



James Webb Space Telescope

Progress and Status

Amy S. Lo



Some recent history



- Ned Wright's PhD students, 8 total

Name	Year	Where they ended up...?
Arati Chokshi	1986	Professor Astronomy, India
Mary Beth Kaiser	1990	Research Scientist, Johns Hopkins
Yeuncheol Jeong	1994	Professor Astronomy, Korea
Varoujan Gorjian	1998	JPL Scientist, IPAC
Ranga-Ram Chary	1999	Research Scientist, IPAC
Amy Lo	2005	Engineer, Northrop Grumman
Louis Levenson	2008	Post Doc, Caltech/IPAC
Xi Chen	2009	Scientist, IPAC



Some recent history



- Ned Wright's PhD students, ~~8~~ 10 total

Name	Year	Current Position
Arati Chokshi	1986	Professor Astronomy, India
Mary Beth Kaiser	1990	Research Scientist, Johns Hopkins
Yeuncheol Jeong	1994	Professor Astronomy, Korea
Varoujan Gorjian	1998	Research Astronomer, JPL
Ranga-Ram Chary	1999	Research Scientist, IPAC
Amy Lo	2005	Engineer, Northrop Grumman
Louis Levenson	2008	Patent Agent, McDermott Will & Emery
Xi Chen	2009	Scientist, IPAC
Sean Lake	2017	
Anson Lam	Soon	UCLA



Some Less Recent History



Accession Number : AD0691770

Title : PROBABILITY DENSITY FUNCTIONS OF n VECTORS ADDED WITH RANDOM DIRECTIONS.

Descriptive Note : Interim rept.,

Corporate Author : NAVAL RESEARCH LAB WASHINGTON D C

Personal Author(s) : Wright, Edward L.

Report Date : 17 JUL 1969

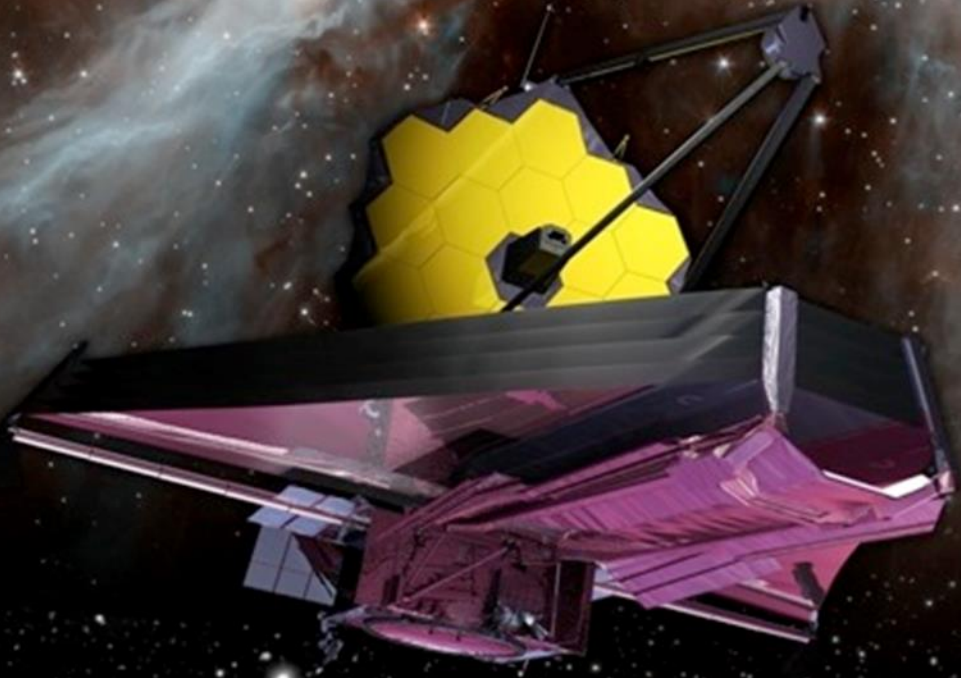
Pagination or Media Count : 15

Abstract : The probability density function of the resultant amplitude of n vectors in two dimensions, added with random directions, was calculated through an integral transformation which takes a probability density function for k components into a probability density function for k + 1 components. Examples were calculated to show the qualitative aspects of the density functions for 2, 3, and 4 components, with arbitrarily given magnitudes. For n = or > 5, the probability distribution rapidly approaches the Rayleigh distribution. The method also allows the use of a Rayleigh vector as one of the components. (Author)

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 matched-conic solutions to round-trip interplanetary trajectory problems that insure state-vector continuity at all boundaries, 4705
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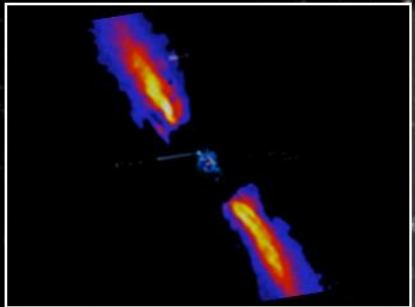


The Webb Telescope will build on Hubble's observations and answer the questions:

- How did the universe make galaxies?
- How are stars made?
- Are there other planets that can support life?



