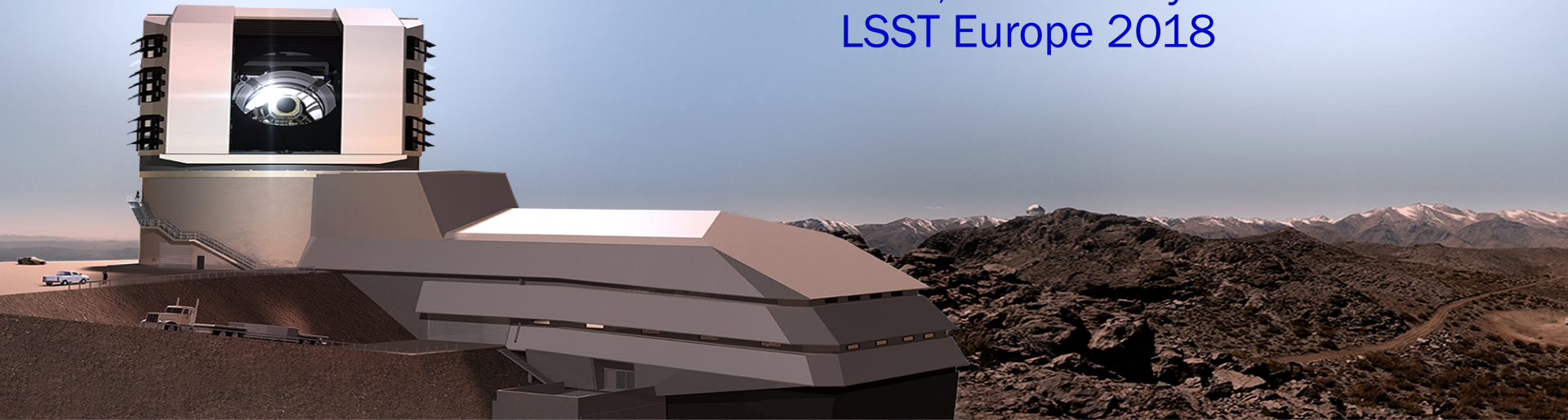
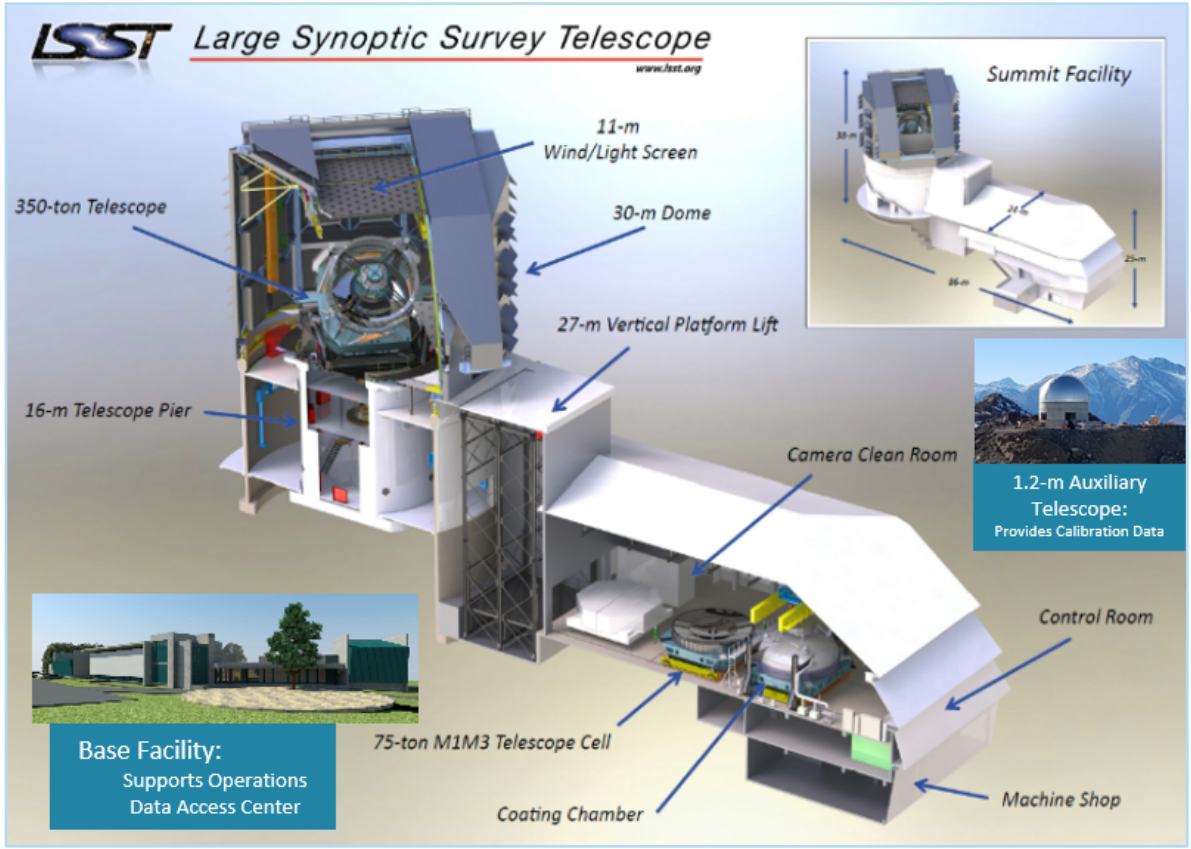
LSST Telescope & Site Status

