Status on Public Alerts

LIGO-Virgo Low-latency Analysis Group
June 20, 2019

GraceDB — Gravitational Wave Candidate Event Database

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Latest — as of 18 June 2019 19:37:07 UTC

Test and MDC events and superevents are not included in the search results by default; see the query help for information on how to search for events and superevents in those categories.

Query: [   ]

Search for: [Superevent ▼]

[Search]

UID	Labels	t_start	t_0	t_end	FAR (Hz)	UTC ▼ Created
S190602aq	PE_READY ADVOK SKYMAP_READY EMBRIGHT_READY PASTRO_READY DQOK GCN_PRELIM_SENT	1243533584.081266	1243533585.089355	1243533586.346191	1.901e-09	2019-06-02 17:59:51 UTC
S190524q	ADVNO SKYMAP_READY EMBRIGHT_READY PASTRO_READY DQOK GCN_PRELIM_SENT	1242708743.678669	1242708744.678669	1242708746.133301	6.971e-09	2019-05-24 04:52:30 UTC

- Modelled (Compact binary) and unmodeled (burst) pipelines are running in low-latency.
- Identification of candidates according to false-alarm-rate (FAR) criterion.
- https://gracedb.ligo.org/latest/
  a. This has been a quieter month. Only two interesting candidates meeting our FAR threshold for low-latency alerts.
  b. One of them, S190524q was retracted.

