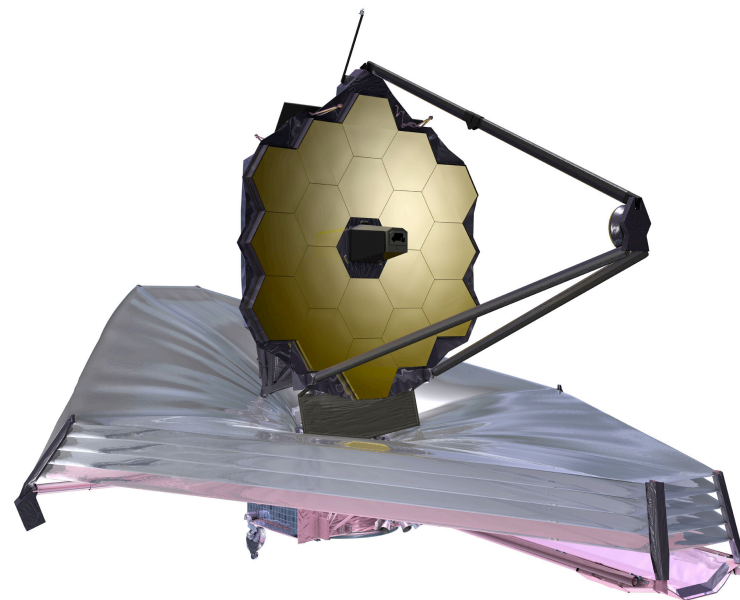
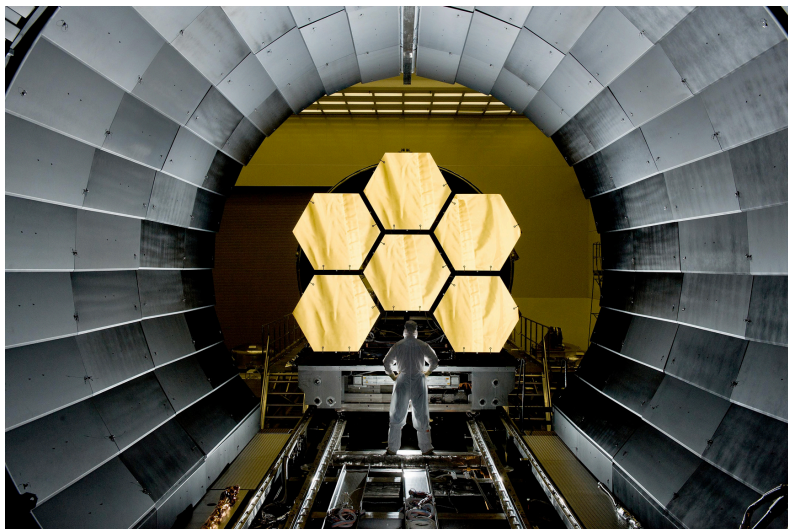
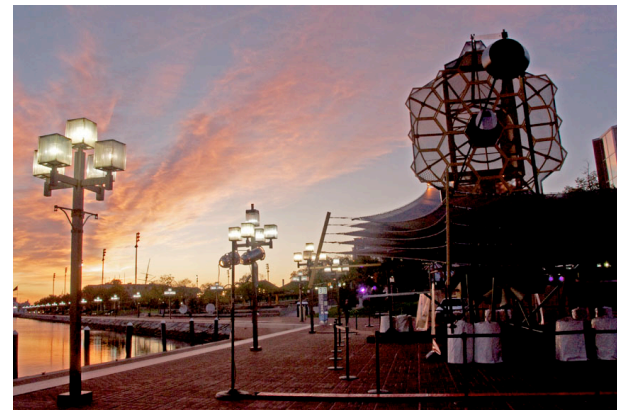
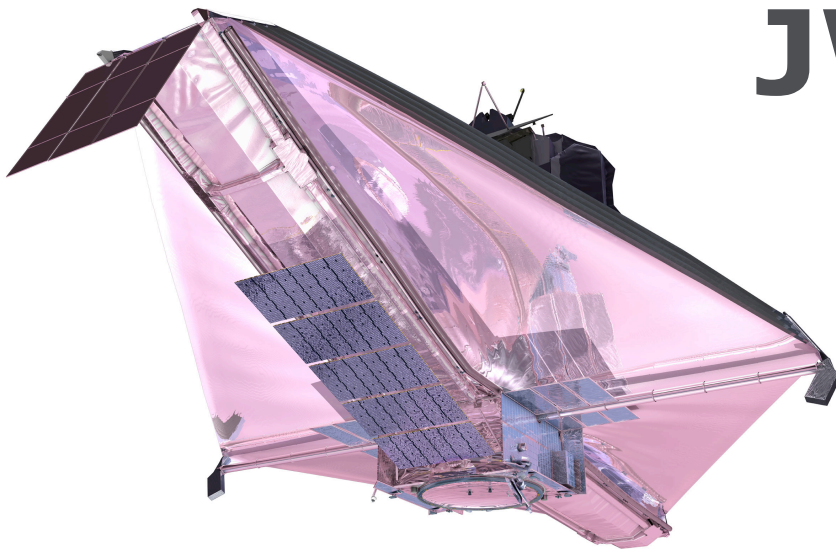
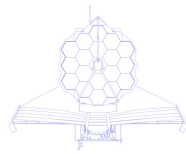
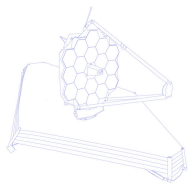




