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# Field Trip to the Betic Zone and the Carboneras Fault System (SE Spain)





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### The Trip

Took place between the 7<sup>th</sup> and the 11<sup>th</sup> of September 2014 and the participants were based in the lively town of Carboneras, by the sea.

Transportation was arranged on hired cars. (Also useful as map stand ...)

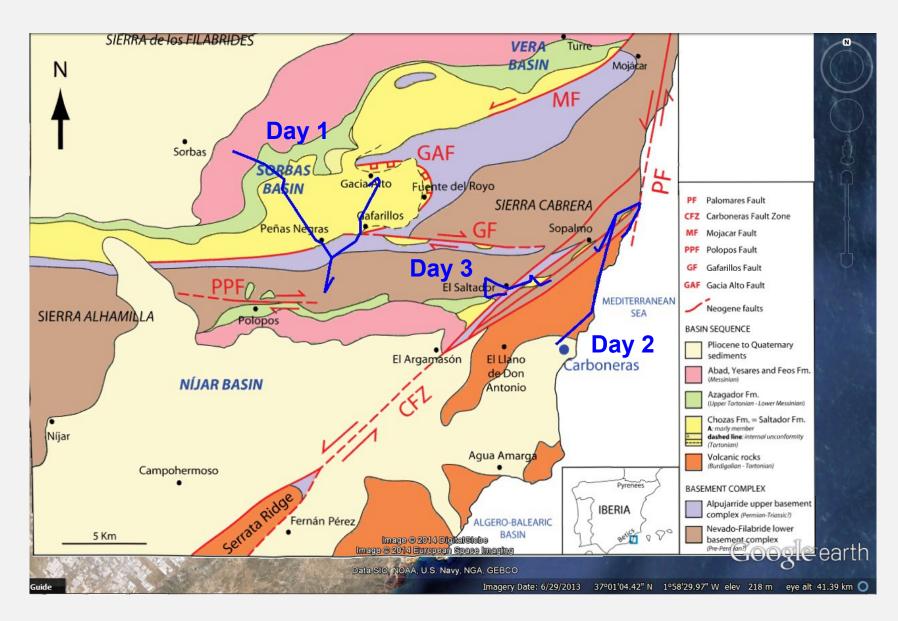
# Focus and goal

- The evolution of the Internal Betic Zone characterized by Miocene regional extensional and strike-slip tectonics, that continues today.
- ➤ To showcase a good example of non rigid plate-tectonics



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# What we've seen



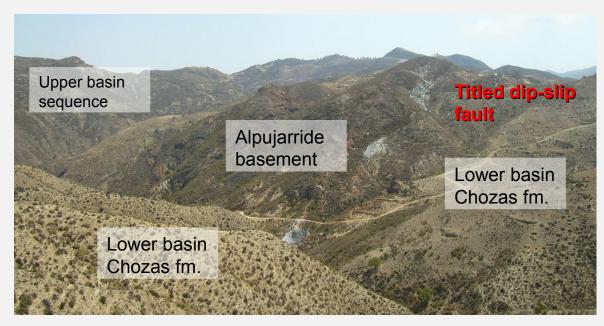
## DAY 1 – SORBAS BASIN and its FAULTS



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Gafarillos Fault plane at the contact between the lower basin (Chozas fm.) and the top of the basement



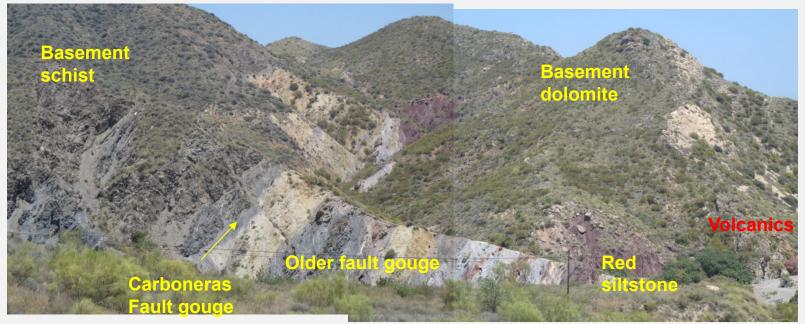
Gacia Alto fault, western segment

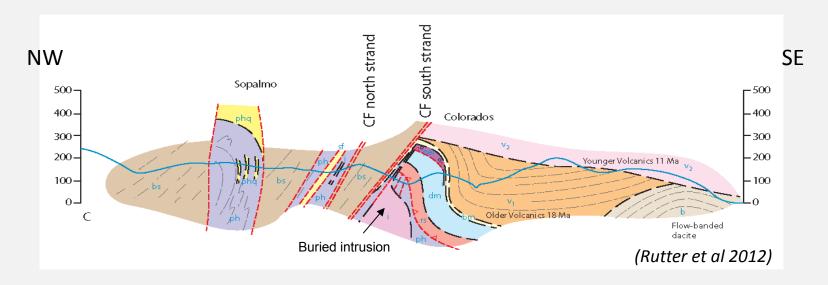


### DAY 2 & 3 - CFZ and volcanics

#### **Carboneras Fault Zone – Granatilla valley section**

(from Rutter et al 2012)







