

# IS THERE A RELATIONSHIP BETWEEN GEOMAGNETIC AND SEISMIC ACTIVITIES?

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# PEOPLE

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## Institutions

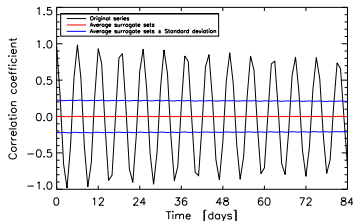
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# GEOMAGNETIC ACTIVITY $\rightarrow$ SEISMIC ACTIVITY

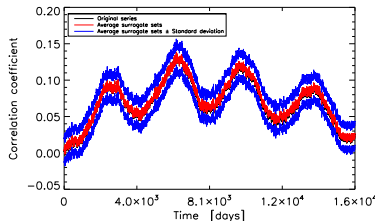
- It has been stated that solar cycles may be responsible for seismic movements in earth and that this relationship may be used to predict earthquake occurrence.
- We look for the statistical validity of such correlations (if any)

## Surrogates Method

- Comparison between original data sets and random surrogates series. the two original set and random surrogate series.
- Correlations functions  $C_j(\tau)$  for a given delay  $\tau$  for each  $j$  surrogate.
- Average  $C(\tau)$  and standard deviation  $\sigma(\tau)$  of the set.



force/oscillator

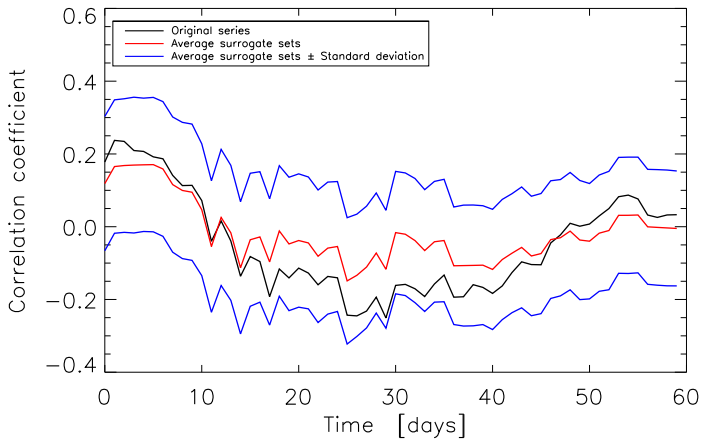


sunspots/log(seismic energy)

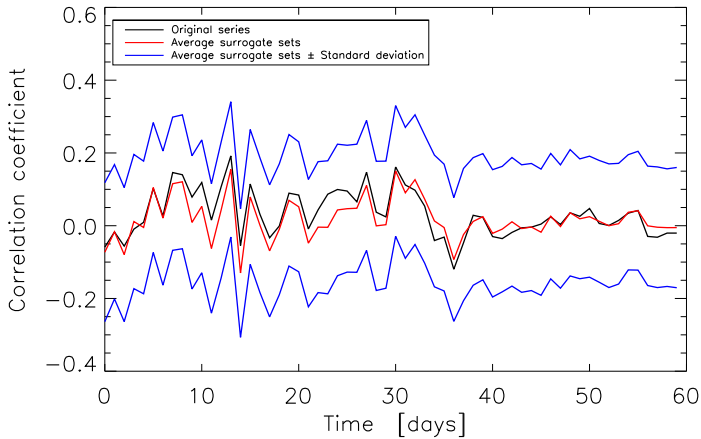
# LOCAL ANALYSIS

- SAMBA magnetometers data.
- Four months window (January–April 2010) centered in the Feb 27th, 2010 earthquake in Chile.
- Cerrillos and Osorno stations.
- Earthquake data from the Chilean Seismological Service, University of Chile (CSN).
- Linear correlations between geomagnetic field variations and seismic energy.
- Results presented at Chilean Physics Symposium 2012 (SOCHIFI) and AGU Fall Meeting 2012.

# Cerrillos



# Osorno



# CURRENT RESEARCH

- More correlations
- Student's  $t$ -test, null hypothesis, etc. . .
- New results to be presented at AGU Fall Meeting 2013
- Research part of María José Tapia's thesis (?)

