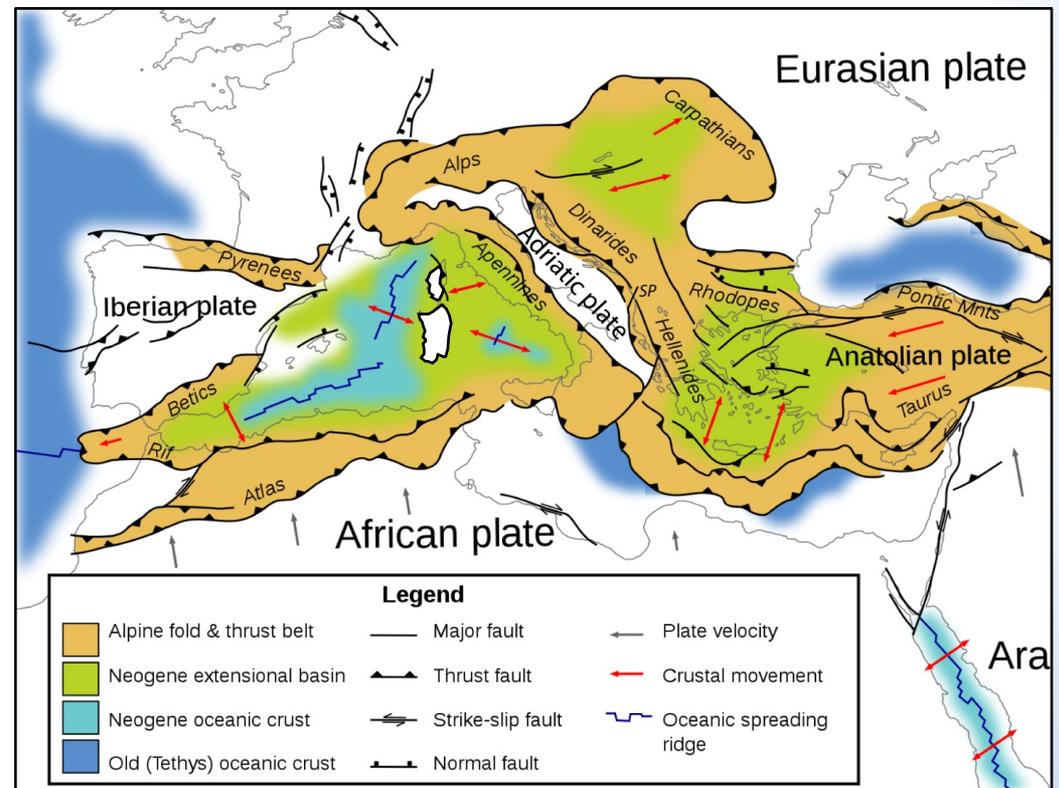


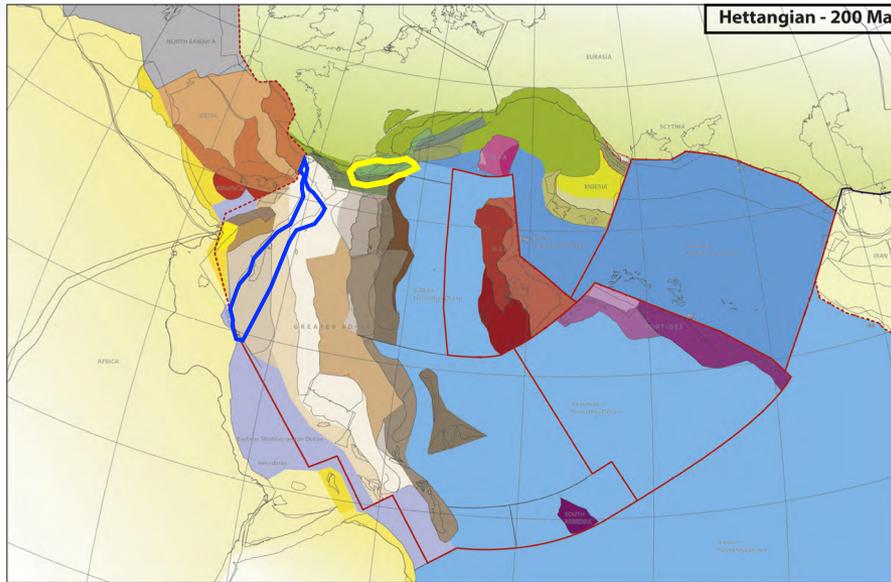
Kinematic reconstructions of the Western Mediterranean area since Triassic time: possible scenarios and their implications for the Apennines

