

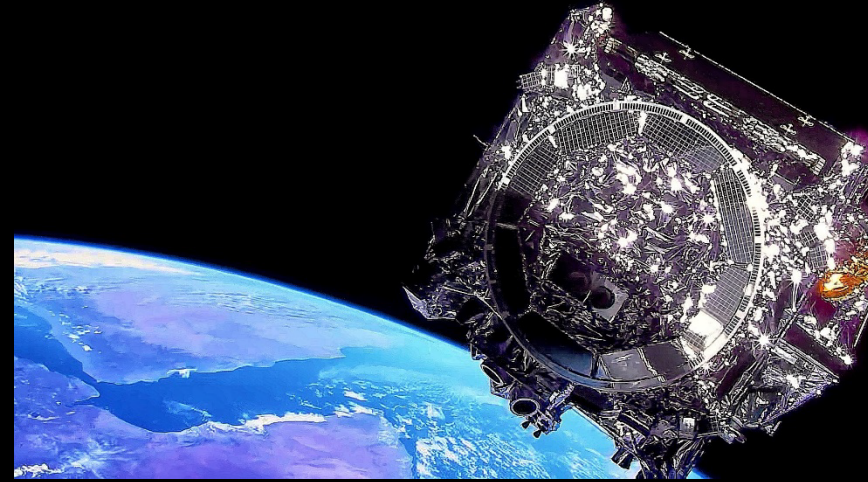
Habitable Worlds Observatory

Lee Feinberg, NASA Goddard Space Flight Center

Webb's Performance Is a Great Starting Point

