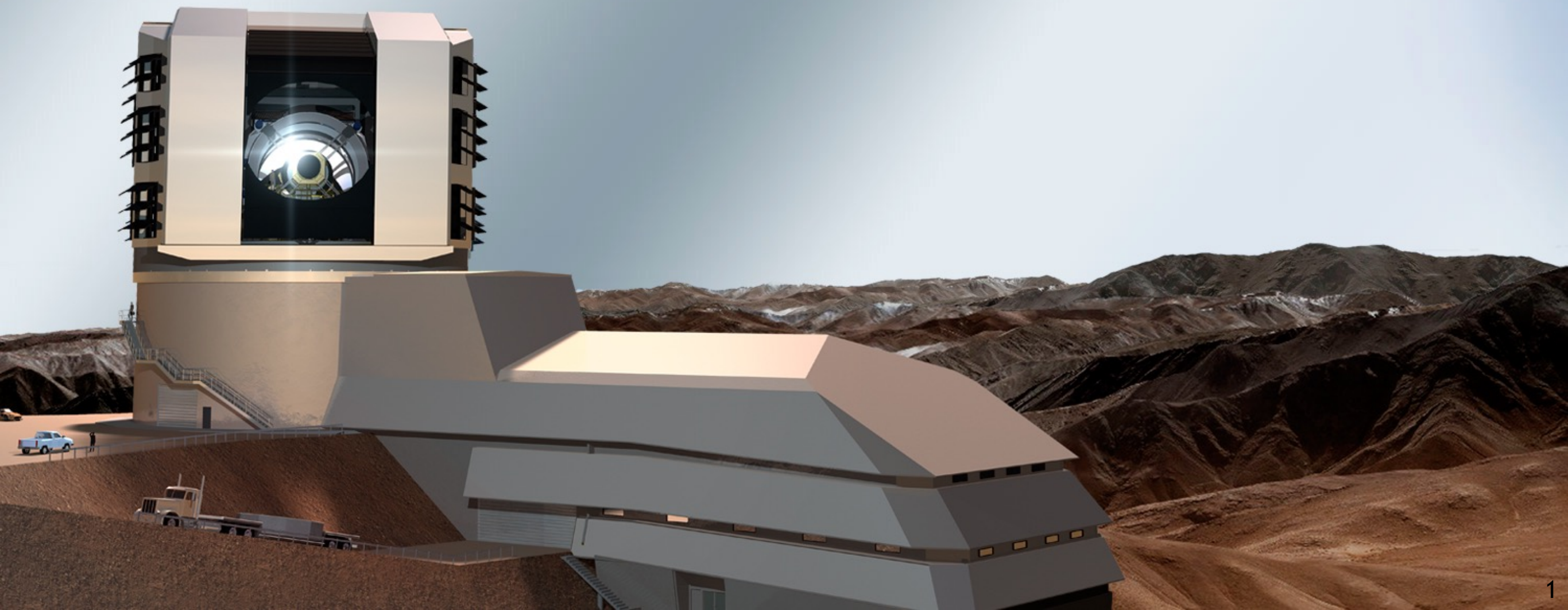




Current Status of RFC-412: Proposed updates to DM documentation regarding LSST special programs

**DM/SE JTM - 2018-03-08
Leanne Guy**

(Material courtesy of Melissa Graham)



LSST Special Programs: What and Why?