Sandrine Thomas, T&S Subsystem Scientist

LSST Europe 2018



LSST Telescope and Site Deliverables



- Summit and Base facilities
- Telescope Mount
- 3-mirror optical system
- Active Optics system
- Calibration system
- Coating Plant
- Observatory control system including the scheduler

- Image Quality
- Throughput
- Fast Cadence
- Up-Time

Deep into construction

Welcome to LSST!

Substantial occupancy achieved March 30, 2018

- Punch list items completed
- Offices/furniture installed
- Focus on network completion

LSST subcontractors completing focused tasks

- Exterior support building siding
- Electrical (Pflow tower, AuxTel dome)
- Embedded rails for mirror handling

Inside the building

Coating floor

Will house the major LSST components such as the coating chamber, the washing station, and the clean room for ComCam and the LSST Cam….

Future control room!

Currently office space

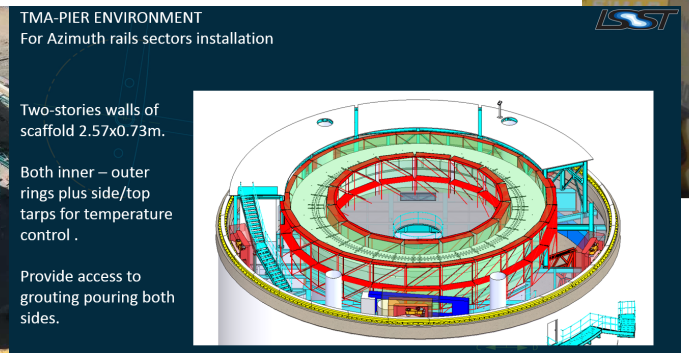
Dome

Contributes to fast cadence and image quality

The dome assembly is ongoing:
(EIE) continuing the assembly of the steel structure and advance assembly of the dome system