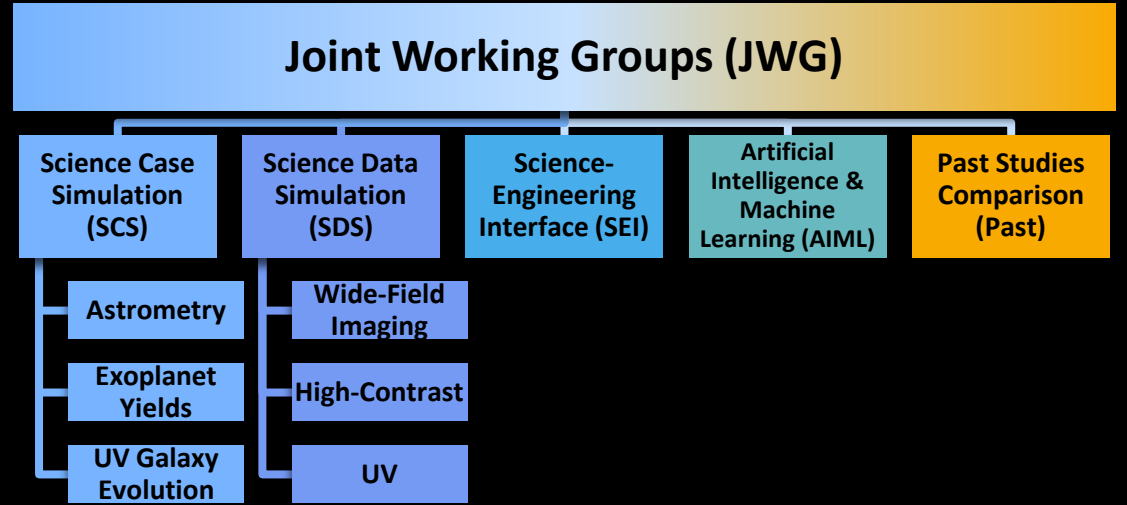
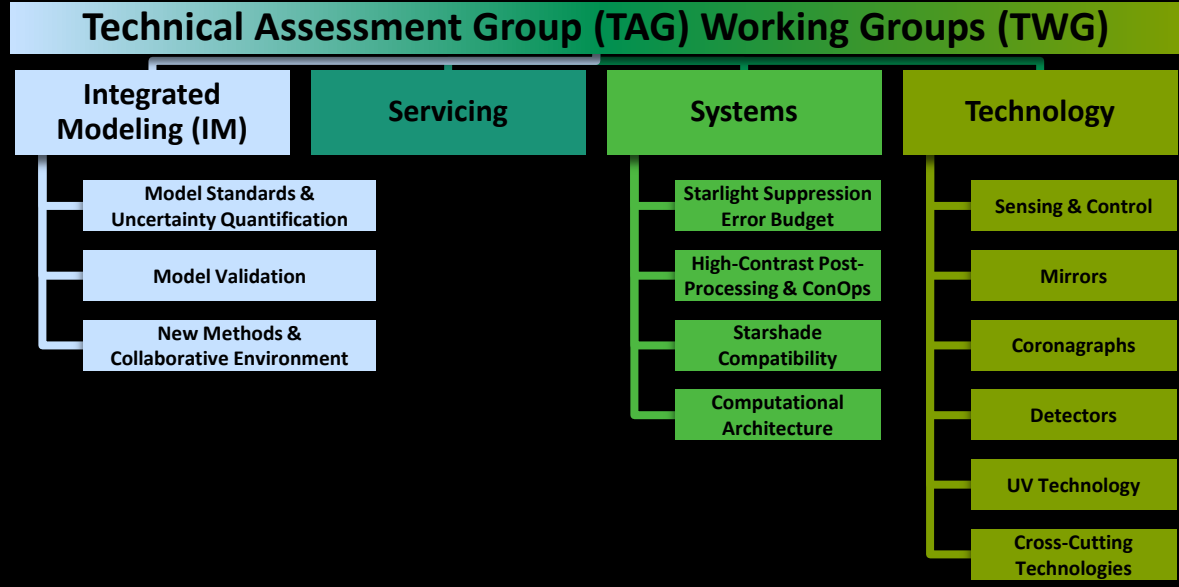
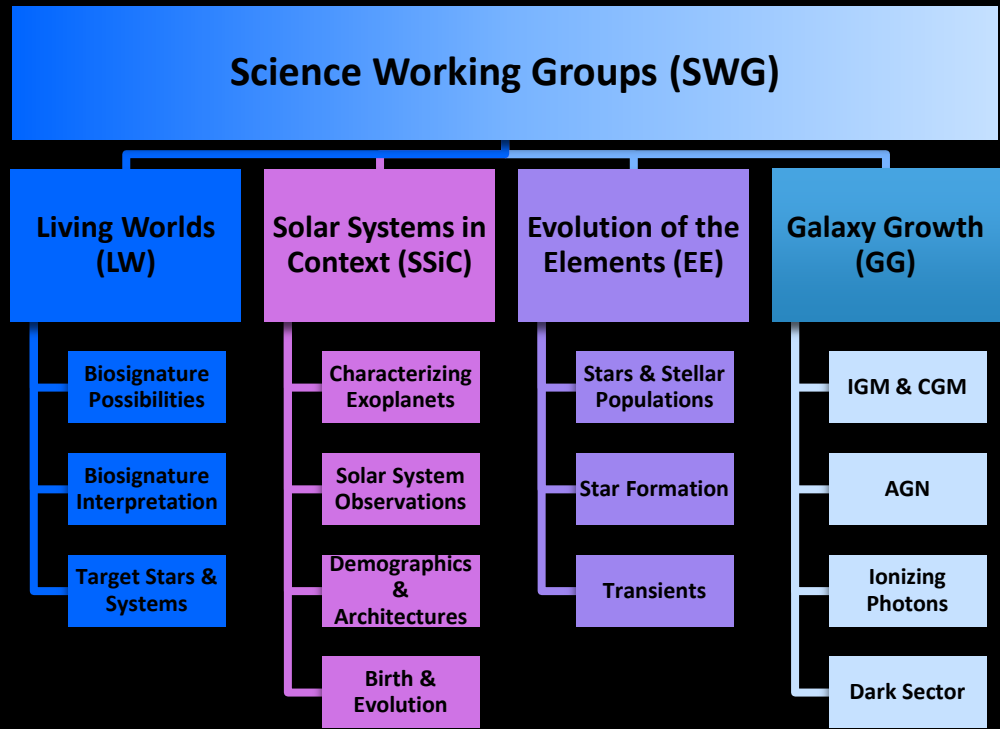
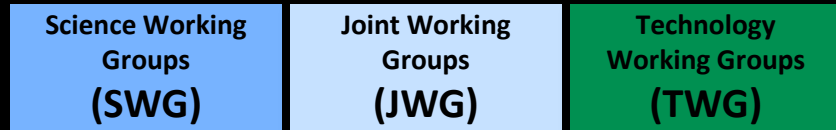


