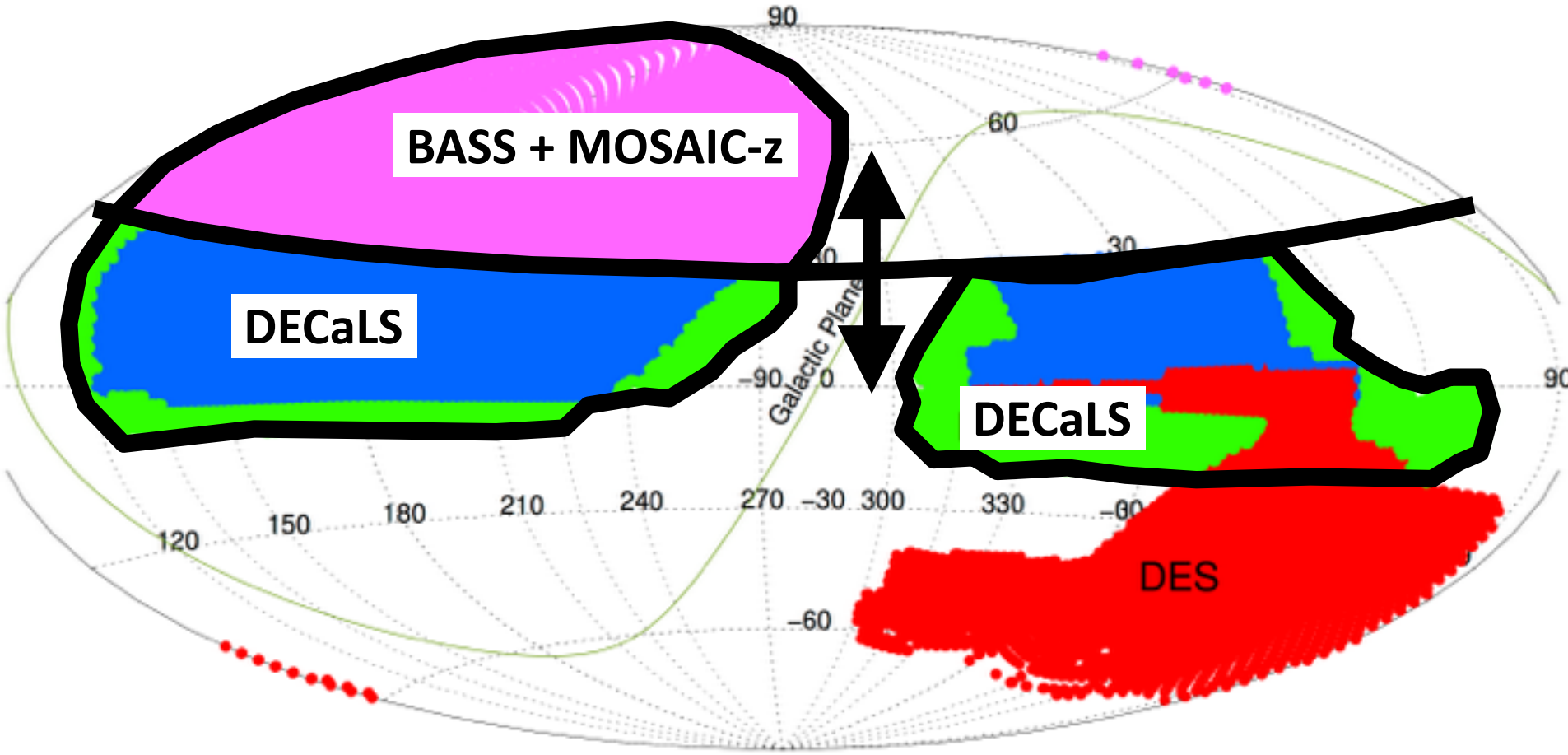
Three optical surveys:

