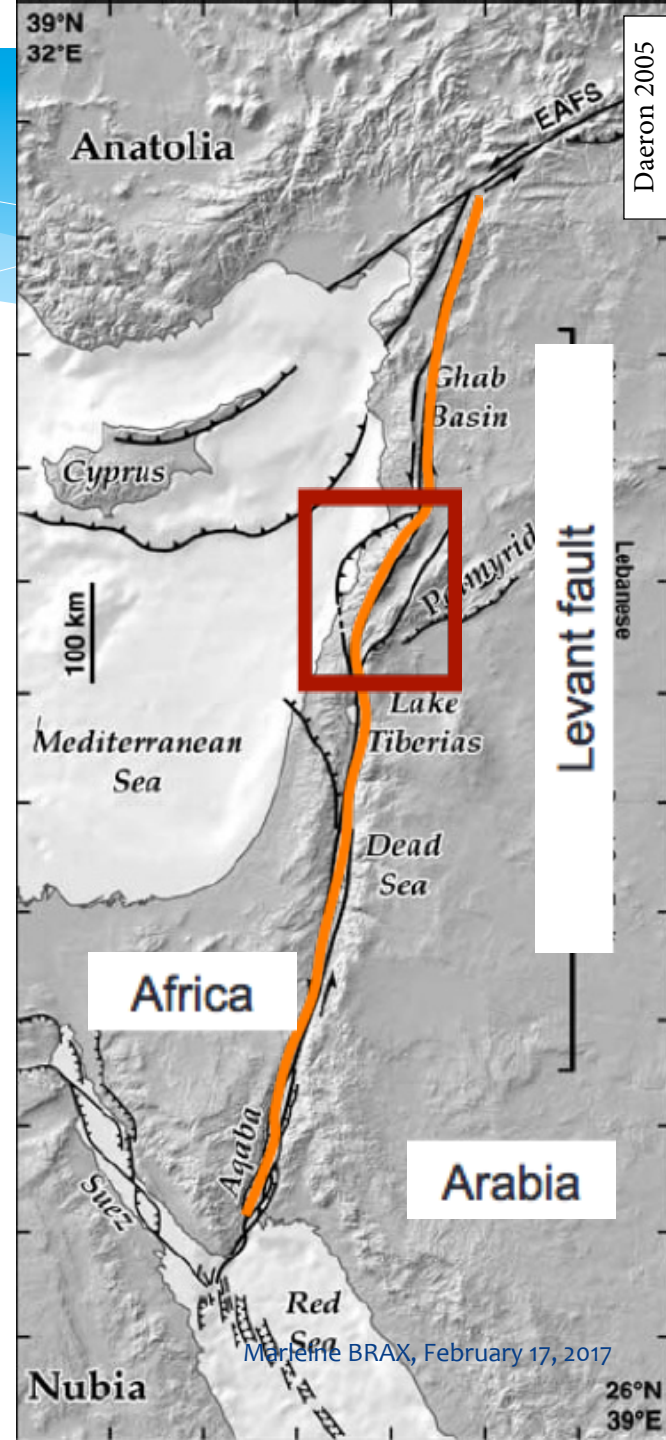