- After 2+ years in space, Webb's image quality remains twice as sharp as required and a great starting point for the Habitable Worlds Observatory (HWO)
- Early studies for HWO are applying lessons learned:
 - Maturing Science Definition
 - Maturing Architectures
 - Maturing Technology
 - Factoring in big rockets and servicing

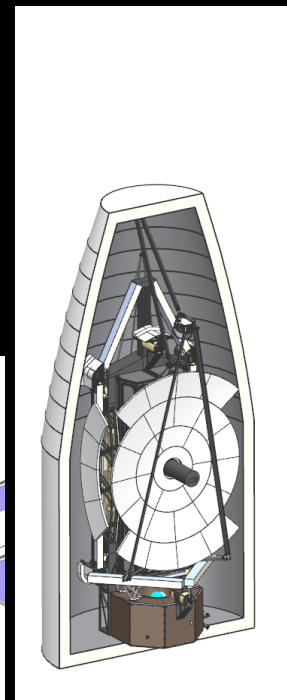
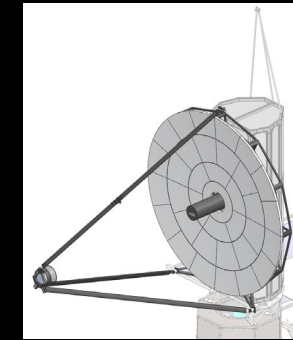
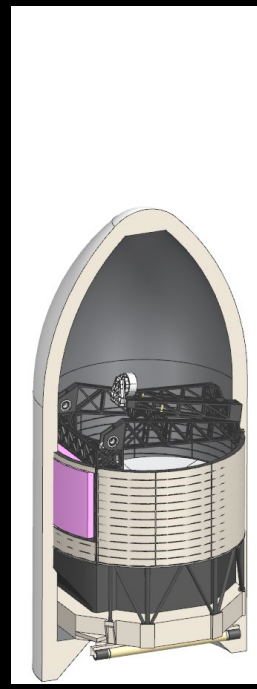
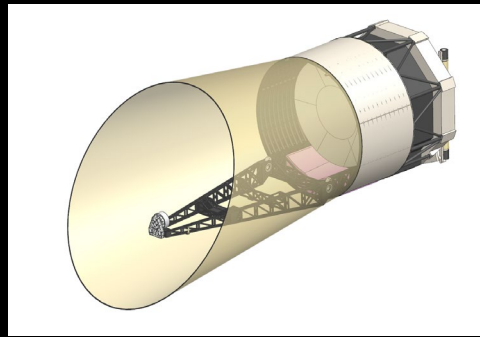
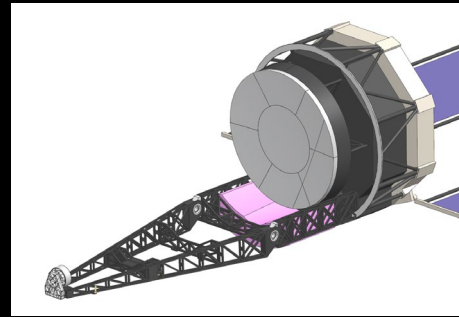
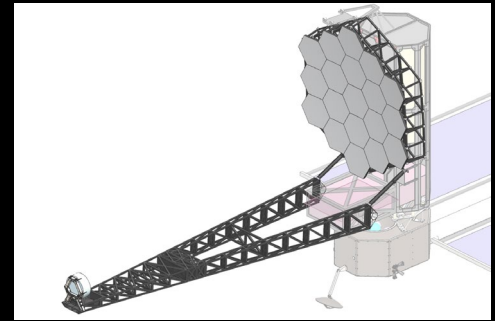