First Light



Planets and the Origins of Life



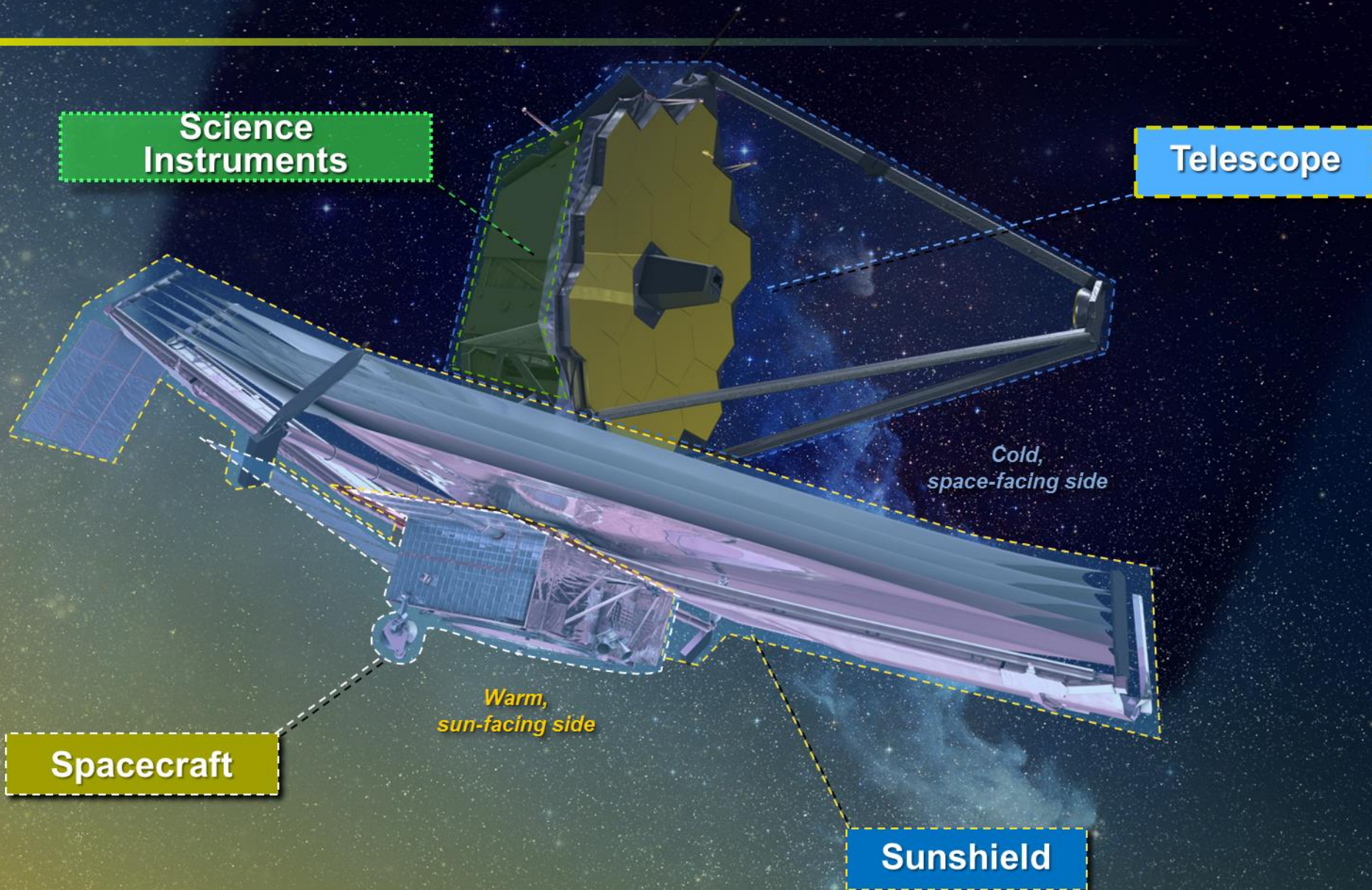
The Assembly of Galaxies



Birth of Stars and Planets

Major JWST Observatory Elements

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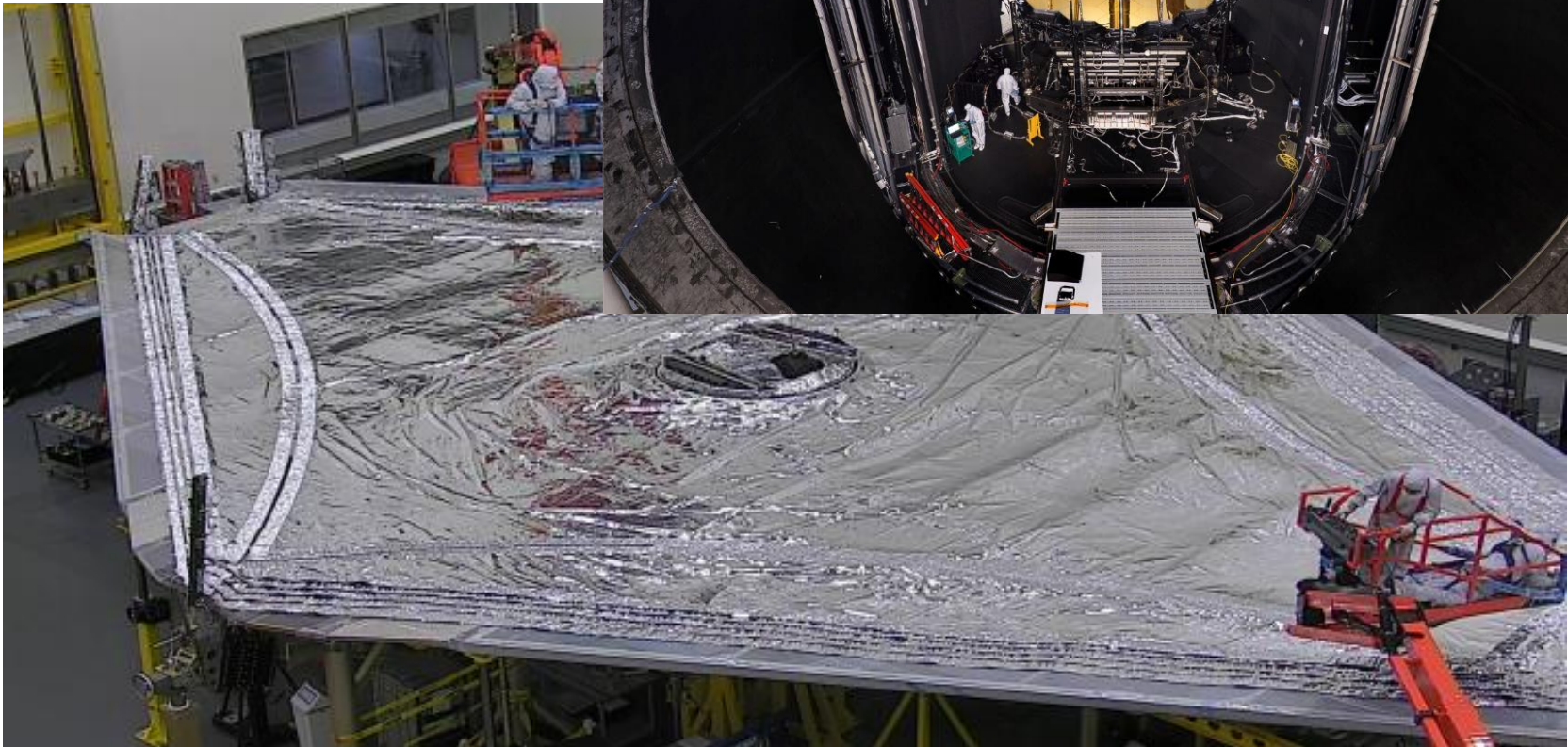