# JWST status





# Overall situation

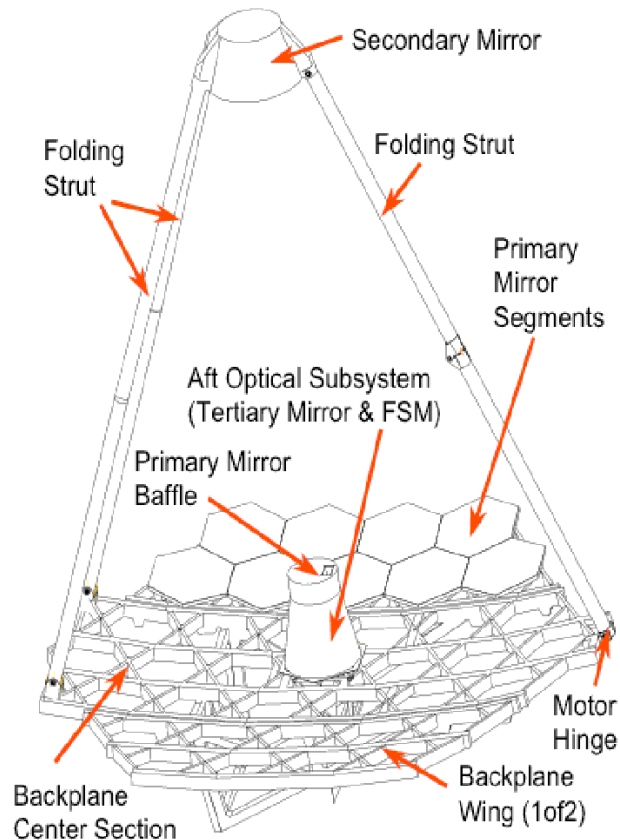


- 2012 has seen some major achievements for the JWST mission.
  - All the mirrors are ready!
  - Delivery of two of the 4 JWST instruments: MIRI and FGS/NIRISS.
  - Plenty of progress in all areas.
- Since the “replan” in 2011, the JWST project is back on track.
  - Major consolidation work.
  - These efforts are now bearing fruits as project is heading steadily toward a 2018 launch!



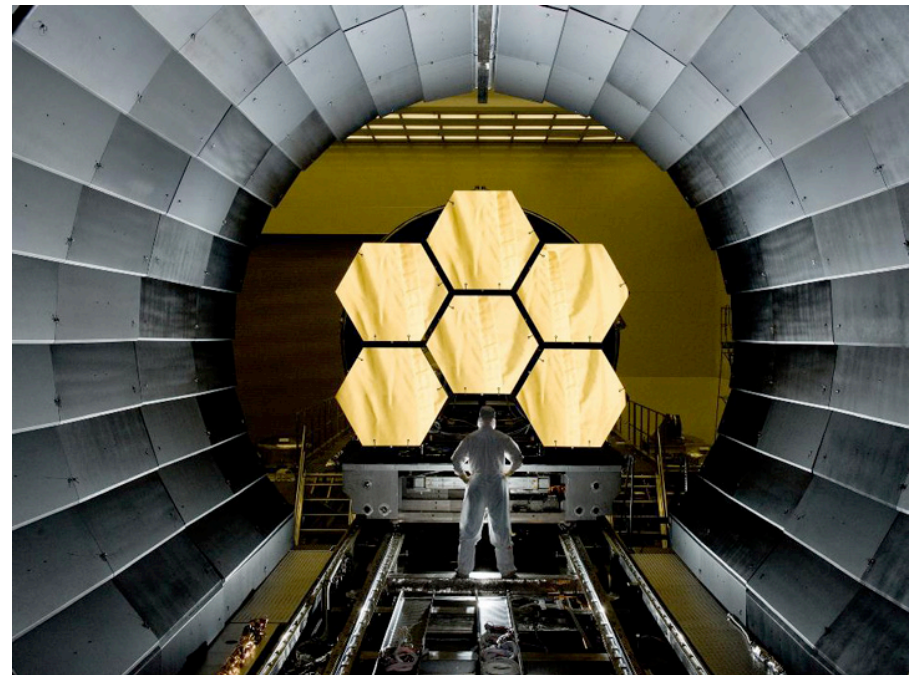
# JWST mirrors

- All JWST mirrors have been completed and they meet their optical performance requirements.



