Baseline Cadence Description (opsim3.61)

OBSOLETE - Please see updated description of the baseline survey strategy, available at lsst.org.

These slides summarize the essential input to the current project-approved Baseline Cadence simulation, opsim3.61, as well as some of the characteristics of this 10-year survey.

Baseline cadence (OpSim3.61)

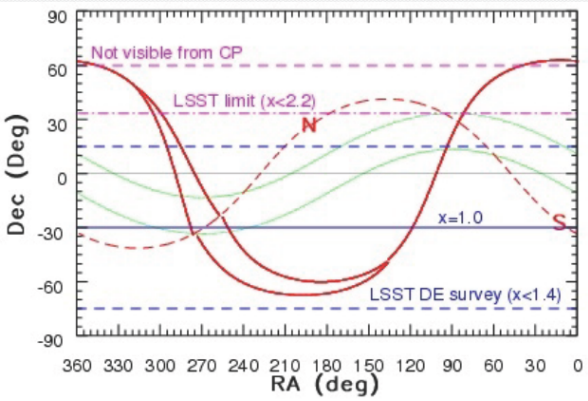
A 10 year simulation: "existence proof" for an LSST survey

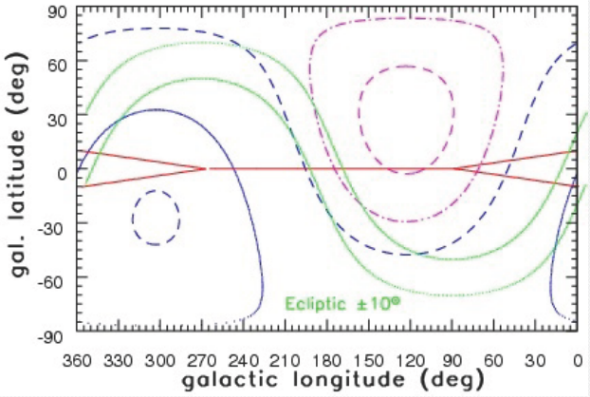
Basic characteristics:

- observing starts/stops at 12 degree twilight
- CTIO 4m weather log as weather model
- telescope model and scheduled downtime for maintenance
- u filter in camera ~ 6 days per lunation
- utilizes 5 science proposals:
  - WideFastDeep: Universal Cadence
  - Galactic plane: collect 30 visits in each passband
  - North ecliptic: Universal Cadence
  - South Pole: collect 30 visits in each filter
  - 6 "deep drilling" fields for SNe (100-day sequences with visits every 5 days in grizy)
- **baseline cadence always uses t_{vis} = 30 seconds!**

Baseline cadence (OpSim3.61)

- 2,651,588 total visits,
- 20,000 square degrees: 75% in Wide-Fast-Deep (WFD)
  - 1030 requested visits in ugrizy
  - 656,687 pairs of griz with 15-60 minute separation
  - ~ 6 pairs per field per lunation
- 4,000 square degrees: 12% in the Northern Ecliptic (NES)
  - 41,774 pairs of griz with 15-60 minute separation
  - ~ 2 pair per field per lunation
- 1,900 square degrees: 7% in the Galactic Bulge/Plane (Gal)
  - 30 visits in ugrizy each
- 1,300 square degrees: 6% in the South Celestial Pole (SCP)
  - 30 visits in ugrizy each
- 23 perfect deep 100 day supernova sequences (SN), 170 incomplete for 7 fields
- Excellent period recovery for periodic variables
- Quite efficient: 6.4 second average slew (1.02 seconds due to filter change)





Sky coverage:

for the main survey, maximize the number of objects (area vs. airmass tradeoff)

X<1.4 corresponds to

$-75^o < Dec < +15^o$

(25,262 sq. deg.)

X=2.2 corresponds to Dec < +33°, but note that the telescope can reach Dec = +40° (X=2.9)