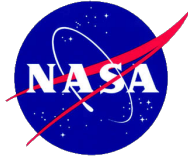


Agency Priority Goal Action Plan

James Webb Space Telescope

Goal Leader: Greg Robinson, Program Director

Deputy Goal Leader: Jeanne Davis, Program Manager



Overview

Goal Statement

- Revolutionize humankind's understanding of the cosmos and humanity's place in it. The James Webb Space Telescope will study every phase in the history of our universe, ranging from the first luminous glows after the Big Bang, to the formation of other stellar systems capable of supporting life on planets like Earth, to the evolution of our own solar system. By September 30, 2021, NASA will launch the James Webb Space Telescope, complete on-orbit checkout, and initiate observatory commissioning.

Challenge

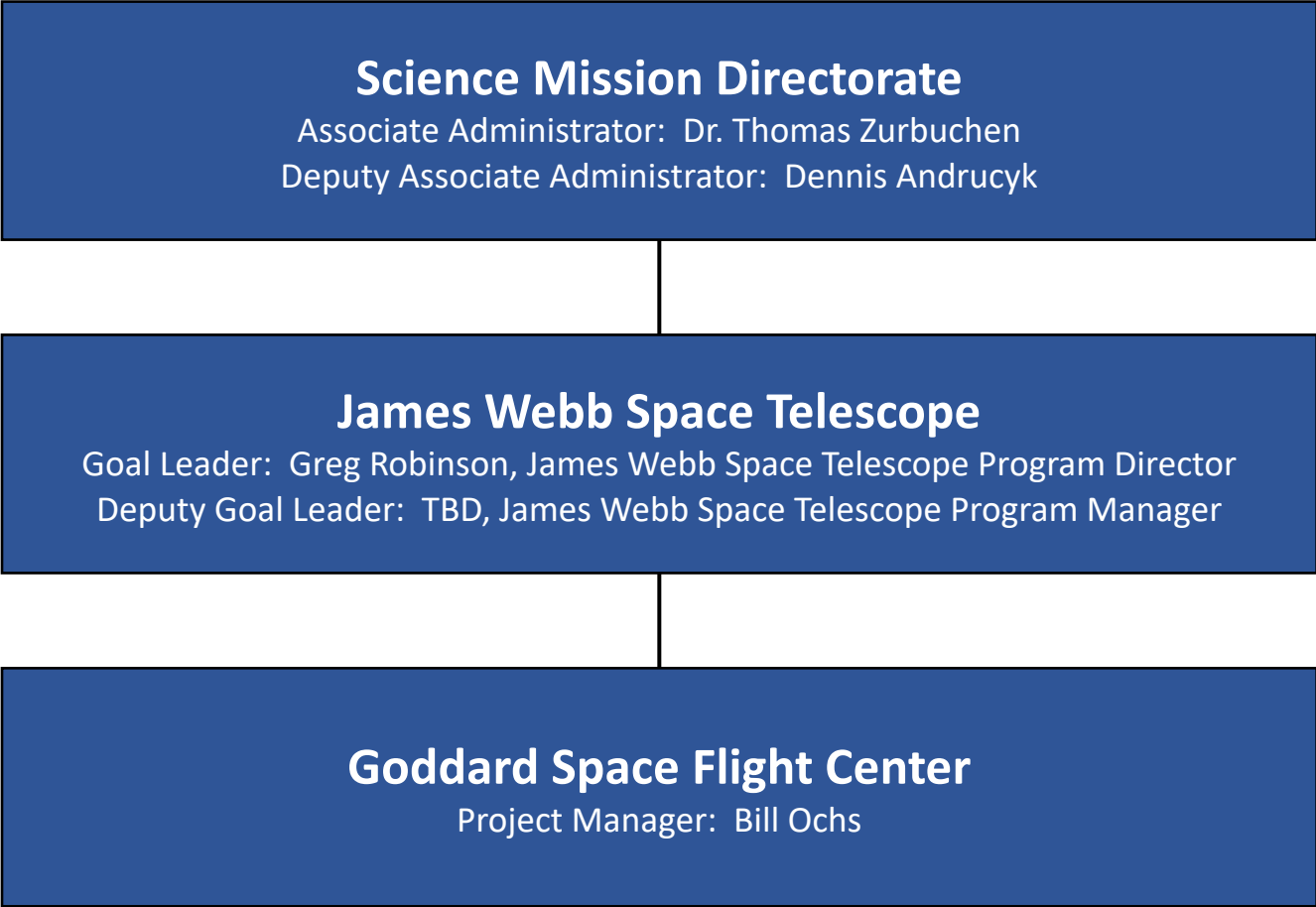
- Complete integration and test of largest cryogenic telescope ever to be launched.

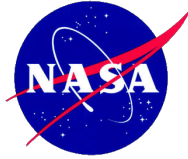
Opportunity

- The Webb program will produce an astronomical observatory capable of watching the universe light up after the Big Bang. It will revolutionize humankind's understanding of the Cosmos and our place in it.
- This observatory is key for meeting NASA's strategic goal to expand human knowledge through new scientific discoveries.
- Webb is NASA's new telescope that will allow us to explore deeper into space and see things that even the Hubble Space Telescope cannot see.



