



# James Webb Space Telescope

(the successor to Hubble)

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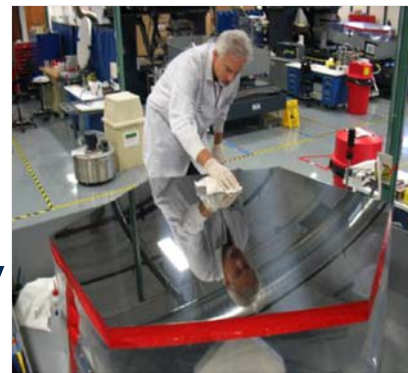
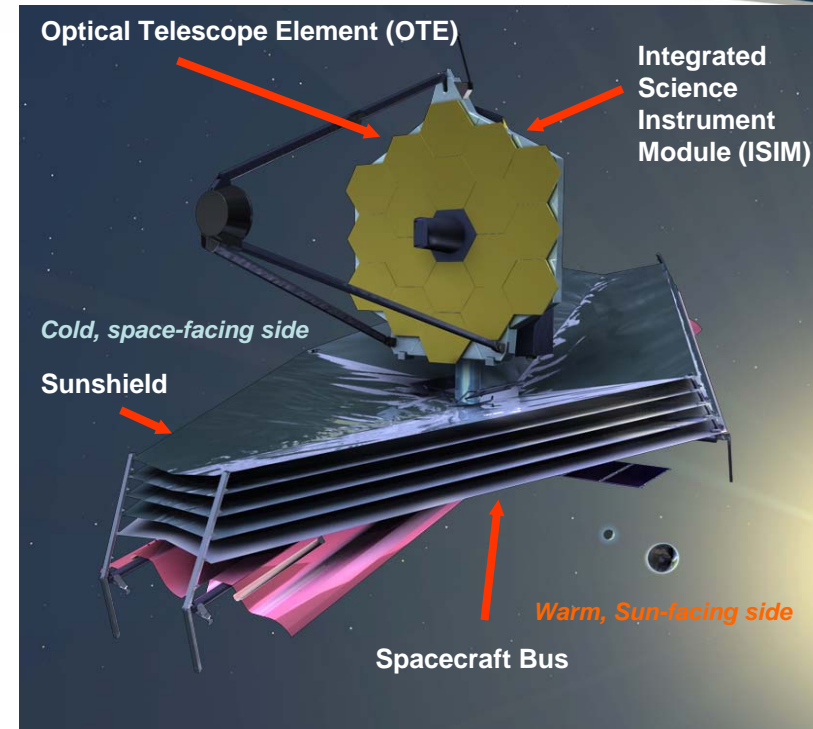
JWST MIRI European PI



# The Observatory



- 6.5m IR-optimised, cooled (37K) space observatory
- 4 instruments cover 0.6 – 28.3 $\mu$ m, imaging, spectroscopy
  - UK has leading responsibility for MIRI
- Mission lifetime: 5 - 10 years
- Launch 2013
- Un-paralleled sensitivity





# Mission Operations



- Space Telescope Science Institute is the Operations Centre for JWST
  - There is no equivalent to ST-ECF
- Instrument teams are responsible for calibration and for development with STScI of pipeline reduction to similar quality as Hubble
  - By the end of the commissioning phase (L+6months)
- Expectation is that as with Hubble, archival research with JWST will generate just as much science and publications as new observations



# International Context



- JWST is NASA-ESA-CSA collaboration
  - Massive teams
- MIRI is provided by a European Consortium and JPL
  - 21 Institutes in 10 European countries and JPL building hardware
  - Calibration, verification, pipeline development support, Operations interface and development will be based in 9 or 10 of these institutes
- JWST is a broad capability general purpose observatory, so science-community world-wide, as for Hubble



# JWST Data



- Near and mid-infrared images (0.6-28 $\mu$ m)
- Near and mid-IR integral field spectra
  - Fields of view of the order of 4x4 arcsecs
  - $R \sim 3,000$
- Near-IR multi-object spectra (100 objects/field)
- Slit and Slitless spectra in the near and mid-IR ( $R \sim 100$ )
- Coronagraphic images in near and mid-IR
  
- Data rate :  $\sim 200$  GB per day compressed (2:1)
  - limited by DSN
  - 1 contact/day with ground segment
  - some data is partially reduced on-board



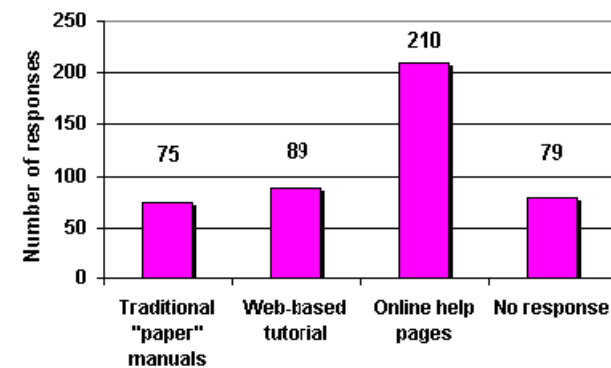
# Making the JWST data available



- JWST data will be made available through MAST
  - Common interface to multiple missions, and VO compliant.
- Data Management
  - Process very like HST, using OPUS system developed for HST
  - Automatic population of archive data bases so data can be retrieved by all observers
- Clear recognition that JWST database must be VO compliant



Which kind of documentation about MAST have you used?

