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Reliable Sources of Earthquake and Aftershock Information

## 1.	INTRODUCTION

This report describes a number of different sources of information that can be used to find out about recent tectonic events. During times of crisis, having trusted and reliable sources of information is important.

We always recommend checking www.igepn.edu.ec for the latest, and most accurate, information, however there are also a number of other useful, supplementary services. This variety of sources is especially important when, during times of crisis, one source can be overloaded with requests and cause it to go offline. A variety of sources spreads the load and allows everyone to quickly and efficiently get the information that they are looking for from a reliable source, without needing to rely heavily on word of mouth.

Reports on current activity, for both earthquakes and volcanoes, are regularly produced and published on the IGEPN website at: www.igepn.edu.ec/servicios/noticias. This is the only official source of information.

## 2.	INSTITUTO GEOFISICO VS OTHER SOURCES

Instituto Geofisico is the only official source of information. This section aims to explain why this is the case.

Instituto Geofisico (IGEPN) is the only organisation with full access to the data recorded within Ecuador. A small number of stations are shared with IRIS, an international data collaboration service, but the majority are only available to IGEPN. Other organisations, such as the USGS, use their own network of instruments to record the events when the earthquake's waves reach their networks. These networks are at much larger distances from the epicenter.

When an earthquake occurs, the waves travel through the ground at a speed determined by the geology of the area. This means that stations which are much closer to the event require a lot less geological information (and thus a lot less assumptions) to calculate a location.

A similar explanation can be applied to calculating magnitudes. The amplitude (size) of waves from an event are also affected by the geology of areas they travel through, and thus closer stations also produce more accurate magnitude values for events. One exception to this is for exceptionally large earthquakes where all the stations in a national network may be saturated and are unable to record the largest of the waves (the amount of energy is higher than the instrument can measure). This does not affect the quality of localisations or depths.

The result of these factors is that, with an extensive network of stations throughout the country, IGEPN will consistently produce the most accurate locations.

3. CHECKING EVENTS IN REAL TIME

IGEPN:

www.igepn.edu.ec/sismos - *A map of all registered events that occur in Ecuador. Processing done by Instituto Geofisico (IGEPN) using the IGEPN seismic network within Ecuador. This is the only service with access to all instruments that are maintained within the country.*

www.igepn.edu.ec/ultimos-sismos - *A table of all registered events that occur in Ecuador.*

USGS:

earthquake.usgs.gov/earthquakes/map - *Earthquakes registered and processed using stations within the United States Geological Survey (USGS) seismic network and the Global Seismographic Network (GSN), a collaborative project with IRIS.*

IRIS:

ds.iris.edu/ieb - *Earthquakes registered and processed using stations within the international collaborative data network of IRIS. This includes a few of the stations of the IGEPN seismic network.*

ds.iris.edu/seismon/eventlist/index.phtml?region=S_America&lon=-80.7&lat=-0.21 - *A table of earthquakes registered using the IRIS collaborative data network.*

Other sources:

GEOFON: geofon.gfz-potsdam.de/eqinfo/list.php - *The GEOFON is a project by Deutsches GeoForschungsZentrum (GFZ). Earthquakes registered and processed using stations within the international collaborative data network of GEOFON.*

CSEM EMSC: http://www.emsc-csem.org/Earthquake - *The European Mediterranean Seismological Centre (EMSC) also document earthquakes using a network of over 2500 seismic stations, however their stations are primarily located in continental Europe. They report that their threshold for reliably registering events in Ecuador is M7 or above (source).*

4. CHECKING TSUNAMI ALERTS IN REAL TIME

INOCAR: www.inocar.mil.ec - *The 'Instituto Oceanográfico de la Armada' (INOCAR) is the official source of information for tsunamis in Ecuador. Each event is analysed and the results are provided on their website (click on the earthquake's link under the heading 'Eventos Naturales').*

Pacific Warning Centre: ptwc.weather.gov/?region=1 - *Tsunami warnings for all regions which border the Pacific Ocean.*

5. SOCIAL MEDIA SERVICES

Facebook:

www.facebook.com/instituto.geofisico - *The official Facebook page for Instituto Geofisico (IGEPN). Regular reports and updates are posted here, including fast information about aftershocks.*

Twitter:

twitter.com/IGecuador - *The official Twitter page for Instituto Geofisico (IGEPN). Regular reports and updates are posted here, including fast information about aftershocks.*

twitter.com/inocarec - The official Twitter page for Instituto Oceanográfico de la Armada (INOCAR) is the official source of information for tsunamis in Ecuador.

twitter.com/USGSted - *Earthquake alerts from USGS*

twitter.com/USGSBigQuakes *- Earthquake alerts from USGS, including automatic alerts generated from trending words on social media (i.e large increases in the use of the word 'earthquake' in posts geotagged to certain area).*

6.   PHONE APPLICATIONS

Earthquake Alert (Android) *- Unofficial application using the USGS earthquake database.* *Download link*

Quakefeed (iOS) *- Unofficial application using the USGS earthquake database.* *Download link*

Quakes - Earthquake Notifications (iOS) *- Unofficial application using the USGS earthquake database.* *Download Link*

Lastquake *- Official application from EMSC. They report that their threshold for reliably registering events in Ecuador is M7 or above, thus this service is not recommended for those people wanting to follow seismicity in Ecuador.* *Download link*

7.   EMAIL ALERTS

Earthquakes:

IGEPN: www.igepn.edu.ec/solicitud-de-boletines *- Official email alerts from IGEPN for both earthquakes and volcanoes.*

USGS: sslearthquake.usgs.gov/ens *- Email alerts for earthquakes. You can specify to only receive alerts over a certain magnitude and only in certain geographical regions.*

Tsunamis:

Pacific Warning Centre: *lists.unesco.org/wws/subscribe/tsunami-information-ioc - Email alerts for tsunami warnings. This service covers all regions which border the Pacific Ocean.*

8.   REPORT FELT EARTHQUAKES

IGEPN:

www.igepn.edu.ec/sintio-el-sismo *- The official location to report felt earthquakes in Ecuador. Reports to this page are incredibly useful for assessing the damage after large events.*

9.   LEARN MORE

IGEPN - *Notices and Reports [Spanish]*

www.igepn.edu.ec/servicios/noticias

IRIS 'Teachable Moments' - *Magnitude 7.8 Near the Coast of Ecuador*

www.iris.edu/hq/retm/4101

USGS Event Page - *Tectonic Summary*

earthquake.usgs.gov/earthquakes/eventpage/us20005j32

USGS Event Page - *Pager*

http://earthquake.usgs.gov/earthquakes/eventpage/us20005j32#pager

IGEPN - *Report of Current Field Activities [Spanish]*

www.igepn.edu.ec/servicios/noticias/1319-informe-de-actividades-no-1-2016

INOCAR - *What to do in a Tsunami [Spanish]*

www.inocar.mil.ec/web/index.php/component/content/article/24-especiales/capacitacion-tsunamis/69-que-hacer-en-un-tsunami

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