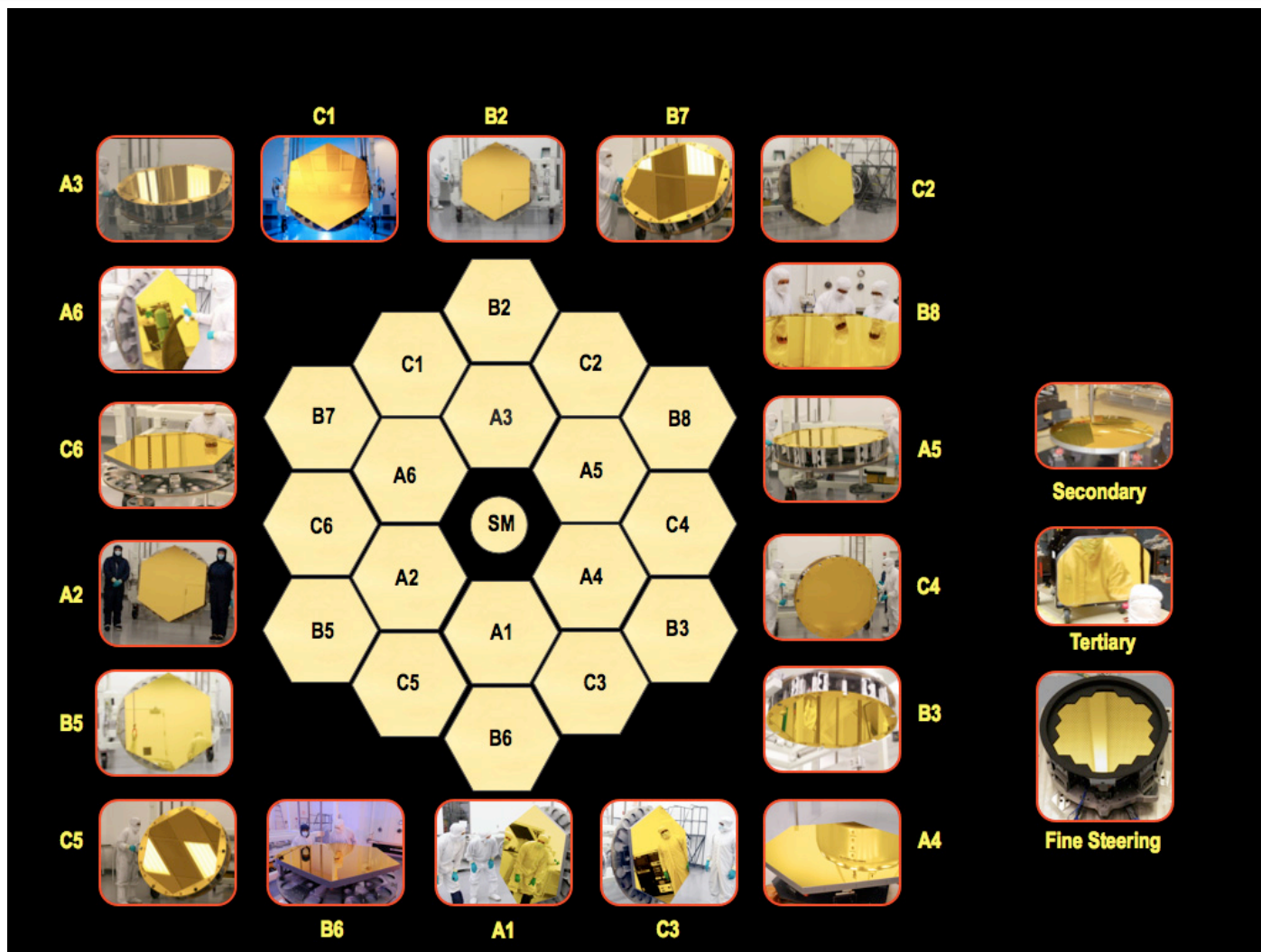
**FSM** = fine steering mirror

6 of the flight mirrors before cryogenic testing



Credit: NASA/MSFC/David Higginbotham

# JWST mirrors

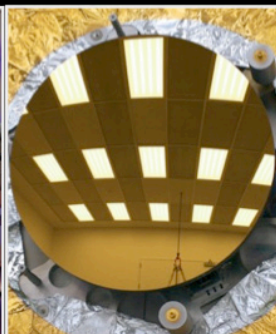


# JWST mirrors

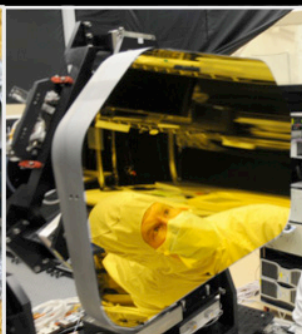
Primary Mirror Segment



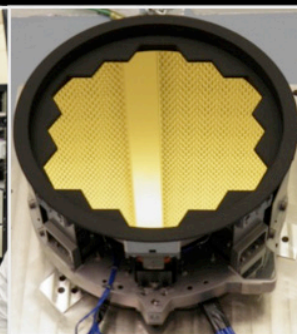
Secondary Mirror



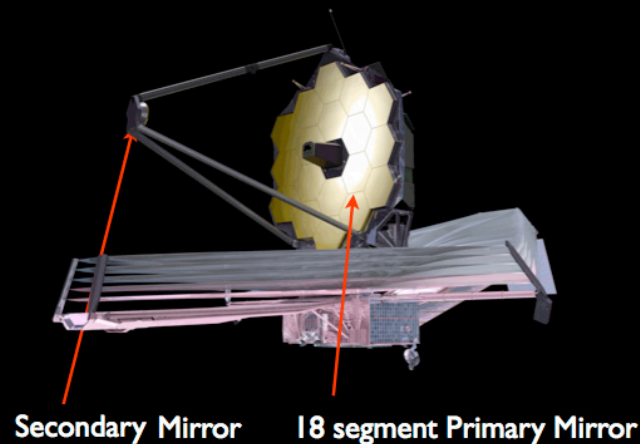
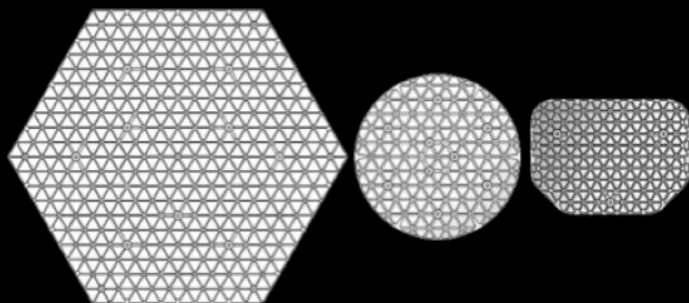
Tertiary Mirror