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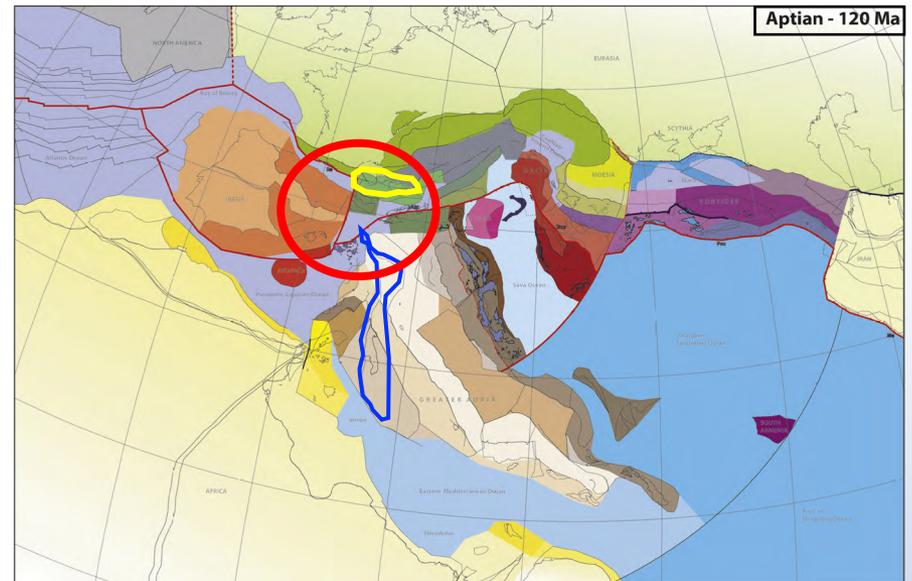
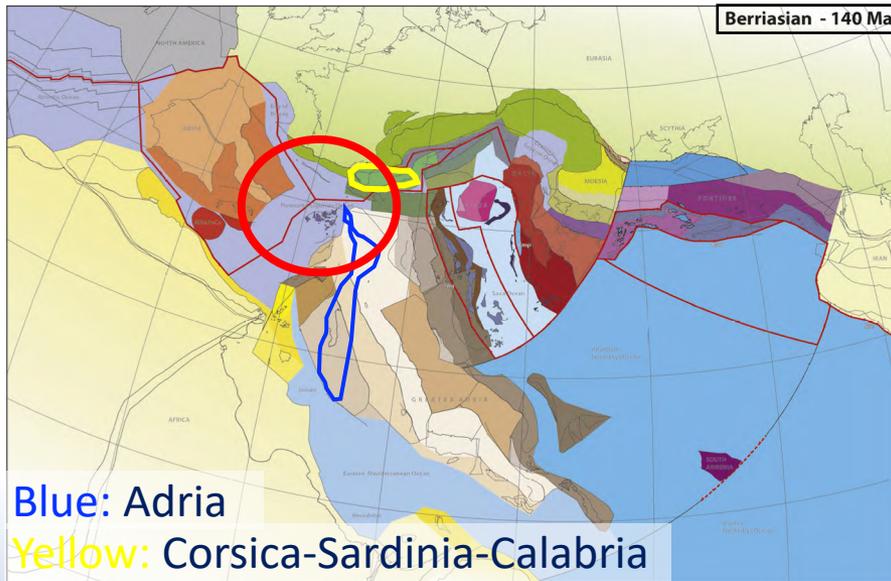
- Comparison of two recent kinematic scenarios for Alpine-Mediterranean back to 200 Ma
- Where lie the main differences?
- Why those differences?
 - ⇒ Depends on past motions of key players: **Iberia, Adria, Corsica-Sardinia**
- Ways to look forward and possibly reconcile different datasets?
- Focus on the Apennines

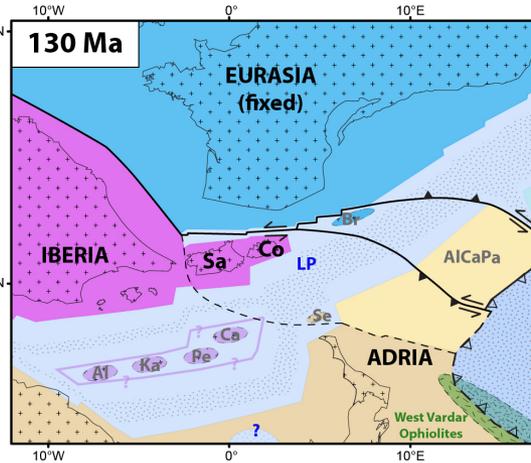
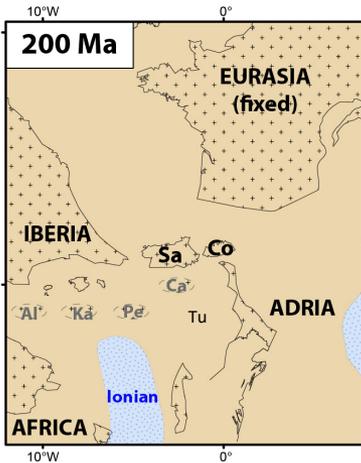


