Abstract

Three seismic sequences of several thousand earthquakes each are analyzed by means of a tunable information recognizer known as wlzip. These sequences are different both in the geographical coverage and the time span, including earthquakes of magnitude larger than 8.0. The main variable under scrutiny here is the time interval between consecutive events. Two parameters (mutability and interval dilation) are defined for each sequence, which relate to the information contained in it. In this way it is possible to characterize different regimes in the seismic activity. For instance, mutability increases before large earthquakes and decreases sharply immediately after each of these events. On the other hand, interval dilation reaches a clear maximum several months before major earthquakes, while it decreases to its lowest possible value after such earthquakes during the aftershock regime. Extensions of the application of this new method to other problems in seismicity are mentioned. (C) 2017 Elsevier B.V. All rights reserved.

Keywords

Author Keywords: Earthquakes; Information theory; Time series analysis

KeyWords Plus: SEISMICITY; CHILE; MODEL
Author Information

Reprint Address: Munoz, V (reprint author)

Univ Chile, Fac Ciencias, Dept Fis, Santiago, Chile.

Addresses:

[ 1 ] Univ La Frontera, Dept Fis, Casilla 54-D, Temuco, Chile
[ 2 ] Ctr Dev Nanosci & Nanotechnol CEDENNA, Santiago 9170124, Chile
[ 3 ] Univ Chile, Fac Ciencias, Dept Fis, Santiago, Chile
[ 4 ] Adv Min Technol Ctr, Santiago, Chile

E-mail Addresses: vmunoz@fisica.ciencias.uchile.cl

Funding

<table>
<thead>
<tr>
<th>Funding Agency</th>
<th>Grant Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conicyt (Chile)</td>
<td>1150019</td>
</tr>
<tr>
<td>Fondecyt project</td>
<td>1161711</td>
</tr>
<tr>
<td>Center for the Development of Nanoscience and Nanotechnology (CEDENNA) - Conicyt (Chile)</td>
<td>FB0807</td>
</tr>
</tbody>
</table>

Publisher

ELSEVIER SCIENCE BV, PO BOX 211, 1000 AE AMSTERDAM, NETHERLANDS

Journal Information

- Impact Factor: Journal Citation Reports

Categories / Classification

Research Areas: Geochemistry & Geophysics
Web of Science Categories: Geochemistry & Geophysics