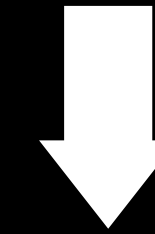


Double click anywhere
to enter the master slide view.

Fill out this box



Preferred Format

Event Name | Location | Month DD - DD, YYYY

Control Box

DMLT VF2F | November 18, 2020

Please fill out the right hand box above, it will automatically populate the footers and titles.



Rubin Observatory

Alert Production Status Update

DMLT VF2F | November 18, 2020



Review of recent progress - Alert Production F20B

- **Overall status**

- Ian Sullivan has taken over from John Swinbank as T/CAM. There has been a steep learning curve!
- The AP team has been excited to help deploy and test the new Gen 3 middleware
- We continue to make progress on many fronts, but there are major challenges for productivity:
 - Child care remains a significant burden for many
 - Online school requires significant oversight by a parent
 - Immigration issues and concerns have worsened
 - ... to name but a few

Review of recent progress - Alert Production F20B

- **Pipeline Infrastructure**

- Converted ap_verify to Gen 3
- Removed deprecated code from multiple packages

- **afw::Filter Redesign**

- Removed dependencies on functionality no longer present in the new, simpler Filter
- Implementation of the new Filter is nearly complete

- **Image Differencing**

- Conducted controlled test cases to pin down ZOGY difference image artifacts
- Technote detailing our ZOGY implementation to be complete by end of month

Review of recent progress - Alert Production F20B

- **Data Analysis**

- Updated default PSF determiner to PSFEX
- Regularly processing both DECam HiTS and HSC COSMOS in CI
- Converted DECam reprocessing to use stack-produced calibration products

- **Crowded Fields**

- Fixed bugs in Single Frame Processing exposed by very dense stellar fields
- Determined configuration settings needed to successfully process DECam galactic bulge data
- Analysis is ongoing

- **Astrometry**

- Fitter tested with artificial distortions added



Review of recent progress - Alert Production F20B

- **Jointcal**

- Began conversion to Gen 3

- **Fake Source Insertion**

- Created Pipelinetask for fakes in AP
- Wrote tools for analyzing the results

- **Solar System**

- Conducted successful Data Exchange Challenge with the Minor Planet Center
- Generated simulated solar system alerts to distribute to the community Broker teams
- Held virtual workshop with creator of FindOrb (Bill Gray) to evaluate vs OpenOrb for orbit determination

Plans for S21A - Alert Production

- **Pipeline Infrastructure**

- Support databases other than SQLite in ap_verify processing for scalability
- Continue work on updating documentation to Numpydoc standards
- Profile and tune performance using Gen 3 middleware
- Plan Gen 3 executor for Alert Production

- **Image Differencing**

- Complete ongoing ZOGY reimplementation
- Conduct focused sprint to characterize image difference artifacts and evaluate algorithms
 - Goal to complete milestone DM-AP-12

Plans for S21A - Alert Production

- **Jointcal**
 - Apply proper motions and parallaxes to reference catalogs
 - Generate distortion models for use with the new astrometric fitter
 - Complete the conversion to Gen 3
- **Source Matching**
 - Start work on probabilistic source association
- **Astrometry**
 - Use full focal plane distortion model
- **Fake Source Insertion**
 - Implement metrics using fake sources.

Plans for S21A - Alert Production

- **Infrastructure for Real/Bogus**

- Develop tooling which can be used as part of training a real-bogus classifier.
- Prepare initial DIASource cutouts to use for the classifier.
- Work with EPO team to deploy real-bogus Zooniverse project.

- **Data Analysis**

- Regular analysis of processing of DECam and HSC data through AP pipelines, including identifying issues, tracking them down, and resolving them. Where appropriate, integrating analysis of new datasets, and working with the Data Facility to automate processing.

- **Crowded Fields**

- Complete analysis of DECam bulge data
- Write a report on the results to the Project Scientist by the end of the year

Plans for S21A - Alert Production

- **Solar System**

- Improve performance and completeness of tracklet linking (HelioLinC2)
- Integrate pytrax linking algorithm with SQUASH
- Produce a report on the results of the LSST-MPC Data Exchange Challenge
- Plan for integration of MOPS with the Alert Production pipeline

- **Alert Distribution**

- Complete design for lightweight alerts
- Plan alert stream integration with production system