

# 03 LIGO-Virgo (and KAGRA) update, June 20 2019

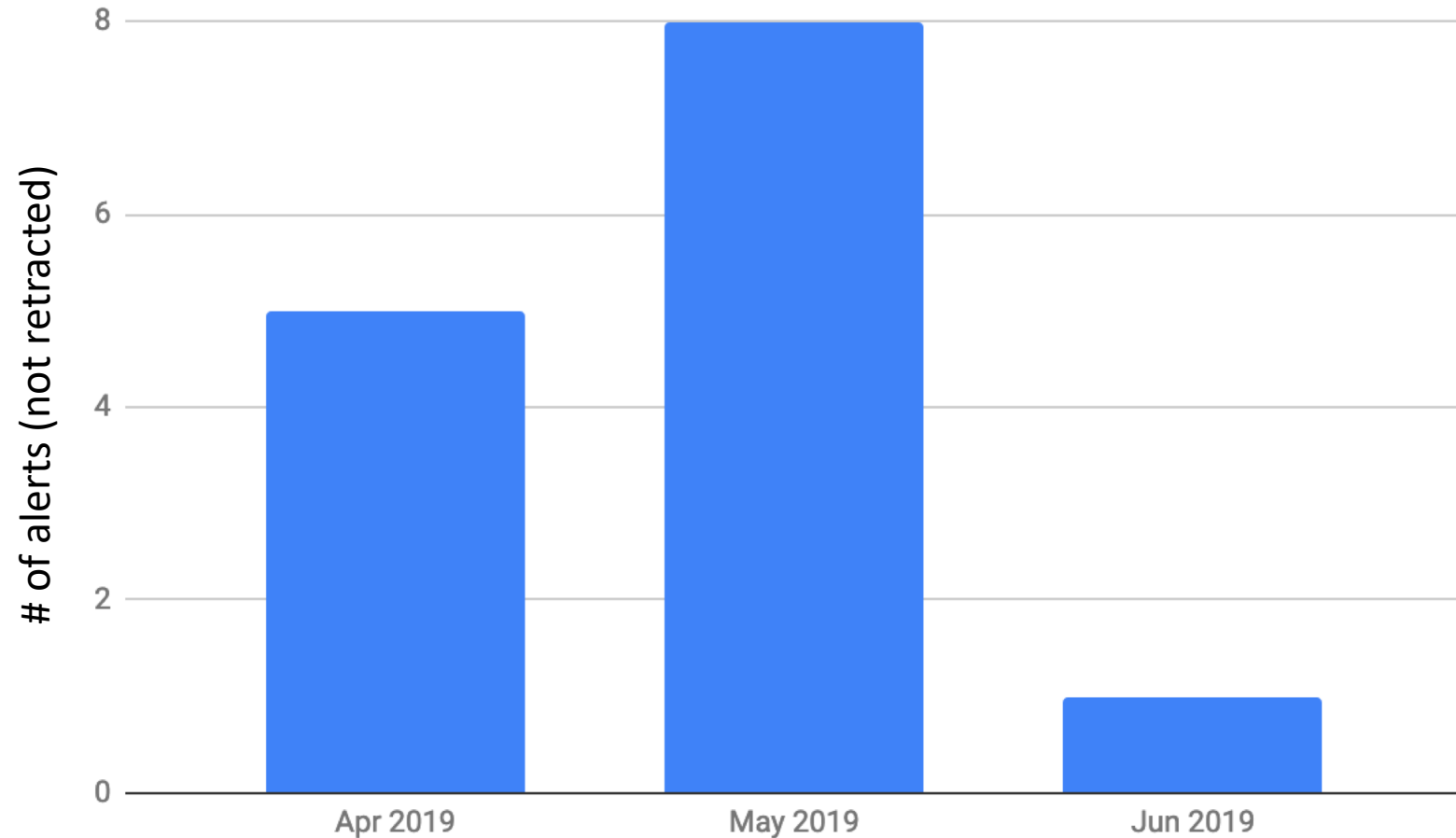
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Alessio Rocchi, David Shoemaker