Carboneras fault's best gouge example



View of the volcanic complex.
Looking south to Carboneras in the distance

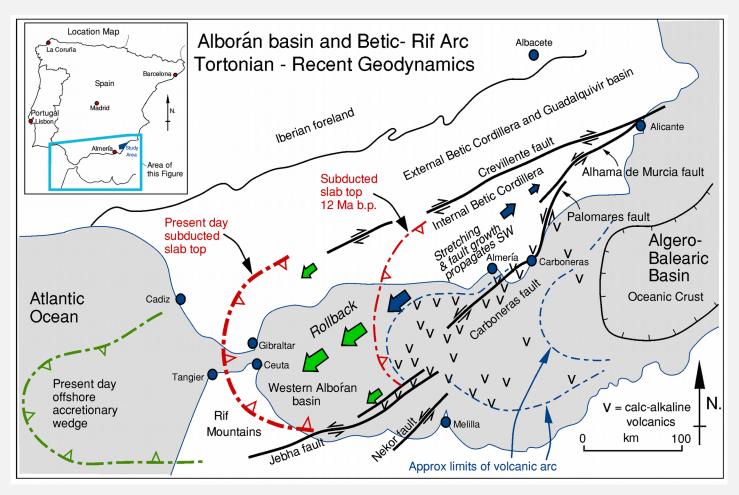


'Breche Rouge' type young volcanics



#### **DISCUSSION**

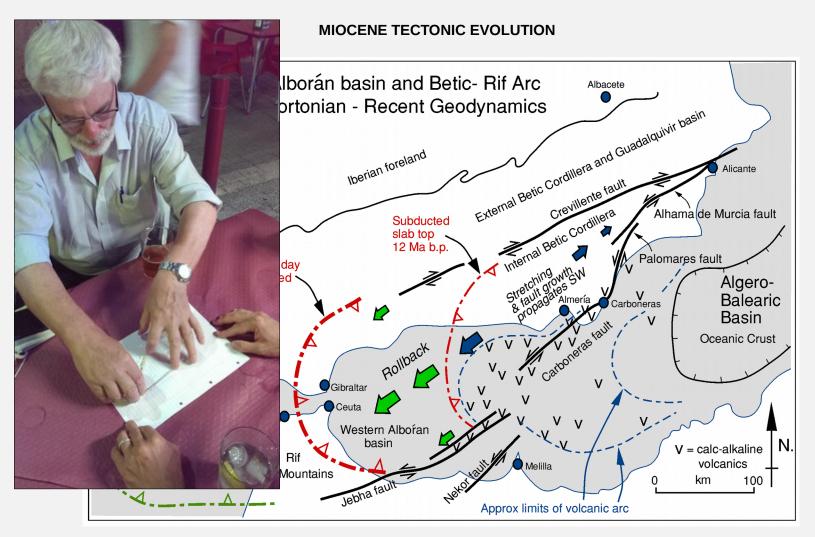
#### MIOCENE TECTONIC EVOLUTION



Map of S.E. Spain and N.W. Africa, separated by the Alborán sea basin, showing the geodynamic scheme (based on Lonergan & White 1997, Gutscher et al. 2002 and Gutscher 2012) for the Serravallian through Recent evolution.

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#### **DISCUSSION**



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#### **DISCUSSION**

#### MIOCENE TECTONIC EVOLUTION llborán basin and Betic- Rif Arc Albacete External Betic Cordillera and Guadalquivir basin ortonian - Recent Geodynamics Iberian foreland Internal Betic Cordillera Alhama de Murcia fault Subducted slab top 12 Ma b.p. Palomares fault day Algero-Carboneras Balearic Basin Oceanic Crust Rollback Western Alboran basin V = calc-alkalineRif volcanics **Mountains** km 100 Approx limits of volcanic arc

Map of S.E. Spain and N.W. Africa, separated by the Alborán sea basin, showing the geodynamic scheme (based on Lonergan & White 1997, Gutscher et al. 2002 and Gutscher 2012) for the Serravallian through Recent evolution.

## **EL DESCANSO**

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## A BIG THANK YOU TO THE PARTICIPANTS AND TSG!

