

LRPIC report to CASCA board May 2016

Core members - M. Balogh* (Waterloo); M. Dobbs* (McGill); J. Hutchings (Chair) (NRC Herzberg); B. McNamara (Waterloo); N. Murray (U Toronto); I. Stairs (UBC)

Observers - L. Ferrarese (NRC Herzberg) (CASCA past-president); C. Heinke (U Alberta) (GAC chair); JJ Kavelaars (NRC Herzberg) (JCSA chair); R. Thacker* (St Marys U) (MTRP chair); C. Wilson* (McMaster U) (CASCA president)

(*Also MTR panel members)

The committee and observers have continued to hold regular monthly telecons, with additional discussions by email or phone as required. It has been an active period, with high participation by all. We note below the main activities and issues. More details on individual facilities and issues are in the JCSA and GAC reports.

1. We have been in close communication with the MTR chair during the final preparation and publication of their report. We are now in a position to track and support the LRP, and continue activities as recommended in the MTR.
2. We have followed this up by producing a 2-page flyer that provides a summary of LRP projects, to be used for lobbying and information to the government. A copy is attached to this report, and it is also posted on the CASCA website.
3. We have followed developments in the CCAT initiative, which was unsuccessful in obtaining the substantial CFI funds sought. We are following subsequent ideas for a smaller telescope on the site, and possible connections with the proposed Simons Observatory nearby.
4. TMT and the Mauna Kea situation remain unresolved. TIO are looking at alternative sites and have said they need resolution of their building permit by September 2017. The alternative sites are in Mexico, Canary Islands, and Chile, and the board plans to have three identified by October, as well as assessing the situation in Hawaii. Existing construction contracts continue, but work is slowing because of the construction delay, which will be at least 3 years in total.
5. The MSE consortium has been joined by Spain, who hosted a science and engineering meeting last month. The detailed science case is published (May 2016), and engineering work is going well towards a cost review in early 2018. There is cautious optimism about using the CFHT site.
6. The Canadian antenna design for SKA was not approved. Work continues on other SKA partnership opportunities. It is unclear how Canada may continue without joining the treaty organization, but options are being explored. The project is some way from having a clear path to partnership and a detailed funding request. Canada continues to participate in project and science planning meetings.
7. The Hitomi (Astro-H) fatal accident leaves us with no new LRP2010 space astronomy commitments through the 2020s. The WFIRST phase 0 contract (kickoff expected in June) has little time to match NASA's schedule, and the consequent cost, agreed hardware or science share. There is no sign of the phase 0 for CASTOR that the MTR calls for within the year. The overall CSA space science situation remains a concern. There are signs that the profile of CSA is rising within the federal government, but lobbying effort is required for our LRP goals and opportunities.
8. We note that the Doyletech report to NRC on commercial value of TMT and SKA technologies is positive on all of them.

We attach a table summarizing the current status of LRP projects. Some of the cost numbers are only rough guesses and should be taken as guidelines only, and are not at all official. The table, like the chart in the 2-page flyer, also does not indicate any levels of priority.

May 2016 status summary of LRP new projects

What	When	Who	New \$C	Share	Funds	Notes
TMT	2014-2020	TIO partners	--	~15%	GoC, NRC	\$243M Approved April 2015. Stalled
SKA	2016-2024	Consortium	~\$60M	6%?	NRC...	Phase 1 Cost/scope issues +\$ (large) SKA2 for 2030
WFIRST	2016 - ?	NASA + JAXA + ESA	\$50M?	<=5%? Sci team	CSA	WFI phase 0, 2016 Science return TBD
CASTOR	2015- 2022?	CSA + XSA	\$>=150m	33%?	CSA	Tech + science studies; partners Phase 0, Sci Def RFPs
MSE	2017- 2025?	Can, Fr, China, India, Aus, Spain	>=\$34m?	~20%	Current +	Office, staff, at CFHT. Partnership design work to 2018
CCAT	2013-	Univ	\$20-30M?	15-25%	Current + ?	No CFI. Future iffy
CHIME	2013-	UBC, UT, McG	--	100%	CFI x2	DRAO under way. Pulsar add-on
SPICA	2016- 2022?	JAXA+ESA	\$15M?	?	CSA	FTS possible
LiteBIRD	>2017?	JAXA select	\$20M?	?	CSA	Bolometer read system
Astro-H	2012-2015	JAXA	--	5%	CSA	Launch + failure 2016. Cost ~\$8M
Athena	2028 launch	ESA et al	Long lead	?	CSA	Co-chair of science panel
JCMT	2014-16	UK, Asian cons	\$0.1m/yr	few%	??	Initial 2 years.
Balloon, Microsat	2012-2020	CSA, CNES	\$10M	100%	Current	Continuing

Funds indicated all spread over several years – details differ. **~\$350M new total**
 Amounts secured or in present budgets. Space and Ground-based