# Summary

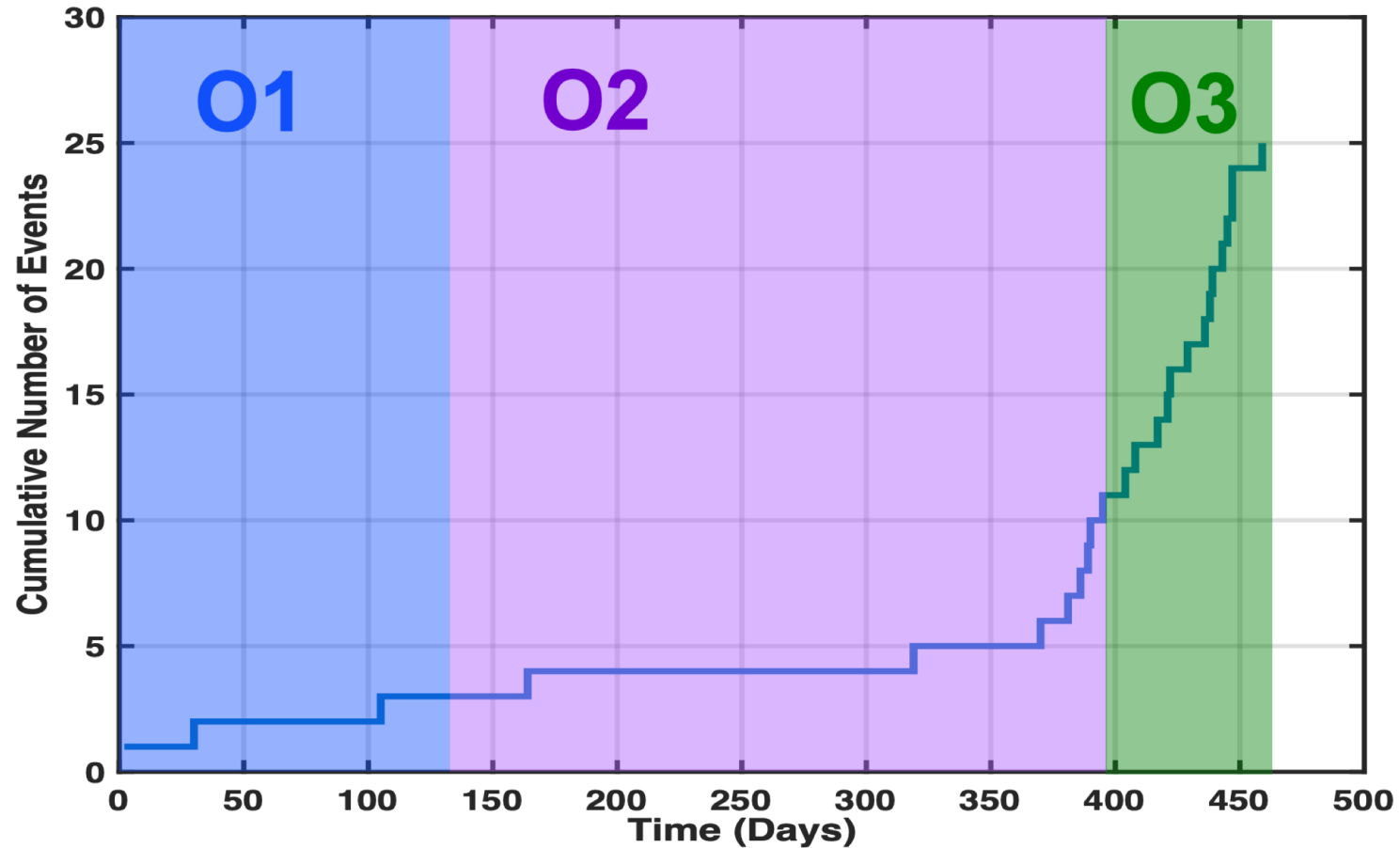
- Since last meeting (May 23), two public alerts, one was retracted.
- Duty factor: 82 % with at least 2 interferometers, only 2.2 % of time without any interferometer.
  - Improvement over the last month's report where 2+ IFO duty factor was 78%.
- Potential ~1 month commissioning break.
  - Thanks for your input about our schedule.
  - At the moment things are still in flux, but we're likely to do this, and if we do it'll be late September or early October. The end date of O3 may be shifted.
  - We will give you a definitive update as soon as it becomes available before or at the next meeting.
- KAGRA is planning to join later this year, no firm date yet.

# Not much update since May 23

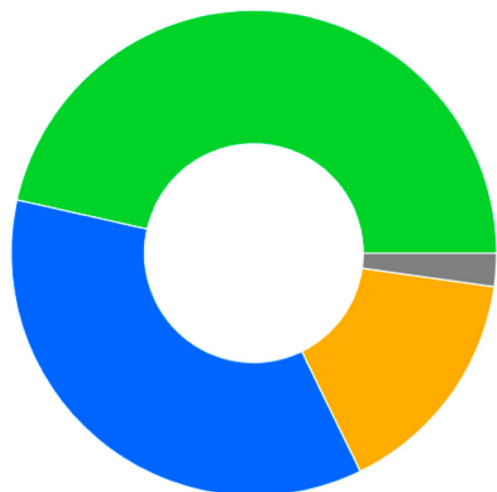
- S190524q (retracted due to non-stationary noise in the highest sensitivity detector L1)
- S190602aq, a potential BBH