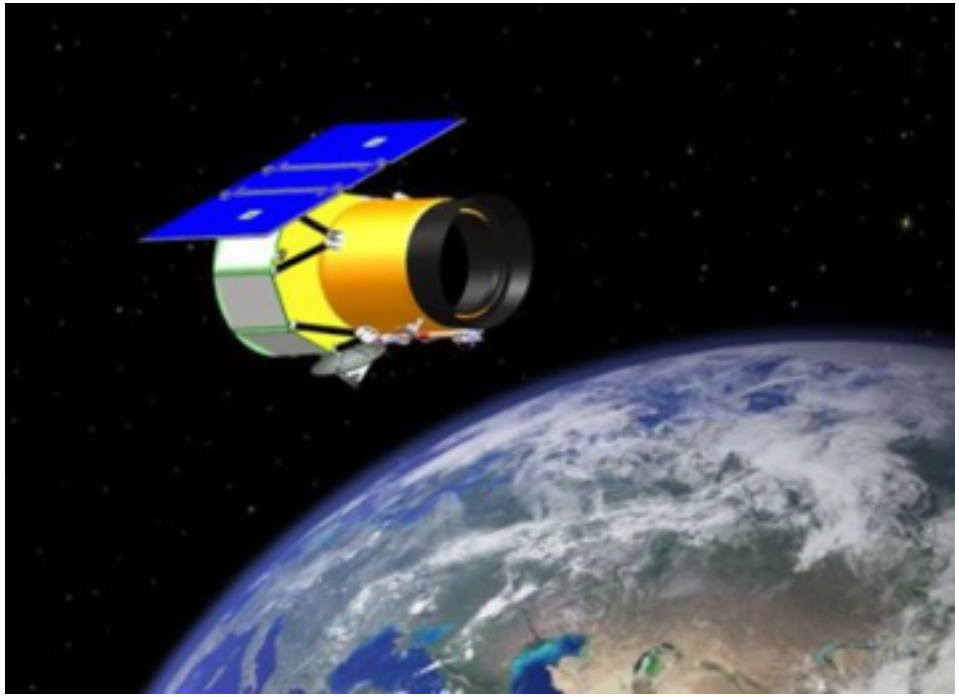
DECaLS (g,r,z)

BASS (g,r) + MOSAIC-z (z)



WISE satellite imaging status

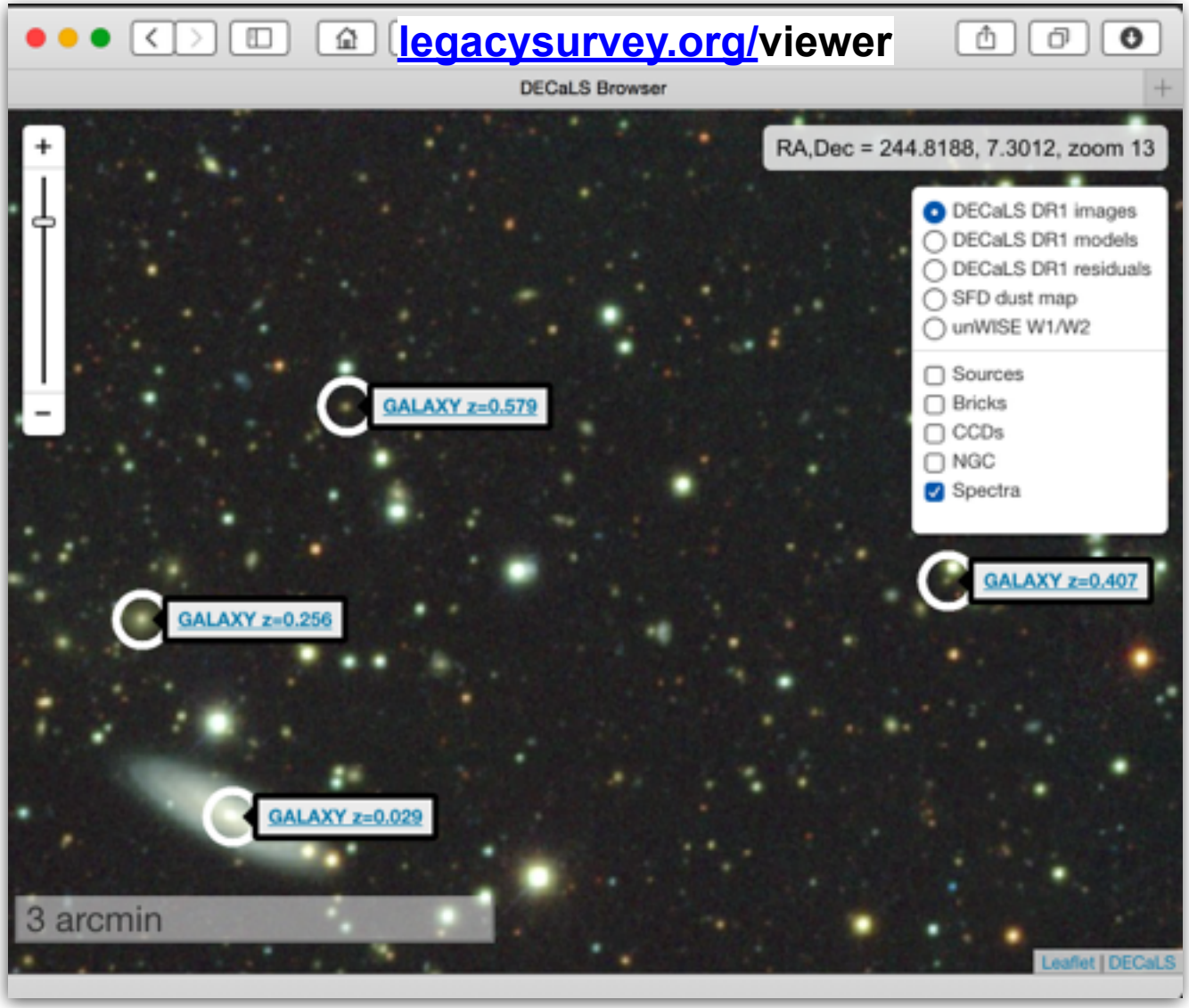
- WISE 1st year data released Mar 14, 2013
- Satellite reactivation as the “NEOWISE mission” in Dec 2013
- WISE 2nd year data released March 26, 2015
  - 3rd year data March 2016
  - 4th year data March 2017



