

LRPIC report to CASCA May 2017

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Observers - C. Wilson (McMaster U: CASCA past-president), C. Heinke (U Alberta: GAC chair), M. Sawicki (St Mary's U: JCSA chair), R. Thacker (St Mary's U: MTRP chair), R. Abraham (U Toronto: CASCA president)

LRPIC and its observers have been more than usually active during the past few months. We have worked closely with the Coalition, CASCA, ACURA, CSA and their contractors, and the CSA Topical Team leads. LRPIC members also have direct insight or participation in a number of LRP projects (SKA, CCAT, JCMT, MSE, CHIME, LiteBIRD, CASTOR, Athena). For more detail on the ground-based aspects of LRP, see also the GAC and CATAC reports for this period.

LRPIC was involved in setting up the CATAC, and in approaching the government on LRP projects and issues. LRPIC developed an informational slide set on Alternatives to TMT, and hosted a webex discussion on the matter. Further discussions are planned over several days at CASCA, including an extended plenary session.

Thirty Metre Telescope (TMT)

The public CATAC report includes a lot of detail about the state of the TMT project that won't be repeated here. The report makes it clear that a move to ORM would be a descope that would erode competitiveness with ELT in several ways, but could, with appropriate choices for operations and instrumentation, still fulfil many of the scientific needs for access to a VLOT that are described in the LRP. The political situation in Hawai'i continues to develop and it remains impossible to predict how or when it will end. There is evidence that public opinion is growing more favourable to construction and that a political solution may be possible. As the MK13N site remains the strongly preferred location scientifically, this is good news.

The TIO Board remains committed to an April 2018 construction start, and thus much must happen in the next ten months. CATAC is taking the lead in engaging the community with these developments, and in particular we applaud their efforts to increase participation in International Science Development Teams. LRPIC is well aware that developments with TMT will impact many other LRP priorities and will be consulting frequently and broadly with the community as events unfold. The recently launched LRPIC-discuss mailing list is one element of this, providing a forum for discussion among registered participants.

We note finally that contact has been made between the TIO and GMT, and continued discussion is expected.

SKA

Progress is being made toward the establishment of the SKA IGO; this will probably have the option of associate membership which is a likely route for Canada to take given the difficulties associated with joining a treaty for telescope operation. Canadian funding for the SKA Office is committed to the end of calendar year 2017 and

the hope is to extend this through 2018, with the new structure anticipated to be in place in 2019. Meanwhile, the SKA project is engaged in numerous studies to determine the most appropriate cost-cutting measures to comply with Board directives while still allowing SKA Phase I to carry out transformative science. A Town Hall meeting was planned for May 18-19 to discuss various options. There are Resolution Teams making recommendations between competing technologies and Science Assessment Teams investigating the detailed effects of several potential cuts, including those proposed by the Canadian-led Central Signal Processor consortium. Meanwhile Canadians are discussing the value of an SKA Regional (Data) Centre in Canada and how it should relate to similar efforts in Europe and Asia-Pacific. Kristine Spekkens (RMC) has replaced Sean Dougherty (NRC) on the Science and Engineering Advisory Committee (SEAC).

MaunaKea Spectroscopic Explorer (MSE)

The MSE design activities are undergoing reviews over the course of the year and the project will complete the Conceptual Design Phase by year end and move into Preliminary Design. The MSE board are watching the TMT situation on MaunaKea, but for now assume the project remains approved as a CFHT replacement. Once costs and site issues are clarified, the next stage will be for partners to seek funding to proceed to construction. LRPIC awaits MSE developments as one of the major future ground-based planned facilities.

Space Astronomy.

The outlook for Space missions in the LRP is not encouraging. The federal budget contained funds earmarked for a radar instrument for NeMO (in spite of the lack of a concept study, or lobbying from a science community), and a small quantum encoding satellite - with no funds allocated to WFIRST, in spite of extended concept studies and a phase 0 study for hardware agreed with NASA. (The mission itself is now under review in the US, including descopeing the unit we were to supply, so this situation needs to evolve further.) CSA have announced there will be RFPs for a LiteBIRD concept study, and a 'science-maturation' study for CASTOR, which may be issued by the time of the CASCA meeting. A white paper has been prepared by several colleagues that will be fed into U15 university discussions, and also submitted to the new SAB.

The office of minister Bains (who directs the CSA) has not offered a requested meeting by the Coalition. Meetings in minister Duncan's office have not addressed space issues. Several individuals are participating in round-tables with the new Space Advisory Board in order to put the case for space astronomy, and to feed into the government Space Policy announcement expected in June. As it stands, we have no funding commitment to any of the LRP space projects beyond the studies noted above, and we may lose those opportunities. The Topical Team leaders are also making these points, and there is an effort to have the entire space science community (astronomy, planetary exploration, and space health) speak strongly for a combined ongoing budget of some \$100m per year. Our LRP plans would need some 30% of that over the next 10-15 years. All these efforts may still bear fruit, but the issue is now urgent.

JCMT

Canadian astronomers will continue to have access to the JCMT until at least the end of January 2019. A proposal led by Chris Wilson from McMaster University with collaborators from the Universities of Alberta, Lethbridge, Waterloo, Western, and Dalhousie was successful in obtaining funding under a new NSERC program for operations and maintenance support. PI proposals are accepted from astronomers at any Canadian institution for the semi-annual calls and Canadians are also encouraged to participate in the new round of large proposals which will be announced in June/July.

CCAT

The 25 metre CCAT telescope is on hold, but a part of the site will be used to build CCAT-prime, a 6 metre extremely wide field telescope with several unique science cases. The total cost in USD includes: telescope manufacturing and site (\$16M); engineering and development costs (\$4M); enhancements for wavelength windows below 600 microns (\$4M); first light instruments (TBD).

The project has raised \$20M, but this includes only a small amount of Canadian funding. The Canadian team intends to apply to CFI for \$4M. Some of the instrument money has been found already but most will be the subject of an NSF MSIP proposal. The Canadian share of observing time will be pro-rated by financial contribution.