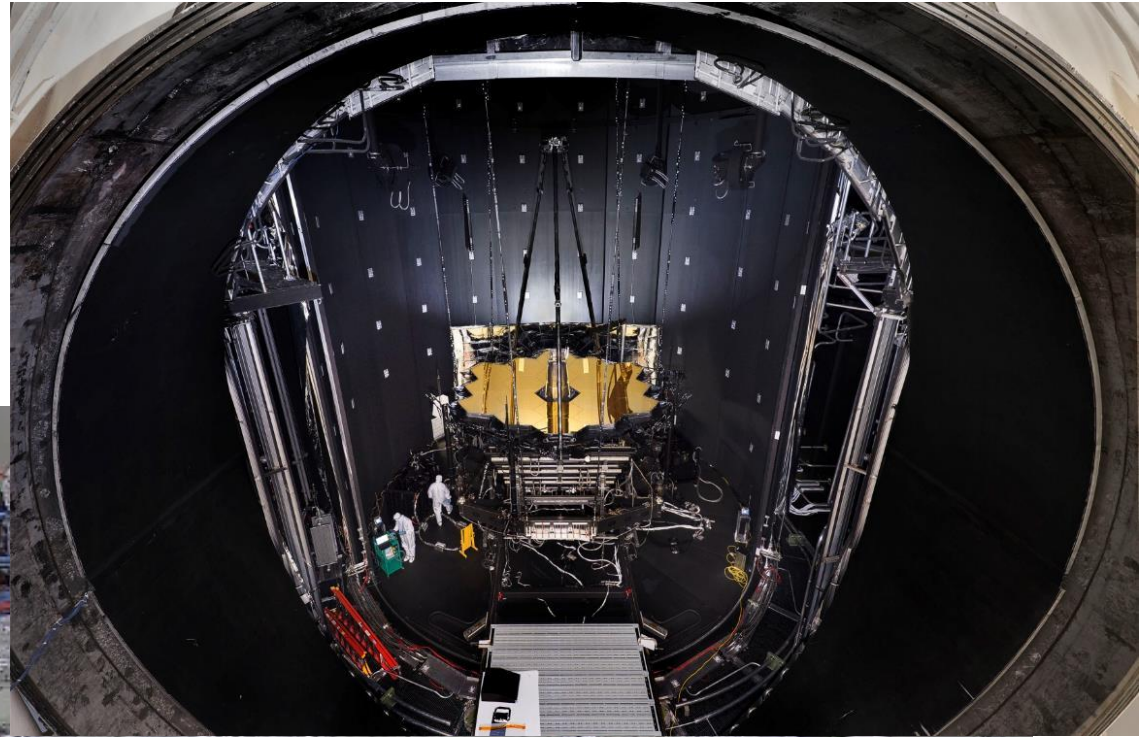


JWST Status and Progress



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- **Science Payload and Sunshield + Spacecraft**
 - Assembled!
- **We are in testing**