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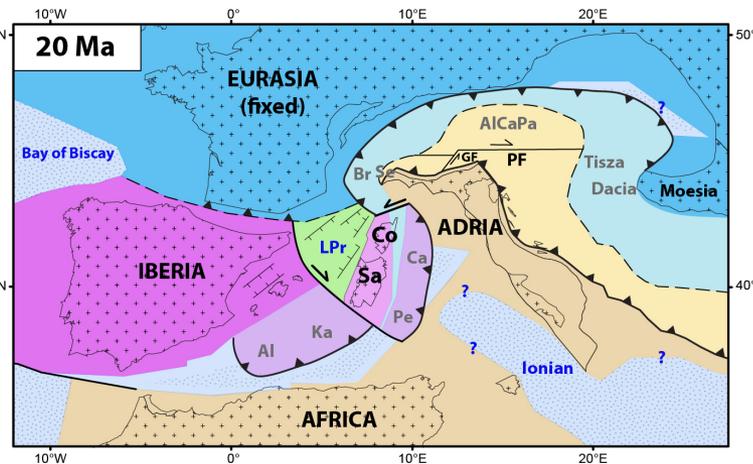
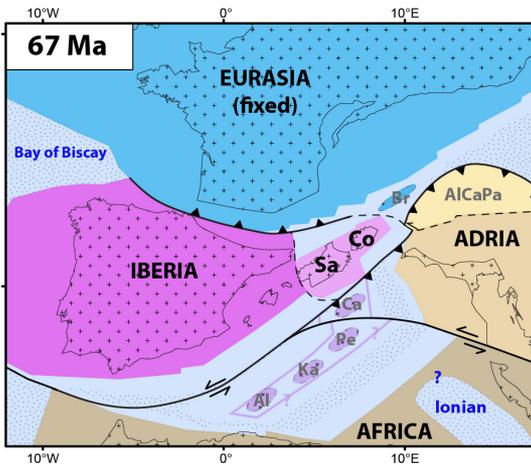


- Fits paleomagnetic data of entire Mediterranean area
- Implies convergence between NE Iberia and southern Sardinia (c. 500 km) and closure of Liguro-Piemont (LP) Ocean in the Pyrenees and in the N. Apennines in Lower Cretaceous (140-120 Ma, **red circle**)
- Implies a paleogeographic separation of Sardinia-Calabria (**in yellow**) and Tuscany (**in blue**) in Trias/Permian time





- Paleogeographic continuity between Sardinia (Sa), Calabria (Ca) and Tuscany (Tu) in Trias/Permian time (see also Molli et al., abstract [EGU2020-1341](#))
- Opening of LP Ocean fits geological record (ages of syn-rift sediments, rift-related fault activity, mafic rocks – see also abstract [EGU2020-11228](#))
- Closure of LP Ocean in Late Cretaceous-Cenozoic time which fits age of flysch deposits



- Implies significant strike-slip motion between Europe and Iberia-Sardinia (in total c. 600 km, North Pyrenean Fault) and within Adria (c. 200 km, Mid Adriatic Ridge)

Link to gplates files and animations:

https://www.earthbyte.org/webdav/ftp/Data_Collections/Muller_etal_2019_Tectonics/

The main differences lie in the reconstruction of Iberia and Sardinia-Corsica in **Mesozoic time:**

- ⇒ Debate on interpretation of magnetic anomalies in the North Atlantic, paleomagnetic data onshore Iberia and geological evolution of the Pyrenees (for example see: Neres et al., 2013; Barnett-Moore et al. 2016, comment & reply; Nirrengarten et al. 2016, ...) and in Sardinia (part of Europe or Iberia?)
- ⇒ Depending on the motion of Iberia and Sardinia-Corsica, Adria is a single plate or split into two plates.

Way to look forward and potentially reconcile different datasets?

- ⇒ Better constrain intraplate deformation within Iberia and within Adria (Mid-Adriatic Ridge)
- ⇒ Better constrain the opening of the Liguro-Provençal Basin which may explain the rotation of Sardinia? -> Work in progress within the AlpArray/4DMB project using new geophysical survey (LOBSTER, <http://www.spp-mountainbuilding.de>)

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Interested in the opening of the Liguro-Piemont Ocean? -> [EGU2020-11228](#)

Interested in geodynamic modelling of the Alpine-Mediterranean area? -> [EGU2020-11134](#)

Questions/Comments?: eline.lebreton@fu-berlin.de