WFD

Wide-Fast-Deep

DDF

Deep Drilling Field

MS

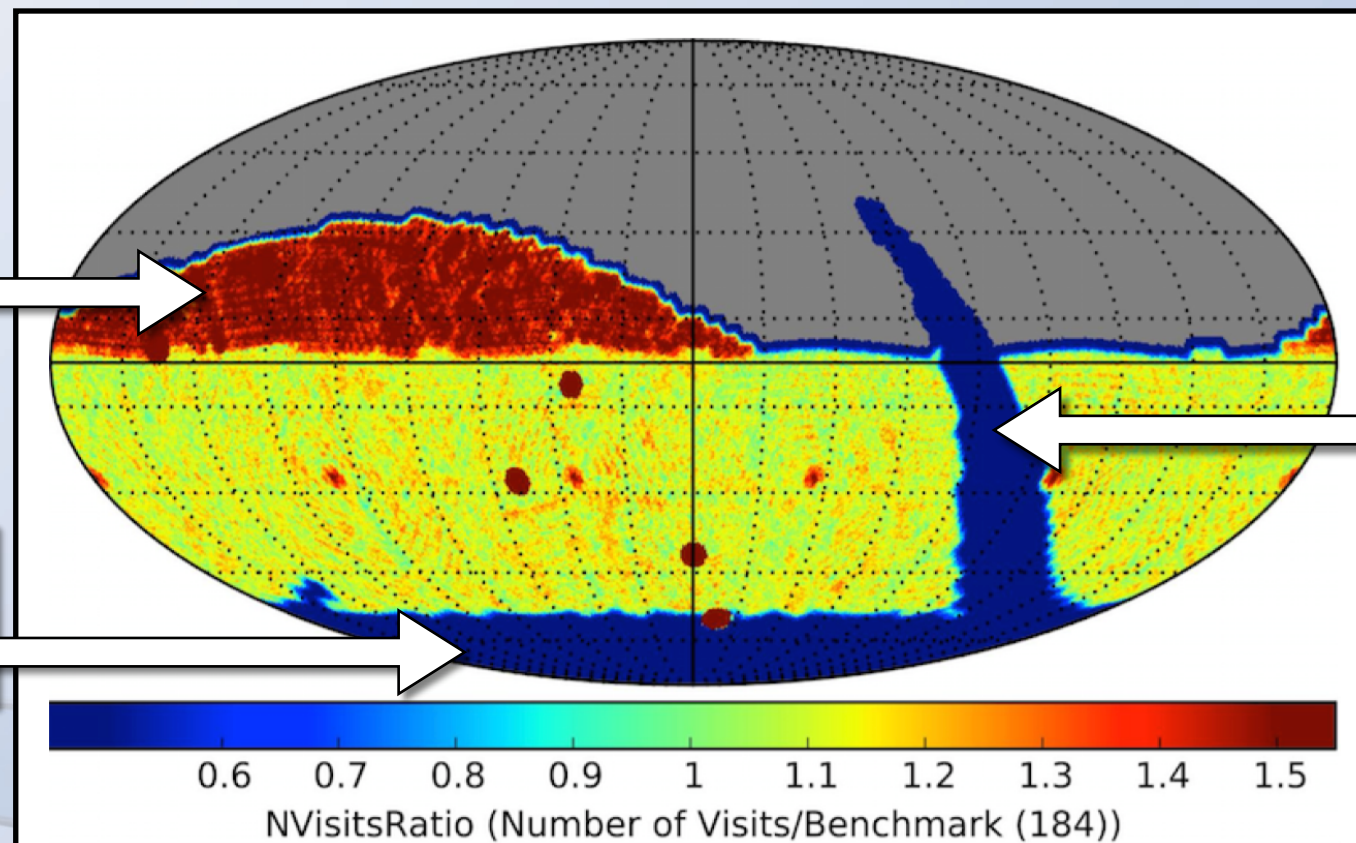
Mini-Survey

What: anything not “wide-fast-deep” main survey.
Why: additional or improved science results.

Different area, survey strategy, and/or non-standard visit image.
E.g., Deep Drilling Fields, North Ecliptic Spur.

North Ecliptic Spur
(solar system)

South Celestial Pole
(LMC, SMC)



Galactic Plane
(stars and planets)

DDF examples

DDF nightly stacks to
find high- z supernovae.

LSST Special Programs: What are they?



What is set and what is open to community* proposals?

Set

the positions of the four pre-existing deep drilling fields

Open

additional deep drilling fields

refined observing strategies** for deep drilling fields

optimized survey areas for the NES, South Pole, and Galactic Plane

refined observing strategies** for the NES, South Pole, and Galactic Plane

additional mini-surveys

Estimated timeline (TBC):

