Optical and Infrared Astronomy Committee (OIRAC) Report to the CASCA Board, Dec, 2008

Following is a report of OIRAC activities from May-Nov 2008.

1 Recent OIRAC activities

Our last report to the board was submitted May 2008 and is available, with previous reports, on our web page at http://astro.uwaterloo.ca/OIRAC. A Skype teleconference was held on July 3, 2008, and the minutes are available on the restricted access area of the same webpage.

1.1 Large Optical Telescope Considerations

OIRAC has been closely following the development of the next generation of large optical telescopes (LOT). It remains a high priority that Canada be at the forefront of such a project. As described below, we will face some crucial deadlines within the next year or so to secure the funding necessary to realize this goal. On a similar timescale, we will be faced with other decisions that cannot be made independently. For example, our agreement with Gemini is due for renewal in 2012, and the relevant negotiations are already underway. We must be sure to have a broad view of all options regarding LOT and existing facilities so that we achieve the key goals of our well-regarded LRP.

Ray Carlberg participated in the OIRAC telecon in July, to provide some information on TMT progress. In addition the OIRAC chair attended a meeting on Oct 17 in Toronto with the Director General of ESO, Tim De Zeeuw, to obtain an overview of ESO operations with particular focus on their progress toward developing an ELT. This meeting was also attended by Greg Fahlman, Ray Carlberg and several Toronto astronomers. Based on these meetings, it has become clear that the LOT landscape facing Canada has become more complex.

TMT progress: The TMT Board has recently directed the project to develop a plan for 2018 first light. This represents a delay of about four years relative to the previous plan, and this could have serious scientific repercussions for Canada, given the progress of competing projects. Our current Canadian funding for TMT expires in March 2010, and the pending site decision in June 2009 will provide the next good opportunity to request more funding. That means that we must use this year to solidify University and government agency support for the LRP.

Competition and opportunities with ESO-ELT: The ESO Extremely Large Telescope (ELT) project is gaining momentum and should be considered serious competition to TMT in the race to first light. Recently, De Zeeuw has made it clear that ESO has a strong interest in Canadian participation, partly as a way of securing the remaining funds necessary to begin construction of this facility. Broadly speaking, there are two possible routes for getting involved in the ELT. One would be to actually join ESO; this is possible in theory, but complicated because of our other commitments and the requirement of full government

participation (ESO membership is a treaty). The other route is to join ELT as an individual project. De Zeeuw is planning to bring an ELT construction proposal before his council in 2010. If Canada were to take a leadership role in the design of ELT, it would be critical to get involved as early as possible.

Decisions: To ensure that Canada retains its leading role in optical astronomy, and that we fulfill the objectives of the LRP, we will have to make several important, related decisions on the timescale of about a year. A good opportunity to discuss these issues will be the Astro-ski meeting at Mt. Washington Feb 17-20, 2009, where one of the agenda items will be a strategic discussion of our LOT options. It is hoped therefore that this meeting will see broad participation. However, this can only be the first step, and we must have a clear strategy for making these decisions that involves astronomers across the country.

1.2 OIRAC, the RAC, and a proposal for a CGBA:

In our June 2007 report we first recommended that the CASCA board reconsider and redefine the mandate of its subcommittees OIRAC and RAC. In particular we made the recommendation that the Board consider the creation of a Committee for Ground Based Astronomy (CGBA), in full consultation with all CASCA committees.

In May 2008 OIRAC and the RAC met with the CASCA board. OIRAC explained to the board why we feel the current committee system is outdated, and Canadian interests would be best served under the committee structure we have proposed. The RAC also presented their views, and there was some discussion, but no consensus was reached.

OIRAC continues to believe very strongly in this proposal. There are growing bonds between astronomers in Canada who work in different wavelength regions. For example, there is now a joint CTAC that successfully handles proposals from the JCMT, CFHT, and Gemini. OIRAC is working with the ITU (via Ken Tapping) for bandwidth management. JCSA has managed space facilities at all wavelengths effectively for many years now. The OIRAC/RAC division is increasingly anachronistic and dysfunctional. *Impending decisions on the future of Canadian ground-based astronomy require a broader overview than either OIRAC or RAC are providing on their own.*

We are aware that CASCA has established a subcommittee to look into this issue, with the aim of developing recommendations. As of the time this report was written, OIRAC has still not been informed of *any* progress made by this subcommittee. We continue to look forward to working closely with them to help determine the best way forward.

1.3 Infrared Spectrum Management

OIRAC has continued to communicate with Ken Tapping, to aid in construction of a document to submit to the International Telecommunications Union (ITU), detailing the needs for bandwidth protection in the near-infrared. OIRAC's efforts here have mainly been in helping to "translate" the sensitivities of near-infrared facilities into language familiar to the ITU, which more commonly considers radio wavelengths. This has been a good opportunity for the optical and radio community to work together to achieve a common goal.