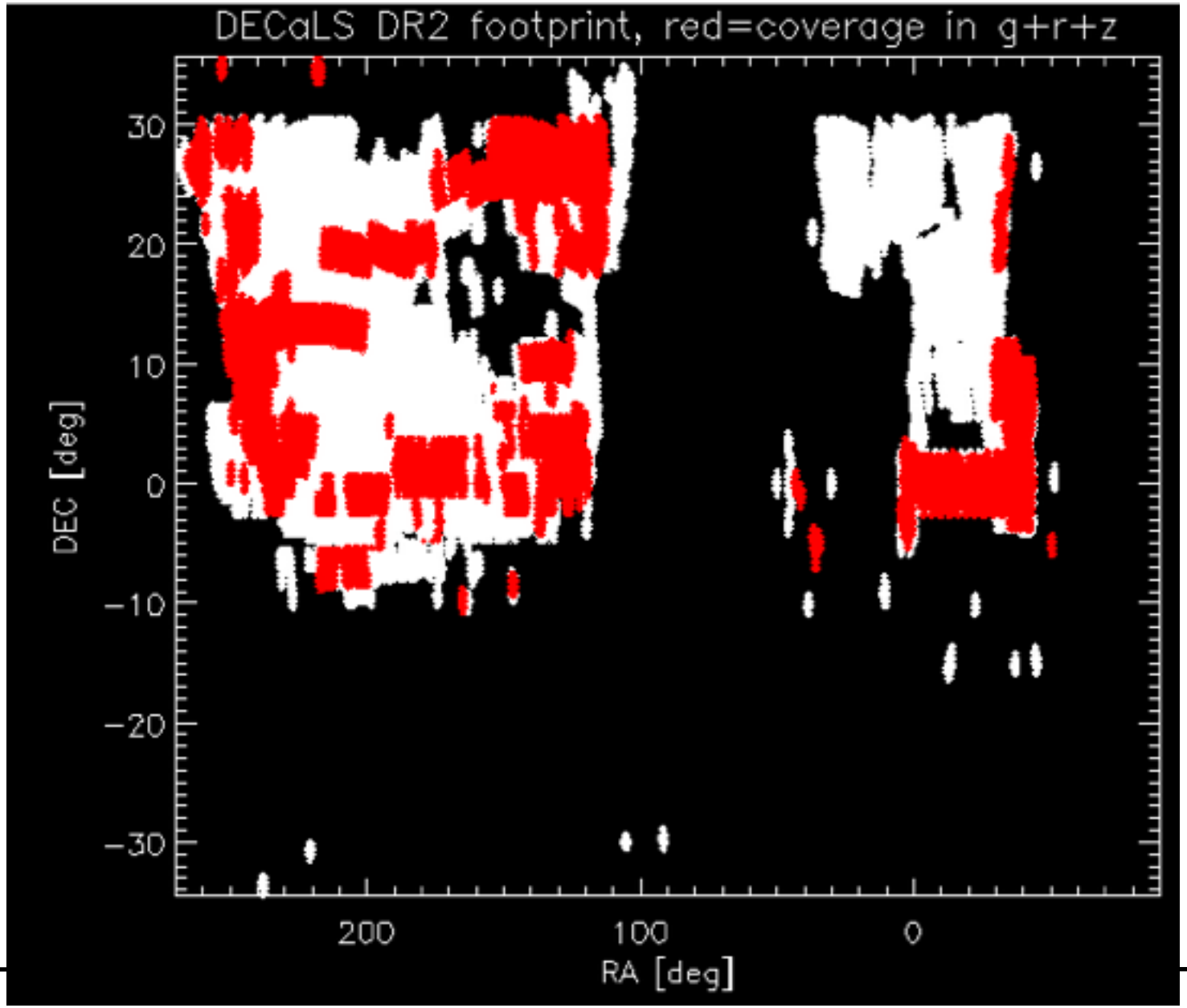
DECaLS

- **Early Data Release (EDR) on Nov 14, 2014**
- **Data Release 1 (DR1) May 2015**
  - Includes DECaLS through Jan 2015 + WISE 1st year data
  - First public data release
    - Significant sky area, 800 sq deg in 3 bands, 3000 sq deg in any band
    - Science-quality release http://legacysurvey.org/dr1/
    - Web interface: http://legacysurvey.org/viewer
- **Data Release 2 (DR2) Fall 2015**
  - Includes DECaLS through Jun 2015 + WISE 2nd year data
  - Re-reductions of all the WISE data completed by Aaron Meisner (new postdoc)
  - Sky area increased to 1900 sq deg in 3 bands, 5800 sq deg any
  - Significant, continued development of the Tractor code

DECaLS


legacysurvey.org/viewer
DECaLS Browser
RA,Dec = 244.8188, 7.3012, zoom 13
DECaLS DR1 images
DECaLS DR1 models
DECaLS DR1 residuals
SFD dust map
unWISE W1/W2
Sources
Bricks
CCDs
NGC
Spectra
GALAXY z=0.579
GALAXY z=0.407
GALAXY z=0.256
GALAXY z=0.029
3 arcmin
Leaflet | DECaLS

DECaLS DR2 (in prep)



DECaLS

- Time assignment in Fall 2015 was terrible
  - NOAO has agreed to pre-allocate survey program nights (mostly DES and DECaLS) for future semesters

- Annual reporting to NOAO survey committee
  - https://desi.lbl.gov/DocDB/cgi-bin/private/ShowDocument?docid=1312
  - Observations are on track, 33% complete

