



## Mid-Miocene strike-slip in continental Greece

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### ► To cite this version:

Agathe Faucher, Frederic Gueydan, Marc Jolivet, M. Alsaif. Mid-Miocene strike-slip in continental Greece. European Geophysical Union General Assembly, Apr 2019, Viennes, Austria. insu-03066484

HAL Id: insu-03066484

<https://insu.hal.science/insu-03066484>

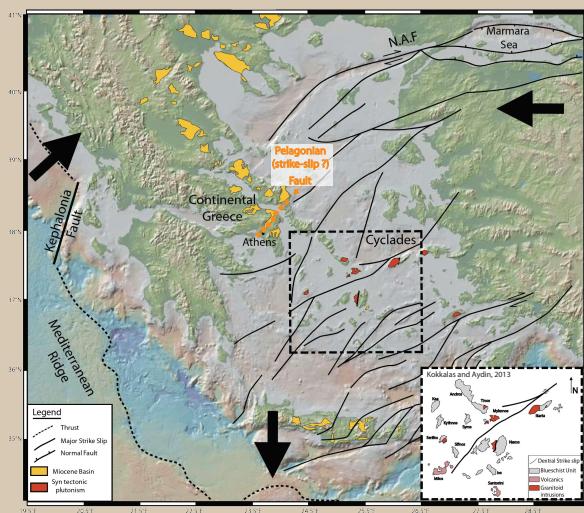
Submitted on 7 Jan 2021

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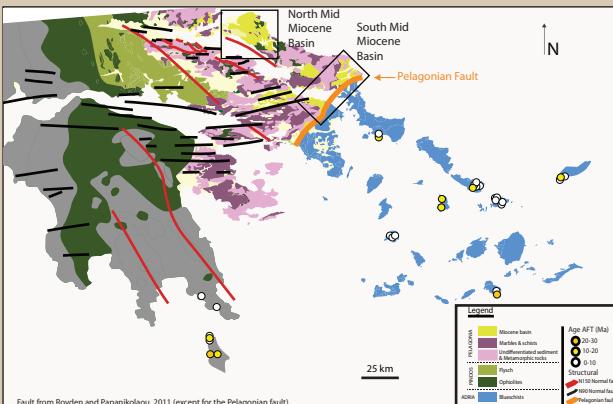
## 1. Introduction



Classical view of the geodynamic evolution of Greece: 1/ Classical back-arc extension with N150 normal faults 2/ followed by mainly N50 dextral strike-slip faults (Gulf of Evvia and Corinth) since 5 Ma marking the impact of the NAF in the tectonic system

BUT

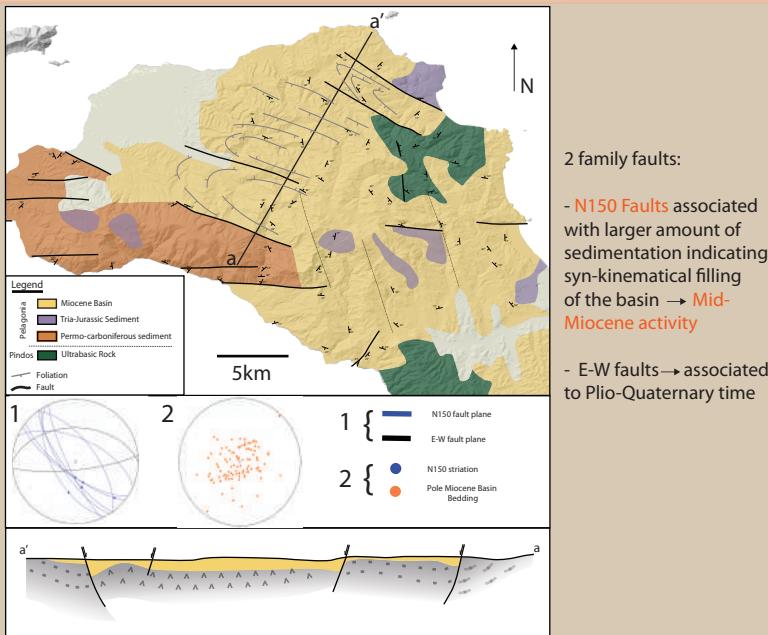
Some published structural data in the Cyclades show that N50 dextral strike-slip were already active during mid-Miocene time (Kokkalas and Aydin, 2013; Brun et al; 2016)



**Constrain the potential activity of dextral strike slip faulting during Mid-Miocene in Continental Greece.**

> Focus on Evvia and Attic to understand the tectonic context of the deposition of two mid-Miocene basins.