Webb's Cosmic Cliffs in the Carina Nebula

HABITABLE WORLDS OBSERVATORY SCIENCE AND ENGINEERING WORKING GROUPS



EXPLORING THE HWO TRADE SPACE: THREE INITIAL EXPLORATORY ANALYTIC CASES



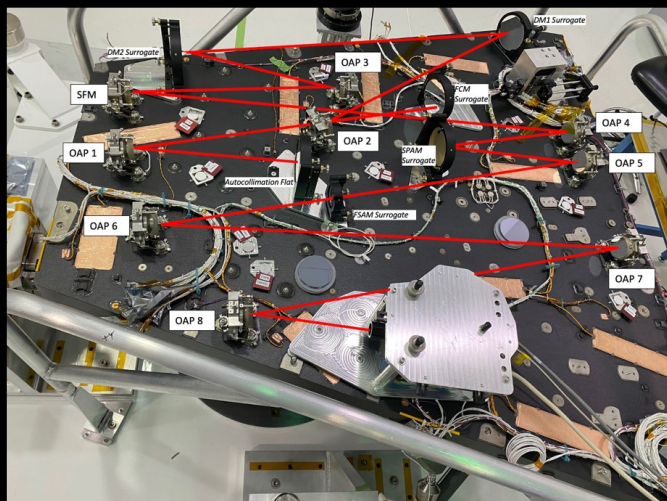
Off-axis 6m ID/7.2m OD

Off-axis, 6m

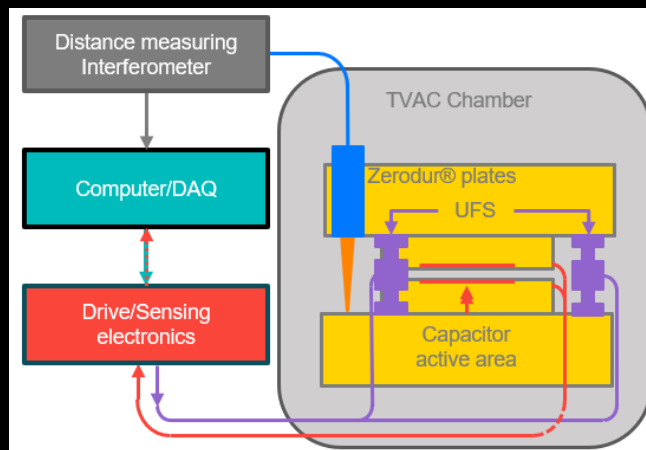
On-axis, 8m (round)

First round cases fit in fairings currently in development:
New Glenn (case on left) and Starship Standard Volumes (all)

Example Technologies Needed for HWO



Roman Space Telescope
Coronagraph with
Deformable Mirrors (JPL)

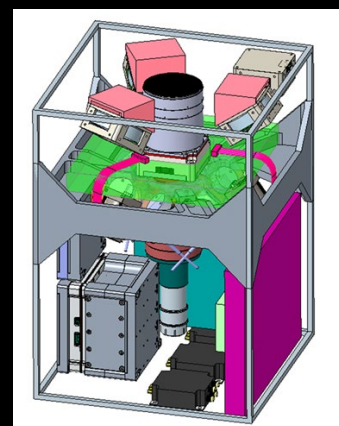
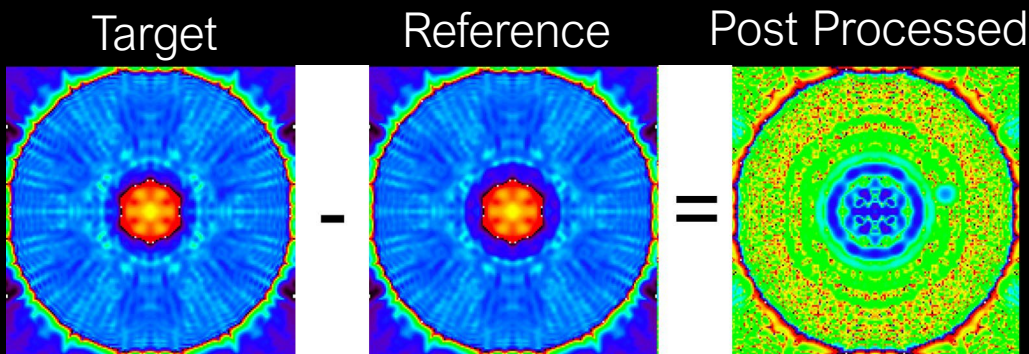


Active Sensing and Control (BAE)

Ultrastable Mirrors (L3-Harris)

