

# LSST Data Management Working Group Report

Data Quality Assessment

# Data Quality Assurance WG Membership

- Stuart Marshall(chair,SLAC)
- Zeljko Ivezic (SLAC)
- Jacques Sebag (NOAO)
- Dick Shaw (NOAO)
- Steve Kahn (SLAC)

# Issues Addressed

- Principles
- Data Quality for control/operations
- Calibration
- Data Quality Assessment for downstream data products
- Quality Assurance requirements for software

# Principles

- Data quality assessment is required in all software modules
- Intelligent processing: modules/functions should flag & raise alarm if outputs don't make sense
- All software development will obey strict configuration control
- DQA info is archived and queryable

## DQA for control/operations

- A) require definition of “parameters” characterizing an observation (hardware teams)
- B) data capture computes derived quantities for feedback to control system
- C) feedback definition
- ? where at end of R&D:
  - A) done to level of knowledge available
  - B) define functionality, accuracy, speed, frequency, algorithms
  - C) interfaces defined
- ? unresolved issues: coupling facility DB
- ? teams, steps: mostly documents
  - ? A,C – Camera, Telescope, DM team subgroup (Sebag)
  - ? B – Define team, NOAO (Shaw?), NCSA (Thaler,Plante))

# The Calibration System

- A) Calibration Plan {philosophy, steps, ...}, 12 months
- B) Calibration Pipeline Software design, 18-24 months
- C) Initial LSST catalog – (pre-lsst-survey) 18-24 months
- D) QA of calibration (handle monitoring trends, events)

Need a calibration group with reps from T, C, DM. (Sebag\*, Stubbs)

Possibility to work with other surveys on initial catalog

Scope of calibration (isolated vs. distributed)

Use of auxillary systems, (all sky cam, outrigger telescopes,...)

# Data Quality Assessment for Downstream Data Products

- Primarily an issue of catalog QA
  - naturally included in variability pipeline
  - statistical tests (color-color width, ...)
  - standardize input from calibrations
  - automated “learning”
  - artifact injection for efficiency/completeness
- Form groups responsible for defining what pipelines need as input and common tools
- Definition documents
- who: Z. Ivezić (UW), K. Cook (LLNL)?

# Quality Assurance requirements for software

- Definition of verification/validation test suites
- Schedule time for v&v program
- Accuracy, scientific quality measures of algorithms
- stress tests by independent teams (separation of code/test)
- who: combination of DM (Kantor) and science rep (Axelrod)