willott	DAO	Gemini SC	2010
K Venn	UVIC	Gemini SC	2010
R Kothes	DRAO		2013
T Webb	McGill		2012
J Brown	UCalgary		2012
T Davidge	DAO	CGO	2013
K Tapping	DRAO		Continuing

We suggest the terms be redefined since it seems unwise to try to follow the initial terms and replace half the members this year. We suggest the following as possible new members. It is very desirable to have members whose combined expertise covers all Canadian ground-based facilities, so new members should be chosen with that in mind. We note also that Russell Redman is expected to take on Ken Tapping's role later this year.

Ingrid Stairs (UBC – but was recent RAC chair)

Kristine Spekkens (RMC)

Judith Irwin (Queens)

Jeroen Stil (Calgary)

Ludo van Waerbeke (UBC)

Sarah Gallagher (UWO)

If both Venn and Willott rotate off, we suggest one of the following for CGSC overlap:

Pauline Barmby (UWO)

Marcin Sawicki (St Mary's)

The following paragraphs summarize our thoughts on Canadian ground-based facilities. We have attempted to take a balanced and broad view of the ensemble, and future plans. We are aware that there are significant funding issues for some, most of which we do not discuss. If asked, we could make more detailed scientific rankings or choices if they are required. We also intend that this report be of use to the LRP Implementation Committee, whose job does include a business plan for the next decade.

TMT/VLOT. We commend the well-supported workshop on instrumentation held in Victoria in March, with participation by all partners. We hope that construction funding will become available, as this is the schedule driver. The contributions of the new partners will be decided this summer. We regard getting TMT funding, and the project in construction as a top priority. As joining the EELT would involve the same level of cost, this does not seem an alternative to pursue unless the TMT partnership breaks down.

Gemini. We commend the move towards more cost-effective operations that will enable the reduced partnership to operate with the same funds. Canada should make good use of the extra observing time which results from division of the UK share. The new instrumentation arriving at Gemini-South this year is eagerly anticipated by the Canadian community. We assume that Canada will continue to have a minimum of two reps on the new Gemini STAC to be set up next year. It is important that there is membership overlap between the GSTAC and GAC.

CFHT and ngCFHT. We affirm the importance of the proposed upgrade of the CFHT, and the studies currently under way. New partners will be necessary, and the timing wrt instrument developments for the existing telescope will need to be watched. Overall, it may not be worth developing an upgraded AO system with the current telescope. We note that making use of this uniquely good site is of high importance.

JCMT. It is still not clear what the true capability of SCUBA2 is, and how it will affect the surveys planned. They will need to have high science return within a short time to warrant keeping the facility operational. If JCMT+SCUBA2 still has a strong role to play in the Herschel/ALMA era, it is different from 5 years ago. It is urgent that the science plan for JCMT be developed and approved by summer of this year, with the short term lifetime of the telescope a boundary condition.

ALMA and EVLA are major new facilities that are coming on line, and we look for great Canadian use of both. There are no issues we are aware of to report. We commend CASCA and HIA for their primer, and workshops to prepare the community for ALMA observations.

DRAO fills an important role as a unique facility within Canada, and should be upgraded and play technical development roles, as new opportunities and needs arise. Continued involvement and leadership in future facilities such as CHIME and SKA are strongly supported in that context.

DAO continues to return good science for its low maintenance costs. We note that **Megantic** observatory still has funding issues, but hope that they may be resolved by ongoing efforts. We stand by to comment in more detail should that situation demand it.

SKA. We strongly support Canada joining the SKA, and urge that funding be found to keep us in the effort, to which we have contributed significantly to date. We also hope that any cash requirement could be made in the form of supporting Canadians doing work on the project. We commend the involvement of individual Canadians in ASKAP and MeerKAT as precursors to SKA.

CHIME. This is a very attractive idea that should be followed. It will develop Canadian technical expertise in more powerful facilities that can study very high redshift Hydrogen, and note that it will produce unique data of interest for HI studies as well as timing observations.

CCAT. This facility has a high price tag (larger than partnership in ngCFHT, for example), and its use by the community may need some clarification. We note that while a number of universities have expressed interest and done some fundraising, the amount needed is vastly greater than that. At the moment the hopes of the user community (in terms of percentage buy-in) are out of line with what was recommended in the LRP. Now that the CCAT agreement has been signed (with Canada as a founding member), an update of the science case is underway. It will be useful to see the detailed costing and assessment of science return for this survey facility.

Arctic telescope. We await further work on the site and facility being installed. To run a significant facility at this site will need a cost analysis and also a strong science case.