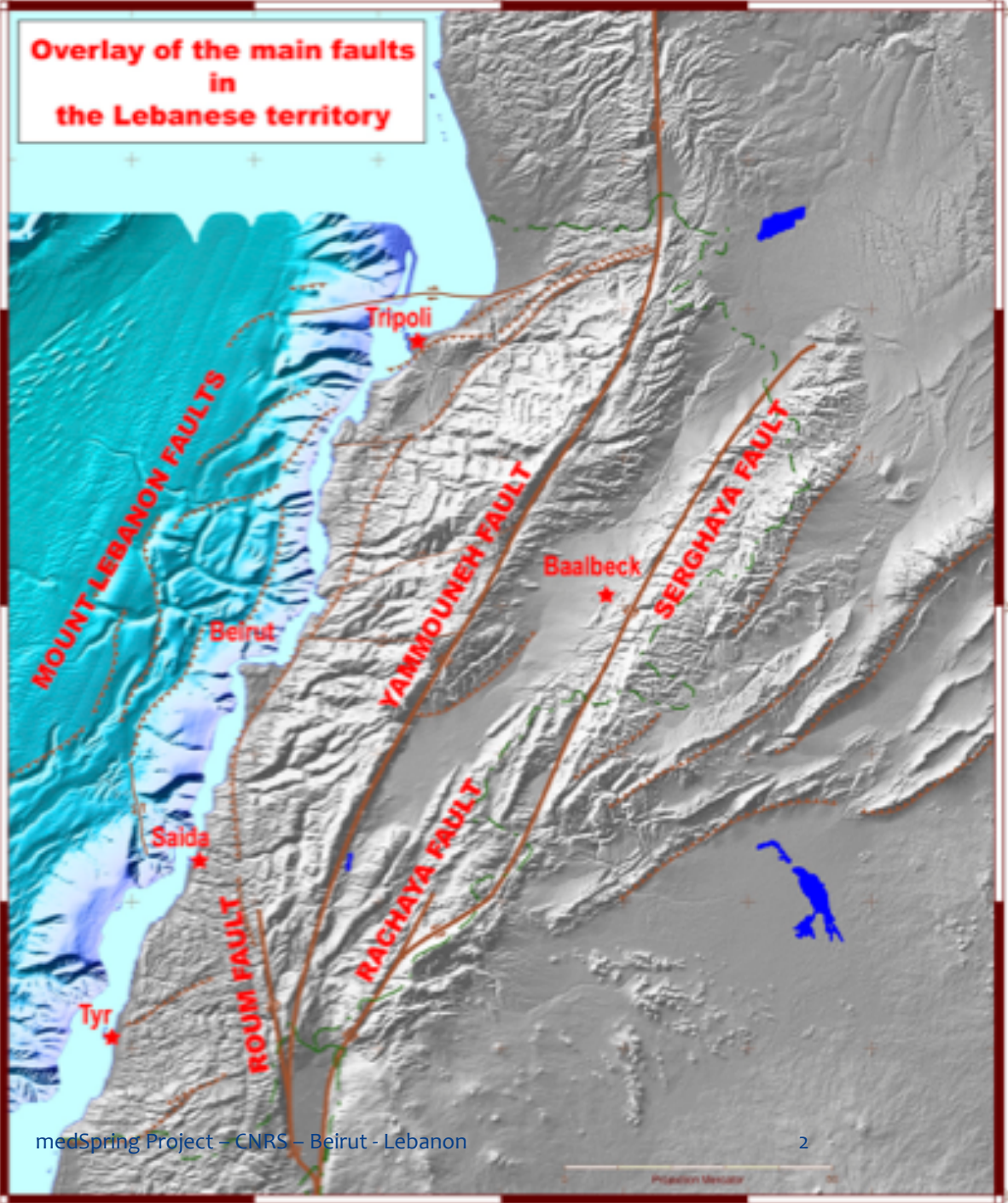


