Field Work and Petrology in Portugal

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Motivation

- Examine previously undescribed rocks in Portugal to understand their tectonic significance
- Determine where these rocks came from and what role they played in regional mountain building episodes
- Determine their relationship with well-described rocks present in NW Spain

Project Description

- Geologic sampling and mapping of the Bragança and Morais Massifs in northeast Portugal
- Geochemically evaluate these rocks to search for trace element signatures
- Test competing hypotheses surrounding these rocks to elucidate the tectonic events of the Iberian Peninsula

Context

- Currently, these rocks are only tentative connected to well-characterized rocks in NW Spain
- This research will be the first attempt to fully characterized the geochemistry of these Portuguese rocks

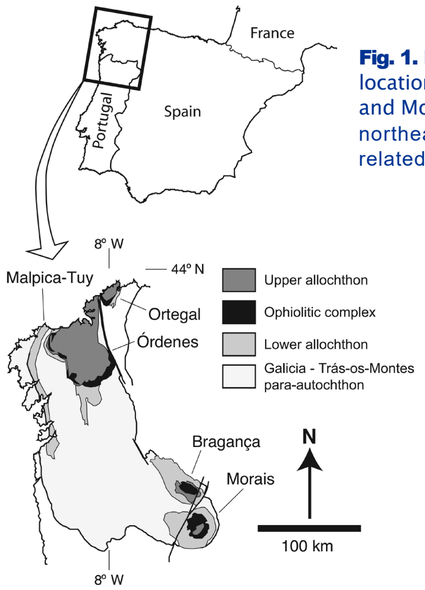

Fig. 1. Map showing the location of the Bragança and Morais Massifs of northeast Portugal and related Iberian rocks

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Understanding **mountain building processes** by examining **tectonically emplaced Portuguese rocks**

Project Deliverables

- Updating existing databases with geochemical data of these enigmatic Portuguese rocks
- Mid-term results will include the identification of sampling locations as well as determining the locations and available data of previously sampled areas
- Final results will include the completion of at least one peer reviewed publication communicating the findings
- Results will establish hypotheses that will be further tested on additional Iberian Massifs and instigate the development of large, external grants

Potential Impact

- These rocks are just 'across the pond' from well-characterized Appalachian rocks that were involved in the similar, if not the same, tectonic events
- Understanding their role in tectonic activity will help clarify the events that led to the construction of both mountain belts

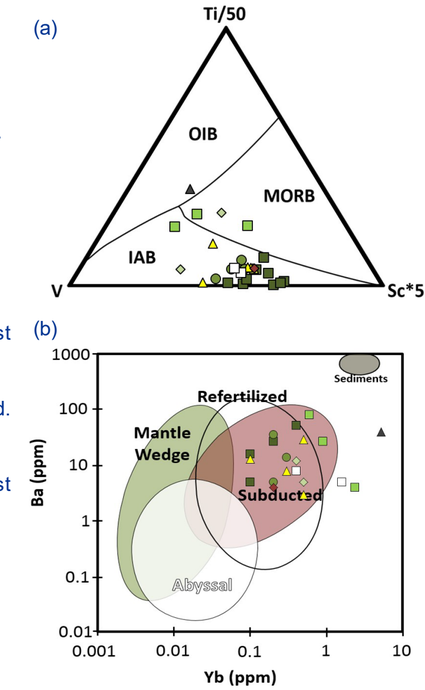

Fig. 2. Geochemical signatures of PA Appalachian rocks reveal the tectonic history of these rocks. These techniques will be used to determine the history of uncharacterized Portuguese rocks

(a) Petrogenetic diagram showing most Central Appalachian ultramafic are Island Arc Basalt (IAB) related.

(b) Petrogenetic diagram showing most Central Appalachian ultramafic are related to subduction zone serpentinites.

Acknowledgements

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