

Optical and Infrared Astronomy Committee (OIRAC) Report to the CASCA Board, June, 2007

Submitted by M. Balogh on behalf of the OIRAC.

1 Membership

Name	Membership expires
John Hutchings	May 2007
Brett Gladman	May 2007
Doug Welch	May 2008
Tim Davidge	May 2008
Michael Balogh	May 2009
Pierre Bergeron	May 2009

The terms of two members (Hutchings and Gladman) expire this year. Their efforts and input to OIRAC have been valuable and the Chair would like to sincerely thank them both for their contributions over the past year. Now, we need to find two replacements. Note however that our recommendation to the board is the current committee structure be reconsidered, and that the role played by OIRAC now may be better achieved with a broader committee that oversees all ground-based astronomy. If this approach is taken, membership will obviously have to be reconsidered.

Recall that OIRAC reformed from scratch last year, and members were appointed with staggered terms so they would not all expire at once. John Hutchings was initially appointed for a one year term. He has agreed to remain on the committee to begin a full 3 year term (thus expiring in May 2010) if desired, and if OIRAC continues to be relevant. The Chair strongly endorses this option.

We therefore suggest that John Hutchings and one other astronomer be appointed to OIRAC. We feel strongly that the additional member should be someone with a broad, multiwavelength approach to astronomy, perhaps with a leaning to the long-wavelength end. The following list of people were endorsed by at least two members of the current OIRAC:

Chris Willott

Sara Ellison

Christine Wilson

Stephane Courteau

Laurent Drissen

Bill Harris

2 Recent OIRAC activities

2.1 Meetings:

1. A Skype teleconference was held on April 2, 2007. All OIRAC members were present. The main agenda item discussed then is also the main item in this report: a proposal to replace OIRAC with a Committee for Ground Based Astronomy. This proposal was well received by all but it was decided that further discussion with RAC and the CASCA board was needed.

We also discussed how best to collate relevant information on the various facilities in our purview. It was agreed that OIRAC should not try to publish “derived” statistics which might reflect our personal feelings, but to collect (and read) reports and published statistics from all relevant facilities and post them on the OIRAC website, with password protection enabled for sensitive documents. It was emphasized that particular attention should be paid to the smaller telescopes, and this has been our priority.

2. The chair held telephone discussions with the RAC Chair on May 23, and with the CASCA president on May 28. The results of these discussions, and their impact on our proposal for a CGBA, were presented to OIRAC members during a Skype teleconference on May 28. Present were Balogh, Hutchings, Gladman and Welch.

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

OIRAC is a CASCA committee with a loosely-defined mandate to advise the CASCA board on issues relevant to the optical and infrared astronomy community in Canada. Over the past year, we have been struggling to better define our role. The JCSA does an excellent job of overseeing space-based facilities of all wavelengths, and it does not seem at all useful for OIRAC to provide additional advice on the subset of these that happen to fall into our wavelength domain. Therefore we have restricted our attention to ground-based facilities; but, in doing so, it becomes apparent to us that the division by wavelength makes no more sense here than it does in space.

We therefore feel that it is time to reconsider the CASCA committee structure. It is our opinion that astronomy advisory committees are most useful as high-level, assessment bodies that can provide sensible advice on future decisions that affect the astronomy community as a whole. There is often little value if the purview of a given committee is so narrow that its work is a) duplicated by more focussed, specific committees; and/or b) undermined by similar parallel groups with overlapping interests, working independently.