- DECaLS working meeting in Tucson, late August

Data release milestones

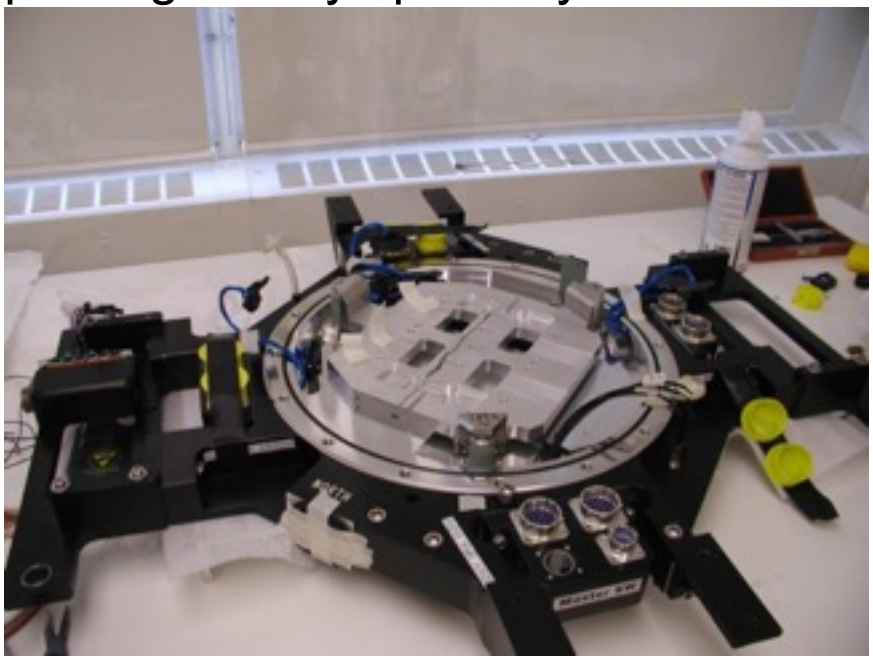
- Data Release 2 (DR2) will be Oct 2015
  - Include DECaLS through Spring 2015
  - Include WISE 2nd-year data released in March 2015
  - Improvements to Tractor pipeline based upon DR1 feedback
  - Additional data products to meet DESI targeting needs
- Preliminary schedule for future releases
  - DR3 - Spring 2016, include first Bok data
  - DR4 - Fall 2016, include first MOSAIC-z data + WISE 3rd-year
  - DR5 - Spring 2017, includes GAIA astrometry
  - DR6 - Fall 2017, includes full DECaLS data set + WISE 4th-year
  - DR7 - Spring 2018, includes full MOSAIC-z data set
  - DR8 - Fall 2018, includes full Bok data set
- DESI first light in Spring 2019, survey start Fall 2019

MOSAIC-z

- Telescope time by time agency agreement on Kitt Peak 4-m
  - DOE-NSF Memorandum of Agreement signed June 26, 2015 (Patricia Dehmer DOE, Fleming Crim NSF)
  - https://desi.lbl.gov/DocDB/cgi-bin/private/ShowDocument?docid=1295
  - Provides financial support for telescope for 3-year transition leading up to DESI survey, with agency coordination group
  - Charges NOAO to conduct DESI targeting survey on the Kitt Peak 4-m
- Observational program by MOU with the National Optical Astronomy Observatory (NOAO)
  - https://desi.lbl.gov/DocDB/cgi-bin/private/RetrieveFile?docid=1158;filename=DESI_MOU-NOAO-signed.pdf
  - Specifies 225 nights observing in Spring 2016+2017 to conduct z-band survey over 5000 sq deg
  - Provides telescope operators for all nights, scientific support for half the nights
  - Other collaboration members expected to observe the remaining nights

