Astronomy plans and opportunities for the next decade

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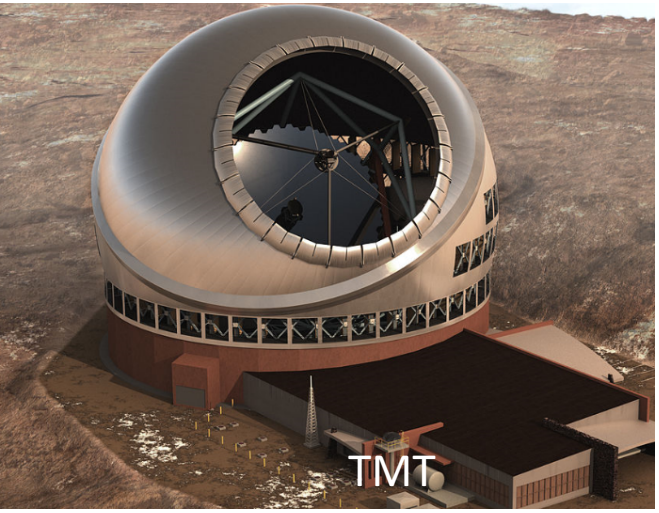
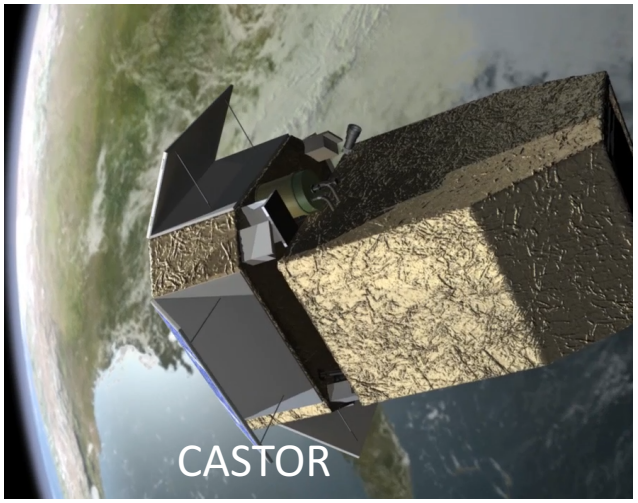
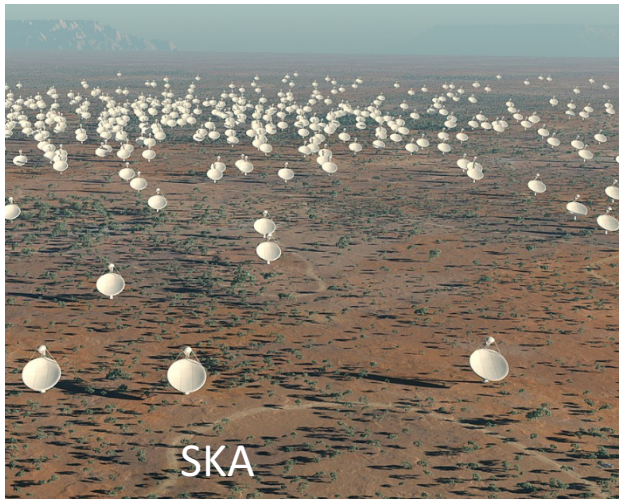






Outline:

LRP – decadal reviews, and plans for astronomy in Canada
Status today – how are we doing?

Where will `we' be in 2030?
New facilities – under way, in planning, what may arise?

How can you help make it happen?

Long term plans happen in many countries

- Wide consultation within the communities
- Reflect community expertise, ambitions, needs, technical capability, funding, schedule, partners
- Centres of excellence and leadership important

Canada has international prominence in Astronomy
Major facilities are international – need to coordinate

LRP 2020 will be ramping up next year

Dec 2017 LRP project status summary

What	When	Who	New $C	Share	Funds	Notes
TMT	2014-2025?	TIO partners	TBD	~15%	GoC, NRC	$243M Approved April 2015. Stalled CFI funds were key in early stages
SKA	2016-2024	Consortium	~$60M	6%?	NRC…	Phase 1 Cost/scope issues +$ (large) SKA2 for 2030
WFIRST	2016 – 2025?	NASA + ?	$100M?	1-5%? Sci team	CSA	WFI phase 0, NASA cost review Science return? No CSA $?
CASTOR	2017-2025?	CSA + XSA?	$250m?	35%?	CSA	Tech + science studies; partners Sci maturation study 2017
MSE	2017-2025?	Can, Fr, China, India, Aus, Spain	>=$34m?	~20%	Current +	Office, staff, at CFHT. Partnership design work to 2018
CCAT-p	2017-	Consortium	$4m	15%?	CFI	6m wide field. University leads
CHIME	2013-	UBC, UT, McG	--	100%	CFI x2	Operating. Pulsar, FRB new
SPICA	2016-2027?	JAXA+ESA	$30M?	?	CSA	FTS commit soon?
LiteBIRD	2018-25?	JAXA select	$15M?	?	CSA	Bolometer system, RFP 2017
Hitomi	2012-2015	JAXA	--	Sci team	CSA	Launch+fail 2016 Hitomi2 2020?
Athena	2028 launch	ESA et al	$10m?	?	CSA	Co-chair of science panel Metrology hardware?
JCMT	2017-19	UK, Asian cons	$0.1m/yr	few%	??	Univ NSERC funds
Balloon, Microsat	2012-2020	CSA, CNES	$10M	100%	Current	Continuing

Need to commit ~$200m + up to $400m in new funds in next few years

Check list in December 2017 (cheque list?)