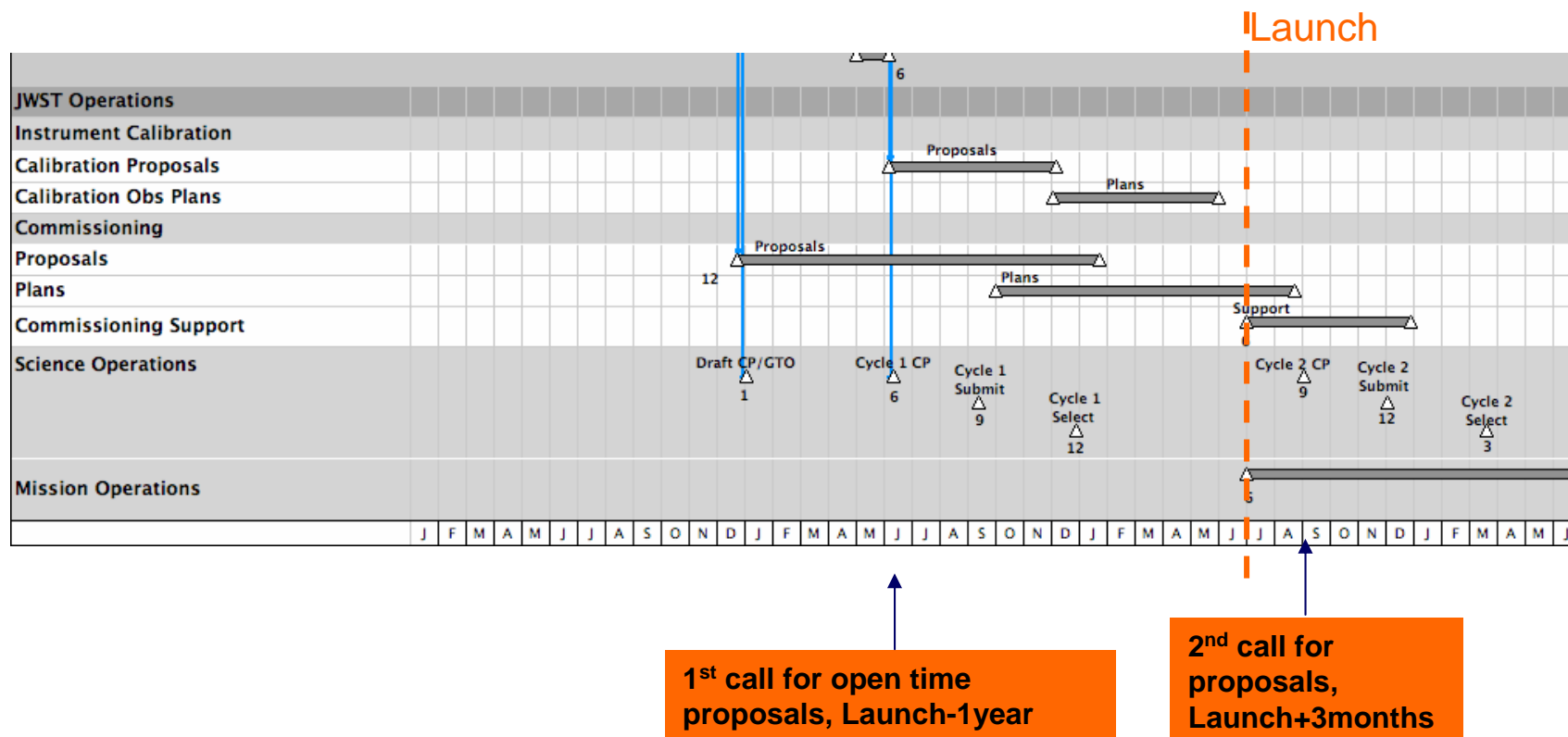




# JWST Time-Line



- Mission is on schedule for June 2013 LRD (Launch Readiness Date)
- 1<sup>st</sup> Call for proposals expected in June 2012
  - process for selecting TAC, visiting panel etc. in discussion now
- Proposal calls every six months as with Hubble





# Whats needed from VO ?



- The archive is VO complaint for good reasons
  - Making sure everyone gets access
  - People are thinking in terms of science where JWST data is combined with that from other observatories. In particular Alma, X- and Gamma-ray data.
- The data is complicated (spectral distortion, psf dominated by diffraction from hexagons, variable backgrounds....).
- JWST is assuming the VO will provide me & you access to all the other data needed and tools to find other datasets and combine them effectively