call in ~June 2018

due in ~October 2018

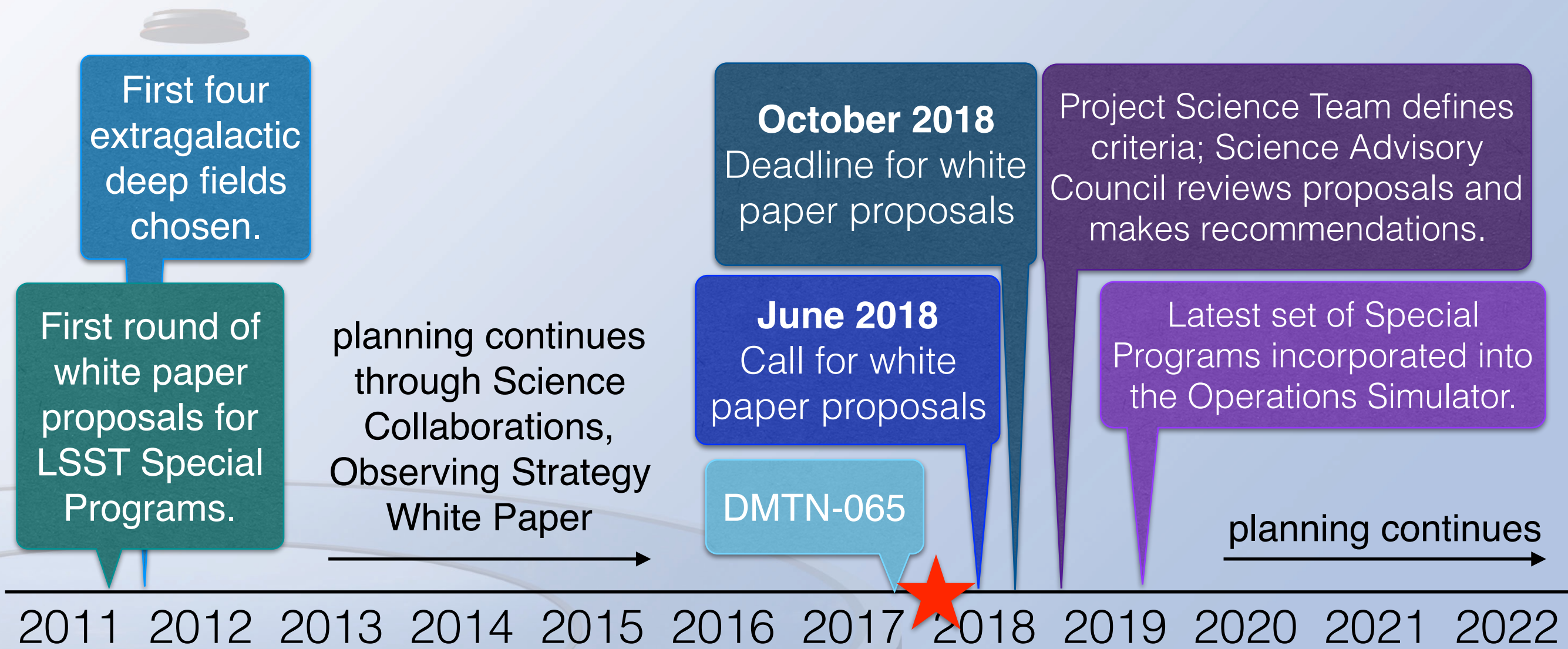
*Not limited to science collaboration members.

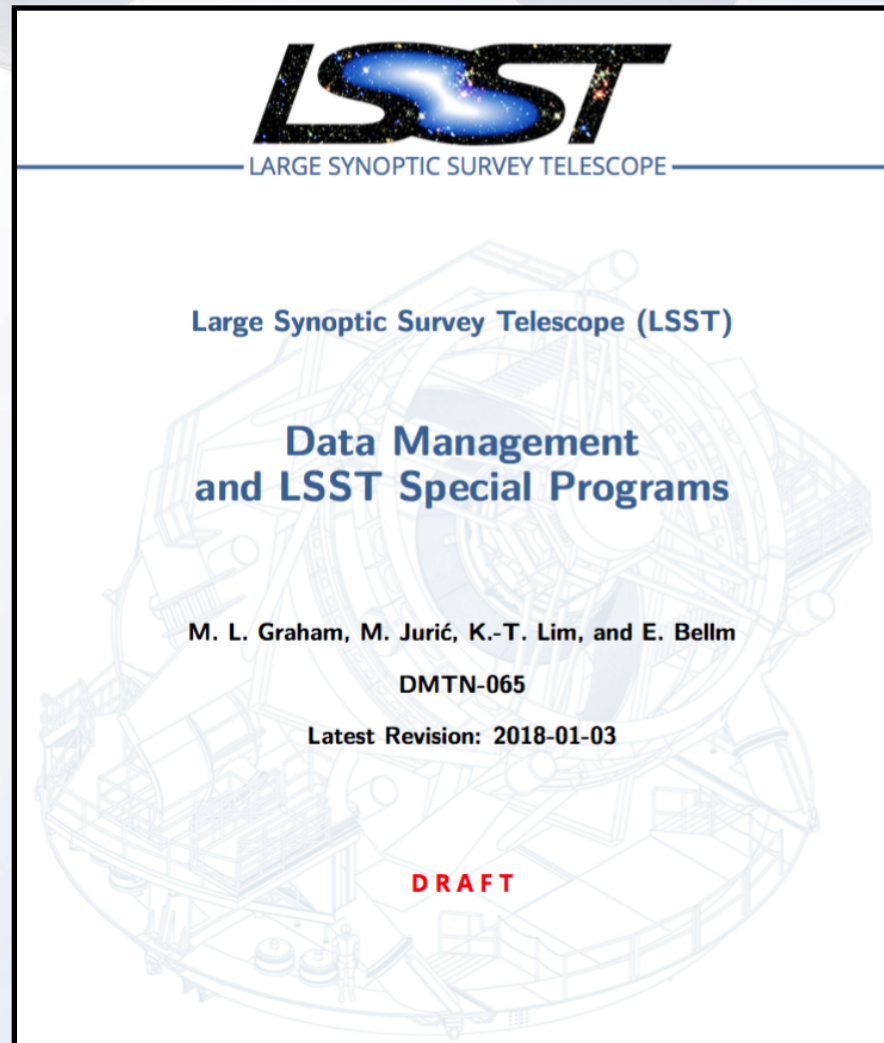
**OpSim runs for proposed DDF/MS expected by late 2019.