Ground

1. TMT: approved, delayed, underfunded, political issues
2. SKA: treaty organization, cost-capped, needs funding
3. MSE: designs, costing, funds and schedule needed

Canada a key player in all, but future TBD

Also: CHIME success, CCAT-p hopes, JCMT limited participation
(Done – Astrosat is up now, JWST in 2019)

Space

4. WFIRST: CSA studies, NASA review, TBD commitment
5. CASTOR: tech studies, partner interest, SMS now
6. SPICA: CSA studies, mission approval soon
7. LiteBIRD: Canadian technology study, science
8. Hitomi: CSA metrology, mission failure, new flight
9. Athena: Canadians in team, contribution TBD

CSA has no funds or process to proceed with any of these
Lobbying with govt, SAB, etc: situation dire

- The next decade is already full of non-completed new projects.
- New ones may address known problems, open discovery space.
- Projects take a decade (or more) to complete.

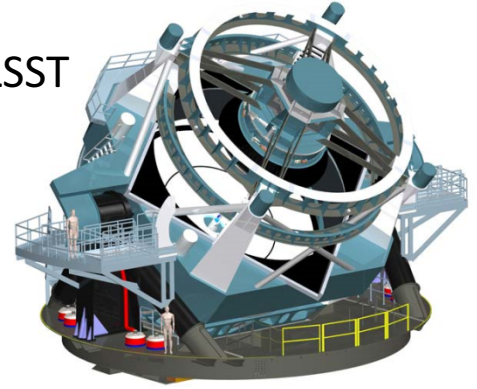
Delays and funding issues are to be expected
Opportunities may be short-lived or change substantially

New projects driven by science, discovery, technology
The next decade will involve enormous surveys and databases:
How to sift and follow up, define discovery space

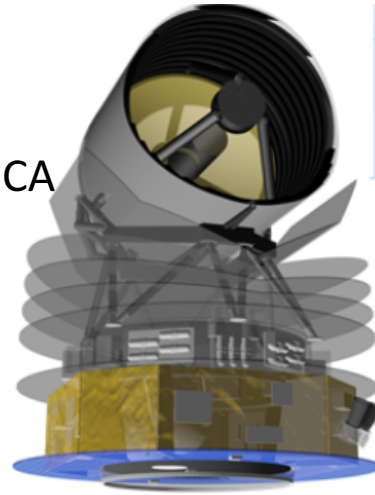
This is (y)our future – be aware, involved, active

LRPIC loves to hear from you. ♡

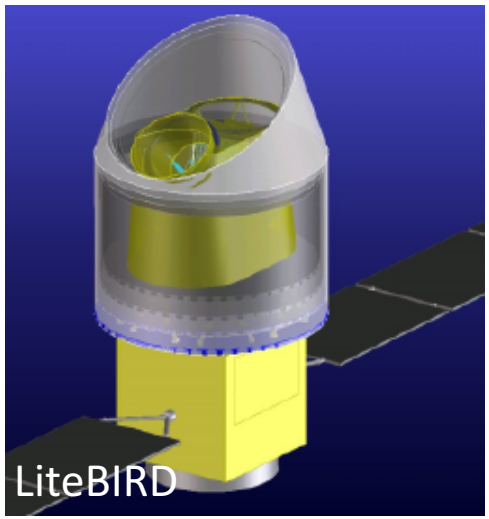
LSST



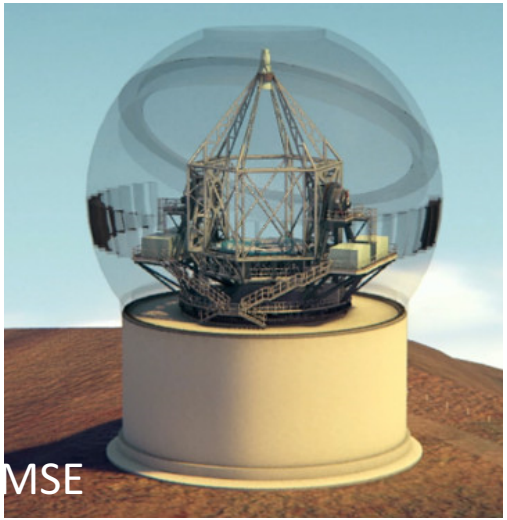
SPICA



CCAT-p



LiteBIRD



MSE