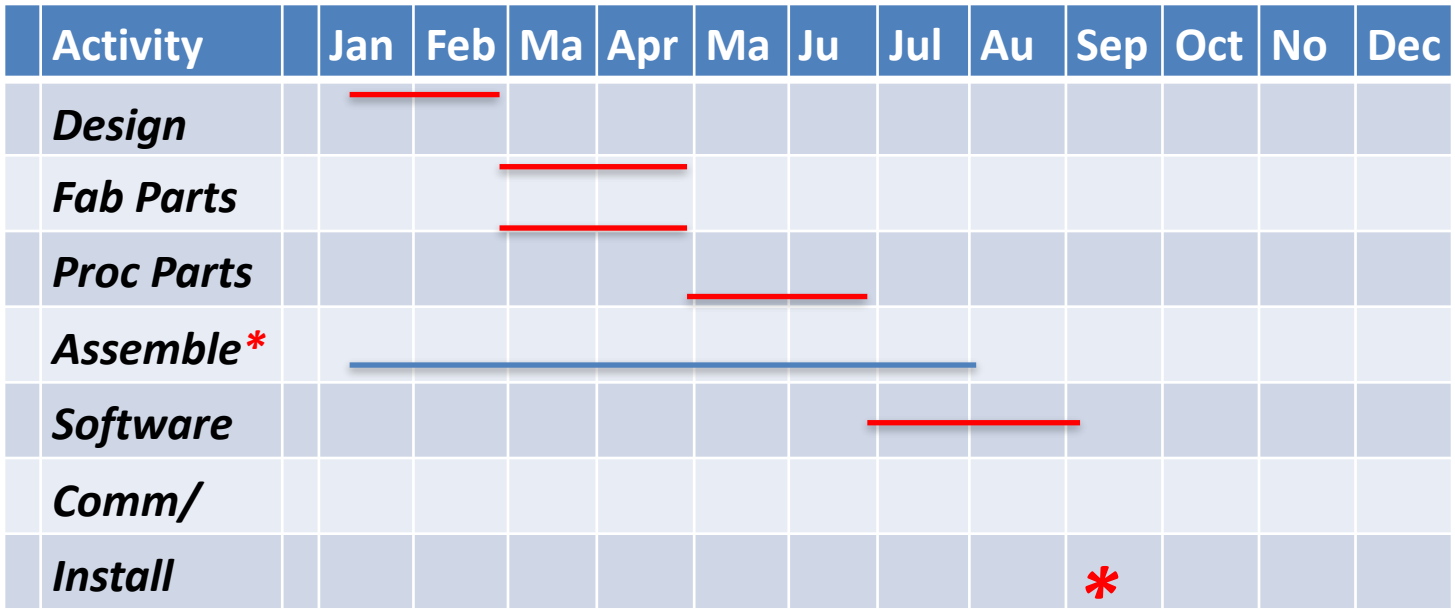
MOSAIC-z status: instrument upgrade

- Original “Targeting Alternatives Study” based upon existing MOSAIC-1.1 instrument for z-band survey
- Risk reduction with upgrade of MOSAIC-2 camera; survey must complete in Spring 2016+Spring 2017 before telescope disassembly in December 2017 for DESI
- Yale upgrading MOSAIC-2 with 4 LBNL CCDs + 4 DESI electronics modules, improving survey speed by 60%



MOSAIC-z status: instrument upgrade

- Assembled in June with fake CCDs to test vacuum + thermal
- Re-assembled early July with 3 science-grade CCDs + 1 engineering-grade CCD with final wiring, heaters, temp sensors, 1 electronics box
- Re-assembling late July in final configuration
- Test data at NOAO/Tucson in early Sep, at the telescope this week



MOSAIC-z status: commissioning

- Instrument + survey commissioning led by Arjun Dey (NOAO)
  - Includes software support from Yale (David Rabinowitz) and NOAO data group
- Survey planning and commissioning in Spring 2015
  - Survey strategy modified from DECaLS project by Anna Patej
  - Apr 25-27 (3 nights) used for test observations in z-band with existing camera using this survey strategy (Blum, Dey, Patej, Schlegel)
- NOAO has scheduled extensive commissioning time in Fall 2015
  - Sep 8-18 — Testing in Tucson
  - Oct — Delivery to the telescope
  - Oct 26-29 (4 nights)
  - Nov 18-23 (6 nights)
  - Dec 11-14 (4 nights)

Bok/BASS status

- Observations began in Jan 2015 (g-band), in May 2015 (r-band)
  - Electronics problems severely compromise these data
  - Exposure time calculations were wrong by factor 2 (too short), so most time spent on overheads

- Mike Lesser has been fixing problems this Aug/Sep:
  - A/D quantization problems (fixed)
  - Pixel correlations in readout (fixed)
  - Pattern noise (reduced in level, but still exists)
  - Cross-talk between amplifiers (fixed for signal, still present in noise)

- LBL power supply shipped to Tucson that may further improve noise

- U. Arizona still committed to providing telescope time to meet DESI targeting needs; Dennis Zaritsky applying for NSF support for his science