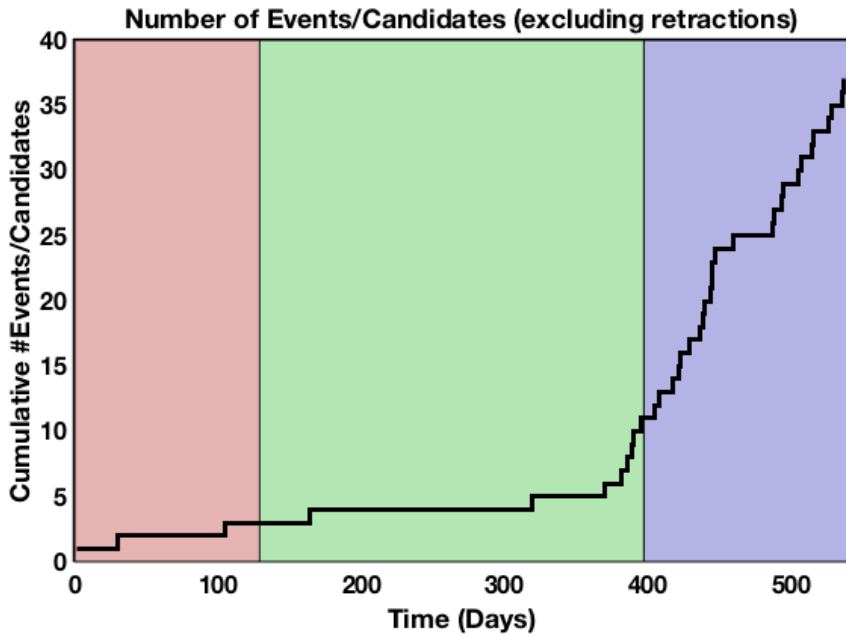
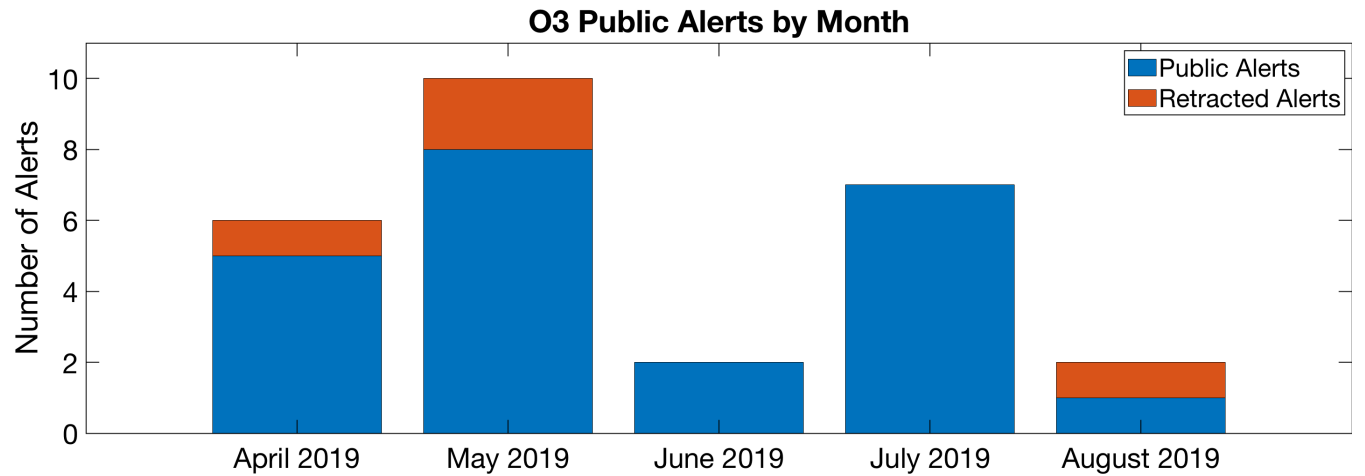


