

Senior Review Introduction

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➤ Senior Review History

- Reviewed operating missions after their prime mission concluded, for consideration for extended operations
 - ✓ Evaluated compelling, excellent but not compelling, or modest contribution
 - ✓ Examined budgets for 2 years, extension to 2 more years (optional)
- Terra
 - ✓ Reviewed in 2005, 2007, 2009, 2011, 2013, 2015, 2017
 - ✓ Starting in 2017, senior review proposals included algorithm maintenance
 - ✓ Based in part on NRC Report on NASA Extended Missions, reviews increased to every 3 years, starting in 2020
- Aqua
 - ✓ Reviewed in 2007, 2009, 2011, 2013, 2015, 2017
 - ✓ Starting in 2017, senior review proposals included algorithm maintenance
 - ✓ Based in part on NRC Report on NASA Extended Missions, reviews increased to every 3 years, starting in 2020

Needed Contributions

- Recent Science Accomplishments (8 pages)
 - Atmospheric Composition
 - Weather
 - Carbon Cycle and Ecosystems
 - Water and Energy
 - Climate Variability and
 - Earth Surface and Interior
- Contributions to National Objectives/Applied Science (4 pages)
 - Weather Forecasting
 - Air Quality
 - Natural Disaster Monitoring and Evaluation
 - Support of Major Human Activities
- Recent Progress and Planned Continued Production of the Core Data Products (4 pages)
 - MODIS Science Team
- Technical Status of the Spacecraft, Instrument, and Ground Systems
 - Orbit, mission life expectancy, end of life approach
- Appendix A: Data Product Summary
- Appendix F: Algorithm/Data Product Maintenance Proposals (3 pages/product)

Summary

➤ Terra and Aqua

- MODIS is the crown jewel on these platforms, and every senior review has ranked either Terra or Aqua as the highest ranked mission
- MODIS contributes to all HQ theme areas, and has compelling applications of value to a number of Federal agencies
- Earth science has strongly valued long-term datasets for climate purposes

➤ Upcoming Senior Review

- Both Terra and Aqua will likely have to reduce their orbit altitude and drift in equator crossing time by 2022
 - » Long-term datasets in jeopardy towards end of life
 - » More budget pressure on Terra, Aqua, and Aura
 - » Partly due to Artemis and partly to make room for new Decadal Survey missions

➤ Help is needed to make compelling science case for extending Terra and Aqua

- Metrics of publications and extensive data use are included in proposals, and these already make a strong case for their value, but at what cost?