# # of O3 candidates and O2+O1 detections VS run time



# Detector Performance: O3 Cumulative Duty Factor

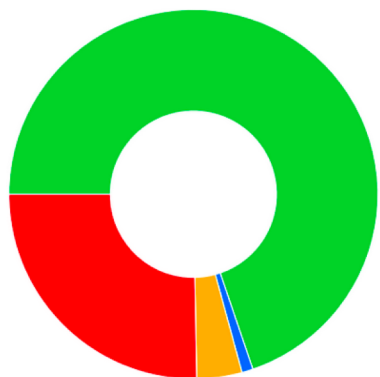


Network duty factor

[1238166018-1248652818]

- Triple interferometer [46.5%]
- Double interferometer [35.7%]
- Single interferometer [15.6%]
- No interferometer [2.2%]

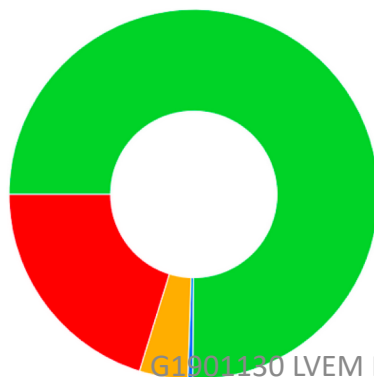
- 46.5% Triple IFOs
- 82.2% at Double or Triple
- 2.2% zero IFO coverage
- (Downtime includes everything including but not limited to maintenance)



H1 operational state

[1238166018-1248652818, state: all]

- Observing [69.8%]
- Ready [1.0%]
- Locked [4.0%]
- Not locked [25.3%]



L1 operational state

[1238166018-1248652818, state: all]

- Observing [75.1%]
- Ready [0.4%]
- Locked [4.2%]
- Not locked [20.2%]