O3 LIGO-Virgo-KAGRA update, July 18 2019

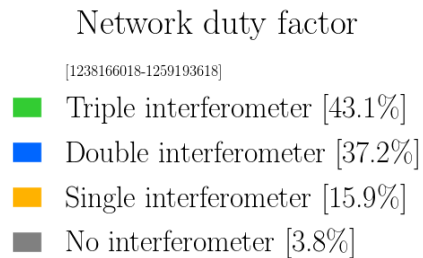
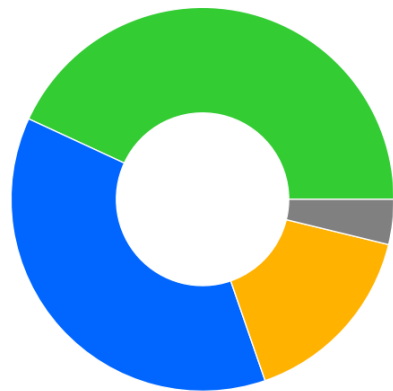
Keita Kawabe, Shinji Miyoki,
Brian O'Reilly, Matteo Tacca



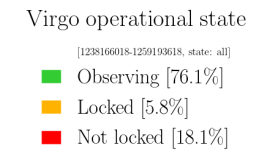
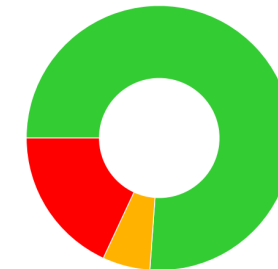
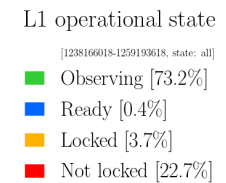
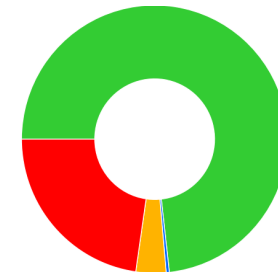
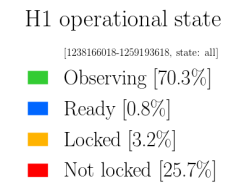
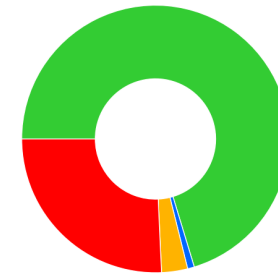
27 Alerts so far in O3, 5 retractions.