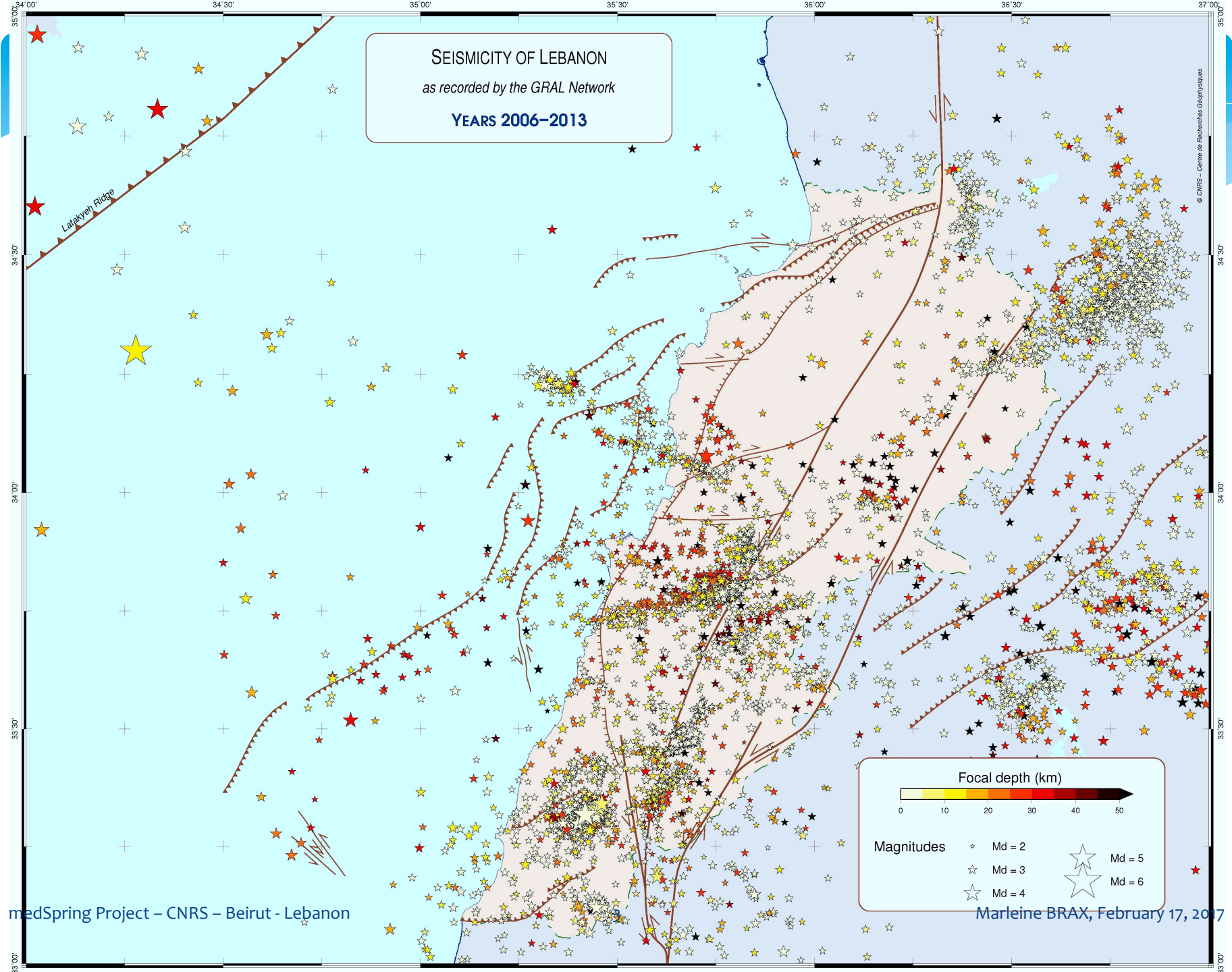
Earthquakes Café Conversations

National Geophysical Research Center
- CNRS -

**Overlay of the main faults in
the Lebanese territory**



SEISMICITY OF LEBANON
as recorded by the GRAL Network
