



Alert Production Status Update

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Review of recent progress - Alert Production S21b



- **Alert distribution**

- Wrote a design document for the alert database: [DMTN-183](#)
- Set up a Kafka broker for the test alert stream on the IDF.
- Created a test implementation of the Confluent Schema Registry

- **Infrastructure**

- Members of the AP team continued to support the conversion to Gen 3 middleware
- Created and began monitoring a [Chronograf dashboard](#) to compare Gen 2 vs Gen 3 metrics
- Switched ap_verify to use Gen 3 by default

Review of recent progress - Alert Production S21b



- **Data analysis and QA**

- Regularly processing both DECam HiTS and HSC COSMOS in CI
- Added a Gen 3 version of DECam HiTS to CI
- Enabled Fake source injection in CI, and added fake source metrics to Chronograf
- Added crosstalk correction to the Gen 3 DECam HiTS pipeline in CI

- **Jointcal**

- Completed the full Gen 3 version of the Jointcal pipeTask
- Created a script to produce the full focal plane distortion model from Jointcal output

Review of recent progress - Alert Production S21b



- **Solar System**

- Created a pipeline for associating objects detected on difference images to known Solar System objects.
- Added a measurement plugin to the stack for trailed source detection and measurement.
- Delivered presentations for the Planetary Decadal Survey

Review of recent progress - Alert Production S21b



- **Image Differencing Sprint**

- Three primary goals:

1. make the switch internally to using the Gen 3 middleware for our data processing.
2. identify any major errors in our implementation of image differencing
3. make progress towards completing milestone [DM-AP-12](#)

- We succeeded in converting our internal processing from Gen 2 to Gen 3, and our batch job submission from slurm to bps

- The results of 2 and 3 are written up in the [Image Differencing Audit report](#)

- Takeaway is that our image differencing algorithms do not yet support the case where the science image has better seeing than the template.

Plans for F21a - Alert Production

- **Pipeline infrastructure**
 - Performance tuning
 - Restructuring of pipelines and repositories to follow RFC-775
- **Image Differencing**
 - Diagnose and fix the pipeline failures and high false positive rates that were found during the image differencing sprint
 - Classify and generate metrics to evaluate image differencing artifacts

Plans for F21a - Alert Production



- **Data Analysis and QA**

- Regular analysis of processing of DECam and HSC data through AP pipelines, now also using Gen 3
- Add new metrics to CI monitoring, including sky objects

- **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.
- Deploy real-bogus Zooniverse project.

Plans for F21a - Alert Production

- **Alert Distribution**

- Plan alert stream integration with production system
- Create a test alert database in the IDF

- **Jointcal**

- Apply proper motion to reference catalogs

- **Solar System**

- Begin integration of MOPS with the Alert Production pipeline
- Clean up and document new Heliolinc2 linking algorithm
- Speed up and add new measurements to Trailed Source Fitting