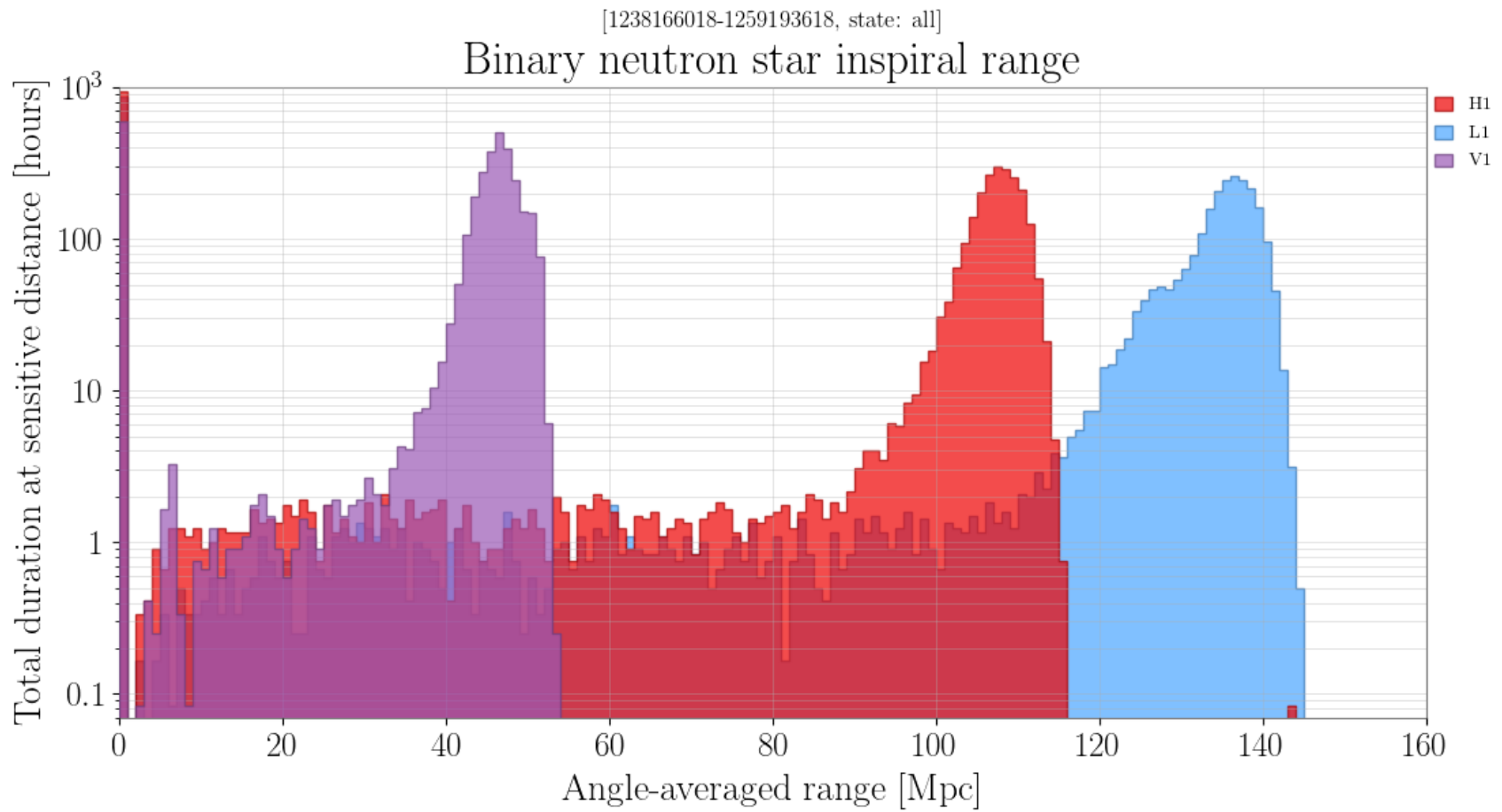


Detector Performance: O3 Cumulative Duty Factor



- Numbers essentially the same as July.
- Downtime includes everything, including but not limited to maintenance.





26 Alerts so far in O3, 4 retractions.

- [S190719y](#) : FAR = 1/10 months, $P_{\text{terrestrial}} = 98\%$, HasNS,HasRemnant>99%
- [S190720a](#) : FAR = 1/8 yrs, $P_{\text{BBH}} = 99\%$
- [S190727h](#) : FAR = 1/100 yrs, $P_{\text{BBH}}=92\%$ (initial skymap and P_{astro} were corrected)
- [S190728q](#) : FAR = 1/1e15 yrs, $P_{\text{BBH}} = 34\%$, $P_{\text{massgap}} = 52\%$, $P_{\text{NSBH}} = 15\%$
- [S190808ae](#): FAR = 1/1 yrs, $P_{\text{terrestrial}} = 57\%$, $P_{\text{BNS}} = 43\%$
 - After removing some instrumental artifacts and reanalysis the FAR for this candidate increased above our threshold for public alerts. The candidate was **retracted**.
- [S190814bv](#): FAR = 1/1e+25 yrs, $P_{\text{massgap}}=100\%$

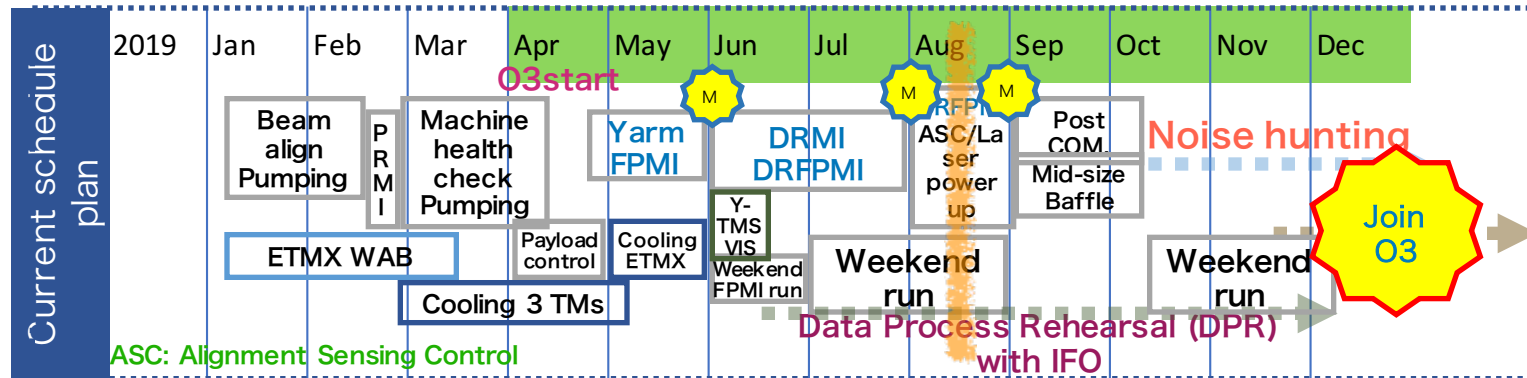
Commissioning Break 1st to 31st Oct 2019

- Expect no observation by LIGO/Virgo: 1/Oct/2019 1500 UTC - 1/Nov/2019 1500 UTC.
- New end date planned to be April 30 2020 to preserve 1 year observation.

