

GWOSC Community Catalogs Guidelines

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Introduction

The GWOSC Event Portal provides access to a database of known gravitational-wave events. Until 2025, the database only included events published by the LIGO/Virgo/KAGRA (LVK) collaboration. Here, we set out guidelines for how catalogs from authors outside the LVK collaboration can be added to the Event Portal database. By taking this step, we hope the Event Portal will better reflect the current state of knowledge about gravitational-wave transients, and so better serve the scientific community.

Criteria to add a catalog to the Event Portal

Our goal is to include the full set of GW discoveries available in the scientific literature. We hope the Event Portal will capture every published gravitational-wave transient in LVK data, but not necessarily every *analysis* of gravitational-wave events. Many papers will re-analyze a known detection, and provide updated parameters, waveforms, and other information; it is not in scope for this effort to include every re-analysis. Instead, we will focus on work that discovers (or at least has the potential to discover) previously unknown astrophysical transients. Catalogs added to the Event Portal should reflect work that includes a search of strain data at times when no previously known GW signal was present.

In general, catalogs that are added to the Event Portal should be published in a respected peer-reviewed, scientific journal. Authors who would prefer to see catalogs added to the Event Portal before publication may request an early posting (see “process” below). In addition, to be added, machine-readable versions of the catalog data must be publicly available, following the *Guidelines for Data Formats* below.

Examples of works that can be included:

- An analysis that searches all strain data from an observing run, such as O3a, and reports both rediscovery of known events and any new events which are discovered. Works of this kind should be included in the Event Portal.
- An analysis that searches strain data around a set of astrophysical transients (such as GRBs), and discovers or re-discovers some set of GW events (See *criteria for events*). Works of this kind should be included in the Event Portal, if they include some discovered (or re-discovered) GW events.

Examples of works that should NOT be included:

- An analysis that computes parameter estimation for a set of known GW signals, using a new waveform model. Works of this kind should not be included, as they have no

potential to discover new events.

- An analysis does a search for a new class of astrophysical event, but does not find any. Works of this kind should not be included, as it does not make sense to create a “catalog” or a set of “events” based on an upper-limit result.
- Methods papers that demonstrate new analysis techniques on previously discovered event candidates.

Criteria for events to be included

In general, the Event Portal should only include triggers which are more likely to represent astrophysical events than not.

If the associated paper provides a list of events that are likely to be real, we will make an effort for the Event Portal to reflect the list of events created by the authors. However, if the published catalog contains a large number of likely false positives, we may apply a threshold. For example, if a probability of an event being astrophysical is provided by the author, then we may only include events which have more than a 50% probability of being astrophysical ($p_{\text{astro}} > 0.5$). In some cases, calculating a p_{astro} value is not possible. In these cases, we may place a threshold instead on the false alarm rate, and accept events with a false alarm rate of less than 1 per year ($\text{FAR} < 1/\text{year}$).

In some cases, a search may include data that was previously searched with a similar pipeline, and rediscover known events. If the published result is a “cumulative catalog” that includes events from both past and current data, and if the search was capable of discovering new events in the past data, then the full cumulative set of events may be added to the Event Portal as a single catalog.

Process

To be included in the Event Portal, a request should be made by sending an [email](#) to the LVK Open Data Working Group to add a published catalog. Requests from paper authors are preferred, though anyone may request that a publication be added.

After receiving the request, the Open Data Working Group will discuss the paper, and apply the guidelines described in this document. The Open Data Working group should make a recommendation for how to proceed, discuss the recommendation with the LVK data analysis council, and then finalize the decision. Requestors should receive a response within 8 weeks. If needed, authors of a publication should also be notified if a catalog is to be added. Authors may also be invited to help draft and/or review documentation to accompany the catalog.

For papers that have been submitted to a journal, are currently going through peer review, and have a preprint available, authors may request an early inclusion in the Event Portal. Requests

for early inclusion will be decided on a case-by-case basis, based on the publication record of the authors.

Guidelines for data formats

To be added in the Event Portal, catalog data must be available in a machine-readable format. We strongly prefer if catalog data follows the following guidelines:

- A machine-readable version of the catalog data must be available in a stable repository, such as Zenodo or in a data repository supported by the journal. This repository should be linked from the publication, and the data should be consistent with any values included in the publication.
- Additional guidance on how to link a stable data repository to a publication are available from AAS journals:
<https://github.com/AASJournals/Tutorials/blob/master/Repositories/UsingRepositories.md>
- We strongly prefer if catalog data are available in our preferred JSON format, described at <https://github.com/gwosc-tutorial/gwosc-catalog>. This [git repo](#) describes the preferred format, and includes software tools to facilitate this. The JSON file should be included in the public data release by the authors.
- A list of suggested parameters to include is in the [schema documentation](#).

Failure to follow these guidelines may result in denying a request to include a catalog in the Event Portal.

Updates to these guidelines

These guidelines are a living document. Updates may be made by the Open Data Working group of the LIGO/Virgo/KAGRA collaboration, with the most current version available in LIGO DCC Document M2500012.