

# TMT SAC Meeting Report

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TMT Project Office, Pasadena, CA

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## 1 Project Reports

- (1) Hawaii and Facility status: Civil Work Package A (construction of road & conduits through SMA area to TMT) will be started in July. Some successful efforts in Hawaii to maintain and increase public engagement with TMT were reported.
- (2) Telescope Structure: PDR was held in November 12~14 in Japan. The review panel recommended approval for NAOJ/MELCO to proceed to the Final Design Phase which will be started in April 2014.
- (3) Version-3 SSA: Prototypes have been built in US, Mumbai, and Bangalore, India.
- (4) M1: Tinsley is polishing two mirrors. ITT Exelis is working on the hex-cutting using diamond saw, machining of edge sensor pockets, SSA integration tooling design, etc. Canon's progress is excellent to polish first 12 in Japanese FY2014. NIAOT needs much more work to start full size SMP. TMT-India will start collaboration with Tinsley in a few months for the SMP polishing.
- (5) M3: CIOMP is working for the prototype M3 mirror & positioner, for the design of M3CA (M3 Cell Assembly), and M3PA (M3 Positioner Assembly).
- (6) M1CS: 9 Indian built prototype actuators are under testing of lifetime, cold, and integration with JPL phase 1 controller card.
- (7) NFIRAOS: (i) Common DM trade study was completed in order to reduce risks of having no AO for a few years in a case of a DM failure. (ii) HIA is testing CILAS 6x60 DM Breadboard (DMBB) at -30C. Additional tests for Xinetics (AOX) DM to quantify actuator stroke and hysteresis at -20 and -30C for a larger voltage range. (iii) RTC Architecture Trade study was successfully done in December 2013. (iv) TIPC Laser does not yet approach the requirements. The qualification review is scheduled in mid-December 2014. (v) LGSF preliminary design will be started in mid March 2014 for 15 months. Toptica laser's factory acceptance test review was successfully completed in November 2013 for ESO. Keck laser will be delivered in summer 2014. (vi) 4 science grade 256x256 NGS WFS CCDs are identified for Keck and TMT. (vii) Studies of the High Contrast Imaging with NFIRAOS+IRIS for follow-up GPI discoveries are ongoing. The plan will be reported for April 7<sup>th</sup> SAC meeting.

- (8) Science Instruments: (i) Matt Radovan (UCSC) is a new staff member to work for MOBIE. (ii) IRIS NSF MSIP proposal was selected to submit a full proposal. (ii) The following four trade-off studies are ongoing: Double imager, VPH or ruled gratings, ADC materials, & OIWFS by the end of March. Light PDP will be completed in Dec 2014. (iii) MOBIE: Conceptual Design Study Handover workshop was held on October 29~30. Efforts for new workshare development are ongoing.

## 2 SAC Discussions

- (1) NSF MSIP IRIS proposal: SAC agrees to follow the current TSIP-model (e.g., Keck) to allocate some nights to the US Astronomical community, and request Board to provide policy statement.
- (2) ISDTs (International Science Development Teams) have been established mid-2013 to engage and inform science communities in TMT partners and US community-at-large, gather scientific input & feedback for the project, revise and maintain Detailed Science Case (DSC), foster collaborations, plan future observations. First call for new members was issued mid-November and applications came from 100 individuals. ISDT conveners evaluated applications based on the qualifications of applicants and commitment to ISDT effort. Some issues were raised and discussed by SAC members. (i) SAC wishes to be inclusive to capture this enthusiasm and build a community of future TMT users. (ii) SAC endorsed the idea that these groups may wish to split into smaller teams with more narrowly defined scientific scope and hence smaller membership. The SAC agreed that these ISDTs should be free to self-organize. (iii) Some ISDTs are missing expertise (e.g., RV experts for Exoplanets ISDT). Additional recruiting will be planned in the near future. The ISDT membership will be fixed in February.
- (3) DSC Update: (i) The editors will be appointed by SAC co-chairs soon. (ii) Updated document is consistent in scope and format with current version. ISDTs are encouraged to produce white papers, covering everything from new science that does not require any new capabilities, to previously discussed science that is now known to be more demanding than expected, to new science that requires new capabilities that may or may not be easy to accommodate. The white papers will provide additional input to the SAC. (iii) ISDT updates to be submitted to editors by mid May 2014 and SAC takes over and official release targeted for 2014 Forum. Updated DSC to be posted on arxiv to maximize exposure. Publications in refereed journals of relevant paper are also encouraged (e.g., Tuan Do's work for IRIS).
- (4) 2<sup>nd</sup> TMT Forum: (i) The 1<sup>st</sup> TMT Forum was a great success, with good attendance from all partners and from the US-at-large community. NSF-TMT cooperative agreement provides funding to support travel & attendance by members of the US-at-large community. The next Forum will be held in Tucson, 17-19 July 2014. The year 2014 is seen as a critical year for US community engagement toward eventual NSF TMT partnership. Tucson is a familiar location for the US astronomical community. July dates avoid conflicts with other events, are close to TMT Board meeting (22+23 July), and take into account venue availability. High-level schedule is as follow:
- 17+18 July (Thu+Fri): Forum (plenary events + ISDT sessions)
  - 19 July (Sat): Instrumentation workshop + US TMT SWG meeting
- (5) Next two SAC meetings are scheduled on April 7 at Vancouver and July 16 at Tucson.