Status and Milestones of KAGRA Commissioning

Plan on 6th May

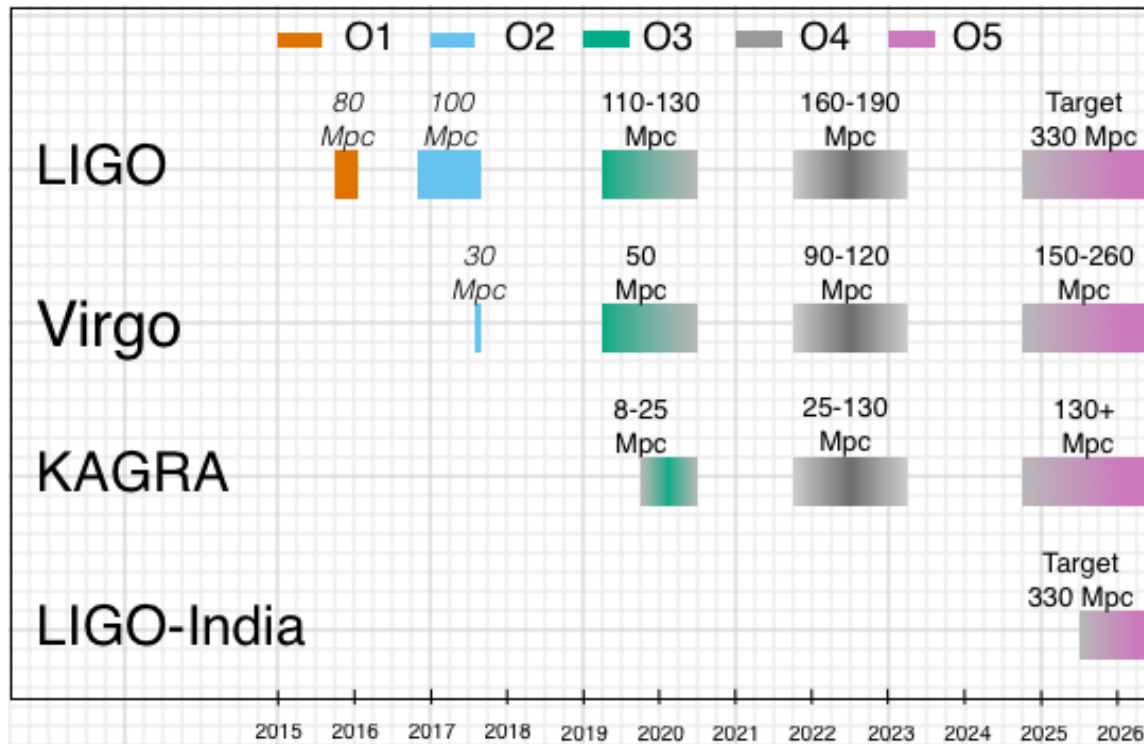
We are here



- Working on handing-off from green to IR for mass lock of arm cavities was done
 - Fiber noise cancellation system for green is done.
 - DRMI trial (by the end of August) will be continued.
- ITMs Polarization issues.
 - Reflection from each ITMs has ~5-10 % P-polarization. We will estimate the impact on sensitivity.
- Go back to FPMI or keep DRMI? -> under discussion
- Frosting issues on Cryogenic Mirrors.
 - Each mirror encountered frosting problem due to molecule gas adsorption around 25K. The frosting can be recovered by warming up mirrors around 30K~ 80K.
- PEM and Detchar preparation tasks are smoothly going.

For your longer term planning: P1900218, our best estimate LIGO-Virgo-KAGRA plan as of now

- <https://dcc.ligo.org/public/0161/P1900218/002/SummaryForObservers.pdf>



Full update to “Observing Scenarios” paper is in final internal circulation.