



DM-Alert Production data quality tests with synthetic sources

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SLAC



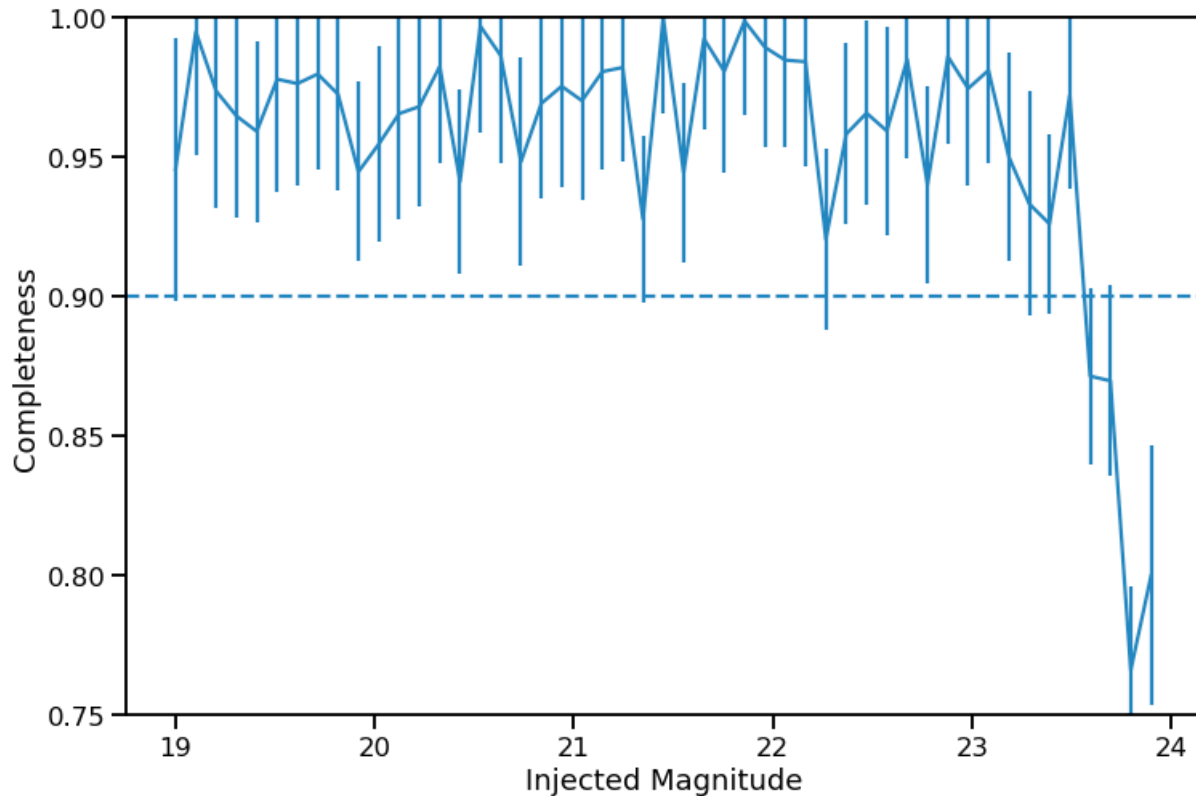
Observatory System Specifications (OSS)

- <http://ls.st/oss>: OSS-REQ-0353
 - Transient source purity: $\geq 95\%$
 - Transient source completeness: $\geq 90\%$
- Want to test this ~nightly for data quality assurance purposes.

Current existing pipeline

- Guts of pipeline
 - Produce random point sources over tract
 - Insert sources into both template and visit exposures
 - Run through full image difference/source association pipeline.
 - Code: http://github.com/lstt/ap_pipe (createApFakes.py, matchApFakes.py)
 - Gen3 only (will not support Gen2)
 - Pipeline: http://github.com/lstt/ap_verify (ApVerifyWithFakes.yaml)
- Integrated with ApVerify CI system
 - Currently running on HSC and HiTS-2015 (DECam) datasets
 - Produces completeness metrics for various inserted magnitudes.
 - Soon to be integrated into AP's daily CI pipeline.

Current performance



- Results from running on a significant fraction of HiTS-2015 data
 - ~20 visits
- Plot is for visit exposure synthetic sources w/ $S/N > 6$

AP near term plans

- Insert variable sources to test subtraction/recovery
- Insert point sources near galaxies
 - Test image subtraction/recovery around extended sources
- Utilize DM sky sources to estimate image purity.
- Run image differencing over DC2 data as part of DP0.