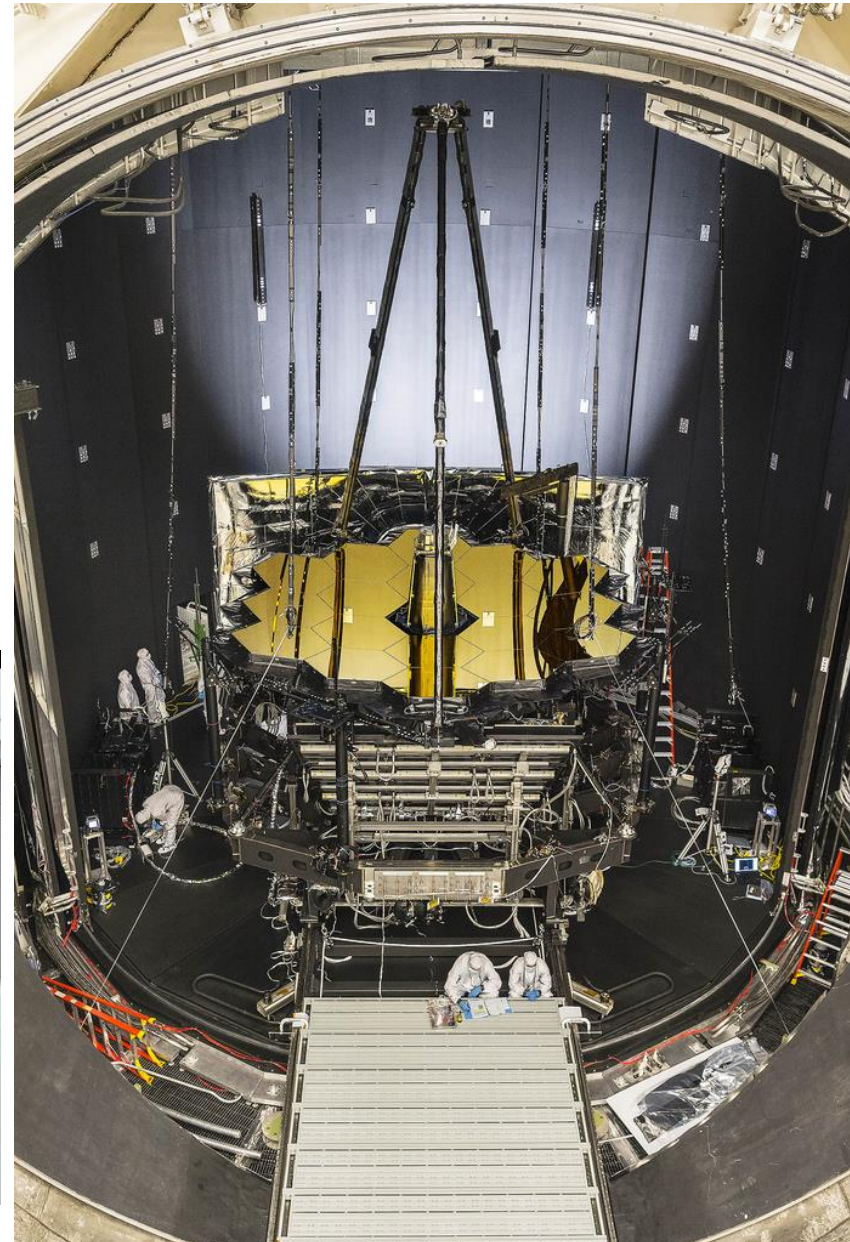
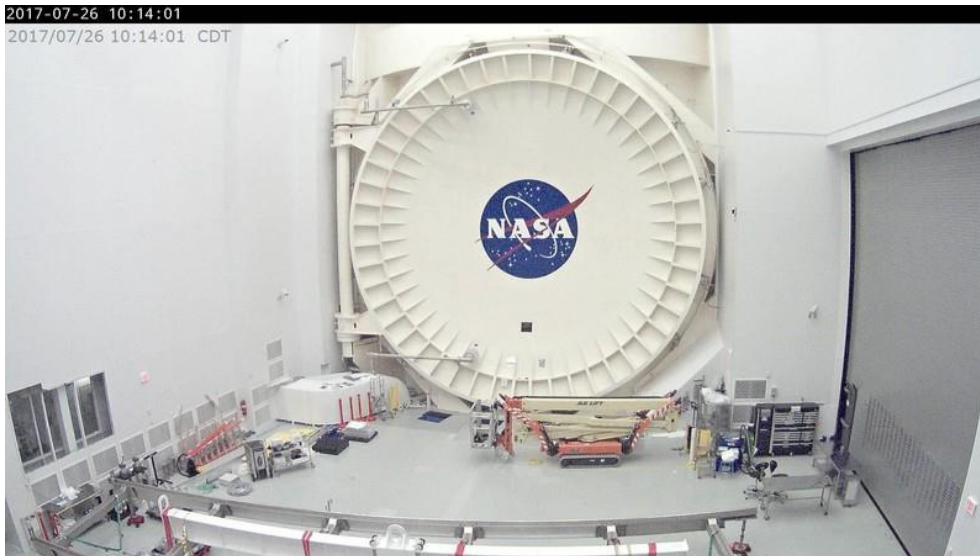




Telescope + Science Instrument



- Monthly updates of accomplishments: <https://jwst.nasa.gov/recentaccomplish.html>
- Telescope + Instruments = OTIS
- In Chamber A at JSC, @20K
- Live webcam: <https://jwst.nasa.gov/index.html>





Spacecraft + Sunshield



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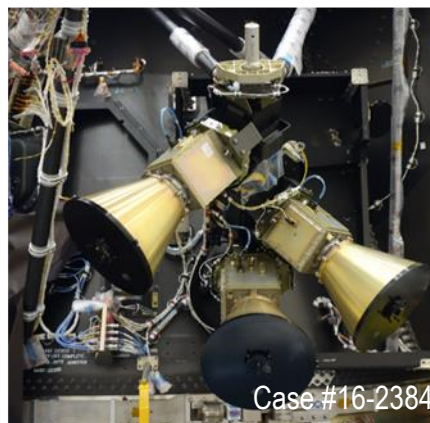
- Building up the SC + Sunshield Path Finders



