



# LSST Data Management

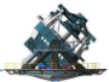
**William O'Mullane** input from Željko Ivezić  
**DM Project Manager**

**Towards Science in Chile with LSST**  
**Santiago de Chile 14<sup>th</sup> December 2017**

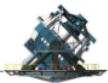


William O'Mullane

LSST DM



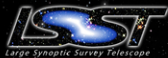
## LSST Operations



- Proposal was submitted in summer to NSF/DOE to fund LSST operations
- A joint agency review was completed with positive feedback Dec 7<sup>th</sup> 2017.
- LSST Operations key points:
  - Distributed over SLAC, Tucson, La Serena, NCSA Illinois
  - Large data facility element
  - To fit in the new National Center for Optical Astronomy (NCOA) framework



# LSST Operations - Distributed



## LSST Operations: Sites & Data Flows

### HQ Site

Science Operations  
Observatory Management  
Education & Public Outreach

### Base Site

Base Center  
Long-term storage (copy 1)  
Data Access Center  
Data Access & User Services

### French Site

Satellite Processing Center  
Data Release Production

### Archive Site

Archive Center  
Alert Production  
Data Release Production  
Calibration Products Production  
EPO Infrastructure  
Long-term Storage (copy 2)

Data Access Center  
Data Access and User Services

### Summit Site

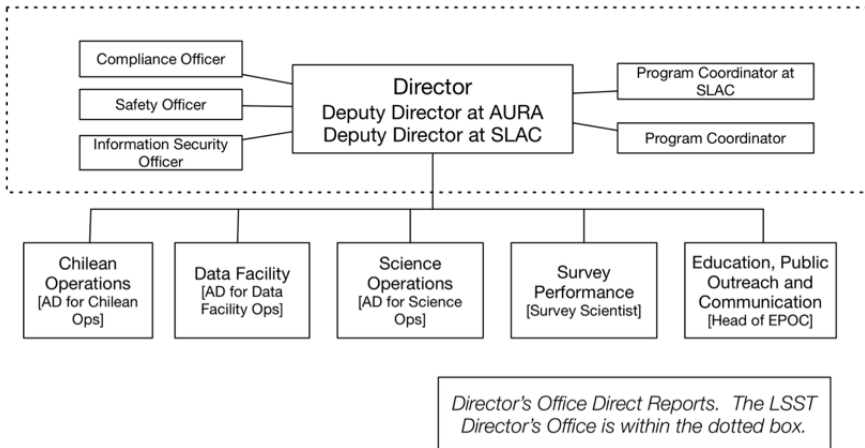
Telescope & Camera  
Data Acquisition  
Crosstalk Correction



