



## A declustered earthquake catalog for the Iranian Plateau

Seyed Hasan Mousavi-Bafrouei, Noorbakhsh Mirzaei, Elham Shabani

### Abstract

A unified catalog of earthquakes in Iran and adjacent regions (the area bounded in 22°-42° N and 42°-66° E) covering the period of 4<sup>th</sup> century B.C. through 2012 with  $M_w \geq 4$  is provided. The catalog includes all events for which magnitude have been determined by international agencies and most reliable individual sources. Since the recurrence time of maximum credible earthquake cannot be directly estimated from the  $m_b$ , empirical formulae are established to convert  $m_b$  to  $M_s$ ,  $m_b$  to  $M_w$  and  $M_s$  to  $M_w$  for each major seismotectonic province separately. The unified catalog is declustered using conjugated distance-time windows. In order to estimate completeness thresholds, magnitude-time (M-T) diagram and Stepp's method are applied on the declustered catalog for each seismotectonic province. The magnitude of completeness ( $M_c$ ) decreases with development of local and regional seismic stations. The results of present study are particularly important in seismic hazard analysis in Iran.

### Keywords

Uniform catalog; Completeness; Conversion relations; Declustering; Iran

### Full Text:

PDF XLSX PNG XLSX

### References

DOI: <https://doi.org/10.4401/ag-6395>

Published by INGV, Istituto Nazionale di Geofisica e Vulcanologia - ISSN: 2037-416X

### USER

Username   
Password   
 Remember me

### MOST VIEWED

- OPERATIONAL EARTHQUAKE FORECASTING....
- ObsPy – What can it do for data...
- Twitter earthquake detection...
- Magnitude and energy of earthquakes
- Comparison between low-cost and...

### AUTHOR GUIDELINES





#### EARLY PAPERS

- ▶ Vol 61, 2018

### FAST TRACKS

- ▶ Vol 56, Fast Track 1, 2013
- ▶ Vol 57, Fast Track 2, 2014
- ▶ Vol 58, Fast Track 3, 2015
- ▶ Vol 59, Fast Track 4, 2016
- ▶ Vol 59, Fast Track 5, 2016
- ▶ Vol 60, Fast Track 6, 2017
- ▶ Vol 60, Fast Track 7, 2017
- ▶ Vol 61, Fast Track 8, 2018

### ARTICLE TOOLS

-  Indexing metadata
-  How to cite item
-  Email this article (Login required)
-  Email the author (Login required)

### ABOUT THE AUTHORS

Seyed Hasan Mousavi-Bafrouei  
University of Tehran,  
Institute of Geophysics,  
Department of Earth

Noorbakhsh Mirzaei  
University of Tehran,  
Institute of Geophysics,  
Department of Earth  
Physics, Tehran,  
Iran, Islamic Republic of

Elham Shabani  
University of Tehran,  
Institute of Geophysics,  
Department of Earth  
Physics, Tehran,  
Iran, Islamic Republic of

## JOURNAL CONTENT

Search

Search Scope

### Browse

- [By Issue](#)
- [By Author](#)
- [By Title](#)

## Journal Help

## KEYWORDS

Central Italy  
Earthquake GPS  
Historical seismology  
**Ionosphere** Irpinia  
earthquake Italy Mt.  
Etna Seismic hazard  
Seismic hazard  
assessment Seismology  
UN/IDNDR earthquake  
earthquakes historical  
earthquakes  
ionosphere magnetic  
anomalies  
paleoseismology seismic  
hazard **seismicity**  
seismology

## NOTIFICATIONS

- [View](#)
- [Subscribe](#)

## USAGE STATISTICS INFORMATION

We log anonymous usage  
statistics. Please read the  
privacy information for  
details.