Large Synoptic Survey Telescope

www.lsst.org

Overview of the LSST Observatory System

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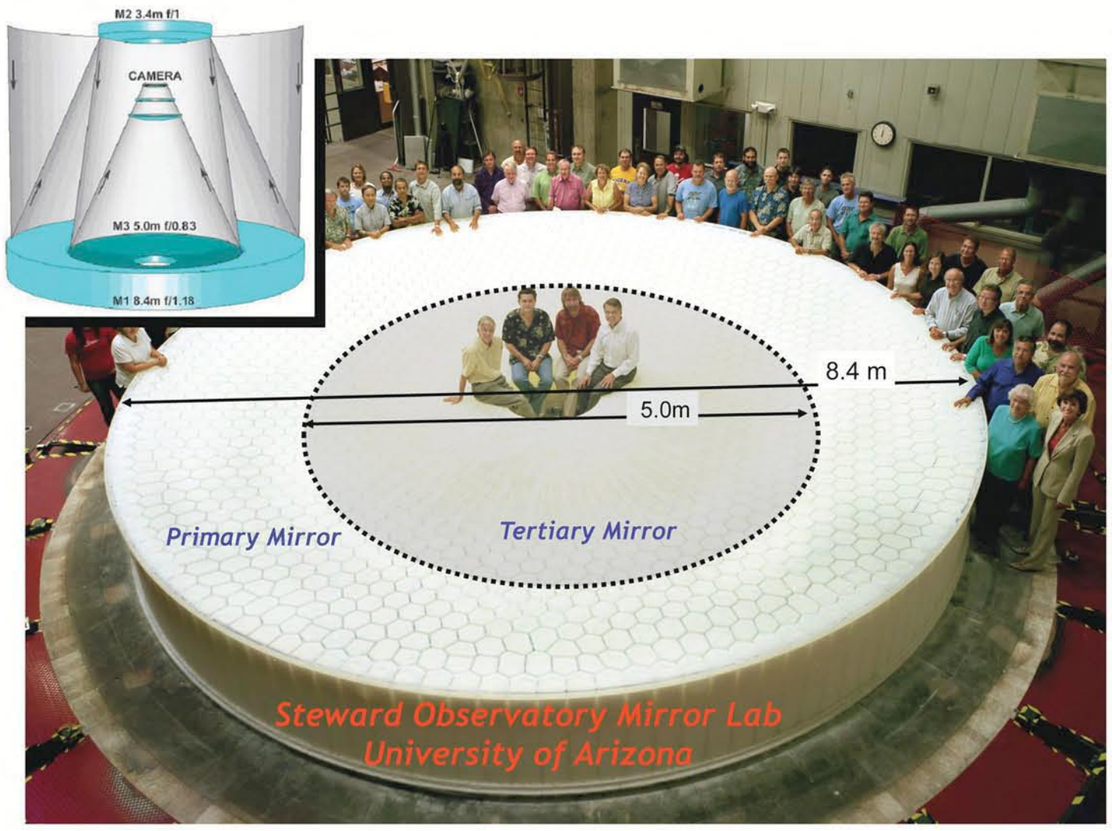
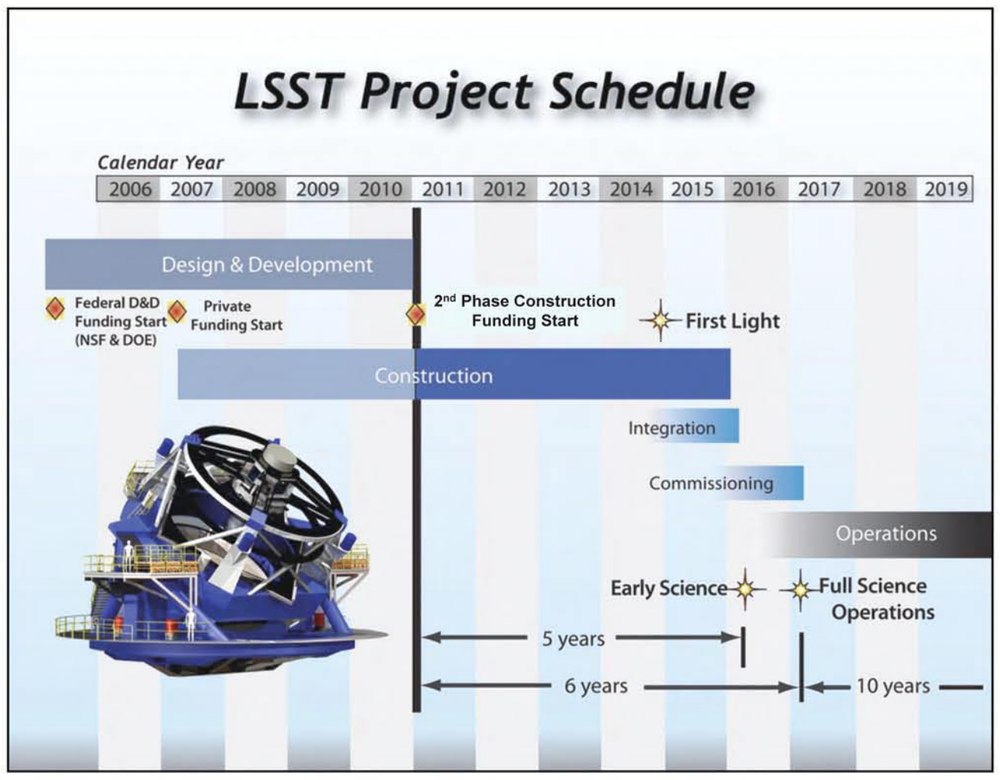
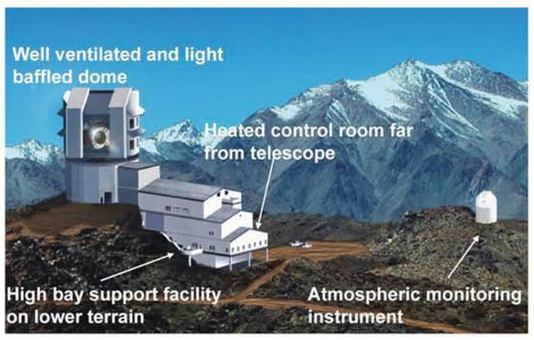
The LSST will survey half the sky every few nights in six visible bands. The etendue of the LSST system (an optical measure of the information gathering capability) is 320 m^2deg^2 and is far greater than any other telescope. The LSST system provides an end-to-end astronomical survey facility to acquire process, analyze, catalog, and preserve the world's largest database of optical astronomical data. LSST will also open the time domain for studies of transient and moving objects. Data Access Centers will be strategically located to provide the user community with high-speed, open access to the many petabytes of new information generated each year of the planned ten year survey. The LSST Observatory will be sited atop Cerro Pachón in Northern Chile.