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Current status of low-latency analysis system
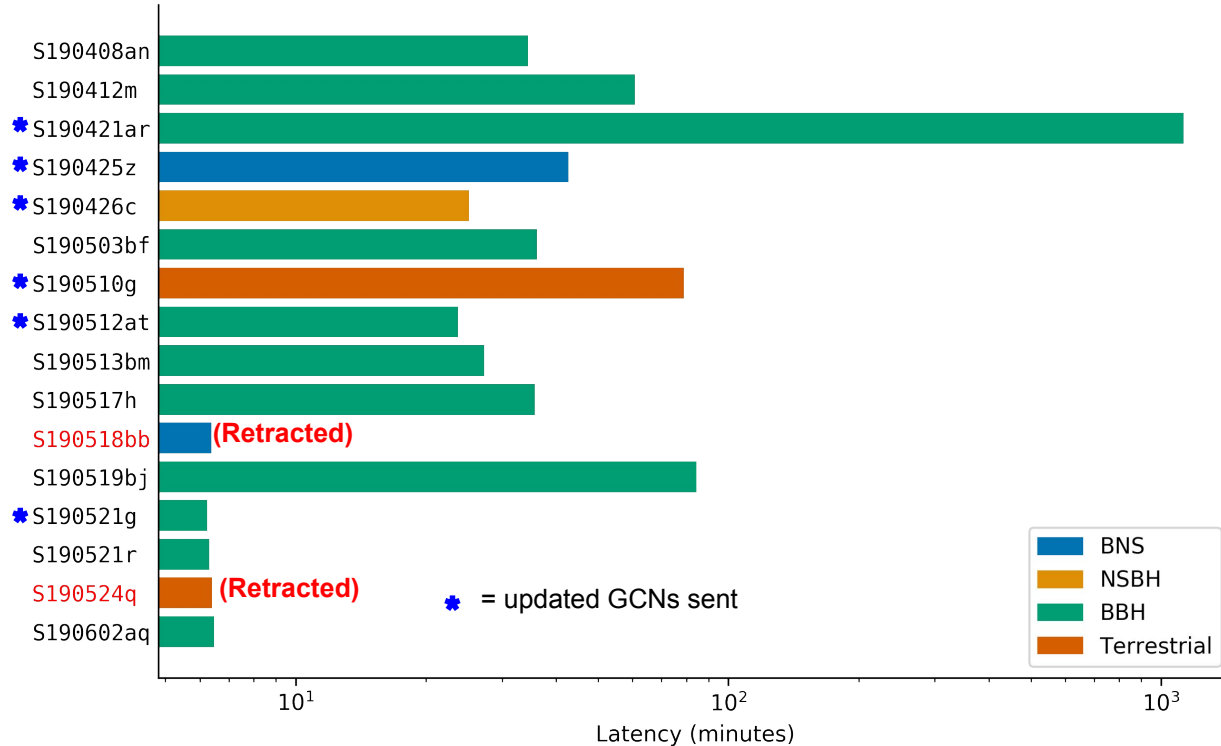
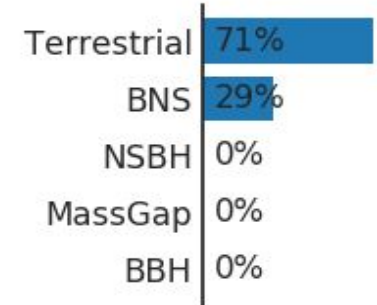Preliminary alerts have been consistently sent with **latencies <7 minutes** for the past month.
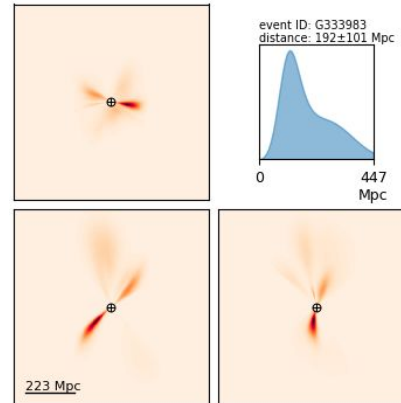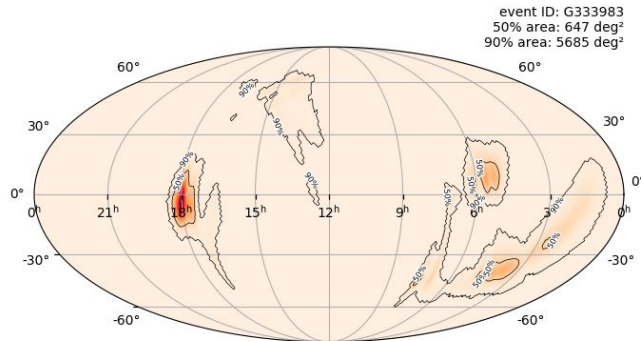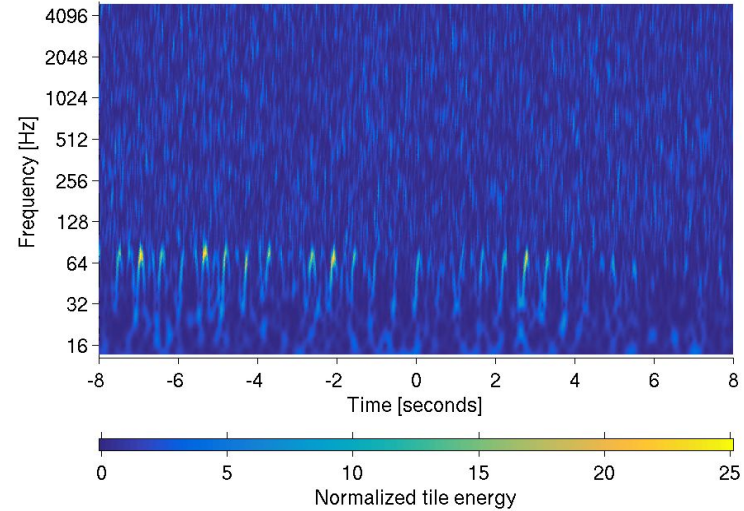
The June 25 code rollout will **decrease latency to <3 minutes**.

Latency is **dominated by selection of the preferred event**.

Event summary: S190524q

- https://gracedb.ligo.org/superevents/S190524q/
- Retracted due to identification of a glitch in L1.
- Notes:
  - An automated GCN Notice went out in 6 minutes and 3 seconds.
  - Event retracted within ~10 minutes of preliminary notice following manual inspection.

