Unveiling the Cosmos – A Vision for Canadian Astronomy

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National Research Council Canada | Conseil national de recherches Canada

Canada

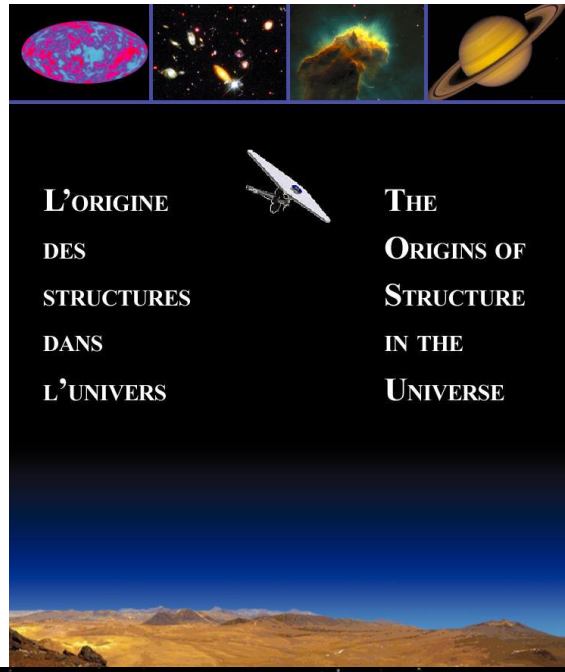
膝とも談合

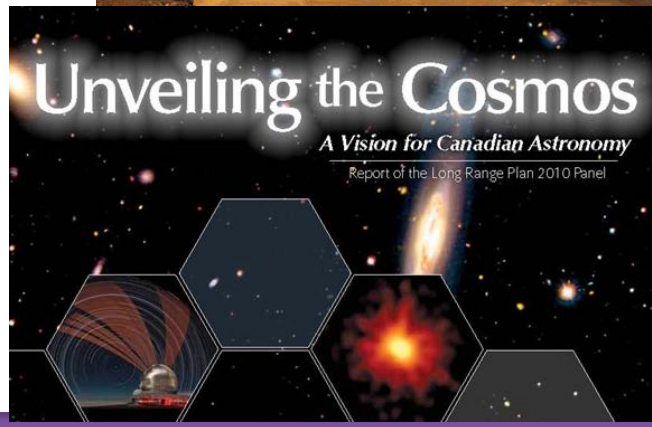
Canadian Landscape

- NRC has a parliamentary mandate, to “operate and administer any astronomical observatories established or maintained by the Government of Canada”
- NSERC provides research grants to University-based researchers
- Canadian Space Agency (CSA) funds space-based astronomy missions, and provides support to NRC for operating archives of space missions
- Canada Foundation for Innovation (CFI) funds “research infrastructure” at 40% of the required funding
  - Other agencies (provincial) and industry provide the rest
- ACURA - organisation of Canadian universities that coordinates their efforts with those of NRC in the development of major infrastructure for astronomical research.

Overview of Canada's Astronomy Planning

- Community-driven decadal Long Range Plans (LRPs)
  - Plan commissioned by CASCA with the support of ACURA, NSERC, NRC, CSA, and CFI.
  - First was in 2000 (The Origins of Structure in the Universe)
  - Current plan dates from 2010 (Unveiling the Cosmos)
  - Current LRP has an Implementation Committee (LRPIC)
  - Each LRP has had a Mid-Term Review (MTR) to assess the situation after 5 years and make adjustments – No New Major Projects!





Summary of Major LRP2010 Priorities (Released in 2011)

Ground-based

Category	Project	§	$	Note
Very Large (above $100M)	A significant share of a VLOT: highest priority is TMT if it can be built in a timely manner; otherwise E-ELT	4.1.1	$5M/yr preconstruction $300M construction	1, 3
Large	SKA R&D	4.1.2	$3.5M/yr preconstruction $56M construction (Phase 1)	1, 4
Medium ($5M-30M)	1. CHIME	4.2.1	$15M	2, 5
	2. CFHT new instrumentation	3.1.1	$5M	2, 6
	3. CCAT	4.2.2	$0.9M pre-construction $14M construction	2, 7
Small (below $5M)	1. Arctic site testing and telescope	4.2.3	$0.2M/yr site testing $3-5M telescope (if feasible) $0.5-1M/yr operations (if feasible)	2, 8
	2. ngCFHT R&D	4.2.4	$2M over decade	2, 9

Space-based

Category	Project	§	$
Large	Dark Energy Satellite (e.g. Euclid or WFIRST or CST)	5.1	$100M
Medium	1. IXO R&D	5.2	$15M
	2. SPICA	5.3	$10M
Small	1. Astro-H	5.2	$5M:
	2. Stratospheric Balloon Programme	5.5	$5M:
	3. Nanosat/Microsat Programme	5.4	$5M:

