

December 7, 2011

SMD/Astrophysics Division

TO: Wide-Field Infrared Space Telescope (WFIRST) Science Definition Team (SDT)

FROM: Acting Director, Astrophysics Division, Science Mission Directorate

SUBJECT: Directions to the WFIRST SDT for Final Report

This letter provides directions to the WFIRST SDT for work to be executed during the period December 7, 2011 through June 30, 2012.

During the period December 2010 – August 2011, the WFIRST SDT completed the WFIRST Interim Design Reference Mission (IDRM) Report and presented its results to the Astrophysics Division, the Astrophysics Subcommittee, and the Astronomy and Astrophysics Advisory Committee. Several issues were identified in the SDT's interim report, which are to be addressed in the final report.

Since the publication of the IDRM report, the European Space Agency (ESA) announced in October 2011 that the European-led dark-energy mission Euclid was selected as the M2-class mission, with a targeted launch in 2019. Euclid will study the origin of the acceleration of the Universe, using observations collected at optical and near-IR. Euclid's data will enable scientists to use the techniques of Baryon Acoustic Oscillation (BAO) and weak lensing to address the properties of dark energy.

In light of the Euclid selection, and the continuous progress of the Large Synoptic Survey Telescope (LSST), the WFIRST SDT is requested to deliver an interim report no later than April 30, 2012 and a final Design Reference Mission Report to the Astrophysics Division no later than June 30, 2012, which incorporates the following:

1. Continue the development of the WFIRST DRM started in 2011. In particular:

- Continue the analysis of the DRM to identify the key technologies that fulfill the science goals of WFIRST on dark energy, exoplanet searches, and IR surveys.
- Examine other options for improving the performance of the IDRM and reducing overall mission cost
- The mission design is to be technically capable of a launch by the end of calendar year 2022.

2. Assess options for leveraging off of the Euclid dark energy science. Specifically:

- Develop a final DRM for WFIRST that does not duplicate the of Euclid and LSST. Assess options for meeting all of the New World New Horizon requirements with the combination of Euclid, LSST, and a WFIRST DRM. Assess the science impact of such options.
- Examine options for reducing overall cost of the mission
- The mission design is to be technically capable of a launch by the end of calendar year 2022.

The WFIRST SDT will be augmented by up to 6 new members to help address the second DRM detailed in 2 above. NASA will appoint the new members with input from the SDT Chairs, the Project Scientist, and the Project Manager, drawing from the 2010 list of candidates or as appropriate.

If you have any questions, you may contact the WFIRST Program Scientist, Rita Sambruna, by phone at 202-358-2166 or by email at Rita.M.Sambruna@nasa.gov.

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