LSST Special Programs



LSST Special Programs will enable additional and/or extended science goals, and the Data Management team is currently preparing to process the diversity of data types they will create.





ls.st/dmtn-065

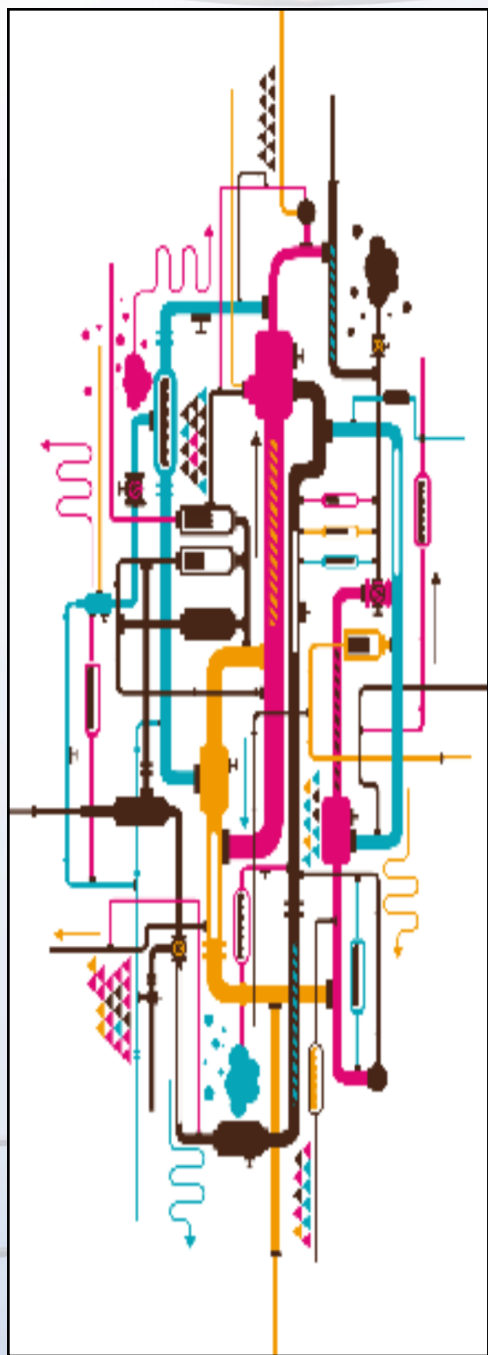
Purpose is to ensure that DM's plans for processing data from Special Programs:

- will meet the needs of the scientific community
- are appropriately sized for the computational system
- are accurately represented in the FTE budget

Several JIRA tickets have been spawned and are actively accreting feedback.