Leadership & Implementation Team



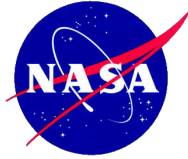


Goal Structure & Strategies

In continuing to work with its partners toward completion of Spacecraft Element (SCE) environmental testing, OTIS* integration to the SCE, and observatory-level environmental testing, NASA will:

- Conduct high-level (corporate Vice President and above) quarterly meetings of all mission partners to ensure accurate, consistent knowledge of program status and challenges.
- Conduct quarterly discussions between the NASA Administrator and the Northrop Grumman Chief Executive Officer.
- Provide quarterly updates to the Office of Management and Budget (OMB) and the Office of Science and Technology Policy (OSTP).
- Employ Estimate-at-Complete analyses that incorporate the current risk posture, independent analysis of those data, and detailed tracking of lower-level milestones that lead up to the APG, as well as schedule health assessments. (The project receives monthly earned value management and schedule health reports that detail how the work is progressing with respect to the plan and budget.)
- Continue practice of Standing Review Board (SRB) member participation in key reviews. Key SRB members will also participate in other reviews, such as the recent schedule assessment review. The SRB subject matter experts provide independent impartial assessments of the project's readiness to support the major upcoming activities along the APG schedule.

**OTIS is the combined Optical Telescope Element (OTE) and Integrated Science Instrument Module (ISIM)*

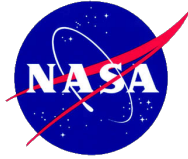


Summary of Progress – FY20 Q1

NASA continues implementing the replan for the March 2021 Webb launch readiness date (LRD). After the full deployment of the sunshield, planned repairs were made to the membrane and then the membrane was re-folded. In parallel, preparations continued for the replacement of the spacecraft Traveling Wave Tube Amplifier (TWTA), the command and telemetry processor (CTP), and for the observatory environmental testing.

Key activities and accomplishments:

- Completed planned sunshield membrane repairs
- Completed sunshield folding
- Received the two spare TWTAs
- Completed the build of the replacement CTP (delivered ahead of schedule)
- Initiated preparation for TWTA and CTP replacement
- Initiated preparation for observatory environmental testing

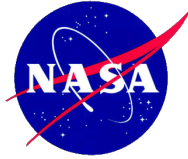


Summary of Progress – FY20 Q2

Preparations continue for observatory environmental testing. COVID-19 is impacting the Northrop Grumman work schedule, causing delays to observatory testing. The work schedule is limited to one shift per day for integration and test (I&T) touch labor and one shift for planning and documentation. This will continue to impact Q3 progress, although a return to two full shift operations is anticipated in late Q3. Schedule impacts will be assessed once work resumes at a nominal or near nominal state.

Key activities and accomplishments:

- Post-deployment sunshield folding has been completed
- The Traveling Wave Tube Amplifier (TWTA) and Command and Telemetry Processor (CTP) have been replaced on the spacecraft.
- Initiated observatory pre-environmental test preparations



Key Milestones

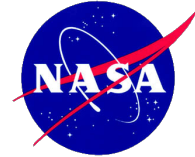
Progress update for the James Webb Space Telescope APG.

	N/A	FY 2020 Q1	Current Status FY 2020 Q2	Forecast FY 2020 Q3
Quarterly Rating		Yellow	Yellow	↓
Milestones Achieved		0 of 1	1 of 2	

Unchanged
 Improving
 Deteriorating

Milestone Summary

Milestones	Milestone Due Date	Comments
Complete second sunshield membrane deployment and folding	FY 2020 Q1	Completed on January 22, 2020
Complete deployment #2 of telescope deployable tower assembly	FY 2020 Q2	Delayed to FY 2020 Q3 due to COVID-19
Complete observatory pre-environmental test review	FY 2020 Q3	
Complete observatory vibration and acoustics testing	FY 2020 Q4	
Complete final comprehensive system test	FY 2021 Q1	
Launch observatory	FY 2021 Q2	
Complete on-orbit checkout	FY 2021 Q3	
Initiate observatory commissioning	FY 2021 Q4	



Data Accuracy and Reliability

Verification and Validation:

- NASA monitors and tracks its progress towards this goal using various Agency documents and reports, including Directorate Program Management Council (DPMC) materials, monthly reports from the project and industry partners, and other program-internal documents.

Data Source(s):

- Emails and program-internal documents indicating progress NASA's industry partners make toward the James Webb Space Telescope integration, test and launch.

Level of Accuracy Required for Intended Use:

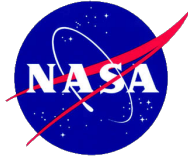
- Using the documents and reports referenced above, the Agency is able to accurately report at the end of each quarter on whether or not it has met its planned milestones.

Data Limitations:

- Materials from the industry partners may include company proprietary information; such information cannot be released publicly.

How the Agency Compensates for Data Limitations:

- NASA has not identified any data limitations that would preclude it from reporting accurate, reliable, and timely performance information.



Additional Information

Contributing Programs

NASA:

- James Webb Space Telescope (Webb) Program
- Space Communications and Navigation

Other: Webb is an international collaboration among NASA, the European Space Agency (ESA), and the Canadian Space Agency (CSA).

- ESA is providing the Ariane launch vehicle and some of the scientific instruments, including the Near Infrared Spectrometer and Mid-Infrared Instrument.
- CSA is providing the Fine Guidance Sensor, which will enable Webb to point precisely, so that it can obtain high-quality images
- Northrop-Grumman Aerospace Systems (NGAS) is the main NASA industrial contractor, responsible for building the optical telescope, spacecraft bus, and sunshield, and preparing the observatory for launch. NGAS has led a team including three major sub-contractors: Ball Aerospace, Orbital-ATK, and Harris (formerly ITT Exelis).

Stakeholder/Congressional Consultations

NASA provides updates to Congress on the status of required milestones, in addition to quarterly updates to the Office of Management and Budget (OMB) and the Office of Science and Technology Policy (OSTP). NASA also routinely provides status to the Government Accountability Office (GAO).