YEARS 2006-2013



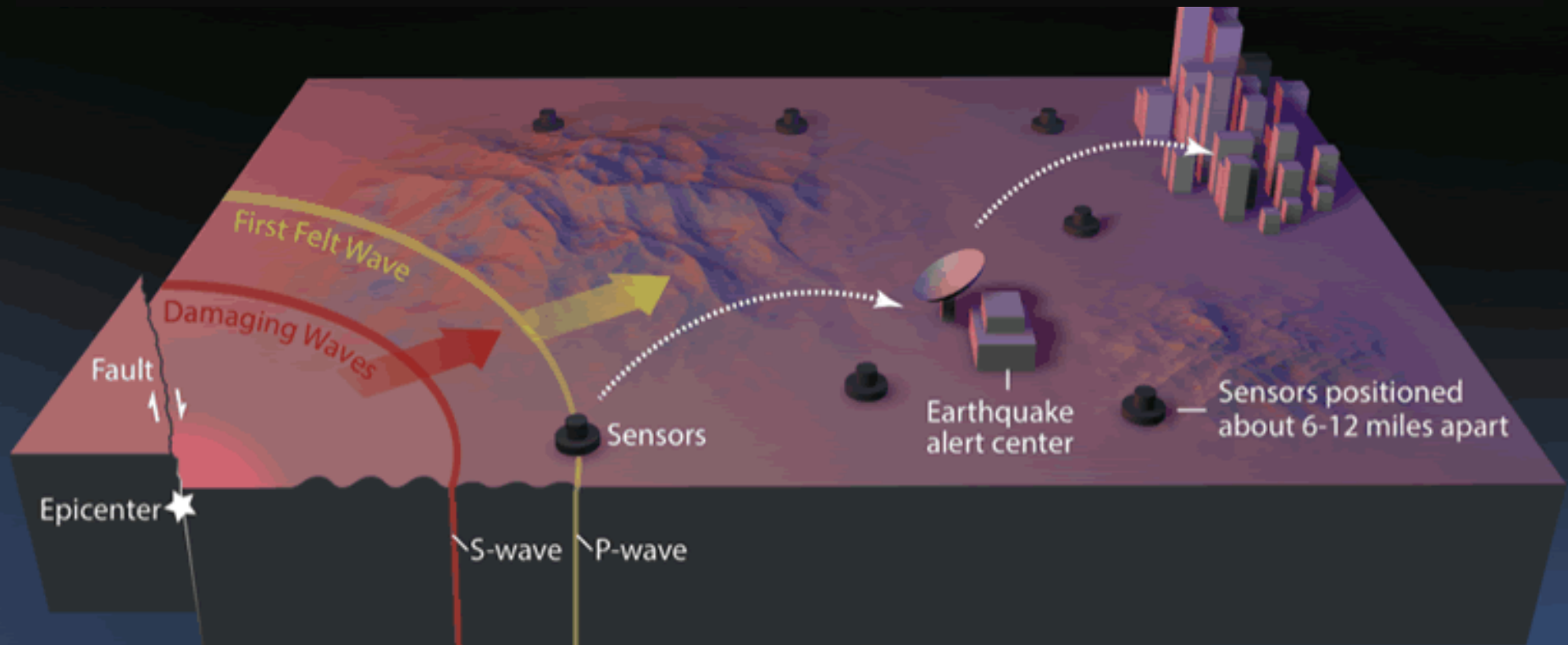
Earthquakes strike suddenly
without warning at any time of the
year, day or night

Without warning and Earthquake Early Warning System !

what a confusion !