On September 9, Ken Tapping presented this document to the Canadian Delegation for the Working Party 7D, feedback from which has helped us to clarify the language further. The next step is to submit the document to Study Group 7, which handles science-based radio services. From there we expect to send it to the World Radio Conference, where we hope that this document will act as a trigger and seed towards getting some formal Recommendations and Regulations started.

1.4 OMI

The Elektra Observatories One Metre Initiative is a private venture to construct a public, one-metre wide-field imaging telescope in Ontario. Most of the funding for this facility has yet to be found, and OMI has been reaching out to several members of the professional community. Frank Roy, one of the people involved in OMI, is scheduled to give a talk at U de Montreal in Februrary, and is interested in pursuing collaboration perhaps with Mont Megantic. It seems likely that OMI would welcome CASCA involvement, although it is not clear how much opportunity there would be to direct the design or operation of the telescope. OIRAC discussed this briefly during the July telecon. With the availability of CFHT, one of the best wide-field imaging telescopes in the world, and the forthcoming LSST and Pan-Starrs surveys, there is not a clear need for this new facility amongst the professional community. Nonetheless, if it is built according to their published specifications, it would be a useful facility for amateurs and could probably be used by some professionals for useful science. It does not seem like the sort of project we need to get involved in as a national organization.

1.4.1 LSST and Pan Starrs

In our May 2008 report we discussed possible opportunities for Canadian involvement with LSST and/or Pan Starrs. To our knowledge, these possibilities have not been explored much further. However, OIRAC did receive a communication from Tony Tyson (via Mike Hudson) providing some more details on the possibility of joining, which we repeat here for completeness.

The LSST Policy for International Participation, adopted April 14, 2006, is as follows:

1. LSSTC would ideally like to create LSST and its data and science products as a world project, with completely open international access.

2. Membership of LSST Corporation is available to institutions worldwide. It is timely for new members to join in order to contribute to project planning.

3. In accordance with Board policy, all applicants should describe their planned contributions to LSST, proposed collaborations, and proposed scientific use.

4. The data proprietary period for U.S. and host country astronomers is that determined by LSST Corporation, currently as close to zero as possible.

5. LSST's data proprietary period and conditions of use for all other astronomers is not yet determined. ESO and STScI have 12 month proprietary periods; NOAO has 18 months.

6. Contributions to LSST from foreign institutions that, in the judgment of the LSST Board, will substantially accelerate the project or enhance it will allow those institutions to enjoy the same data access as US scientists.

Tyson estimated that participation at the national level would require supporting operations amounting to $40M per year at a pro-rated level. For example, if the number of users in Canada were 5 per cent of the total involved in LSST, the cost would be $2M per year.

OIRAC continues to view this, as well as collaboration with Pan-Starrs, as potentially interesting opportunities, and we will continue to monitor any developments. So far, there does not seem to be widespread enthusiasm for direct participation in either survey. LSST is open to participation from individual institutions, so it is not necessary to have a nationally organized strategy. The Pan-Starrs opportunity may be worth discussing more seriously when the time comes to reconsider the future of CFHT, as contributing $u-$band coverage to that survey may be of interest.

1.5 OIRAC webpages:

The Board recommended that the OIRAC webpage be hosted on the CASCA webserver, so that relocations of the website, following committee membership changes for example, are not required. We strongly agree with this; however, for a webpage to be useful the OIRAC chair must have free and ready access to it. The website has been set up on the CASCA server, but we are unable to create password-protected pages. These are necessary for some of the information we post here. Therefore we continue to host our web pages at Waterloo until this is resolved. We note that this will cease to be a viable option in May 2009, when Balogh's term expires.

2 Recommendations:

- LOT involvement is a key LRP issue, and CASCA should consider ways of facilitating timely national discussion and decision-making about all LOT options, in light of our existing and future commitments. The next AGM will be an excellent venue at which to make progress. However, the timeliness of some of these issues means it would be beneficial to begin discussions as soon as possible. The astro-ski meeting in February could be a good opportunity, if it has a broader scope and attendance than previous such meetings. OIRAC (or, preferably, a CGBA) would be happy to play a large role in this process.

- OIRAC repeats its recommendation from June 2007, Dec 2007 and May 2008, that CASCA define its mandate for OIRAC and the RAC, and consider forming a Committee for Ground Based Astronomy. OIRAC looks forward to hearing from the subcommittee established to investigate this possibility.

3 Membership

Name	Membership expires
Michael Balogh (Chair)	May 2009
Pierre Bergeron	May 2009
John Hutchings	May 2010
Chris Willott	May 2010
Tim Davidge	May 2011
Kim Venn	May 2011