Although every facility is unique, it is our belief that facility types divide most sharply between ground and space-based, in terms of expense, lifetime, technology, and refurbishment, and in most cases who funds them. For this reason, the JCSA has served very well since inception as a body to advise both CASCA and CSA on space facilities, regardless of wavelength or science area. In contrast, ground-based astronomy is covered by a division between radio and optical/infrared wavelengths, which originally made sense in terms of equipment and engineering; furthermore, the optical and radio communities were at one

time quite distinct. However, this division is now outdated and largely irrelevant. In particular, there is no longer a sensible wavelength division between the two; it makes no sense for infrared and submm wavelengths, for example, to be addressed by separate committees. Scientifically, there is considerable overlap between the interests of both communities. Indeed, many researchers today obtain and use data at different wavelengths to achieve their science goals, and are not easily classified as either “optical” or “radio” astronomers. Given the common sources of funding for all ground-based facilities, having two committees invites duplication or even competition. We therefore propose that the CASCA board consider forming a Committee for Ground Based Astronomy (CGBA), with a role similar to that of the JCSA, to oversee all Canadian, ground-based facilities. Such a committee would do a much better job of providing a balanced overview of Canadian facilities and plans for the future than the current OIRAC and RAC can do as separate entities. A CGBA would communicate with more specific scientific advisory committees (for example, those associated with individual facilities) and then speak with one voice to the relevant funding agencies. If there is still a role for OIRAC and RAC in this case, it should be clearly defined with a mandate handed down by the board (or CGBA).

The RAC/OIRAC division has been around for some time, and a change in this structure naturally raises some concerns. One might worry that a CGBA would result in either a loss of expertise relative to OIRAC and RAC, or an unwieldy, large committee. Another concern is that a committee which is too broad in terms of expertise and scientific interest may not be the best advocate for funding of specific facilities. Whether or not these objections are valid depend on what these committees are meant to achieve, and this has not been communicated clearly to us by the board. Our opinion is that advisory committees should understand how all Canadian facilities of a certain broad type function in relation to one another. They should certainly *not* be advocates for any particular facility, nor should they require specific expertise on them. These roles are played very well by the science committees associated with most large facilities, and duplication at a higher level is not efficient. If there are concerns that a minority voice might get lost in a broader committee like CGBA, subcommittees could be set up to provide an advocacy role for those voices. One good example might be a subcommittee to consider smaller-budget facilities (for example, observatories with $< 3\text{m}$ mirror diameter), to ensure their interests are fairly represented.

We have held discussions with some members of the RAC, and it is apparent to us that there are a variety of opinions within both RAC and OIRAC about what the roles of these committees should be. Therefore we ask the CASCA board to provide a clearly defined mandate for OIRAC and RAC, that specifically addresses the role they should play in the context of the various advisory and advocacy committees already active in the Canadian astronomical community (including non-CASCA entities such as facility SACs). We suggest that this requires consideration of a revised CASCA committee structure.

2.3 Report on Facilities:

Without a clear mandate from the board, and prior to the above issue being resolved, we have decided to include in our purview: *any ground-based, optical or infrared observatory, owned in part or in whole by a Canadian institution and used in part or in whole for research leading to refereed publications by professional astronomers.* With this definition, we consider:

- Thirty Metre Telescope
- Canada-France-Hawaii Telescope
- Gemini Telescopes
- Dominion Astrophysical Observatory
- Large Zenith Telescope
- Mont-Mégantic Observatory
- Rothney Astrophysical Observatory (Calgary)
- David Dunlap Observatory (Toronto)
- Elginfield Observatory (UWO)
- Burke-Gaffney Observatory (St. Mary's)
- York University Observatory
- Climenhaga Observatory (Victoria)
- Devon Astronomical Observatory (Edmonton)

Since the large facilities receive a lot of attention from other advisory committees, we have started by collecting reports on some of the smaller observatories. These reports are posted as they are received, on the OIRAC website. A short summary of received reports follows.