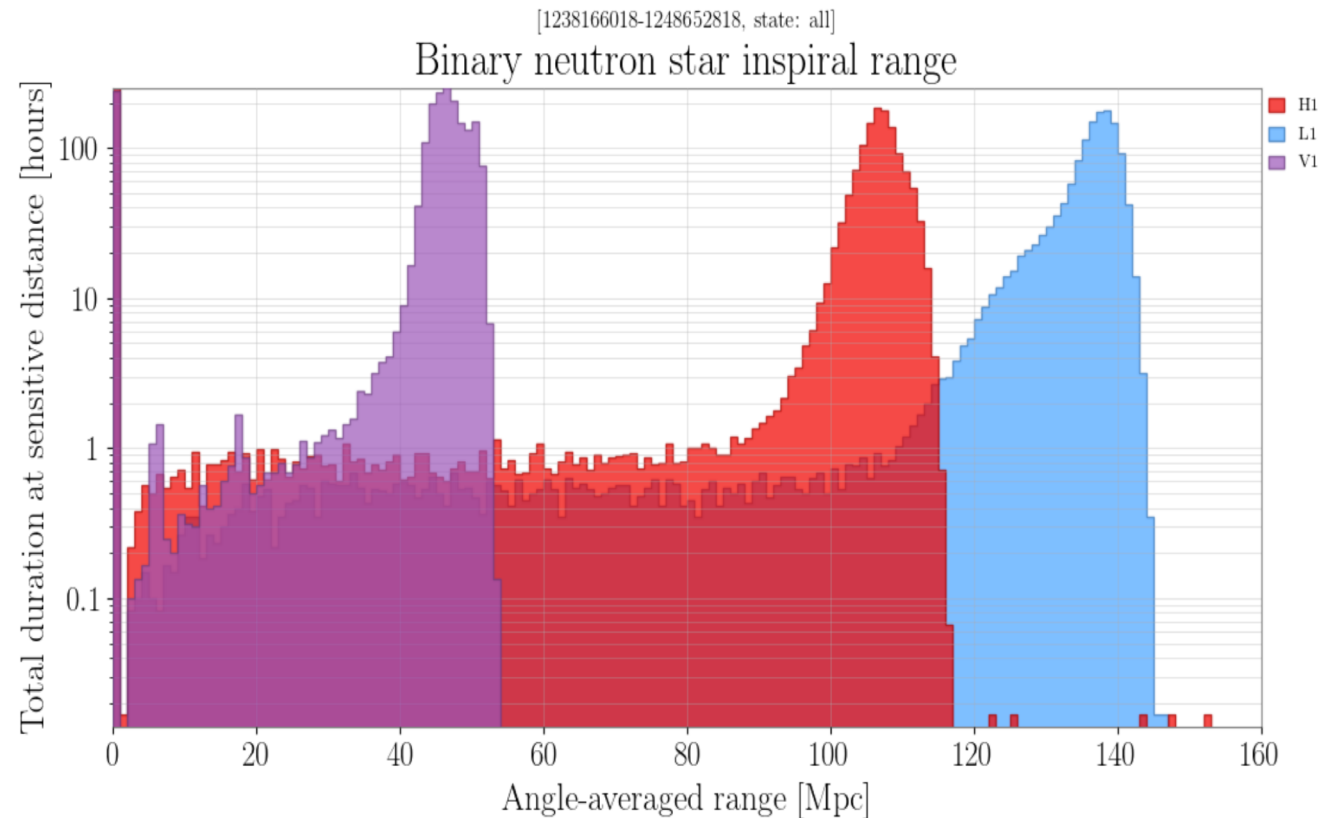
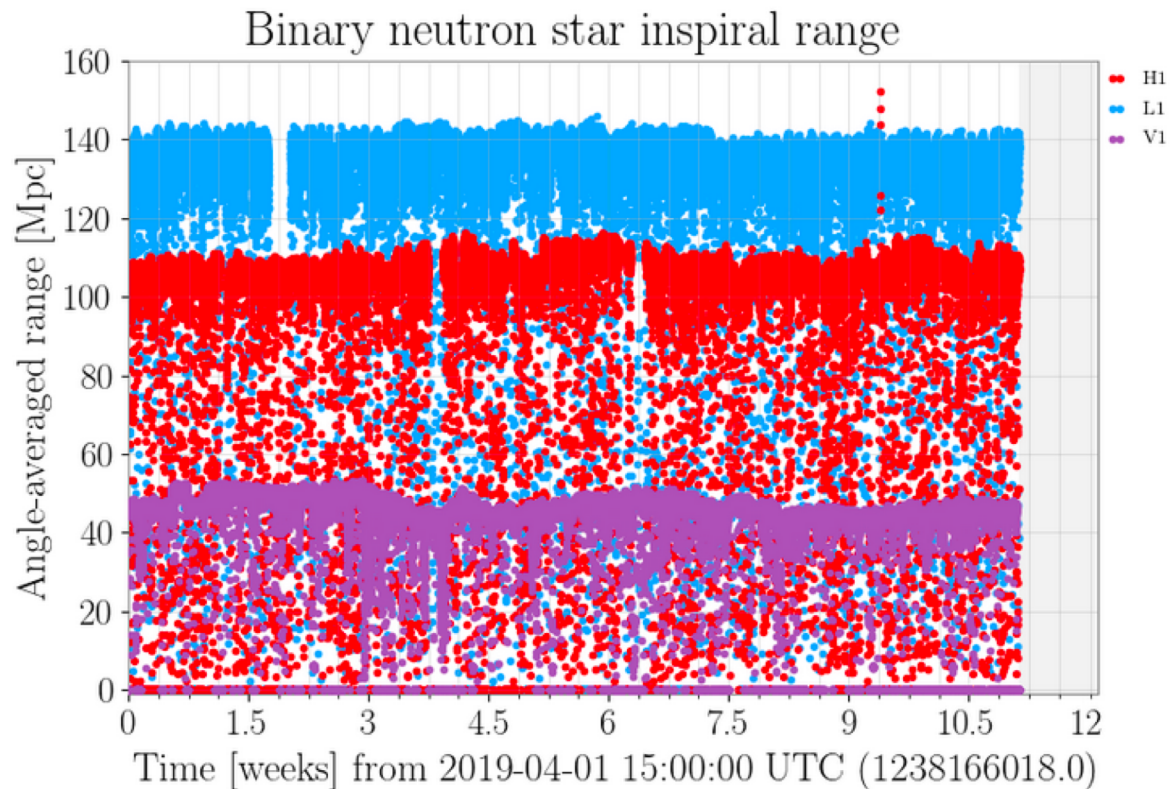


Virgo operational state

[1238166018-1248652818, state: all]

- Observing [82.0%]
- Locked [5.3%]
- Not locked [12.7%]

# Detector Performance: BNS range



# (Potential) Commissioning Break of ~1 month

- IF we do it, it will be late September to early October.
  - Proposal is yet to be approved by LIGO and Virgo upper management.
  - We may shift the O3 end date by ~1 month.
  - One way or the other, we'll have a firm update before the next meeting, we'll let you know as soon as it becomes available.
- H1: Fiber feedthrough replacement for squeezer (SQZ improvement), septum window replacement (scattering mitigation), wind fence (environment noise mitigation).
- L1: Septum window replacement, X arm accumulation test (vacuum), end station scattering mitigation.
- V1: no installations foreseen, possibly modification of the locking configuration to improve knowledge of noise couplings and to test control strategy for O4.

# KAGRA

- Commissioning the corner station interferometer now.
  - Successful lock of DRMI on Wed. this week(!!!)
- Engineering run on June 08, next one July 13.
- Plan to join O3 toward the end of this year. No firm date yet.