Earthquake Early Warning Basics



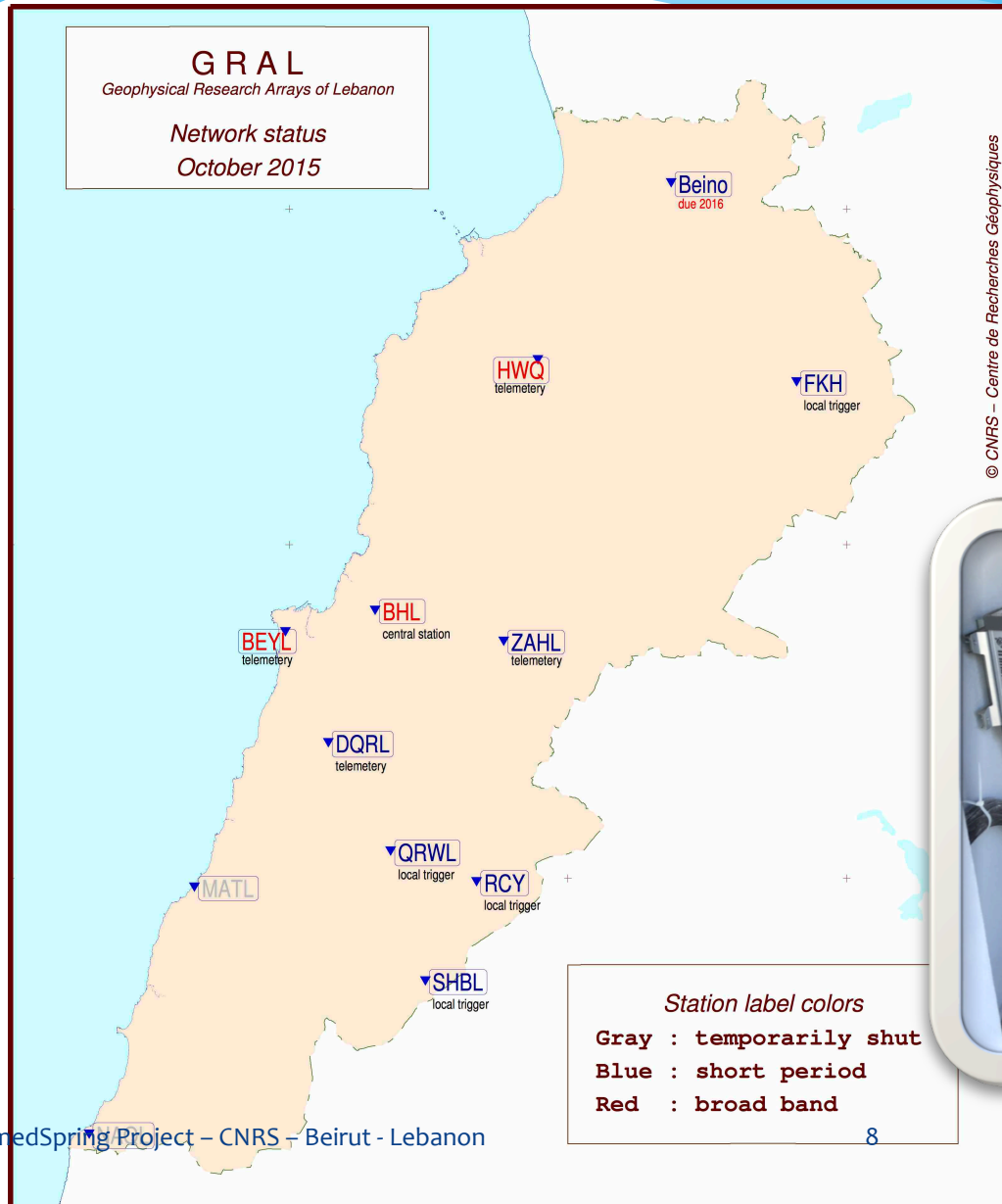
Technical limitations of the EEW

- ✧ The window of time from the announcement of an EEW to the arrival of strong waves is very short, a few seconds to a few tens of seconds
- ✧ EEW may not reach areas close to the earthquake epicenter before strong waves
- ✧ Estimation of intensity and arrival time are not always accurate

Earthquake Early Warning

- * The most important component of an earthquake early warning system is a dense network of seismic and geodetic stations with robust communications.