Case #15-0356



Case #16-2384



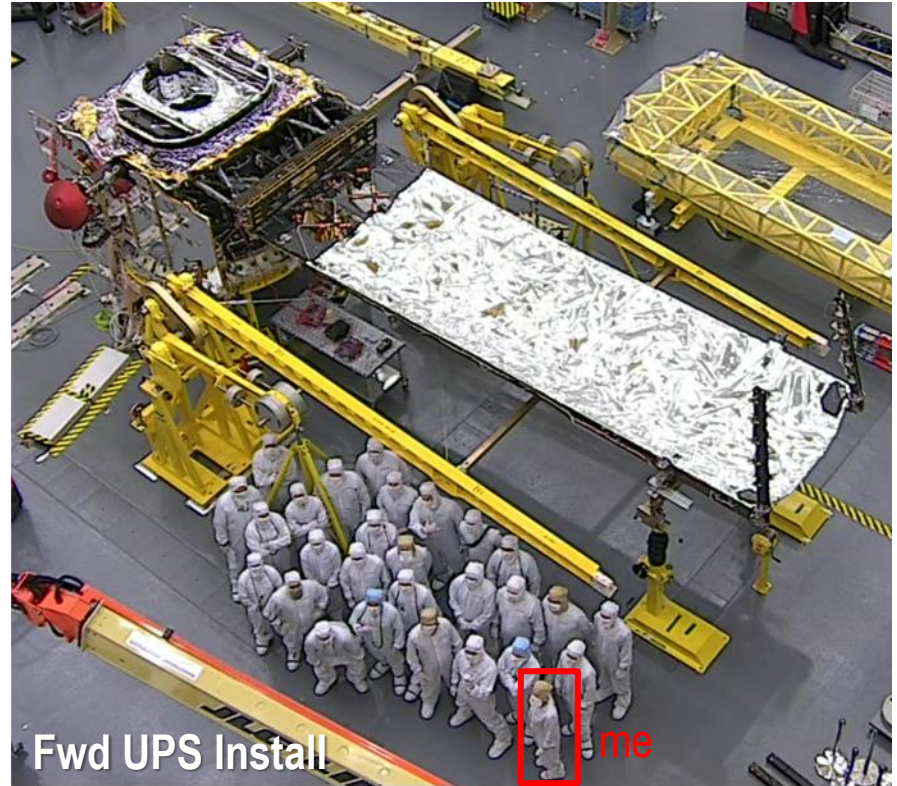
Case #16-2384



Spacecraft Build up in Redondo Beach Facility



Panel Closure



Fwd UPS Install