2015 Mid-Term Review

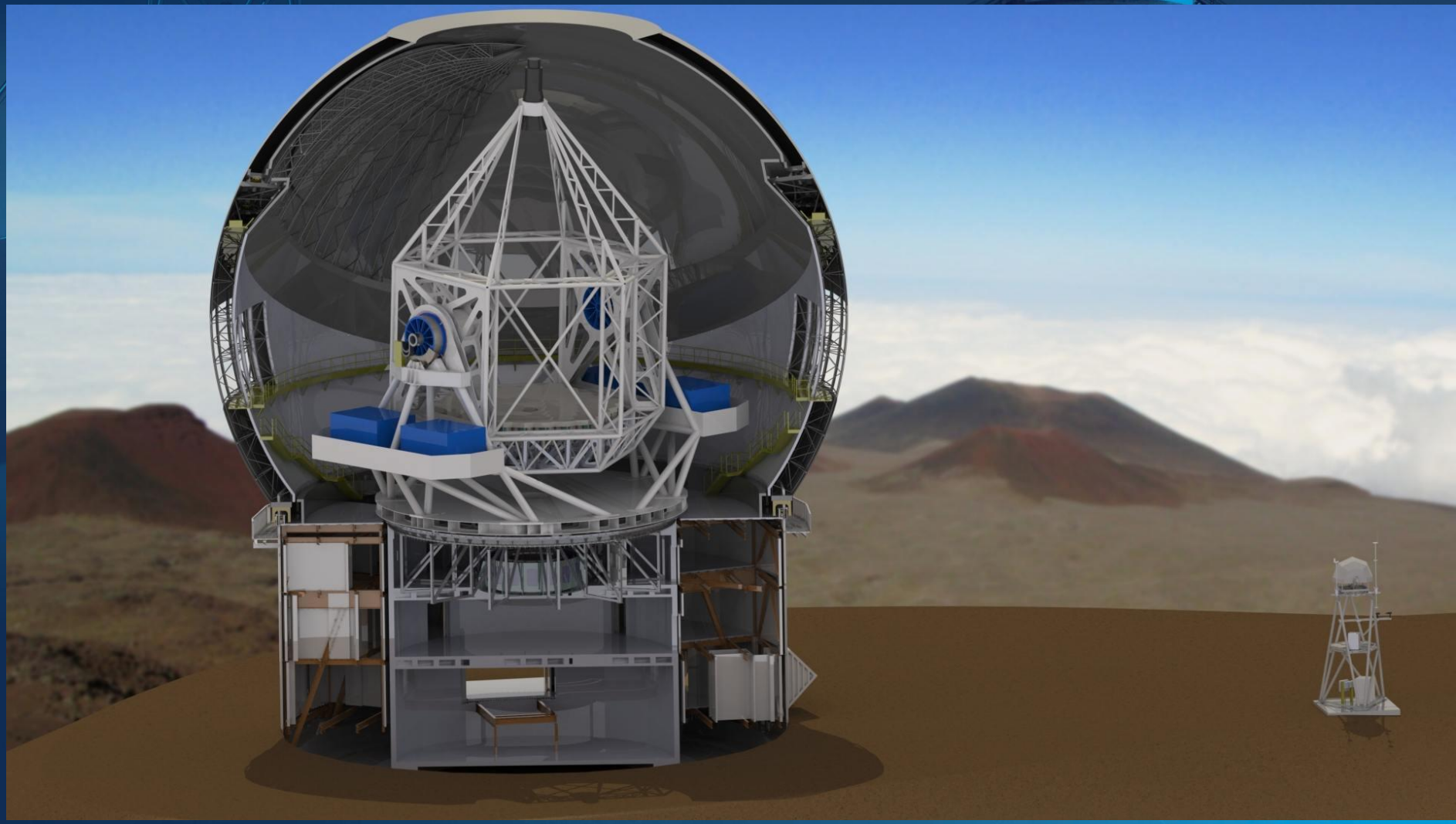
- The MTR worked within the wider framework laid out by the LRP2010
- In the 5 years since LRP2010 significant changes occurred in the research landscape
  - MTR evaluated those changes against the priorities established by LRP2010
- Revisions of recommendations may be necessary on short time-scales due to unanticipated events or developments
  - This is the role of the Long Range Plan Implementation Committee (LRPIC)

MTR 2015 Recommendations

- Strongly endorses ongoing development of second-generation instrument concepts for the TMT
- First phase of the Square Kilometre Array (SKA1) is the top priority for new funds for ground-based astronomy
- Canada's participation in Gemini continue to be supported beyond the end of the 2016-21 International Agreement
  - **The nature and level of that participation must be considered within the context of a coordinated plan for funding the operation of our ground-based facilities, together with any opportunities for broader access to the landscape of 8-10m optical/IR telescopes**
- Strongly recommends that Canada continue to lead the development of the MSE project
- Recommends that Compute Canada move to provide services such as authentication/authorization, and efficient distributed storage platforms that encompass both archiving and user spaces in a scalable way