Seismological National Network

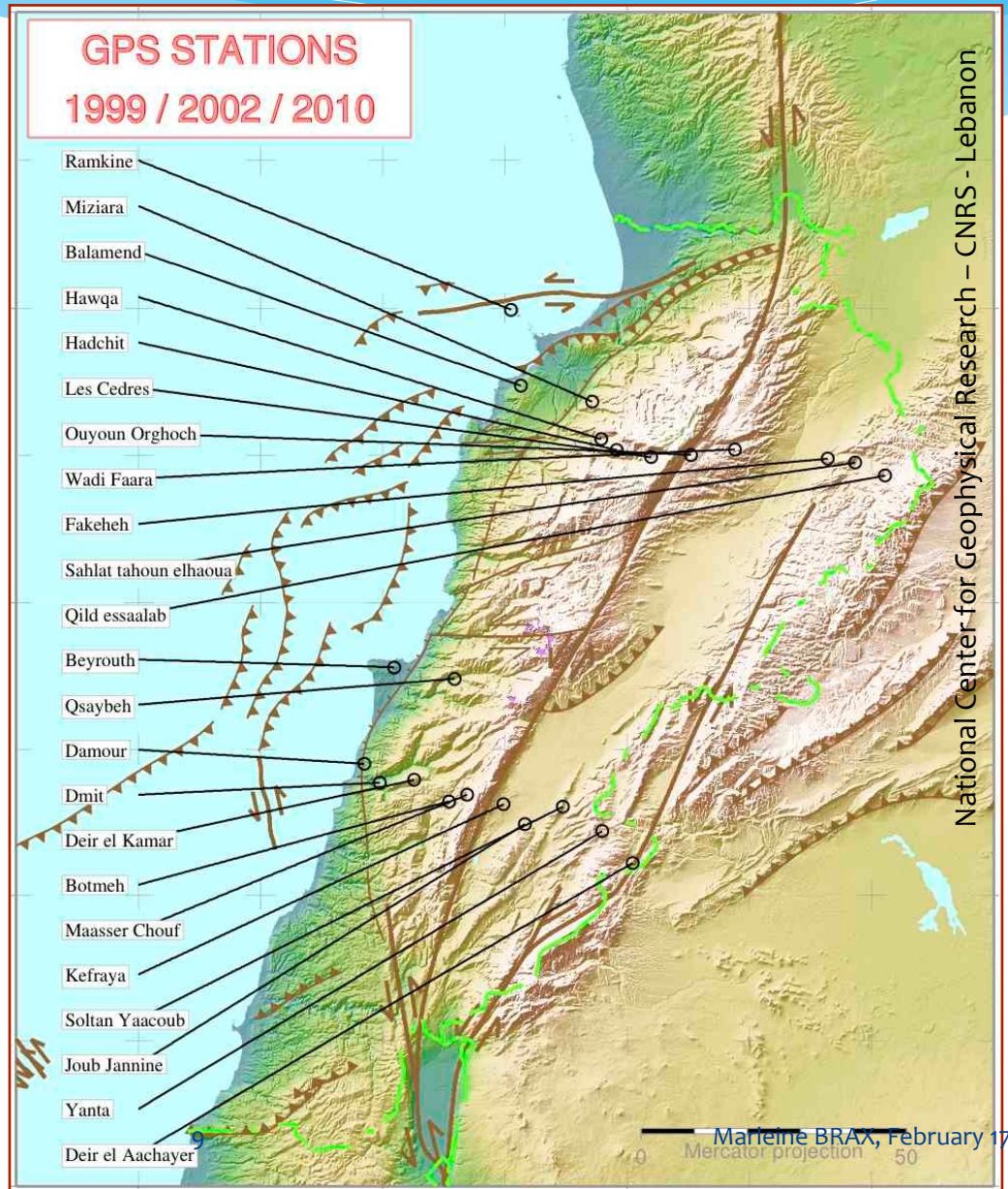


Beino station



GPS temporary campaigns (1999-2002-2010)

23 temporary stations



Balamand station



Hawqa station



Real-time GPS Network

Beino station



6 permanent GPS stations

Tsunami Early Warning System on the North-eastern Atlantic, the Mediterranean and connected seas

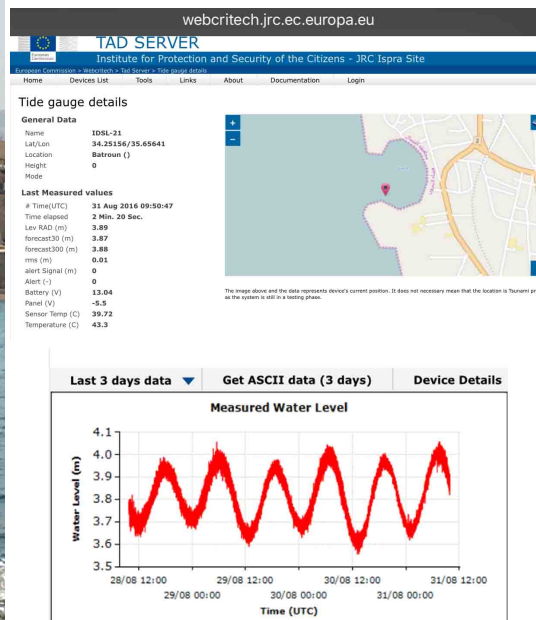
NEAMTWS

Tsunami Service Provider (TSPs): France, Italy, Greece, Portugal, Turkey

- ❖ Collect, process and analyze of earthquake data and sea level data
- ❖ Compute the arrival time of the tsunami in some specific points in each country around the Mediterranean Sea
- ❖ Disseminate to the **Member States Tsunami warning focal points TWFP** the messages related to the tsunami travel time and amplitudes

TWFP in Lebanon : the National Geophysical Research Center

Tsunami Early Warning : Pilot test project



❑ New inexpensive maregraph device has been designed and developed for tsunami monitoring at JRC of EC

❑ Pilot test Project is being organized and maregraph devices are being offered for testing to interested member states

Batroun maregraph

Collaborations....