L1:GDS-CALIB_STRAIN at 1242708744.679 with Q of 11.9

event ID: G333983
50% area: 647 deg²
90% area: 5685 deg²

event ID: G333983
distance: 192±101 Mpc

223 Mpc

Terrestrial 71%
BNS 29%
NSBH 0%
MassGap 0%
BBH 0%

Event summary: S190602aq

- https://gracedb.ligo.org/superevents/S190602aq/
- https://gcn.gsfc.nasa.gov/gcn3/24717.gcn3
- https://gcn.gsfc.nasa.gov/notices_l/S190602aq.lvc
- P_astro calculation indicates likely BBH candidate (99% BBH).
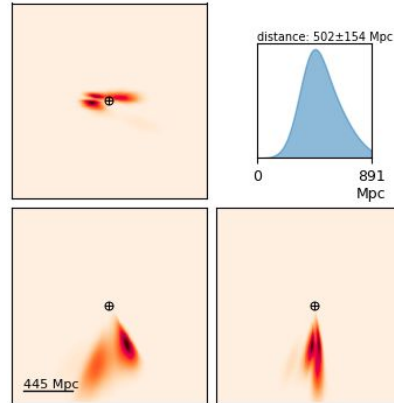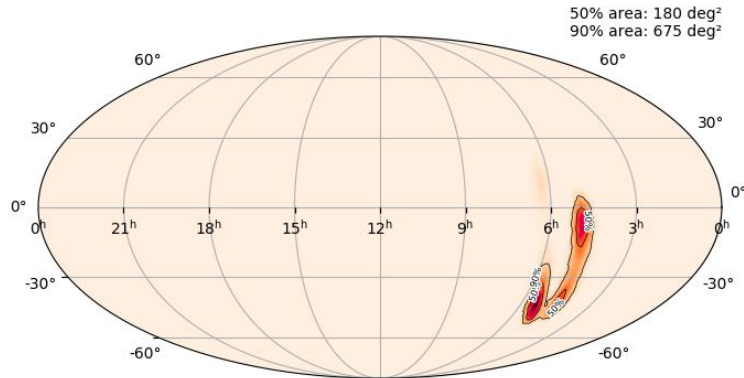
Outlook

- Single interferometer GW events are now available in low-latency.
- Automated ingestion of external triggers (GRBs) is working and determination of coincidences with GW is working. More developments in coming weeks.
- LIGO-Virgo **Public Alerts User Guide** & Support
  - **New, shorter URL**: https://emfollow.docs.ligo.org/
  - Features new tutorial on **multiorder sky maps**: https://emfollow.docs.ligo.org/userguide/tutorial/multiorder_skymaps.html
  - **Feedback or requests** for information to: emfollow-userguide@support.ligo.org
- Mailing list
  - Please sign up to the **public OpenLVEM mailing list**; anyone can subscribe
  - Instructions at https://wiki.gw-astronomy.org/OpenLVEM
  - We will use it to announce changes of configuration, plans, etc

Coming soon - Events summary page

GraceDB — Gravitational

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GraceDB Overview

The gravitational-wave candidate event database (GraceDB) is a service operated by the LIGO Scientific Collaboration. It provides a centralized location for aggregating and retrieving information about candidate gravitational-wave events. GraceDB provides an API for programmatic access, and a client package is available for interacting with the API.

Useful information

- ***NEW*** O3 public alert summary page.
- Information about GW alerts and real-time data products is available in the LIGO/Virgo Public Alert Guide.
- Found a bug? LIGO/Virgo users can report issues on the GraceDB Gitlab page.

Server code version: 2.5.1

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LIGO/Virgo Public Alerts

Detection candidates: 14

SORT: EVENT ID (A–Z) *

Event ID	Possible Source (Probability)	UTC	GCN	Location	FAR	Comments
S190602aq	BBH (99%)	June 2, 2019 17:59:27 UTC	GCN Circulars Notices | VOE		1 per 16.673 years	
S190524q	Terrestrial (71%), BNS (29%)	May 24, 2019 04:52:06 UTC	GCN Circulars Notices | VOE		1 per 4.5458 years	RETRACTED
S190521r	BBH (>99%)	May 21, 2019 07:43:59 UTC	GCN Circulars Notices | VOE		1 per 100.04 years	
S190521g	BBH (97%), Terrestrial (3%)	May 21, 2019 03:02:29 UTC	GCN Circulars Notices | VOE		1 per 8.3367 years	
S190519bj	BBH (96%), Terrestrial (4%)	May 19, 2019 15:35:44 UTC	GCN Circulars Notices | VOE		1 per 5.5578 years	
S190518bb	BNS (75%), Terrestrial (25%)	May 18, 2019 19:19:19 UTC	GCN Circulars Notices | VOE		1 per 3.1557 years	RETRACTED