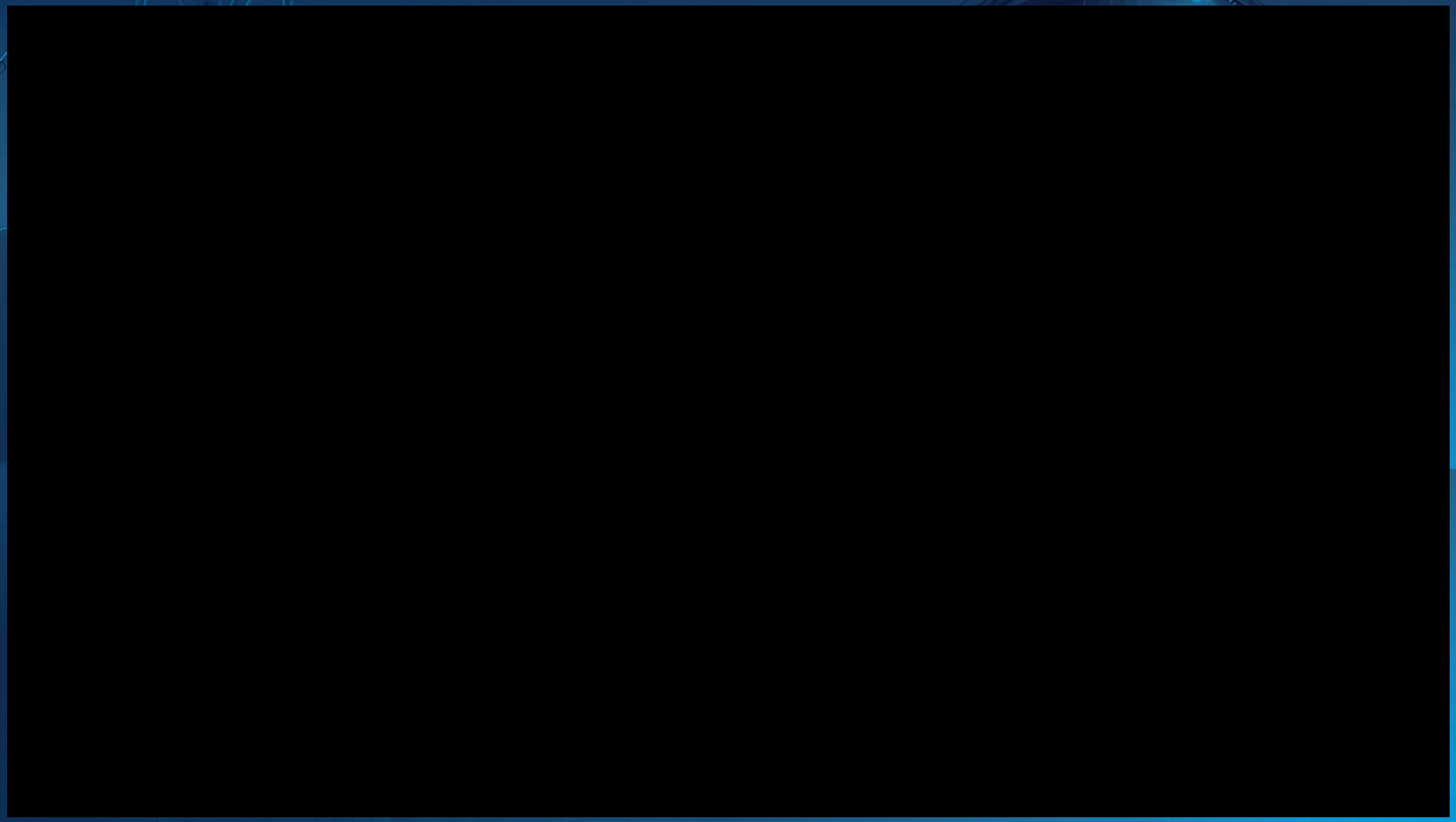
Canada's Investment on Maunakea

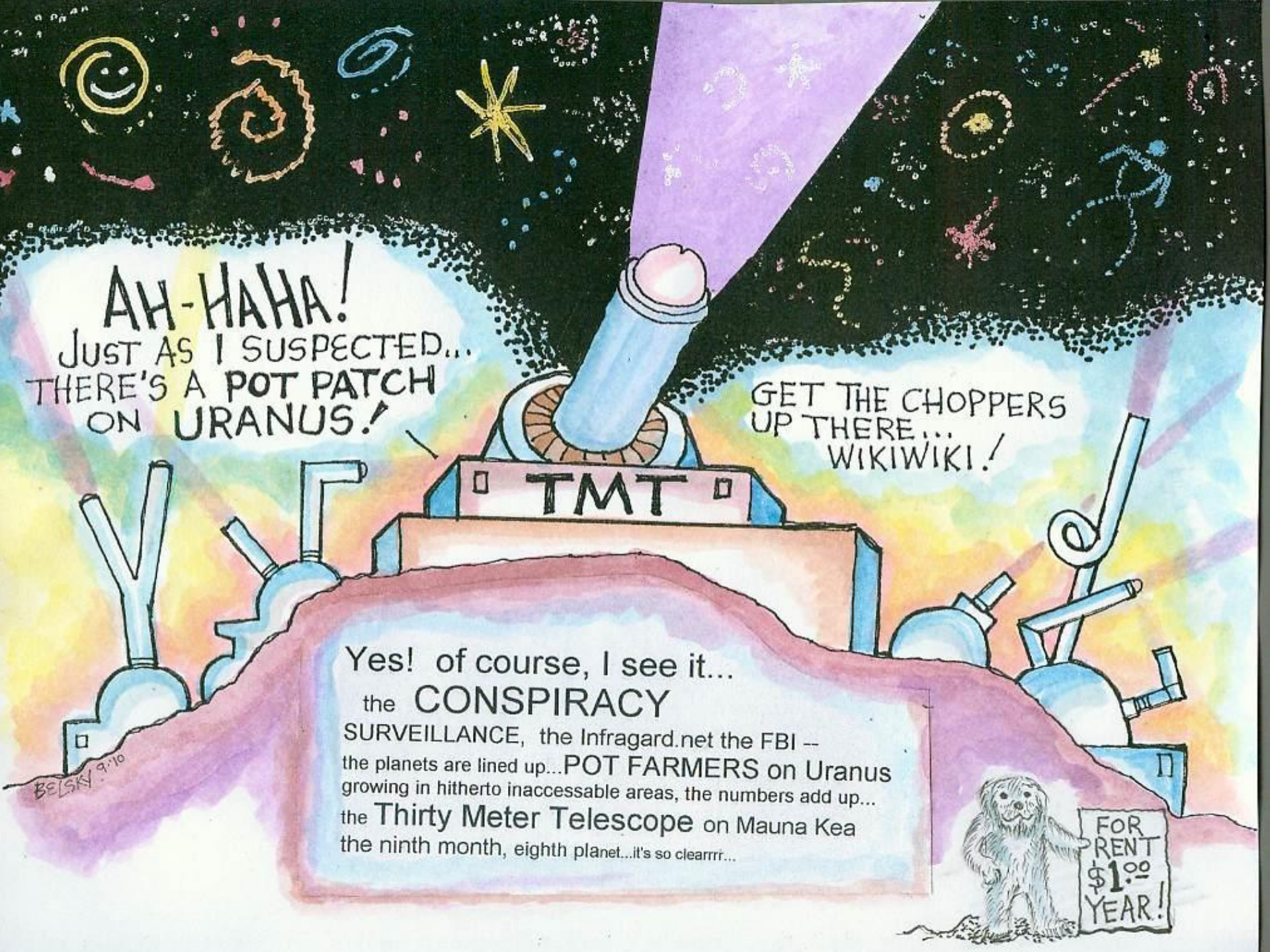
Maunakea Spectroscopic Explorer (MSE)



Optical Astronomy Futures

- CFIS survey on CFHT gives Canadians access to Euclid data
- Dunlap Institute (Toronto) supports data access to LSST data for 10 Canadians.
  - More Canadians interested in LSST data
  - Role for CADC in providing access / support to LSST data?
- Gemini assessment point in 2018
  - Canada committed to Gemini until end of 2021
  - Canada's share in Gemini after 2021 is undecided
- Option to participate in Subaru
  - Common interest in wide-field surveys
  - Share expertise in adaptive optics
  - CADC experience in managing large datasets and providing cloud-based resources for reducing/analyzing LARGE data




AH-HAHA!
JUST AS I SUSPECTED...
THERE'S A POT PATCH
ON URANUS!
TMT
GET THE CHOPPERS
UP THERE...
WIKIWIKI!
Yes! of course, I see it...
the CONSPIRACY
SURVEILLANCE, the Infragard.net the FBI --
the planets are lined up...POT FARMERS on Uranus
growing in hitherto inaccessable areas, the numbers add up...
the Thirty Meter Telescope on Mauna Kea
the ninth month, eighth planet...it's so clearrrr...
FOR
RENT
$1.00
YEAR!
BELSKY 9.10