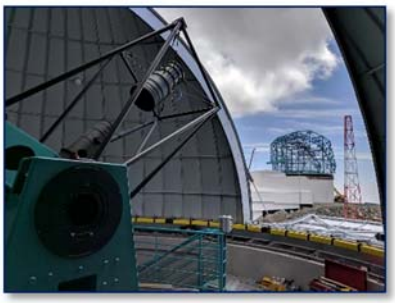
Investing in Discovery

February 2019

LSST Accelerating Towards Commissioning and First Light

Here's a look back at several of the major accomplishments the LSST Project celebrated this past year:

LSST's Auxiliary Telescope – The 1.2-meter Auxiliary Telescope, a gift from Edgar Smith, was moved from Kitt Peak and repurposed to measure atmospheric transmission – how directly light is transmitting through the Earth's atmosphere on Cerro Pachón, as opposed to being absorbed or scattered. Data collected by the Auxiliary Telescope, as it mirrors the nightly movements of LSST, will inform the catalog corrections to LSST data to render it more accurate.



LSST's Auxiliary Telescope set to measure atmospheric transmission (LSST enclosure in background)

LSST's Coating Chamber was designed to fit – with inches to spare

Coating Chamber Arrives on Cerro Pachón – The 128-ton Coating Chamber is used to coat LSST's mirrors when they arrive and to re-coat them periodically during Operations. The width of the chamber is about 9 meters (29.5 feet), and one of the highlights of the trip to the site was traveling through the Puclaro Tunnel, between La Serena and the AURA property gate. The tunnel's dimensions are a significant factor in the design of LSST; all of the telescope's components must be able to fit—or must disassemble to fit – through the tunnel.

One Cool Camera – LSST's 3.2-million-pixel camera, the largest digital camera ever built for ground-based astronomy, reached a major milestone with the completion and delivery of its fully integrated cryostat. The Camera will continue to undergo testing and certification at DOE's SLAC Laboratory until it is shipped to its final home on Cerro Pachón, Chile in 2020.

The fully integrated cryostat will keep LSST's camera chilled to a cool -150°F

The LSST Project is transitioning from fabrication and production to assembly, integration, test, verification, and commissioning. LSST is on schedule for First Light in 2021 and start of 10-year Survey in 2022.

LSST Corporation Promoting Collaboration

The LSST 2018 Project and Community Workshop is the annual face-to-face assembly that provides an opportunity for interactions between the LSST Project and its broad and diverse science community. 2018's meeting boasted the highest registration to date, with more than 300 attendees. An added feature at the 2018 meeting was the *Workshop on Impacts of Blending on LSST Science*; organizers were awarded a LSST Corporation grant. Workshop participants from across the LSST community pooled their expertise to evaluate current understanding of blending issues and explore strategies for addressing them. Because each of LSST's main science goals requires accurate and robust source detection and measurements, blending is a key issue and a focus of many of the Science Collaboration Roadmaps and White Papers.

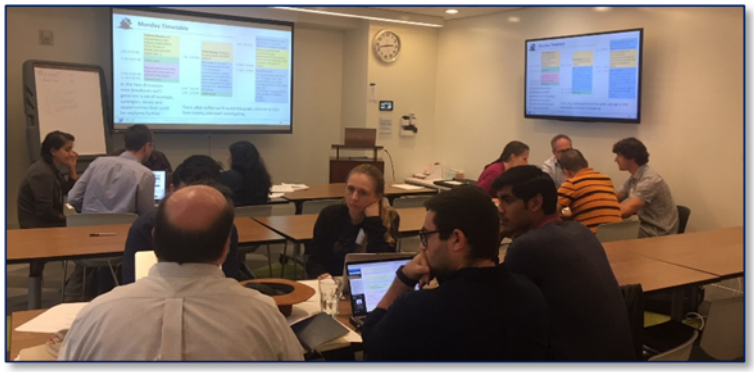
Undergraduate interns attended the LSST Project and Community Workshop for the first time

Special guests at LSST 2018, and one of the highlights of the conference, included an enthusiastic group of student interns, whose participation was sponsored by the Corporation. Each of the students gave a brief presentation of their LSST-related summer research and participated in a poster session. This event provided a forum for the students to discuss their work and converse with attendees.

Investing in Discovery

LSSTC's Fund Development team, with less than a year under its belt, has made its mark. Partnering with one of our Member Institutions, funding for the LSSTC Data Science Fellowship Program at Northwestern University was secured. This flagship of the Corporation's education mission now has assured funding for several more years.

The team also secured funding for the LSST Cadence Hackathon. The Hackathon's purpose was to identify cadence strategies for the LSST Project that would maximize the scientific output for all eight LSST Science Collaborations. Hackathon participants worked together in small teams along with Project experts to explore creative cadence strategies; members of teams that produced the most promising strategies received honoraria for producing White Papers that will guide the Project to determine survey operations.



Fifty attendees, including representatives from all eight LSST Science Collaborations, LSST Project, LSST Corporation, and the SAC, joined forces at the Cadence Hackathon – 10 cadence-strategy white papers were submitted as an outcome of the three-day work session

As the organization representing 35 diverse research institutes with a vested interest in LSST, LSSTC is now in the midst of working with researchers from multiple universities to craft an ambitious proposal to ready the scientific community for LSST operations and the unprecedented flow of data. To enable the scientific community to tackle the scientific, software, and statistical challenges, we plan to establish a tightly linked network of LSST computing and collaboration centers, housed at several world-class research institutions across the U.S. These data-science centers will host a robust array of interdisciplinary initiatives for the LSST community that span research, technology development, and education. We envision the network becoming the nexus of intellectual activity related to LSST data science and changing the way astrophysics is done in the age of big data.

LSSTC, through its member institutions and its connections to the Science Collaborations and the worldwide LSST community, is well-positioned to facilitate and advance preparations for the science that astronomers and physicists will need to undertake before the arrival of LSST data. Through workshops and hackathons to study new ideas, schools to teach graduate students new ways to analyze data, and collaboration on cross-cutting topics impacting all LSST science, LSST Corporation will enable new knowledge and discoveries to address pressing questions and help reveal the secrets of the universe.

Advancing the Benefit of Corporation Membership

Stewarded by the Admissions Committee, we would like to urge all who read this annual report, to support the Corporation in launching a Membership Drive in 2019. We need your ongoing active participation and support to continue our work.

Finally, we want to recognize the hard work and dedication of our Board, committees, members, and staff. Without your dedication, LSST Corporation would not exist.

Sincerely,

Pat Eliason
LSSTC Executive Officer

David MacFarlane
LSSTC Chairman of the Board