- **Mont-Mégantic:** This 1.6m telescope continues to play a large role for the development of instrumentation (through association with LAE), the training of students (accounting for 75% of the time) and published research (23 published articles and 15 student theses since 2002). The full report, provided by Pierre Bastien, as available at <http://astro.uwaterloo.ca/OIRAC/Megantic.doc>.
- **DAO:** The installation of new detectors, optics, and other hardware and software over the last decade has increased the versatility and performance of both the 1.2 and 1.8 m telescopes dramatically. The ability to provide long observing runs in particular enables a number of monitoring-type research projects to be carried out. Both telescopes are still marginally oversubscribed. At least 19 papers have been either submitted to or published by refereed journals since 2005. The full report, provided by Dave Bohlender, is available at <http://astro.uwaterloo.ca/OIRAC/DAOTelescopeReport.pdf>.
- **Elginfield:** This 1.2m telescope is scheduled 363 nights a year, though only about 10% of winter nights and 50% of summer nights are generally usable. It is used by a few (3-4) of the faculty at the University of Western Ontario, and a similar number of students. The telescope boasts one of the best high-resolution coudé spectrographs in the world, which enables studies of the physics of bright stars. It is estimated that a few papers and theses per year are published that involve data from this telescope. The full report, provided by David Gray, is available at <http://astro.uwaterloo.ca/OIRAC/elgin.pdf>.

- **Burke-Gaffney:** Most of the research on this telescope has been done by Dave Turner and his undergraduate summer students. On average approximately one paper on bright variable stars is published every couple of years. Recently Turner has moved his program to the private observatory of Dave Lane (the Abbey Ridge Observatory), where the observing statistics are better because the telescope operates whenever the skies are clear. The full report, provided by Gary Welch and David Turner, is available at <http://astro.uwaterloo.ca/OIRAC/bg.pdf>.
- **David Dunlap:** The DDO, funded by University of Toronto, faces an uncertain future as it is under threat of closure (as it has been since the late 1980s). The current director is unsure when or if this is going to happen. In 2005 it was scheduled for 349 nights, 57% of which were usable. The number of nights scheduled has been increasing steadily since 2000 (when it was scheduled for 294 nights). Over the last 10 years, an average of about 9 papers per year have been published in journals, using DDO data. This publication rate remains steady, with 12 papers published in 2006.
- **Climenhaga:** In recent years, this observatory has been used almost exclusively by Russ Robb and U. Victoria students. It is most frequently used to observe bright variable stars, and generally results in a few publications per year in the IBVS. Recently Russ has become more involved in asteroid research with DAO, and there have been no Climenhaga publications since 2004.
- **Devon:** The Devon telescope in Edmonton is not frequently used. However it was used for about 20 nights per year by graduate student Tyler Foster, during 1999-2004. His work on a supernova remnant (3C434.1) resulted in 4 published papers, which have gathered a total of 21 citations. None of the active professors at University of Alberta are observers, but there are plans to hire two observational astrophysicists who may be able to make better use of the telescope for student projects. Some equipment upgrades are also necessary; in particular the mirror badly needs re-silvering. The full report, provided by Sharon Morsink, is available at <http://astro.uwaterloo.ca/OIRAC/devon.pdf>.

2.4 CFHT User's Meeting:

OIRAC members Balogh and Gladman attended this meeting in May, 2007. The CFHT SAC met following this meeting and will presumably provide a full report; OIRAC will digest this document when it appears. The critical issue of CFHT's future, and particularly the instrument suite in the period following 2010, are of great importance to the Canadian community and will be a subject of future OIRAC discussion once the CFHT reports are in.

3 Recommendations:

Our only recommendation is that the CASCA board reconsider and redefine the mandate of its subcommittees OIRAC and RAC. We suggest that the CASCA board consider the creation of a Committee for Ground Based Astronomy (CGBA), in full consultation with all CASCA committees. Such a CGBA would represent all Canadian ground-based, research

observatories. This group would communicate with the SACs of the various facilities and provide a broad overview and sensible advice to the CASCA board. It could also set up subcommittees to represent, and act as advocate for, more specific facilities (such as smaller-budget observatories). This is important to ensure that minority voices are heard.

As a first step, CASCA might consider establishing a working group, consisting of members of the CASCA Board and any CASCA committees the Board feels are relevant, to further investigate the optimal committee structure.