Alert Production Status & Plans

John Swinbank

Review of F19 promises

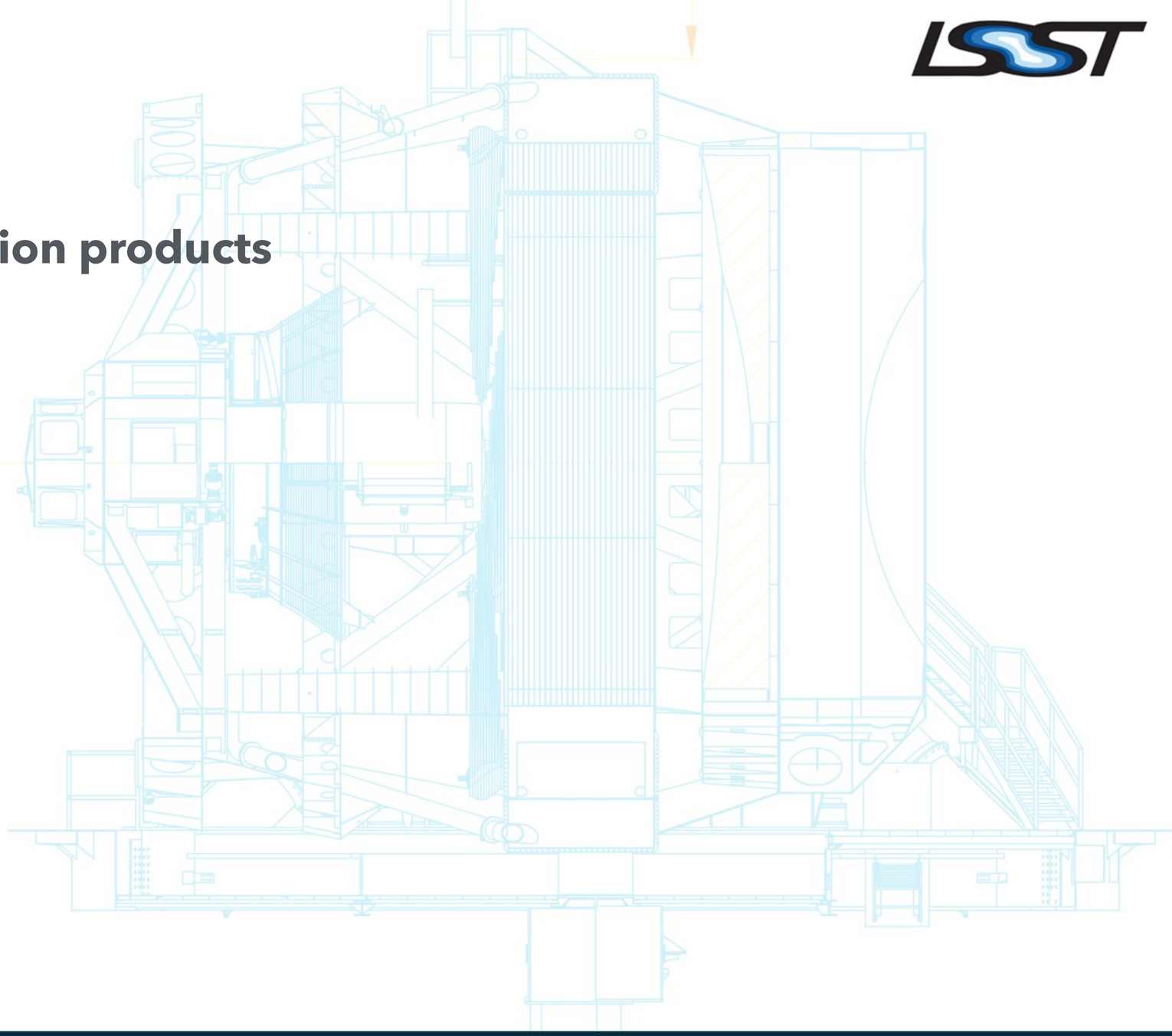
- **Solar system processing**
  - RFC-620, describing new solar system processing plan, submitted but not yet approved.
  - Successful evaluation of HelioLinC (Holman et al., 2018); will use this instead of classic MOPS algorithm.
- **Image differencing**
  - Successful sprint; great example of cross-team cooperation (thanks, Yusra).
  - Spawned some significant improvements to the false positive rate.
  - Hope to build on this momentum, with more cross-team work.

Review of F19 promises

- **Astrometry improvements**
  - Another cross-team sprint. Two parts: taking account of distortion when building the initial WCS, then taking advantage of that in the fitter.
  - All the pieces are in place, but we're not using the new fitter yet, and haven't really shown how well this works.
- **Exposure upgrades**
  - Aim to make it possible to extend Exposure in Python.
  - Lots of progress in making ExposureInfo more flexible, so that arbitrary types can be attached to Exposures; DMTN-120.
  - Currently stymied by persistence.

Review of F19 promises

- **Stack-produced DECam calibration products**
  - Not done; possibly S20A.
- **Gen 3 porting**
  - Starting ~this week!
- **Science Data Model**
  - … see talk by Yusra yesterday



Also in F19

- Plugin system for calculating DIAObject properties.
- Writing up how Differential Chromatic Refraction mitigation interacts with template generation & the scheduler; see DMTN-121.
- Gaia DR2 reference catalog.
- Metrics Measurement Framework for extracting metrics from pipeline execution and forwarding them to SQuaSH.

Plans for S20 /1

- **Solar System Processing**
  - *Siegfried, Mario, Joachim.*
  - Pushing the RFC-620 system through change control & starting implementation.
  - Algorithm development for orbit-visit cross matching in support of precovery, etc.
- **Image Differencing**
  - *Gabor, Ian.*
  - Short-term: addressing identified/known issues with the image differencing code.
  - Longer-term: theoretical improvements to image differencing, ie updated approach to convolution (PIPE-34); expect this to be carried out with input/guidance from Jim & Robert (& other DRP team members, as applicable).

Plans for S20 /2

- **Astrometry Improvements**
  - *Chris.*
  - Finish the work from the last cycle; get the new fitter up and running, and quantify to what extent this work has addressed outstanding issues.
- **Exposure Upgrades**
  - *Krzysztof.*
  - (Possibly in contention with Gen 3 work).
  - Presumably doing something about persistence, per DMTN-120; looking for input/ownership from Jim to make this useful.

Plans for S20 /3

- **Regular ap_pipe processing & QA monitoring**
  - *Meredith, Eric.*
  - Manual, monthly, reprocessing of HiTS dataset & QA analysis of the result.
  - Add HSC dataset.
  - If time allows, fold in DECam calibration product generation.
- **Alert Distribution System**
  - *Eric, John S*
  - Simulated alert stream; working with Darko Jevremović & team (Belgrade).
  - Discussing signed alert packets with Arch team *as I write.*

Plans for S20 /4

- **Gen 3 porting**
  - *Everybody.*
  - Starting this week; continues until ap_pipe is done.
- **Middleware development**
  - *John P. Others?*
  - Spoke about this on Tuesday; a good chance we can make John available as needed. Modulo….
- **Jointcal**
  - *John P.*
  - Fix bugs identified in HSC release processing. Gen 3 porting (as above).
  - No new algorithmic development(?)

Plans for S20 /5

- **Source association for AP**
  - *Chris.*
  - Compute more DIAObject properties (parallax, proper motion, etc).
  - Potential to look at smarter association algorithms.