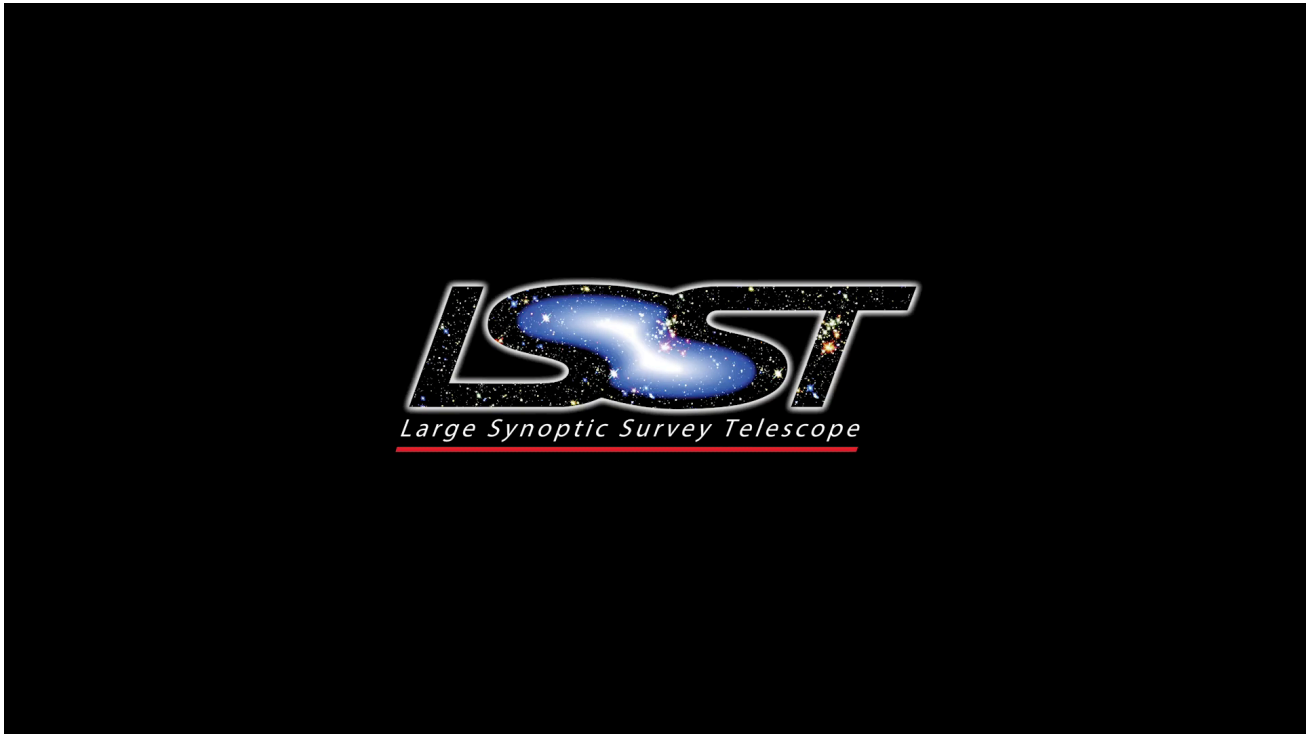
Real Picture!

Drawing!



Coming soon to Chile: Telescope Mount Assembly

Contributes to image quality and fast cadence



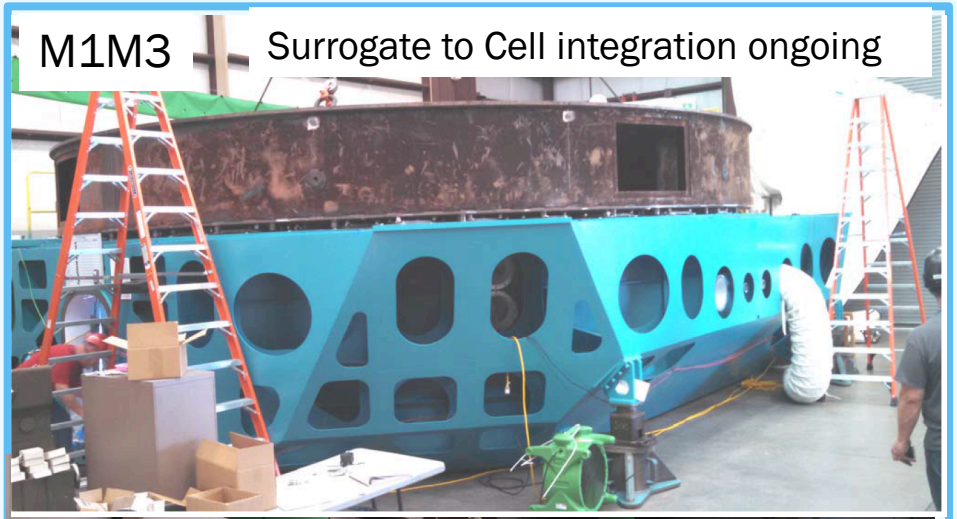
Now with real mount control system!