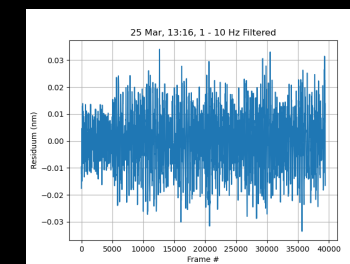
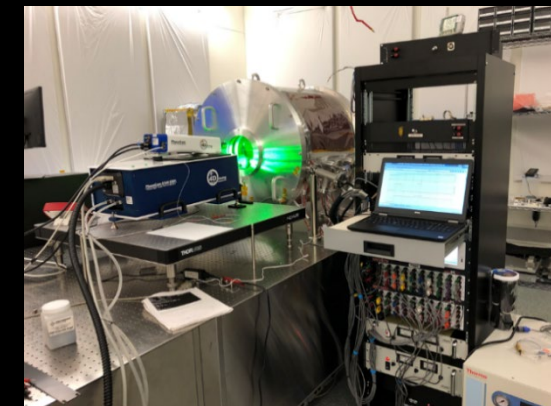


Post processing algorithms (from C.Stark/GSFC)



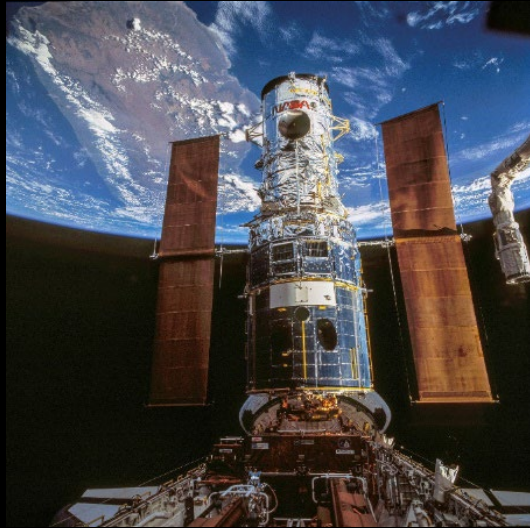
Disturbance Free
CubeSat Isolation
(Lockheed Martin)

Ultrastable
Picometer
Stability
(GSFC/SAO)



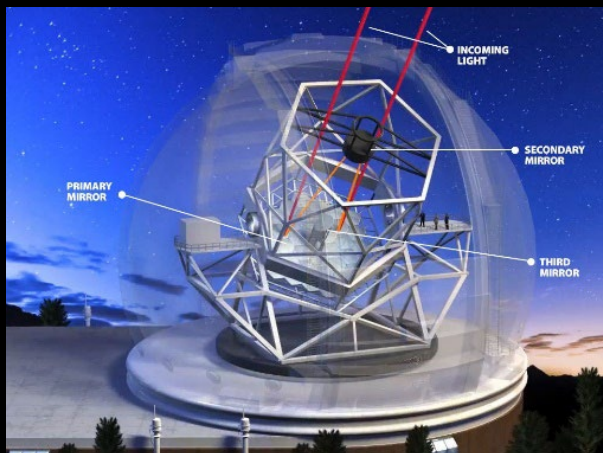
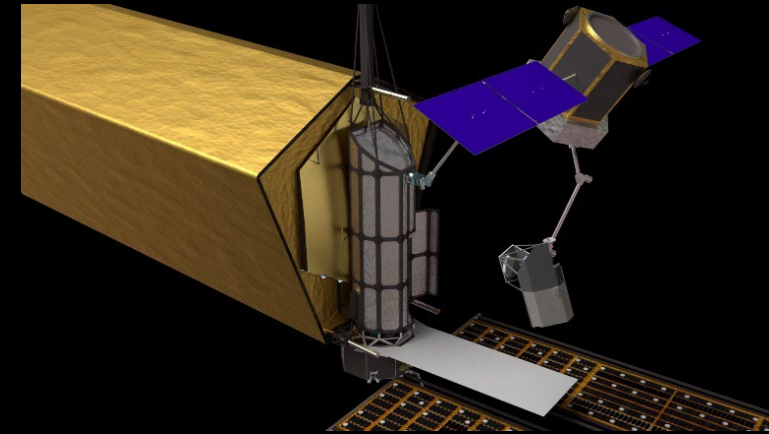
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RMS

HWO Planned Servicing: Mountaintop Observatory at L2 Enables Future Upgrades for Instrument/Coronagraphs/Starshades



Hubble
Servicing

Robotic Servicing
at L2



Mountaintop
Observatory

Hubble/Shuttle Model