Fine Steering Mirror



Rear side view of mirrors showing relative size







# JWST mirrors



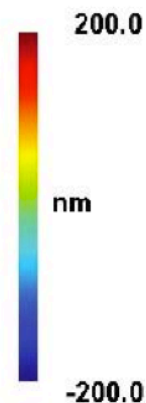
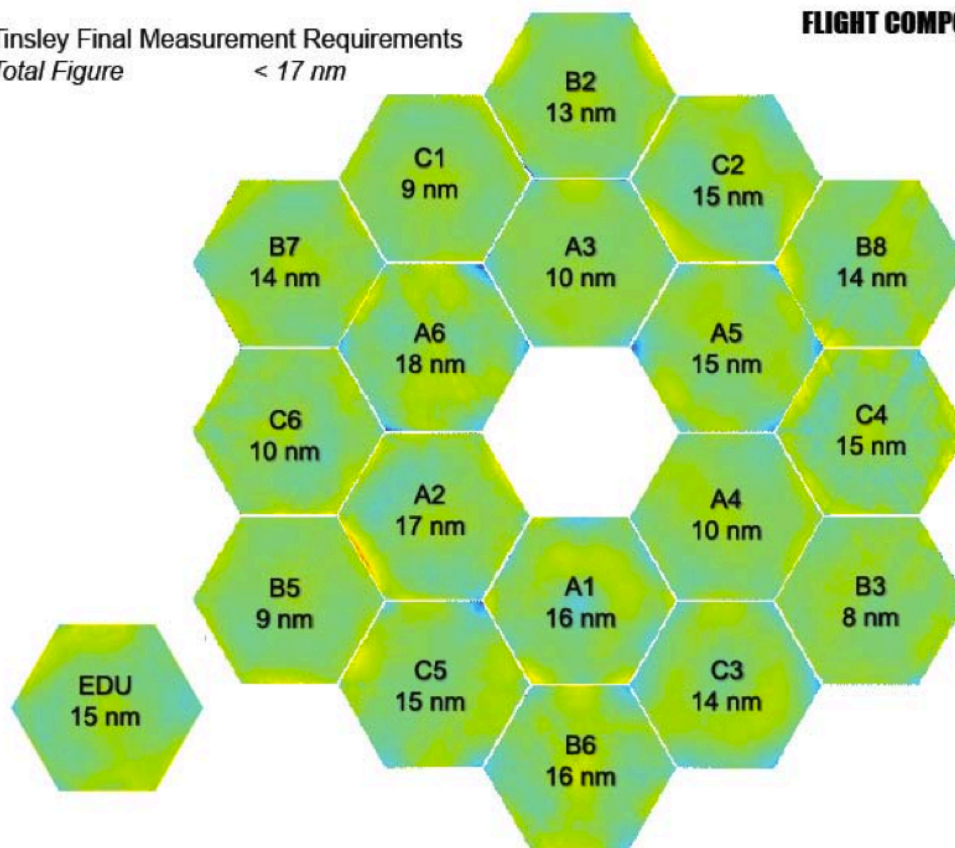
## JWST Flight Mirrors Have Completed Polishing



Tinsley Final Measurement Requirements  
Total Figure < 17 nm

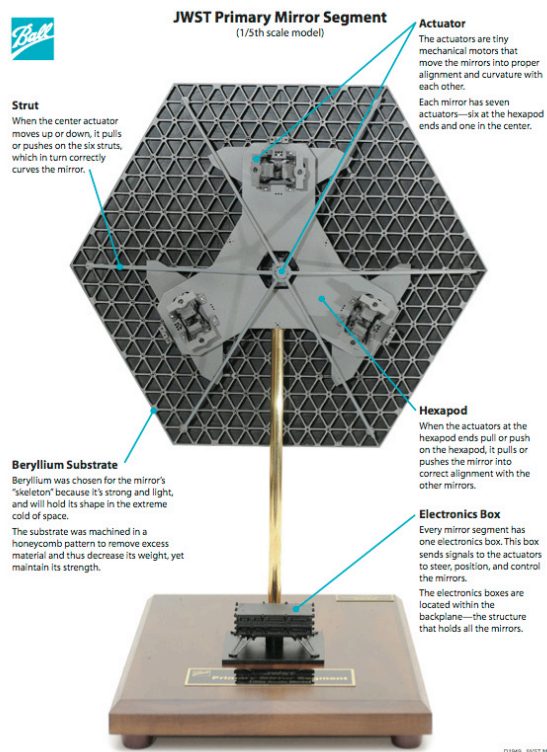
FLIGHT COMPOSITE RMS: 13.3 nm

PV: 976.4 nm



# JWST mirrors

- **Next steps:** during the next 2 years, finalize the work on the actuators and progressively deliver the mirrors with their actuators to GSFC.



Mirrors have already started to arrive at GSFC.



# The delivery of the MIRI optical assembly



- After a very long (and successful) cryogenic campaign at the end of 2010, the MIRI optical assembly went through "acceptance" and was delivered to NASA in May 2012!





# The delivery of the MIRI optical assembly



Delivery at GSFC with its bottom part wrapped in its thermal cover.

