

TMT Key Science Program Discussion

Tommaso Treu & Mark Dickinson

Outline

- ◆ What happened since the 2015 Forum?
 - A brief history of the first simulated call for TMT Key Programs
- ◆ Summary of the outcomes of the first simulated call
- ◆ What's next?
- ◆ Discussion



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Goals of the Key Program exercise

- ◆ Identify science areas that are ripe for transformative progress with TMT, but which require substantial investments of telescope time
 - An important issue for many US at-large attendees at the TMT Forum, and a topic of interest to NSF and the US TMT Science Working Group
- ◆ Based on these science drivers, identify potential issues with time allocation, telescope scheduling, operations, calibration, data management, etc., and remove them, if possible
- ◆ Provide input for defining capabilities and priorities of future-generation instrumentation
- ◆ Identify pathfinder work and precursor datasets so as to be ready for large-scale science by TMT first light
- ◆ Develop and foster collaborations within the international TMT science community

Key Programs Period 1 statistics

- ◆ After significant activity at the 2015 Forum, deadline was Sep 28 2015
 - 6 out of 8 ISDTs submitted proposals.
 - We received requests for further deadline extensions but unfortunately could not accommodate them due to the impending October 2015 SAC meeting.
- ◆ A supplemental call was established with deadline 5/5/2016 and we received 4 additional proposal from the other 2 ISDTs (plus one update).
- ◆ Every ISDT submitted at least one proposal
- ◆ At least one proposal was PI'd by each TIO member or associate partner communities.

Key Project proposals received

- ◆ 27 proposals received, requesting >1200 nights of TMT observing time
- ◆ Most (80-90%) time was requested on WFOS, IRIS & IRMS, but other instruments were also discussed (IRMOS, PFI, EXAO-MIR, MICHI, SEIT)
- ◆ 95 unique investigators (almost half of all ISDT members)
- ◆ Median proposal involved investigators from 3 partners (range 1 to 5)
 - 7 proposals (30%) involved investigators from 4-5 partners

Proposal submissions			
<u>By submitting ISDT</u>		<u>By partner PI/co-PI*</u>	
cosmo	3	Caltech	1
highz	5	Canada	3
galaxies	2	China	1
smbh	2	India	2
spf	4	Japan	4
exoplanets	4	UC	5
solar	2	US	13
timed	5		

Investigators (PIs & co-Is)			
<u>By ISDT**</u>		<u>By partner</u>	
cosmo	9	Caltech	2
highz	13	Canada	4
galaxies	4	China	3
smbh	8	India	4
spf	10	Japan	12
exoplanets	5	UC	11
solar	12	US	21
timed	5	TMT	2
none	2	other	6

*2 proposals have co-PIs from 2 partners

**Some investigators are members of 2 ISDTs

Reviewing the proposals

- ◆ The proposals were read by a reading committee (supplemental call pending): Non-competitive review
- ◆ Results were summarized in a document to the SAC and feedback was sent to the PIs (supplemental call pending)

Example of operational issues

- ◆ ToO
 - How do we do rapid ToO with Lasers?
 - ◆ New process to obtain permission from Strategic Command exists for Robo-AO and being set up at Keck
 - How do we schedule ToO across partners?
- ◆ Queue mode
 - For AO, monitoring, special conditions
- ◆ Long term time allocations
- ◆ Long term instrument stability
- ◆ Flexible scheduling for radial velocity timing
- ◆ LGS-AO of non-sidereal targets



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Examples of User support issues

- ◆ ToO
 - How fast can remote teams obtain pipeline processed data
- ◆ Quality of AO PSF reconstruction
- ◆ Reliability and uniformity of TMT exposure time calculators

What's next?

- ◆ For the teams:
 - Work on precursor datasets
 - Work on preparatory datasets/sample selection
 - Write forecast papers
 - Organize science meetings
 - Help and test instrument ETCs and simulators
- ◆ For the project:
 - Make sure that the kind of science programs that have been proposed CAN be executed if it is considered of high enough scientific merit
- ◆ For the partners:
 - Figure out if and how a mechanism for Key Programs should be implemented
- ◆ For all:
 - Should we do another round? When?