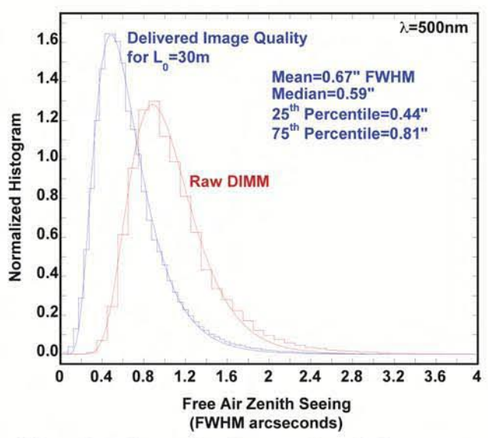




Observatory Site



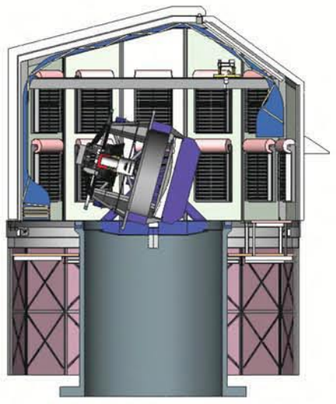
Site layout



Site Seeing: Delivered ~ 0.6 arcsec median

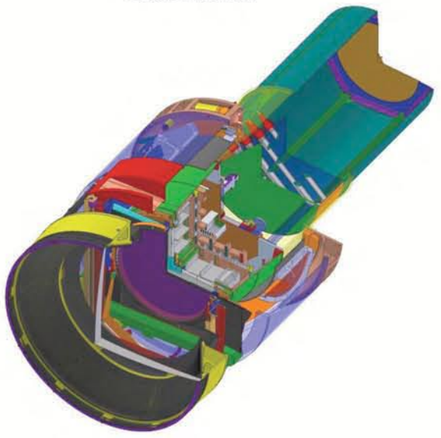
Telescope

- High throughput optical system
  - 8.4 meter primary aperture
  - 3.5 degree field of view
  - f/1.2 beam
- Tight control of systematic error
  - PSF shape control
  - Delivered Image Quality – 0.3" FWHM
- Quick and agile telescope system
  - 34 second visit per pointing
  - 5 Sec slew & settle" between visits
  - Robust Scheduling and Control
- High efficiency and duty cycle
  - Repeating all night, each night for 10 years
  - Unscheduled downtime < 3%
  - Maintenance support to limit downtime