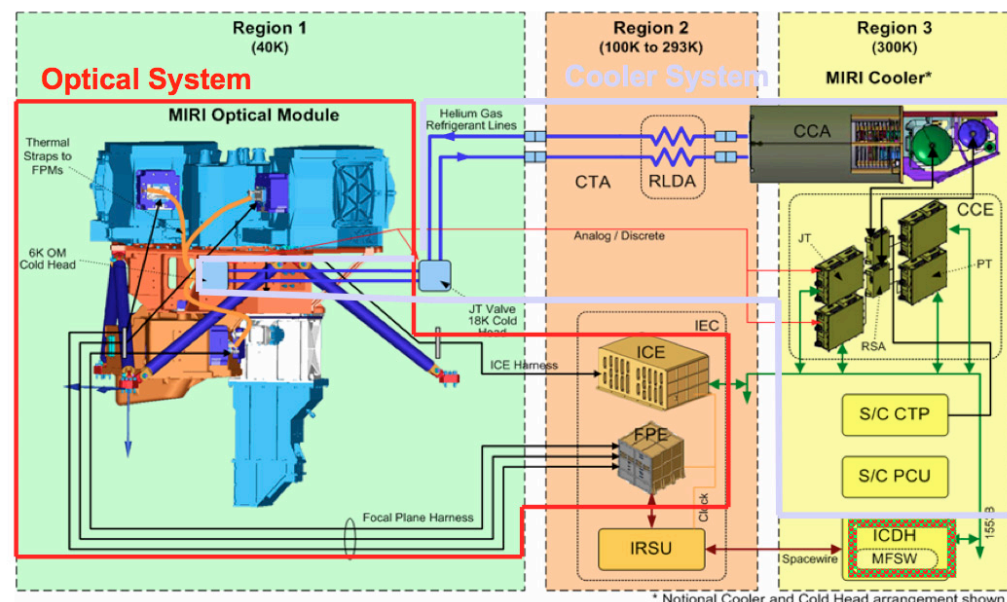
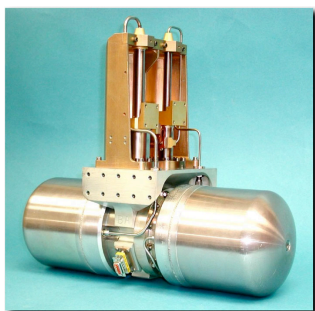
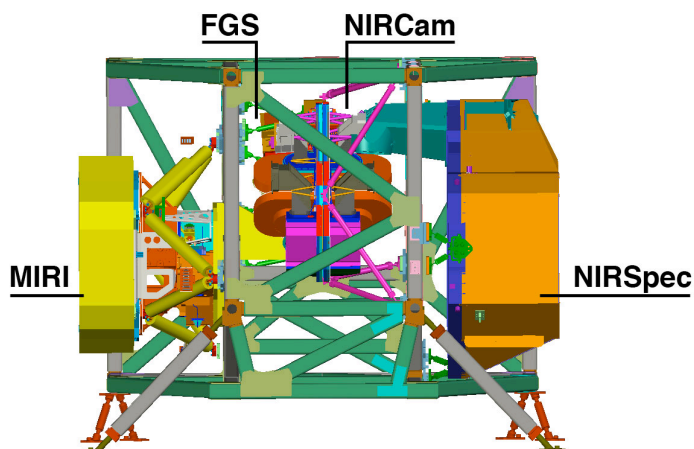
Before delivery and not yet "wrapped" in its thermal cover



# The delivery of the MIRI optical assembly



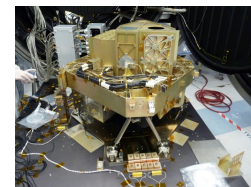
- **Next steps:** integrate MIRI into the ISIM structure that supports all the instruments and couple it with the MIRI cryo-cooler.



MIRI European Consortium



# The delivery of the FGS/ NIRISS instrument

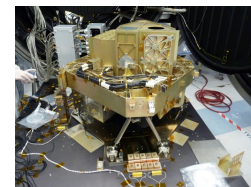


- The second JWST instrument FGS/NIRISS was delivered to GSFC in July 2012!

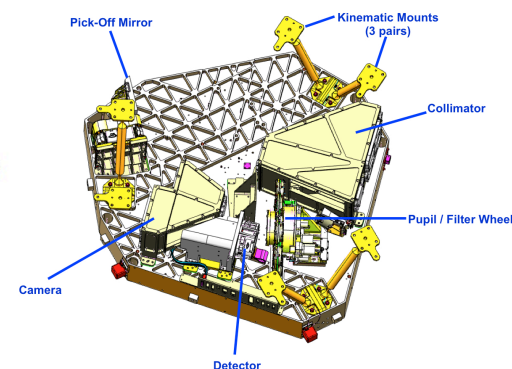
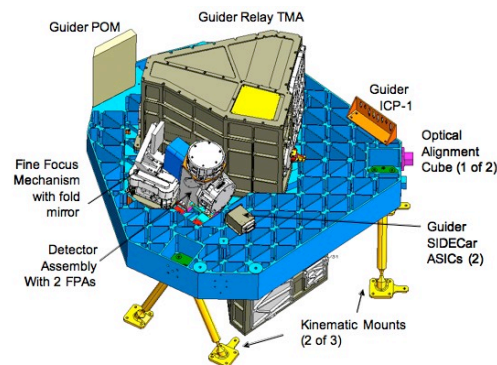




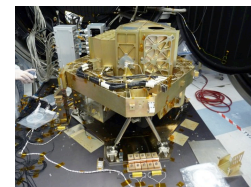
# The delivery of the FGS/ NIRISS instrument