- - - - -

Appendices

We append some plots from Dennis Crabtree showing the **publication statistics** for a number of telescopes, including JCMT, CFHT, and Gemini. My bottom-line summary of these are as follows, using the product of number of papers and average impact per paper:

Telescope	2005-2009	2009	Notes
CFHT	350	400	Compares very well with Keck and VLT
Gemini	190	250	Increasing
JCMT	160	150	Low and declining – no SCUBA2
HST	1800	1900	Impact per paper fairly low
Keck	490	530	
VLT	320	380	

We also attach an abbreviated report from **DAO**. **The publication summary:**

What	2010	2011 to April
Total	61	18
Refereed papers	19	11
	- - - - -	

Telescope demand from Canada stats summary

What	#props/oversubscriptions			Notes
	1996-99	since 2000	2010-11	
CFHT	65/3.1	32/1.9	31/2.1	CFHTLS 2003-2008
Gemini N		29/2.4	29/1.7	
Gemini S		16/1.4	17/1.3	
JCMT	45/3.1	27/2.7	10/1.4	Legacy survey since 2008

DAO telescope Report

Subscription rates: In 2010 the 1.8-m Plaskett telescope was oversubscribed by a factor of 1.15. This was the lowest subscription rate since 2006. The 1.2-m telescope was oversubscribed by a factor of 1.52. This was unchanged from 2009 and the highest since at least 1987. For the first two quarters of 2011, the 1.8-m telescope is undersubscribed at 0.77. This is not unusual for a first quarter given the bad weather typical of Victoria from January through March and every night on the telescope has been scheduled. The 1.2-m remains oversubscribed by 1.48.

The recent decline in the 1.8-m telescope's subscription rate is largely the exhaustion of funds by a few PIs who have used significant amounts for contract observing. If some level of provided "service observing" for the 1.8-m telescope were available this would increase the subscription rate significantly. A long-term goal is to enable robotic operation of the telescope using experience from the 1.2-m.

Dmitry Monin plans to conduct a tour of Physics and Astronomy departments across the country next fall to advertise the current capabilities of the DAO telescopes.

DAO Equipment: A new science-grade E2V 2K x 4K detector (and controller) has arrived (known as E2V-1 internally) and will be added to the focal plane of the 1.8-m direct imaging camera, effectively doubling the field of view. As part of the purchase, we also received an engineering-grade device at 15% of the science-grade device. We got lucky - this device is virtually as good as the science grade detector! E2V-2 will be deployed on the long camera of the 1.2-m spectrograph so we can stop the risky practice of shuffling the current SITE-4 CCD from one camera to another.

More than 60% of the time on the 1.2-m telescope has been scheduled for robotic observations over the last two quarters! As the next step in increasing the sophistication of the telescope's robotic operation, Dmitry Monin has developed software to evaluate sky conditions using DAO sky camera images. This will be used as part of the observing software to determine when to open the telescope.

Replacement wheels for the 1.8-m dome will be our highest-priority item for the next FY. We hope to recoat the primary mirrors of both telescopes this year as well.

DAO Science: Literature searches have resulted in the "detection" of 61 publications in 2010 based in whole or in part on the DAO telescopes. These include 19 refereed papers and six BSc, MSc or PhD theses. The latter are all from USA universities which reflects the limited use of the DAO telescopes by Canadian students in the last year or two. There are already 18 DAO-based papers for 2011 and 11 of these are refereed publications. This includes a paper presenting the first science results with the new DAO polarimeter module on the 1.8-m telescope. All DAO-based publications are available for browsing at <http://cadc.hia.nrc.gc.ca/cadcbn/dao/daoPubs.pl>.

The DAO Science Archive and the DAO Spectroscopic Plate Archive.

Starting in 2011, newly acquired DAO FITS files and metadata from both telescopes are being transferred automatically to the CADC's storage and database systems. Users can obtain data via the CADC's DAO Science Archive page at <http://www.cadc.hia.nrc.gc.ca/dao> as well as through the CADC's multi-archive Advanced Search interface. Data from 2010 and earlier are being transferred to the archive as FITS header content is brought up to CADC standards. Hourly and daily DAO sky camera images and movies are also available via the same archive interface.

We have begun transcribing DAO 1.2-m photographic plate log book into electronic form starting with the earliest 1962 plates. These files are then used to populate the headers of FITS files produced from PDS scans of the appropriate plate. When ready, the FITS files and metadata are transferred to the CADC's storage and database systems and a new DAO Spectroscopic Plate Archive web page has been created. We hope to release this by mid-April with several hundred spectra (with previews) available for download.

Dennis plots:



