

Global Data Centres as a Shared Responsibility a 50-Year-Long Miracle at the International Seismological Centre

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“ISC is a 50-Year Miracle”

Avi Shapira, ISC Director 2004-2007



The ISC performs a **public good** by

- compiling earthquake information from global, national and regional agencies,
- computing and maintaining the global database of earthquake parameters
- refreshing the set of solutions as new data or processing algorithms become available.

The ISC data make an important contribution to

- research of the Earth's seismicity,
- tectonics, inner structure,
- seismic hazard and risk,
- monitoring CTBT and
- Education

Today, the ISC's preliminary bulletin is available for events of 2015, and the reviewed bulletin for 2012. In addition, station readings are now available for post-1904 earthquakes as a result of the ISC-GEM catalogue initiative

All products are freely and rapidly available through the web

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There are two challenges to this public good:

- 1) acquiring the data and its metadata
- 2) paying for the operations of the ISC

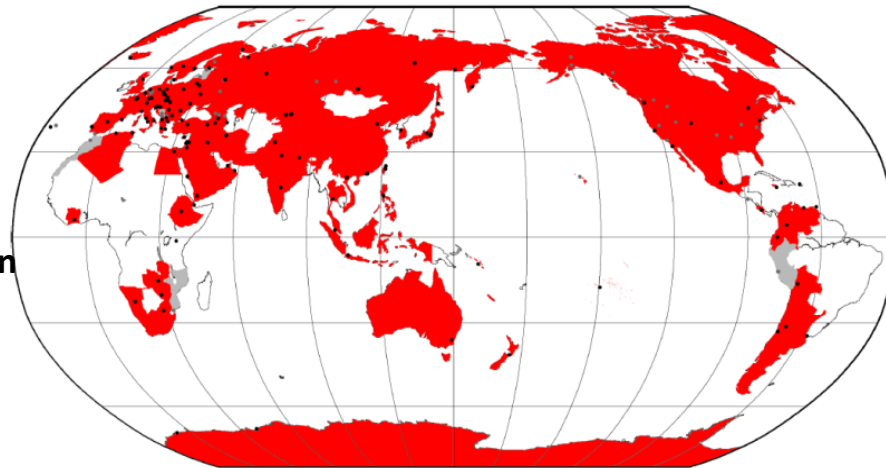
Challenge 1: Acquiring the data and its metadata

The ISC accepts all seismograph readings

The ISC needs your observations!

Data from large areas of the globe are still scant

Reporting in
2014



There is continual need to search out new data sources
now 137 agencies contributing

New network operators

Older networks that haven't sent data to the ISC

Need to encourage "slow" contributors

sadly people change, and organizations evolve

sometimes a bad user can cause an organization to refuse to share data

Challenge 1: Acquiring the data and its metadata

These days once the data has been assembled (\$\$\$) there is little cost in sharing it with the ISC

Note there is no obligation on the data providers to support the ISC financially.

Seismological data is a “knowledge commons”

There is no “Tragedy of the commons” because the resource is not limited

The term "**knowledge commons**" refers to information, data, and content that is collectively owned and managed by a community of users, particularly over the Internet. What distinguishes a knowledge commons from a [commons](#) of shared physical resources is that digital resources are [non-subtractible](#); that is, multiple users can access the same digital resources with no effect on their quantity or quality – Wikipedia

Challenge 2: Paying for the operations of the ISC

The ISC gets funds from

- voluntary annual contributions from its research member institutions

- contributions from commercial companies

- Grant monies for specific projects, like ISC-GEM

Most of ISC's budget comes from voluntary annual contributions

- these are continually under threat

- the contributions appear "discretionary" to the pencil-pushers

It is a tribute to the ISC's past (and current) directors and to its members' efforts that contributions have been maintained over the past 50 years, though it is an ongoing struggle.

This is especially true in the case of contributions from commercial companies that have difficulty recognizing the concept of "openly available products"

Responses to Financial Challenges

The pencil-pushers at funding agencies ask:

why pay for a public good that is free to all?

No one else does what the ISC does for global earthquakes

If anyone else was to try:

- It might not be possible for a single national or commercial entity to get data contributions from all that are prepared to give data to the ISC
- It would cost 6x what the largest single contributor currently pays
Cost of running is ~300 units (1 unit costs \$2015 per year)
Many members provide 1 unit each and get the full 300-unit benefit
Many nations recognize their global leadership role and provide more

We encourage all to join with at least 1 unit

If no-one pays, nobody benefits
If all pay a little, everyone benefits

The ISC is grateful to its past and present contributors!