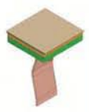


Carousel dome

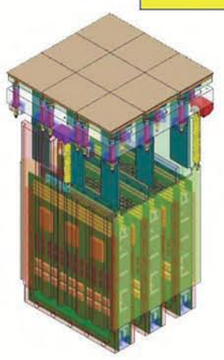
Camera



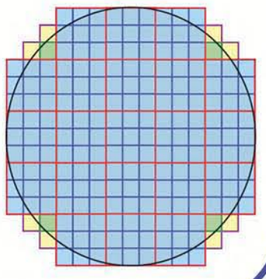
Five filters are resident in the camera; the active filter can be changed in less than 120 seconds



4K x 4K pixels on 10μm centers
16 readouts/sensor
330 nm to 1070 nm response
2 second read time



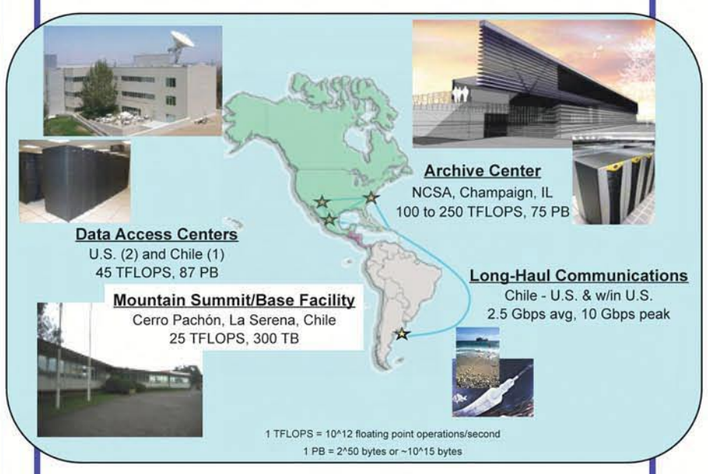
9 CCD's assembled into one raft
21 rafts in the camera



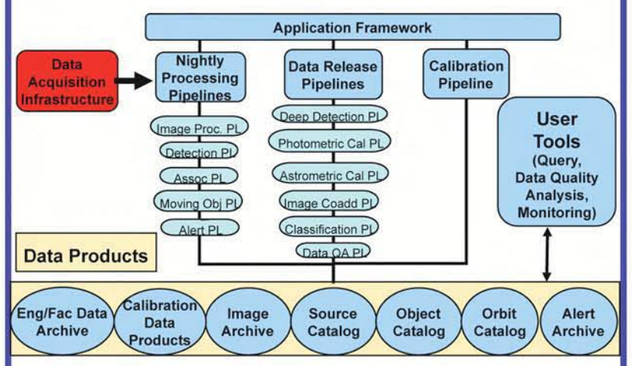
The 63cm diameter focal plane has 189 CCD's arranged on 21 modular rafts

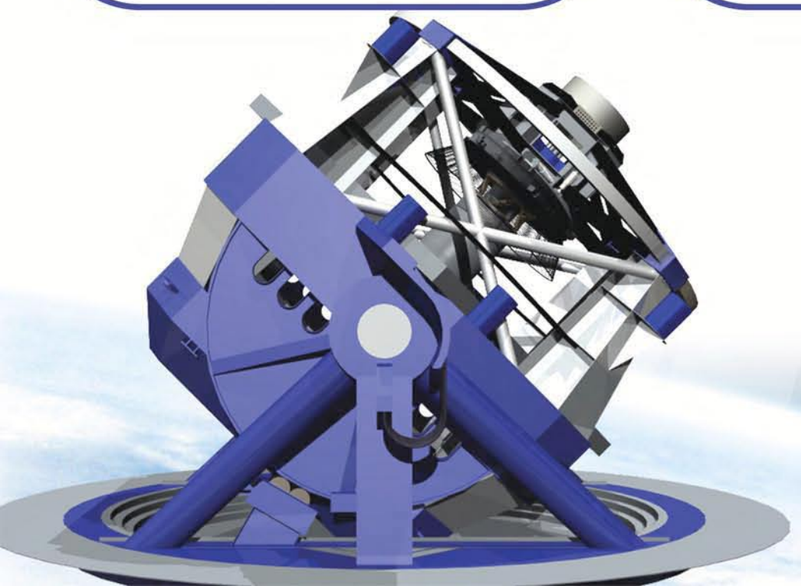
Data Management

The LSST Observatory will produce **15 Terabytes** of raw data per night



Infrastructure Layout





LSST is a public-private partnership. Design and development activity is supported in part by the National Science Foundation. Additional funding comes from private gifts, grants to universities, and in-kind support at Department of Energy laboratories and other LSSTC Institutional Members.