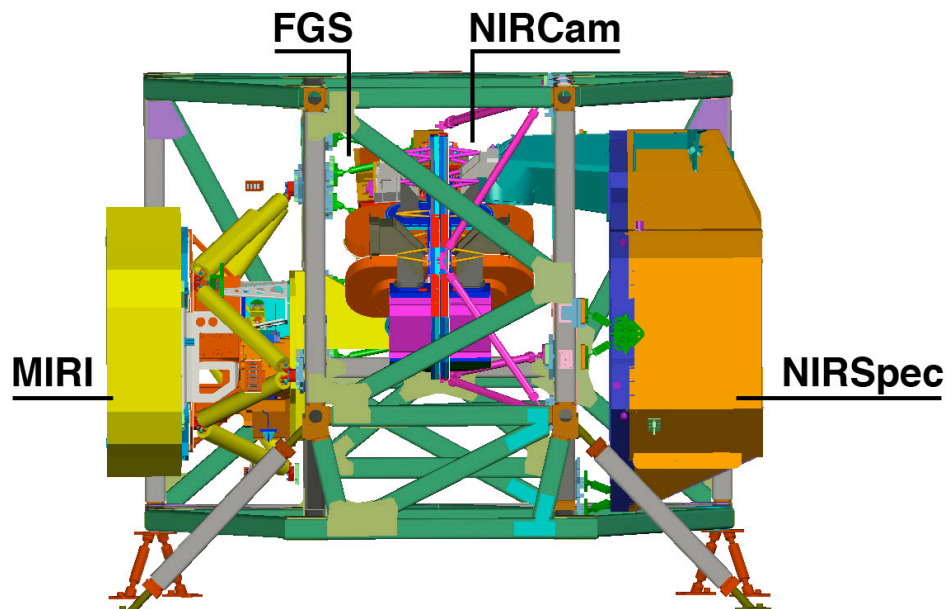
- The second JWST instrument FGS/NIRISS was delivered to GSFC in July 2012!



# The delivery of the FGS/ NIRISS instrument



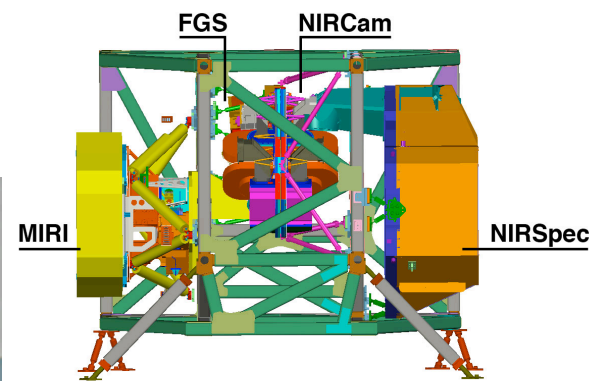
- **Next steps:** integrate FGS/NIRISS into the ISIM structure that supports all the instruments.





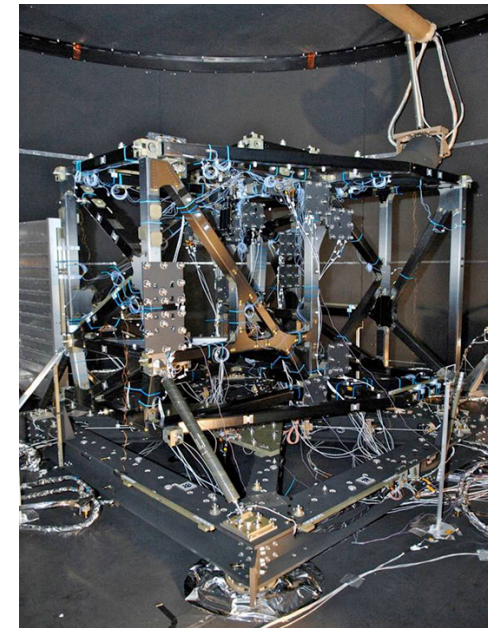
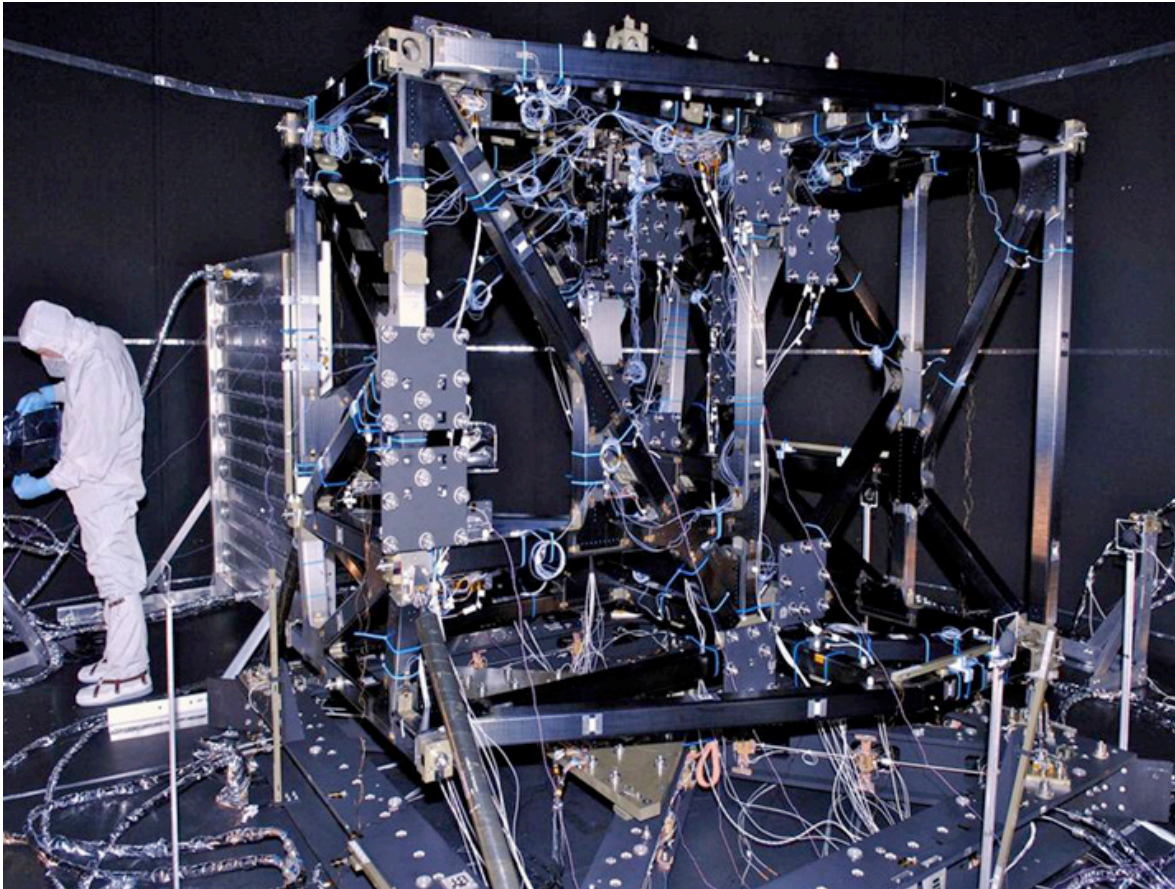
# JWST hardware image gallery

