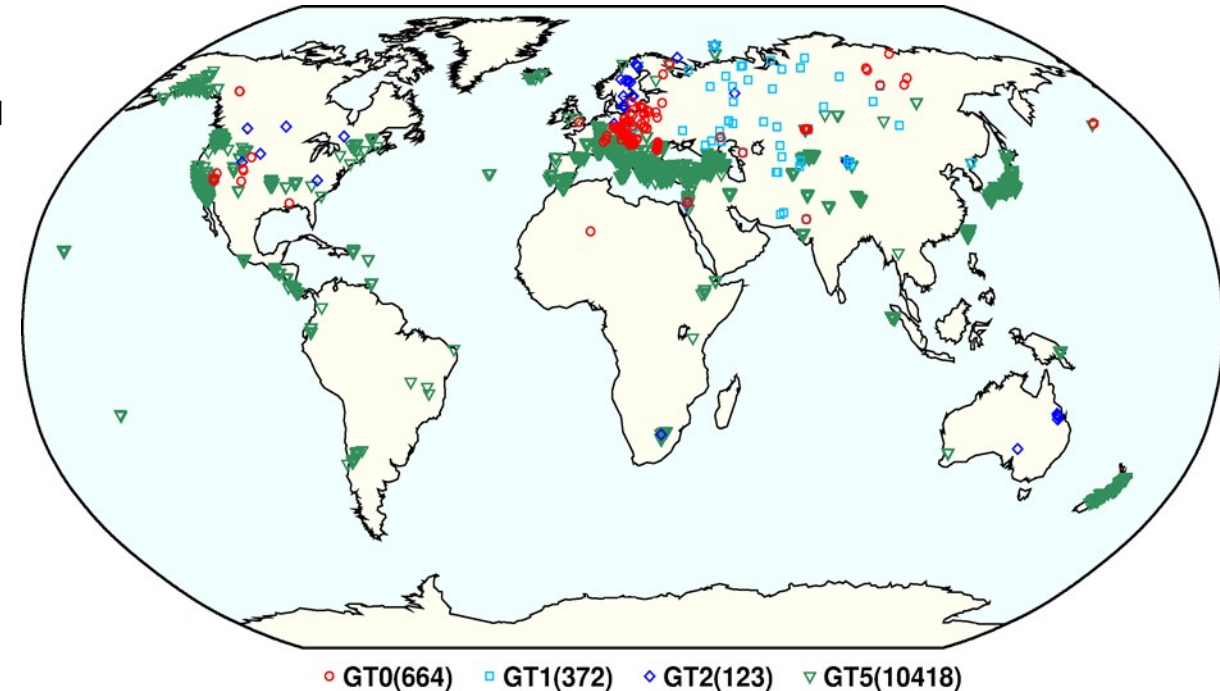


# IASPEI Reference Events for Improved Locations (“Ground Truth”)



- A database of earthquakes and explosions with epicentral uncertainty <10 km – 11577 events from 1959 to 2018
- Currently maintained by the International Seismological Centre and updated twice a year:
  - 17 May 2021 (2018-07-01 – 2019-01-01: 152 events)
  - 7 December 2020 (2018-01-01 – 2018-07-01: 254 events)
  - 9 July 2020 (2017-07-01 – 2018-01-01: 338 events & 1980 – 2010: 250 events)
  - 27 March 2020 (2017-01-01 – 2017-07-01: 396 events)
- Ground Truth rebuild required to be in line with the rebuilt ISC Bulletin
  - Check existing reference events qualify as candidates
  - Review rebuilt ISC bulletin for new GT candidates
  - Homogenise selection criteria for reference events from 1960 - present
  - Will likely result in an increase in the number of GT events, specifically earthquakes



# IASPEI Reference Events for Improved Locations (“Ground Truth”) Submission



- The current working group on reference events are:
  - Dr Eric Bergman
  - Dr Bob Engdahl
  - Dr Istvan Bondar
  - Dr Keith McLaughlin
  - Dr Ryan Gallacher (ISC)
- We invite nomination of events, for the reference events database, where hypocentre information is known with high confidence (to 10 km or better - GT10).
- Events can be submitted through the ISC website ([www.isc.ac.uk/gtevents/submission](http://www.isc.ac.uk/gtevents/submission))

Update Log

Citing

### Reference Event submission form

Please notice that sections marked with \* must be completed

**Date and Origin Time \***

2021 01 01 00 00 00 Six integers followed by the fraction of a second reported with an appropriate number of significant figures to convey the quality of the origin time (examples: 0, 2, 30, or 783)

year month day hour minute second msec

**Coordinates \***

Latitude (degrees) Longitude (degrees) Introduce the coordinates of the event using an appropriate number of significant digits to convey the quality of the hypocenter (down to 0.001 degrees or better).

**Focal Depth (km) \***

Introduce the depth of the event using an appropriate number of significant digits to convey the quality of the hypocenter

**GT epicentre quality (km) \***

GTO GT epicentre quality (km) as claimed by contributor. For example, GT2 means that the submitted epicentre estimate has a 95% chance of lying within 2 km of the true epicentre

**Event type \***

Earthquake

Single-fired explosion

Ripple-fired explosion

Rockburst or "mine bump"

Mine collapse

Other

**Methodology**

A brief description of the methodology, e.g.:

- Ground survey of known explosion location, with or without information on shot time
- InSAR
- Local seismographic network data
- Analysis of network data that meet criteria of Bondár et al (BSSA, 2004)
- Special aftershock/main shock studies
- Citation of a specific technical report or scientific paper