Ongoing factory testing with a focus on:

- Interfaces
- Primary scientific requirement verification (pointing, tracking, jitter)

Factory acceptance test scheduled this summer
Will start assembly in Chile end of 2018 / beginning of 2019

Coming soon to Chile: Optical elements 2018/2019



Contributes to image quality and throughput

M1M3:

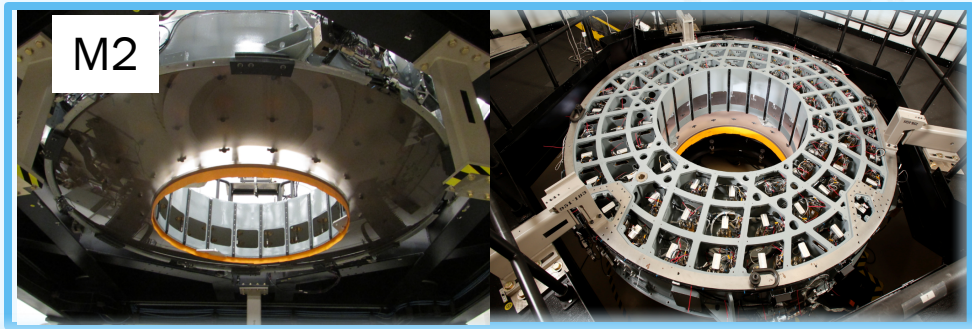
- Cell integration complete, surrogate mirror testing June 2018
- Zenith surrogate mirror testing complete late-June
- Cell disassembly/ship from CAID to UofA early-Oct
- M1M3 out of the airport hangar at the end of November
- **M1M3 optical testing campaign (5-months) at UofA late-Oct thru early-March 2019**
- M1M3 ready for shipment Apr 2019
- M1M3 onsite Jun 2019

Coming soon to Chile: Optical elements 2018/2019

Contributes to image quality

M2 Cell Assembly
- Final delivery October 2018
- Surrogate mirror for cell testing
- Meets requirements
- Final Iron runs of the mirror

Hexapod and Rotator Contract
- Final delivery August 2018
- Spare rotator for SLAC
- Testing was successful



Coating Plant

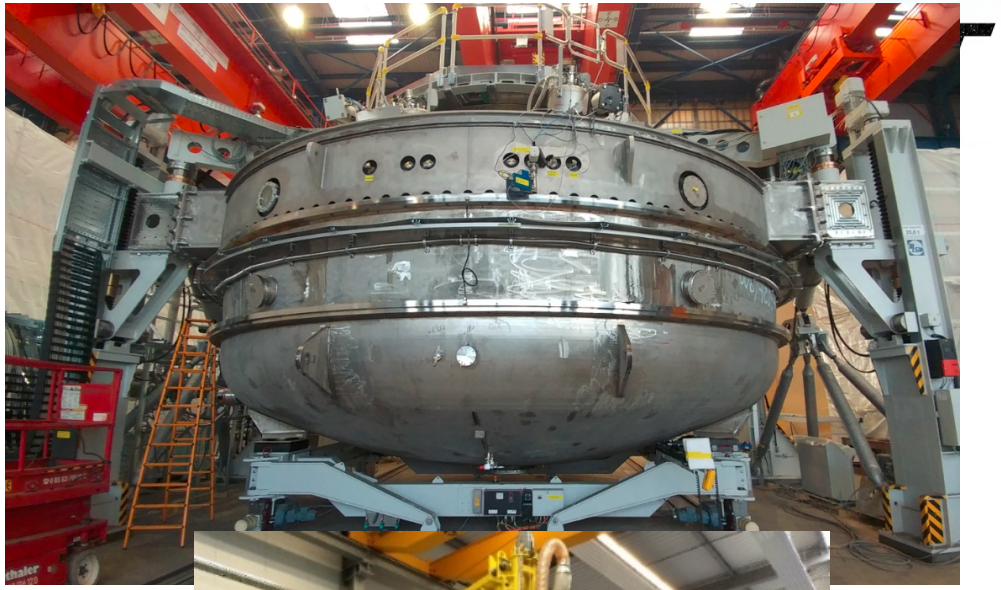
Contributes to throughput

Recent Accomplishments:

- Washing station factory tests completed and packaged
- Control software demonstrated
- All magnetrons assembled and tested individually
- Vacuum achieved

Upcoming Milestones:

- Jun 2018: coating acceptance testing
- Oct 2018: Onsite assembly commences



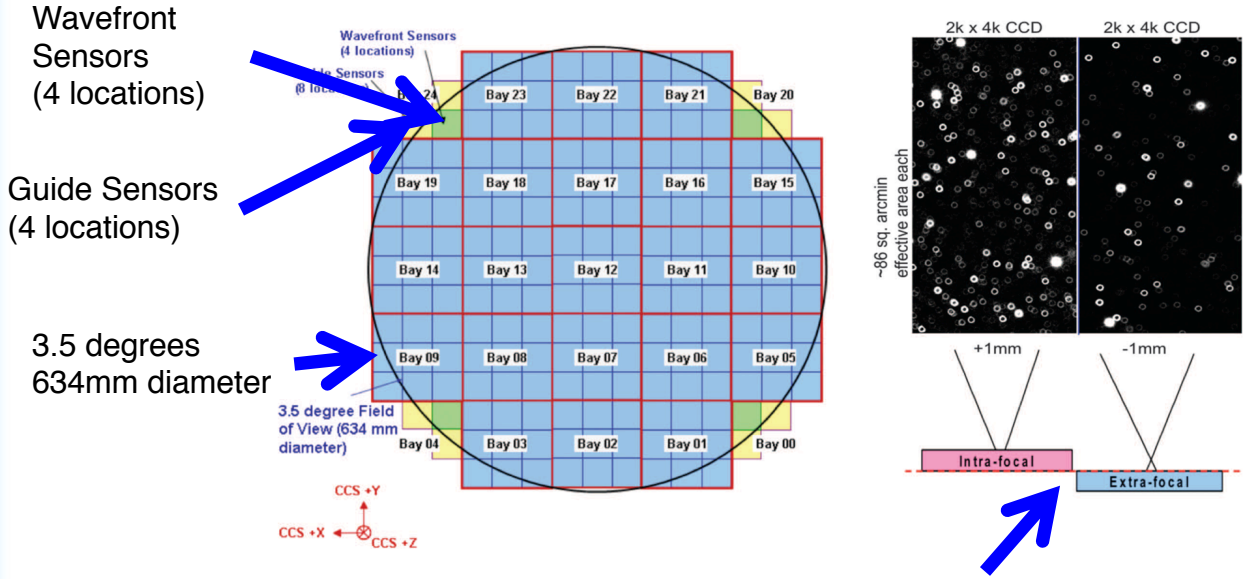
Active Optics System

Contributes to image quality

System Description:

- Active Optics Open-Loop: Mirrors and hexapod/rotators
- Active Optics Closed-Loop: Wavefront Estimation Pipeline (WEP), Optical Feedback Controller (OFC)
- Initial Alignment System: System Alignment Controller (laser tracker located in the center of M1M3)

Closed-loop feedback



Simulated intra- and extra-focal images for one of the wavefront sensors, obtained using a simulation tool called PhoSim.

Scheduler

- Scheduler is making good progress
- A simplified version will be available for the Auxiliary Telescope first light
- Engaging the community for feedback in order to further optimize the observing cadence

Talk by Tiago Ribeiro

Calibration System

Contributes to photometry accuracy

In dome calibration:

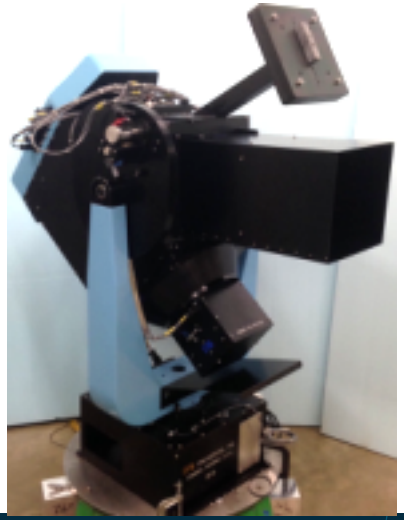
- Flat field screen
- Collimated Beam projector