5.2 Future Input from the Science Community

- future community input will be via a formal call for white papers (2018-06)
- proposers will be asked to include a section on "Data Management Considerations for Special Programs"



LSST-DM will:

- **not** write unique algorithms for processing SP data
- allocate 10% of its computational resources for processing SP data
- incorporate SP data into Level 1 and 2, when scientifically beneficial
- reconfigure pipelines to generate separate imaging and catalog products for SP data, whenever possible
- make the Software Stack source code available to the community
- allocated an additional ~10% of the LSST computing resources for user-driven analysis and data product creation in the US DAC

RFC-412: Data Management & Special Programs

MLG 2018-03-28



Request For Comments / RFC-412

proposed updates to DM documentation regarding special programs

Add or revise high-level requirements relevant to Special Programs data in:

- LSE-29, System Requirements
- LSE-30, Observatory System Specifications
- LSE-61, Data Management System Requirements
- LSE-163, Data Products Definitions Document

Examples:

- reconfiguration of pipelines to produce bespoke data products
- intermediate data releases, schedule, latency (for scientific timescales of SP)
- passing information between scheduler and DM pipelines
- definitions of “standard” vs. “alternate” vs. “non-standard” visits

Status: DM has provided feedback. MLG will write specific wording for each item. After a 2-week review period, we'll formally propose the changes.

RFC-412: Data Management & Special Programs



Data Management / DM-12573

clarify telescope/camera boundaries on special programs

ZI 2018-03-30

- to confirm the filter change and exposure time constraints
- additional restrictions on slews, rotations, etc.?

Status: ZI is contacting telescope/camera people to resolve.



Data Management / DM-12583

ensure the DM computational resources are sized to accommodate special programs

LPG 2018-12-31

Special Programs data will be multiply-processed:

- a) incorporated into the Level 1 and 2 pipelines and data products
- b) have their own dedicated reconfigured pipelines and separate products
- c) might have a higher probability for user-defined processing

Furthermore, need to define the computational boundary between what users can do in the U.S. DAC and what science will require external resources.

Status: this is a longer-term issue to be considered over 2018.

RFC-412: Data Management & Special Programs

Issues related to DM staffing and policy

WOM 2018-12-31



Data Management / DM-12575

clarify the DM staffing needs to reconfigure DM pipelines for special programs

FTEs to reconfigure pipelines, test and validate them, run them, and verify their products – during commissioning and into operations.

Status: this is a longer-term issue to be considered over 2018.

WOM 2018-12-31



Data Management / DM-12578

clarify the process for DM to "adopt" user code for special programs processing

A process and staffing needs for adopting Level 3 code into DM's pipelines, and/or for adopting data products (e.g., joinable tables), verifying them, and hosting their public release. (Not limited to Special Programs.)

Status: this is a longer-term issue to be considered over 2018; dependent on DM-12575 (above).

RFC-412: Data Management & Special Programs

General DM capabilities for Special Programs

LPG 2018-02-15



Data Management / DM-12576

DM's capability to auto-trigger alternative data processing pipelines for special programs

- yes auto-triggering is possible, but incurs a processing overhead

Status: LPG will address at next PST meeting and report back.

LPG 2018-12-31



Data Management / DM-12574

clarify DM's capabilities for processing non-standard visit images from special programs

- e.g., shortest exposure suitable for instrument signature removal (ISR)

Status: TBD pending DM staffing (DM-12575).

LPG 2018-12-31



Data Management / DM-12582

confirm the DM system will meet the calibration needs of special programs

- e.g., ability to create/load additional calibration frames during processing

Status: TBD pending DM staffing (DM-12575).

GDF 2018-12-31



Data Management / DM-12577

science platform capabilities for user-driven processing of special programs data

Status: Science Platform development is ongoing.

RFC-412: Data Management & Special Programs

Specific DM code applications to Special Programs



Data Management / DM-12585

LPG 2018-12-31

clarify the applicability of real/bogus to nightly CoAdds in special programs

Status: TBD pending DM staffing (DM-12575).

EB 2018-12-31



Data Management / DM-12584

clarify the role of fake source implantation in Level 1 detection efficiencies

Status: MLG proposes a DMTN to evaluate options.



Data Management / DM-12579

closed

clarify that nSciProp in OSS-REQ-0027 can accommodate special programs



Data Management / DM-12580

resolved

clarify database schema for externally provided coordinates

Status: has spawned downstream issue for JS.

MLG 2018-06-15



Data Management / DM-12581

is float[6x32] adequate for Object variability parameters with special programs?

Status: MLG instigated a TVS task force to review this; will report back.