me



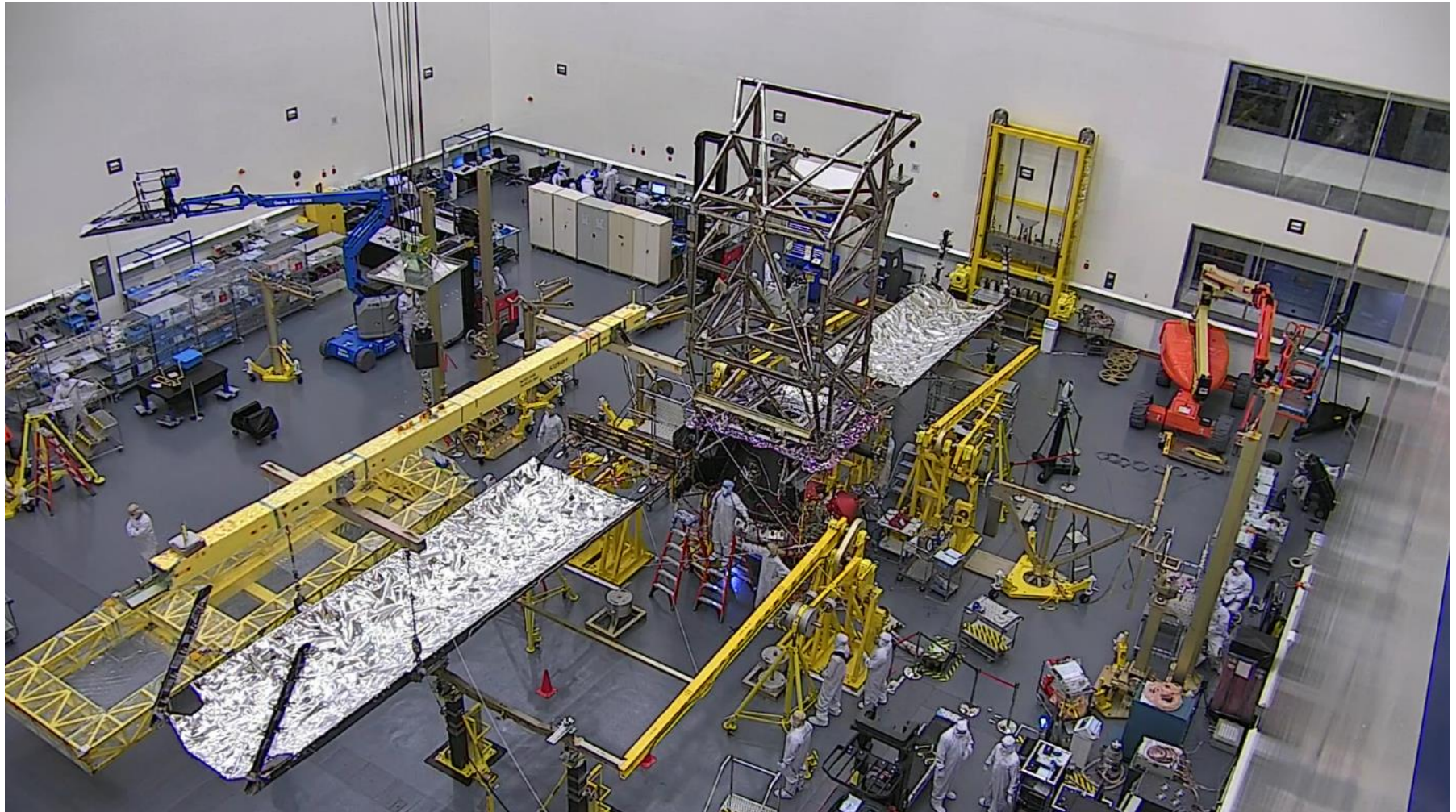
GAA Install



MBA Install

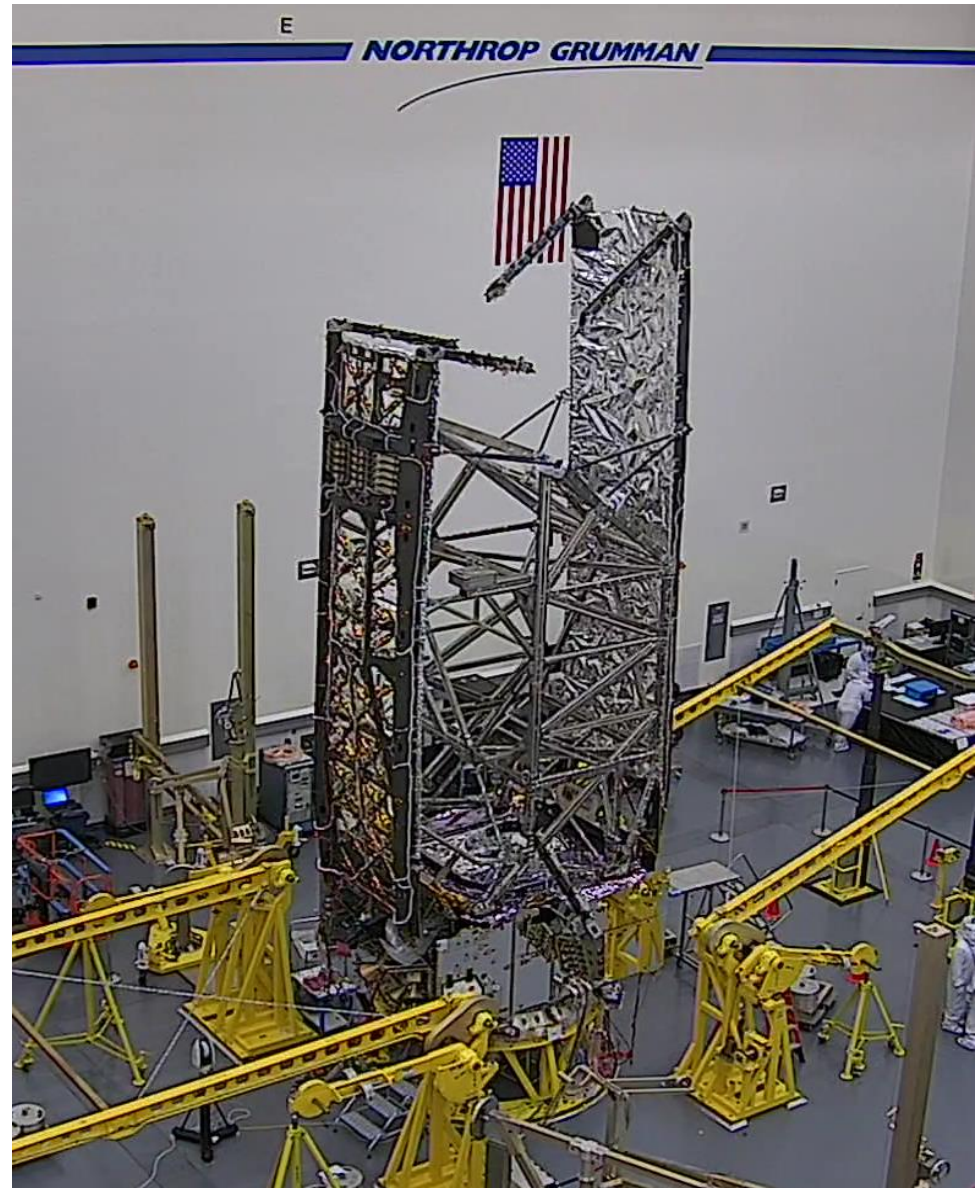
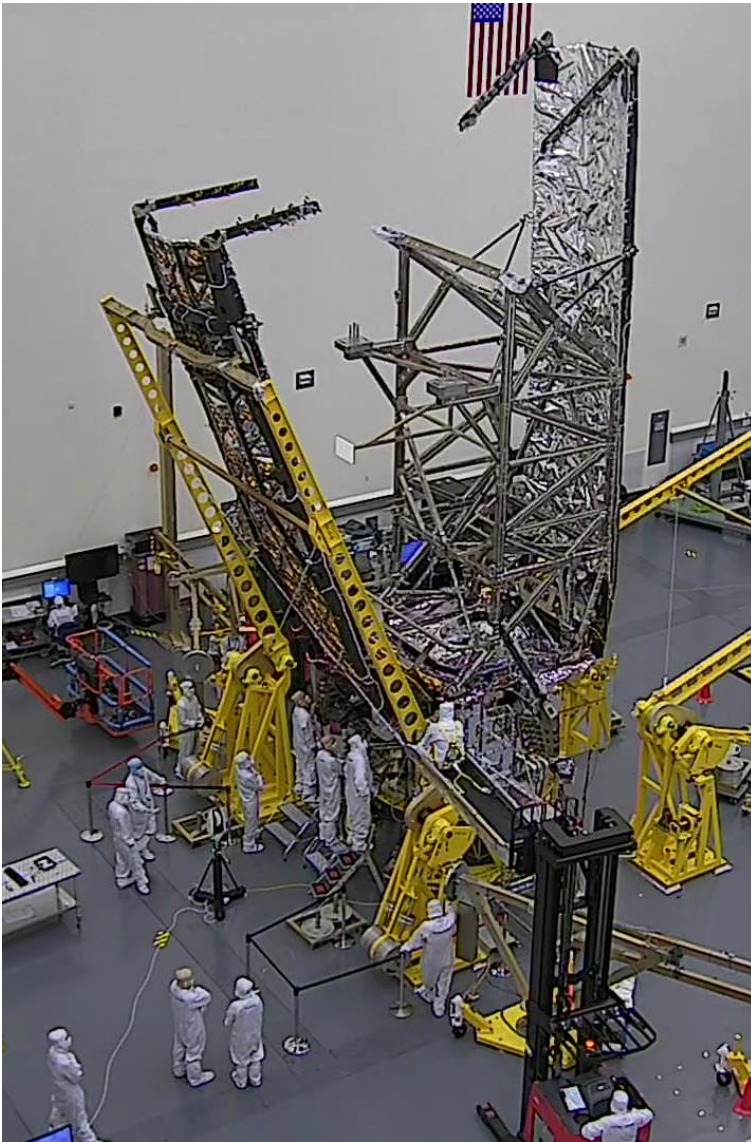