- The ISIM structure (flight model)





# JWST hardware image gallery



The ISIM structure getting ready for cryogenic testing

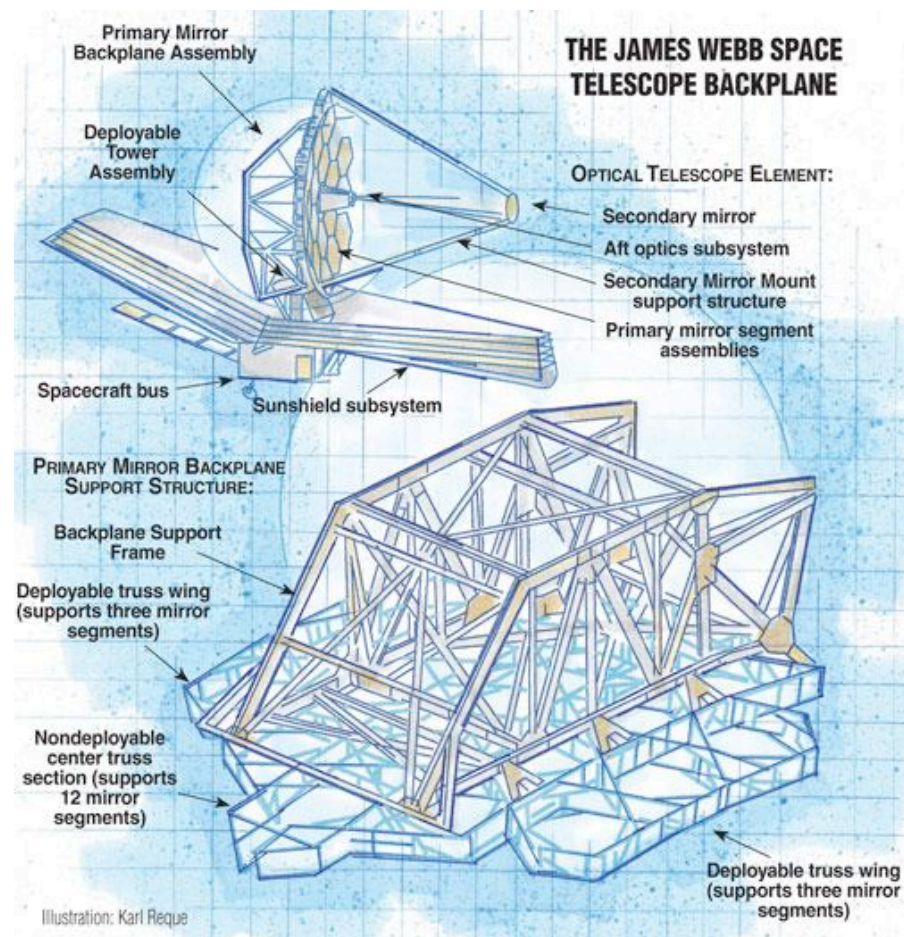


# JWST hardware image gallery

- The JWST mirror backplane (flight model).