Auxiliary Telescope

- Spectrograph

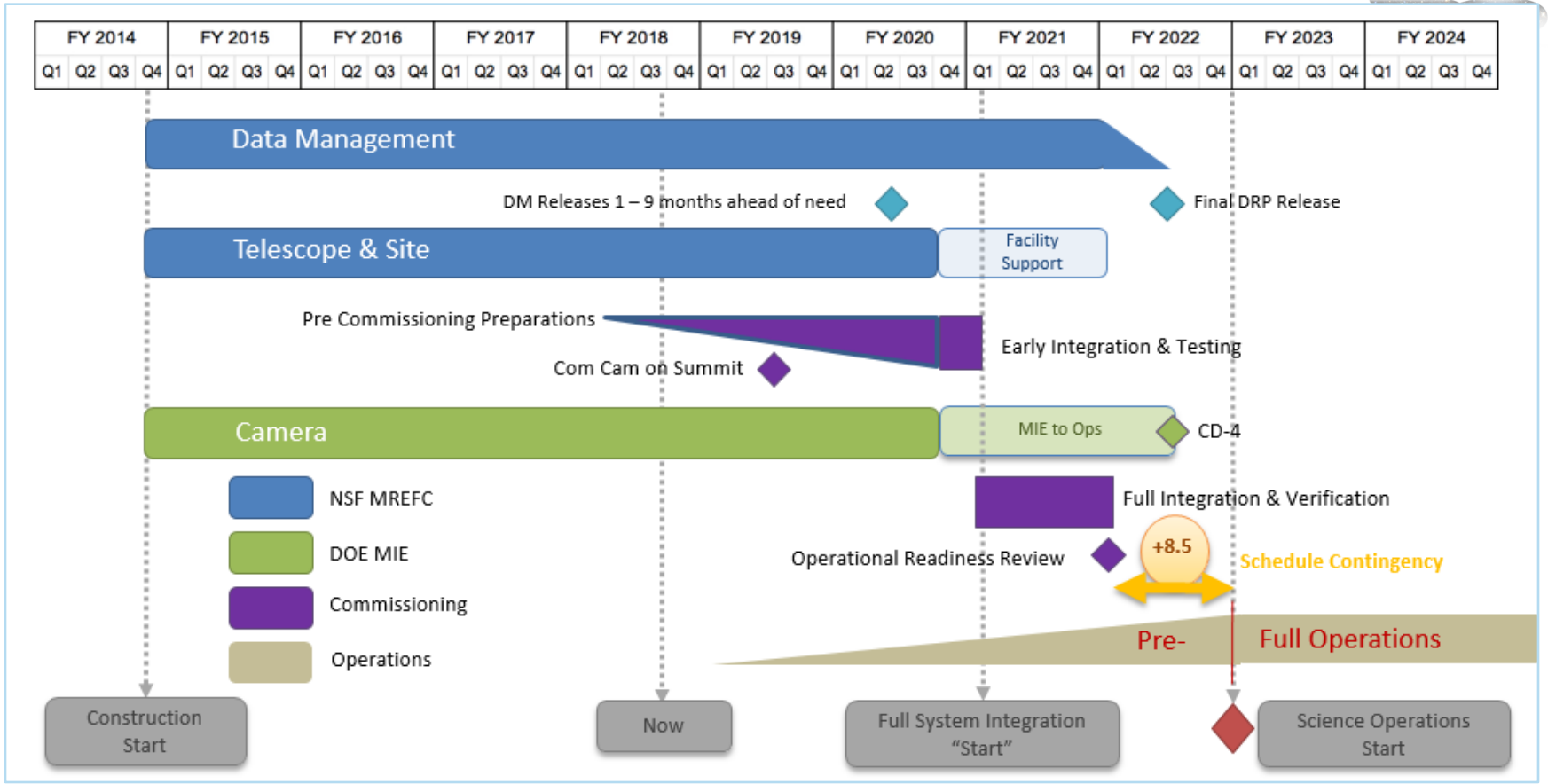
Others:

- All Sky Camera



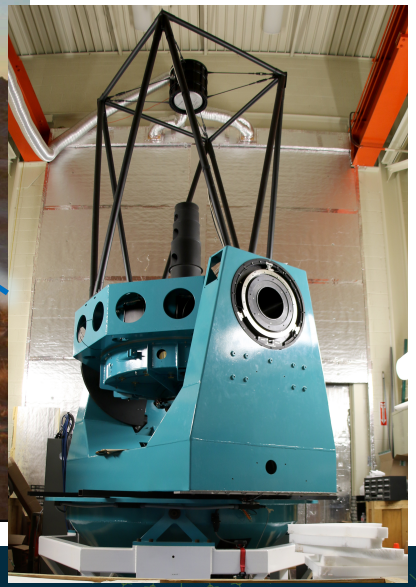
See talk by Patrick Ingraham

Integrated Project Schedule



Looking forward: Integration of all components

Telescope ready for camera installation mid-2020, in the meantime....



Thank you!