All Sunshield Components Installed





Sunshield Stowed

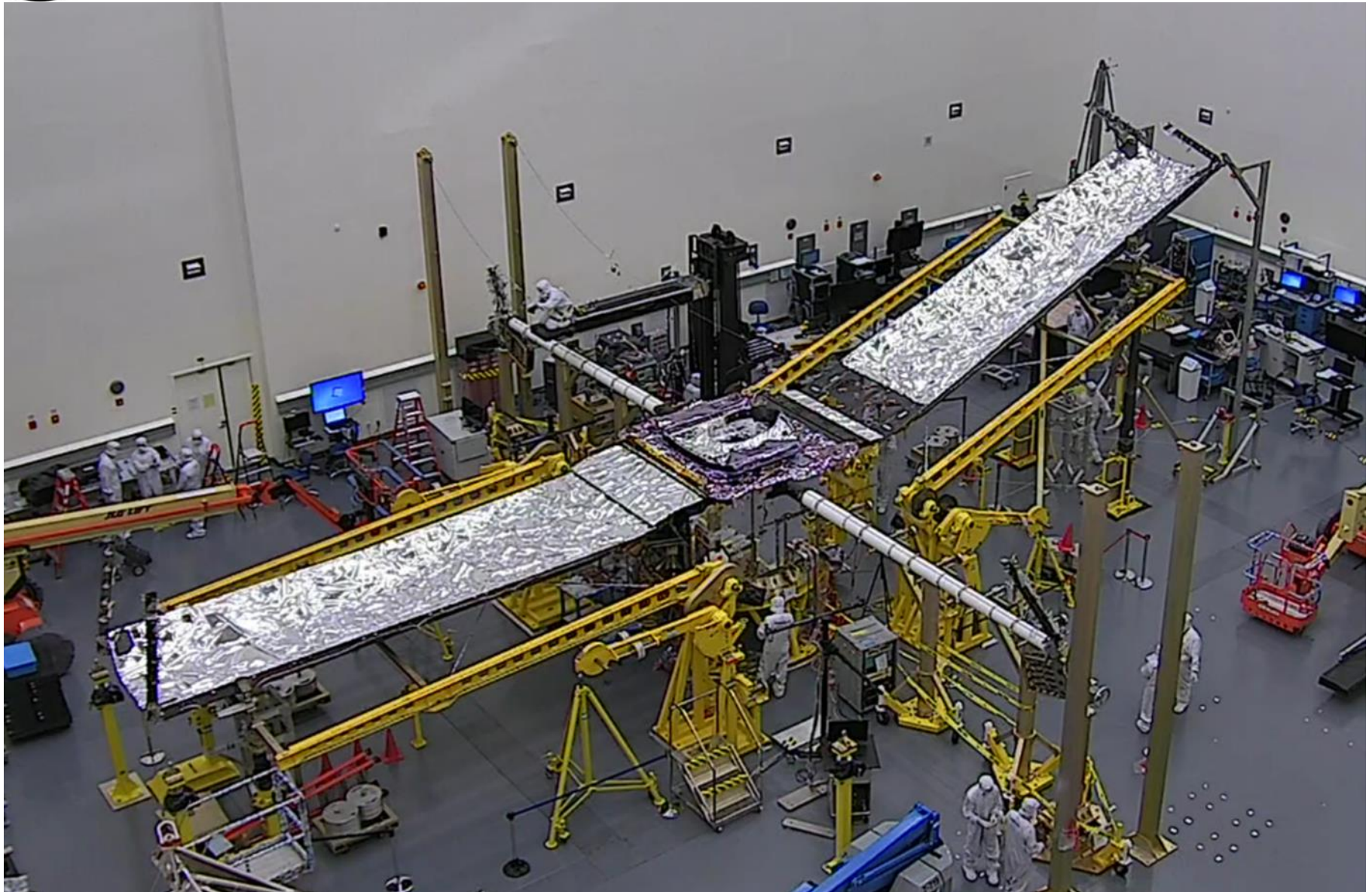




Sunshield Deployed



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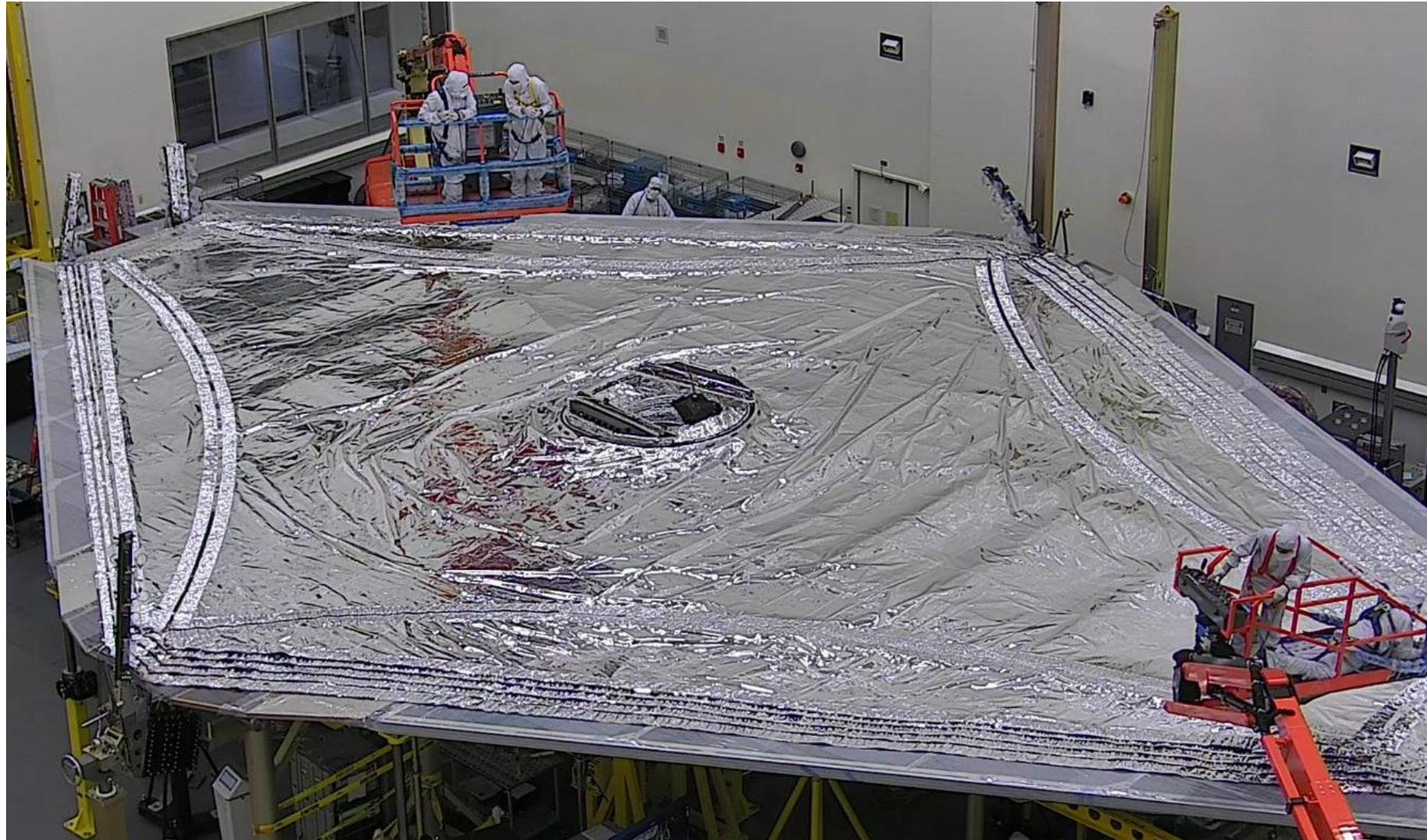