Central part  
(without the  
"wings")

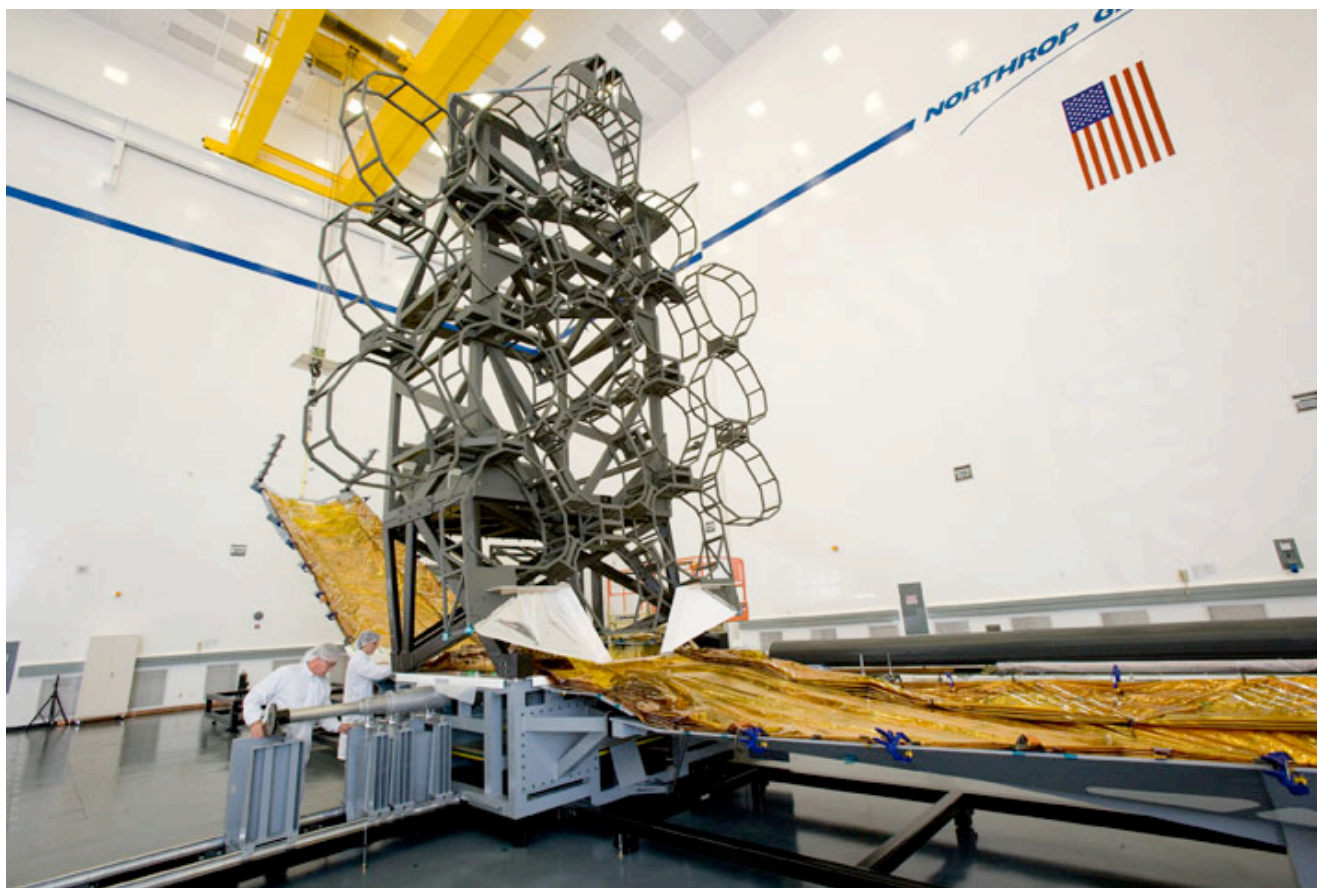


D. Dawson 2012 in "High-performance composites"



# JWST hardware image gallery

- Full-scale “mock-up” of the mirror backplane structure.



# JWST hardware image gallery

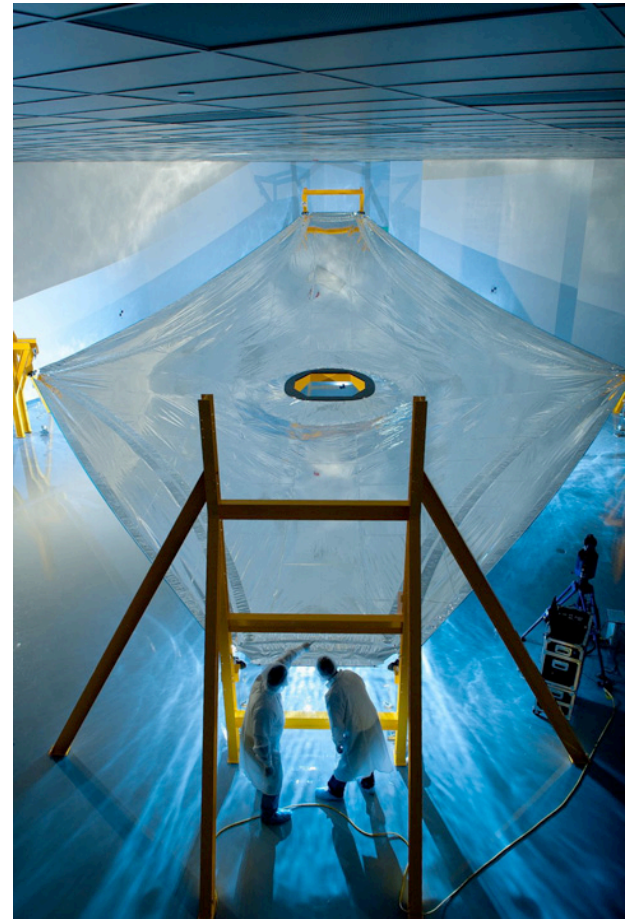
- The JWST sunshield (full-scale test membrane).





# JWST hardware image gallery

- The JWST sunshield (full-scale test membrane).





# JWST hardware image gallery

- **The JWST sunshield, checking the shape of each membrane.**

Checking that the shape under 1G conditions is the one we expect.

This confirms that the models are correct and that we can use them to predict the “in-orbit” shape.