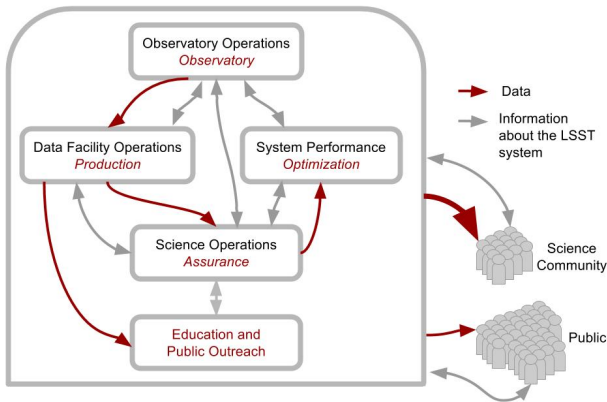
Emily Acosta



# LSST Operations - Organisation



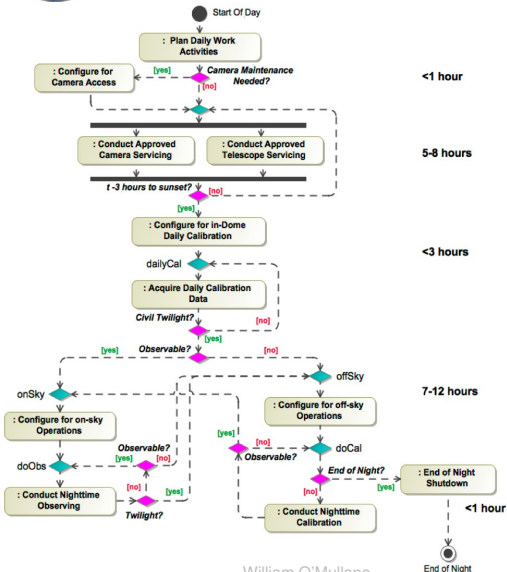
**Beth Willman**



- Formal and informal channels in place
- Regular weekly daily meetings as well as Jira for tracking
- Slack, community.lsst.org, etc as well



# Observatory Operations Activities (on summit)



High level 24 hour activity (50FTE):

- Regular maintenance
- Evening calibrations
- Nightly observations
- Day crew, night crew shift 1, night crew shift 2
- Software
- ITC supports daily data transmission



On a daily basis Science Operations Staff are looking at data quality from both instrument and software perspectives asking many questions (28FTE):

- Are the alerts as good as we can make them ?
- Are there any data products we could deliver/improve?
- Are the changes we should request on the telescope ?
- Was there some event (weather/hardware) affecting data we should be telling the community about ?

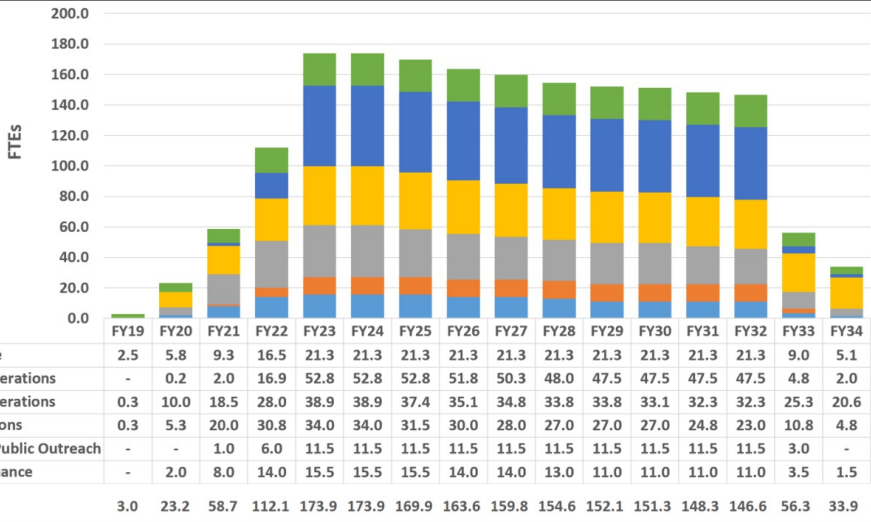
Longer term :

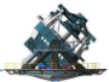
- Are there any disturbing trends in Key Performance Metrics?
- How is the Data Release Product quality ?





# LSST Operations - Staffing profile





## Reference material



# Acronyms I



Acronym	Description
ADQL	Astronomical Data Query Language
API	Application Programming Interface
CCD	Charge-Coupled Device
CPU	Central Processing Unit
DAC	Data Access Center
DM	Data Management
FOP	Flight Operation Procedure (Plan)
IVOA	International Virtual-Observatory Alliance
JHU	Johns Hopkins University
LSST	Large Synoptic Survey Telescope
MPP	Message Passing Package
NCSA	National Center for Supercomputing Applications
PB	PetaByte
PDAC	Prototype Data Access Center
PSF	Point Spread Function
SDSS	Sloan Digital Sky Survey
SIA	Sagnac Interferometer Assembly
SQL	Structured Query Language
TAP	Table Access Protocol
TFLOP	Tera FLOP
VO	Virtual Observatory



# References



LSST Science Collaboration, 2009, ArXiv e-prints ([arXiv:0912.0201](#)), [ADS Link](#)