All 5 Layers of Membranes Installed



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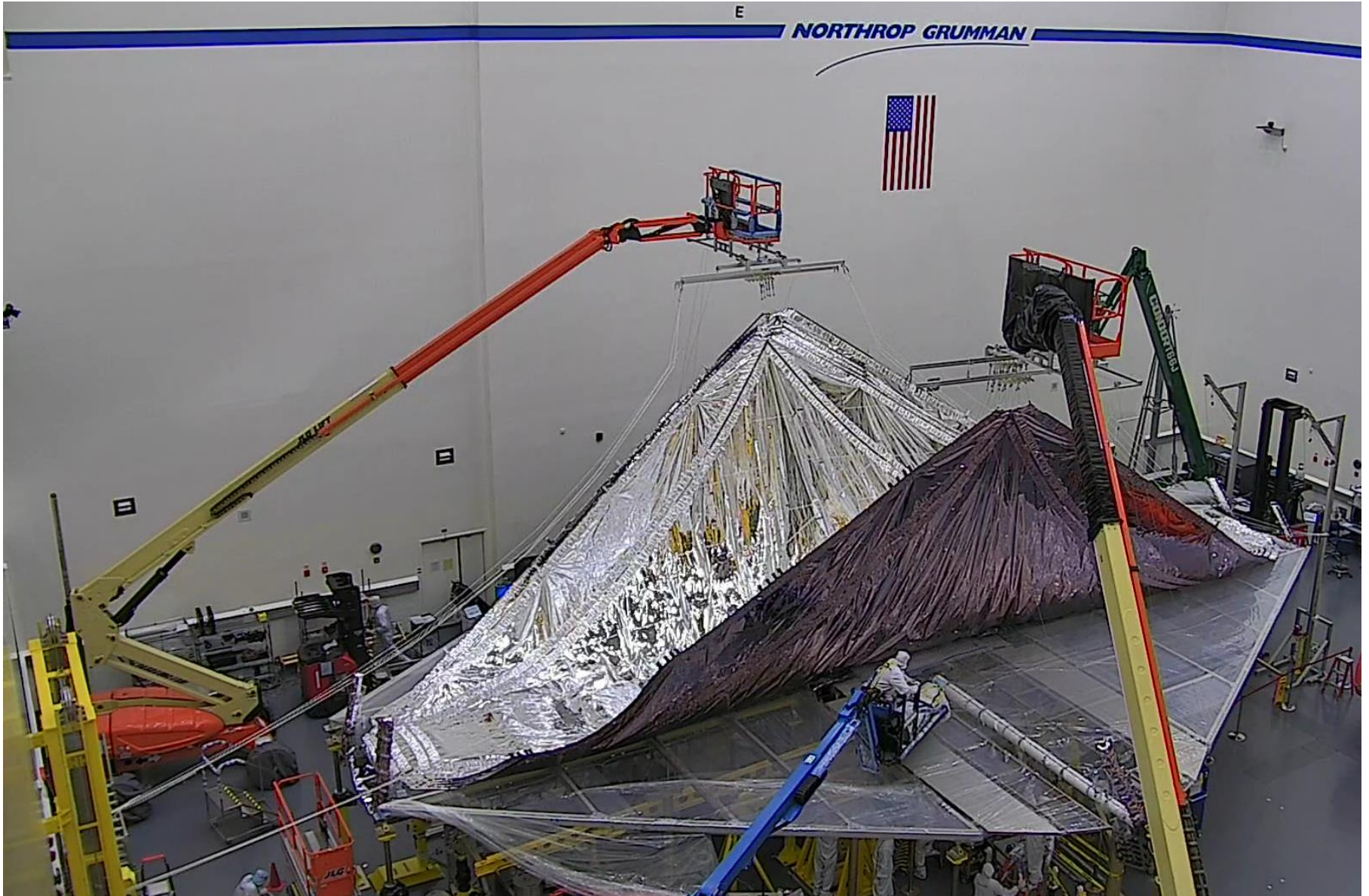




Membrane Folding

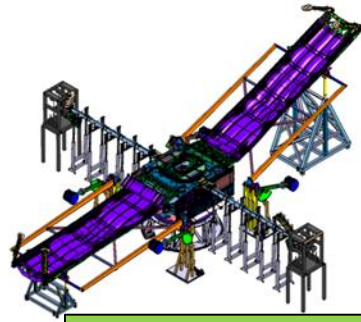


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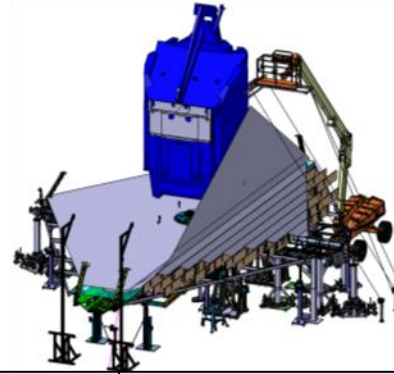
What's Next



Membrane Deployment

LV Shock

SCE Environment Test



OBS Integration	OBS Environment Test	OBS Deploy	Ship
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OTIS JSC Cryo Test



2017

2018



Happy Birthday Ned

Simulated JWST "deep field", STScI



Questions?

THANK YOU!