

# **RADIO ASTRONOMY COMMITTEE (RAC) REPORT TO THE CASCA BOARD**

November, 2005 (submitted by J. Irwin, 24 November, 2005)

1. A meeting of the RAC was held on 23 Nov. 2005. In attendance were:

Judith Irwin (chair)

Peter Dewdney

James DiFrancesco

Ingrid Stairs

Ken Tapping

2. Old Business: The RAC Cassiopeia article was published in the June solstice edition. Note also that an article on spectrum management by Ken Tapping is in the current September equinox edition. As a result of the June article, Ken Tapping has received some response regarding the important bands to protect at high frequencies. We are grateful to Rene Plume for his organization of the JCMT special session at the recent Montreal CASCA meeting and a letter of thanks has been sent to him. We appreciate the response of the Board to our last report regarding a) efforts to bring all players together in discussing how to fund LRP goals and b) the request to HIA to find an assistant/replacement to Ken Tapping for spectrum management. The RAC wishes to emphasize that such a person is essential (see 4a below) and this job needs to be seen as an 'official', rather than 'ad hoc' position within HIA.

3. Terms of members and memberships: The terms of our members were discussed, emphasizing the importance of bringing our terms in synch with other CASCA committees, ensuring a healthy turnover in the committee, and staggering the end dates. The result is the following re-alignment:

	Start	End	Comments
Irwin	Jan, 2003	June, 2007	Will cease being chair June, 2006
Dewdney	Jan, 2003	June, 2006	Need replacement starting July, 2006
DiFrancesco	Sept, 2003	June, 2007	
Stairs	Sept, 2003	June, 2007	

Welch      Sept, 2003   Sept, 2006      Need replacement  
starting July, 2006

Tapping continuing (spectrum management) will need replacement  
subject to response of HIA

Other comments: Irwin will remain on for one more year for the sake of continuity. A new chair has yet to be identified but should be from the current committee. Welch's end date remains the same as before because to do otherwise would cut his term shorter than was the original agreement. The committee has identified candidates to replace Dewdney and Welch and will be contacting them shortly. Another 're-alignment' will likely be required in the future to ensure better staggering of the end dates of each member.

#### 4. REPORTS:

##### A) Spectrum Management:

Radio pollution continues to be a problem and constant vigilance is required to ensure that radio astronomers have a say in the allocation and protection of bands. An issue now is CLOUDSAT radar operating at 94GHz which will have implications for ALMA. This radar is beaming straight down at a few kWatts, which is brighter than the Sun at this frequency. Another looming serious problem is the transmission of broad band internet over power lines. The Americans are already doing this and Canada is being urged to align itself with them. Some tests have occurred in Canada already. Digital TV is another threat. The 600 MHz band is severely affected. Any 'gaps' in the spectrum are being seen as a lack of efficiency on the part of those transmitting.

There is now a very good working relationship between Ken Tapping and Industry Canada. These relationships take time to build and it is important to ensure continuity in Canada's representation on international committees.

The most effective way that Canada can act right now is in writing a letter in favour of having 'radio quiet zones' (now called 'controlled emission zones') around radio observatories. To this end, a proposal to the CASCA board and draft letter are

being submitted with this report (proposal and letter in separate document).

**\*\*ACTION on BOARD\*\*** The RAC is requesting that the Board endorse the draft letter prepared by K. Tapping regarding controlled emission zones. Wording changes are welcome, but the sense of the letter is currently clear. This letter would then be sent by Tapping on behalf of CASCA.

B) Education/Outreach: We note that there will be a 1 week long workshop in Victoria highlighting new opportunities (JCMT, Herschel, ALMA) to occur in Aug/06.

C) JCMT:

SCUBA has now been put to rest after 9 years in operation. Some extra opportunities have been provided by the use of AZTEC (1 mm bolometer array) and this will again be available for some observing. HARP/ACSIS is shaping up although some delays have occurred. Some travel damage that occurred to HARP has been repaired. The JCMT will be shut down in mid-Feb for about 6 months. Seven 'legacy surveys' have now been approved and 55% of the time after SCUBA2 installation will be dedicated to legacy surveys with the remainder PI-driven time. This is anticipated to start in Jan/07. The amount of time required to complete all legacy surveys extends beyond the end of the tripartite agreement timescale (2009) and a case is being made to keep the JCMT in operation for a few years beyond this date. The JCMT-SMA link is proceeding with the Dutch leading this effort.

D) ALMA:

The ALMA political and technical scene has been rather complicated over the last 6 months. Chris Wilson is doing a good job of keeping the community informed in her Cassiopeia 'ALMA updates'. A big issue is cost. Since the antennas have turned out to be more expensive than anticipated, this has required a 'rebaselining' effort, resulting in a descoping of the array from 64 to 50 antennas. The final number is still not yet secure. A complication has been in the existence of two antenna designs, based on American

and European contracts. This is believed not to be a serious issue from the point of view of the science. It is important to note that ALMA is evolving in the climate of the NSF Senior Review in the United States. Individual members of CASCA may wish to comment directly to the NSF senior review committee and the RAC will be sending out the relevant information on the CASCA exploder. Note that there will be an ALMA session during the overlapping AAS/CASCA meeting in Calgary.

E) CGPS/IGPS: Although the original SRO grant was not successful, the re-submitted version was successful, providing 3-year funding for this project, especially the Planck Deep Field Project.

F) EVLA: The EVLA activity is ramping up in the sense that commitments are now being made for hardware. The rate at which the upgrade is being made has not been as fast as desired. Some overtime is being requested of the people at the VLA as a result. Phase 1 of the upgrade will certainly go ahead, with increased telescope sensitivity resulting mainly from increased bandwidth. Phase 2 may not be funded; this was to include 8 new antennas to improve the high resolution aspect of the array. Note that the EVLA will operate over 1.1 GHz to 50 GHz with a 16 GHz bandwidth and will be a tremendous opportunity for new science at cm wavelengths. \*\*This is now a good time for Canadian astronomers to start thinking about projects for an enhanced and expanded VLA. The EVLA will be the premiere cm-wavelength instrument for the foreseeable future (prior to SKA).\*\*

G) SKA/CLAR:

As noted in earlier communications, the managerial side of the Canadian SKA endeavour has been re-organized. In addition, A Networks of Centres of Excellence grant proposal has been submitted. If this grant is successful, it is intended to cover the costs of Canada's commitment to the international SKA consortium. We are currently one year in arrears in our payments to the European office. If the grant is unsuccessful, Canada will be in a serious situation since it will no longer be allowed to have two representatives

(currently Peter Dewdney and Russ Taylor) at the table.

The result of the grant application should be known in December.

The anticipated start to SKA is expected to be in 2014, beginning with a 10% collecting area and then ramping up. Currently, however, SKA has not narrowed enough technically. 'Pathfinder instruments' are under development (with funding) in Europe, Australia and South Africa. This has not yet occurred in Canada, leaving us in a weaker position internationally.

5. The next meeting is scheduled for Wednesday, February 15/06.