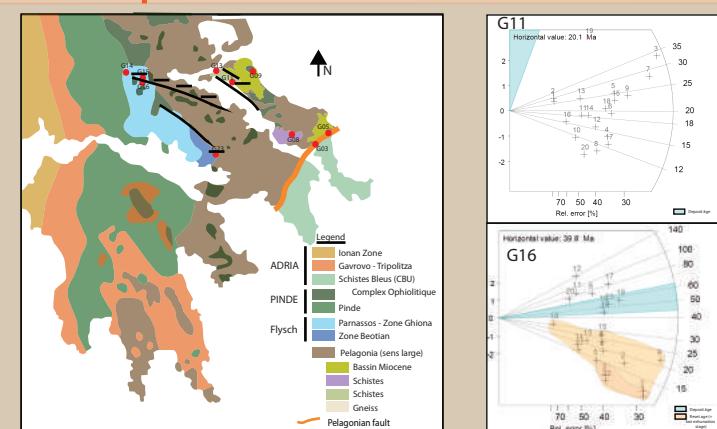
## 2. Structural Data - North Basin



2 family faults:

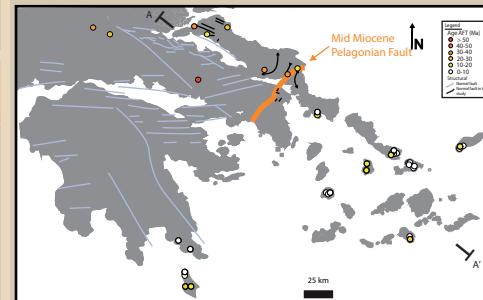
- N150 Faults associated with larger amount of sedimentation indicating syn-kinematic filling of the basin → Mid-Miocene activity
- E-W faults → associated to Plio-Quaternary time

## 4. Apatite Fission Track Data



10 AFT ages show a phase of generalized Eo-Oligocene extension. Two ages (G11-G16) located on the roof of N150 faults have a last phase of exhumation at 15Ma.

## 5. Conclusion



1. Eo-Oligocene: A generalized extension over the entire Aegean domain

2. Mid-Miocene time: implying the coeval activity of N50 dextral strike slip and N150 normal faults. AFT show Mid Miocene Pelagonian fault activity

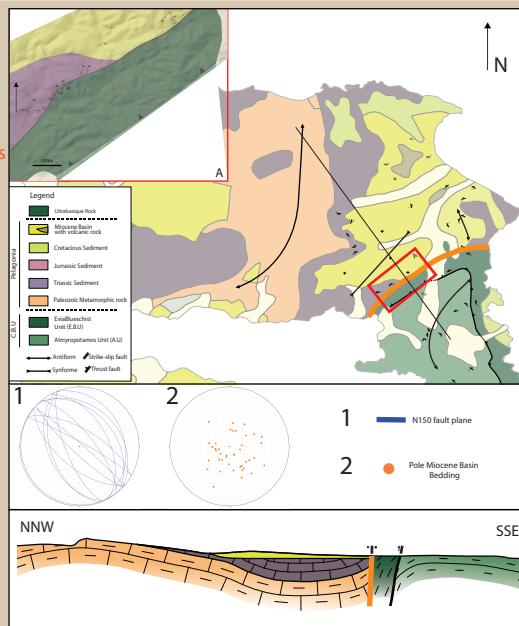
1 → 2 Interplay between the extension related to the retreat of the slab and the onset at around 15 Ma of westward extrusion of Anatolia

3. Plio-Pleistocene: Activity of E-W normal fault  
→ Interplay between NAF and back arc extension and formation of the Corinth and Evvia rifts system

## 3. Structural Data - South Basin

- Mid-Miocene basin does not extend beyond Pelagonian Fault → predates the functioning of the fault
- Miocene bedding in the basin are sub-horizontal, even close the fault → deposition after the fault activity
- Faults and folds analysis demonstrates the existence of a major dextral slip kinematic

**⇒ Dextral strike slip activity of the Pelagonian fault during mid-Miocene time.**



**Acknowledgements:** This project has received funding from the European Union's EU Framework Programme for Research and Innovation Horizon 2020 under Grant Agreement No 674899.

### References:

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Kokkalas, S., Aydin, A., 2013. Is there a link between faulting and magmatism in the south-central Aegean Sea? Geological Magazine 150, 193–224. <https://doi.org/10.1017/S0016756812000453>  
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