

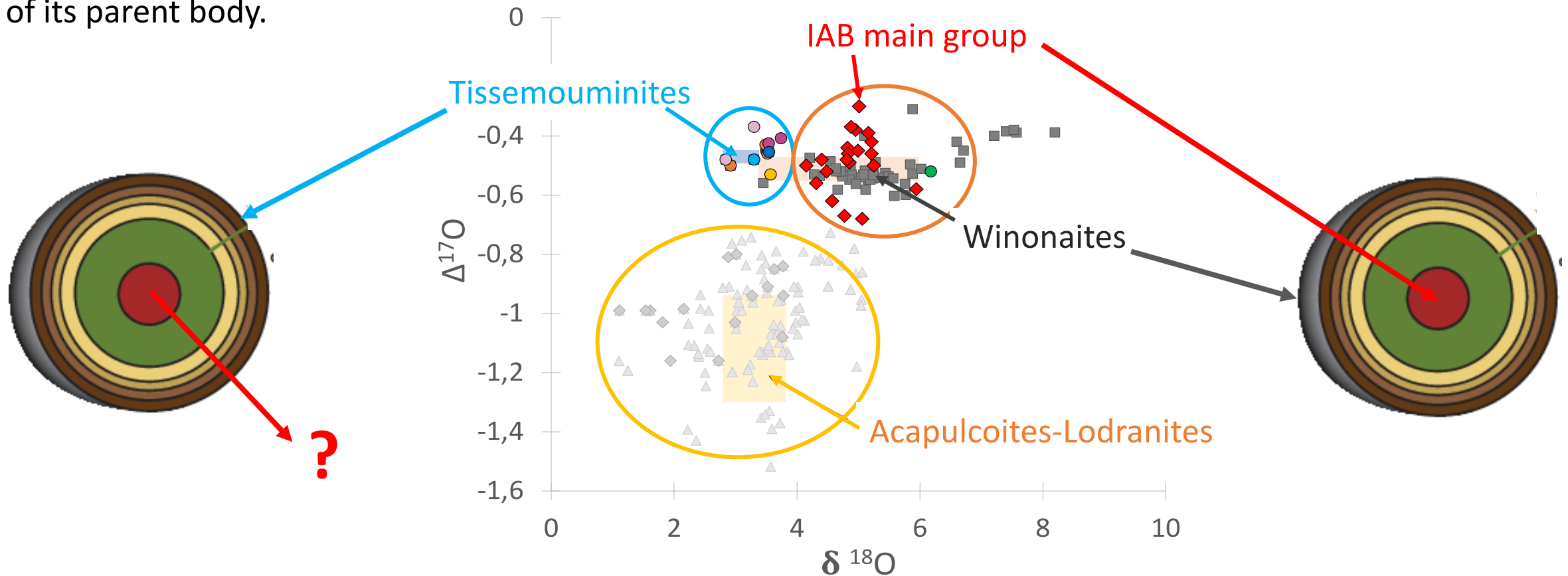
IRON

linking iron meteorites to a new group of primitive achondrites

Partially melted parent body are composed of an **iron core**, a **differentiated mantle** and a **primitive achondritic crust**.

Winonaites and *IAB main group* have been genetically linked and come from the same parent body.

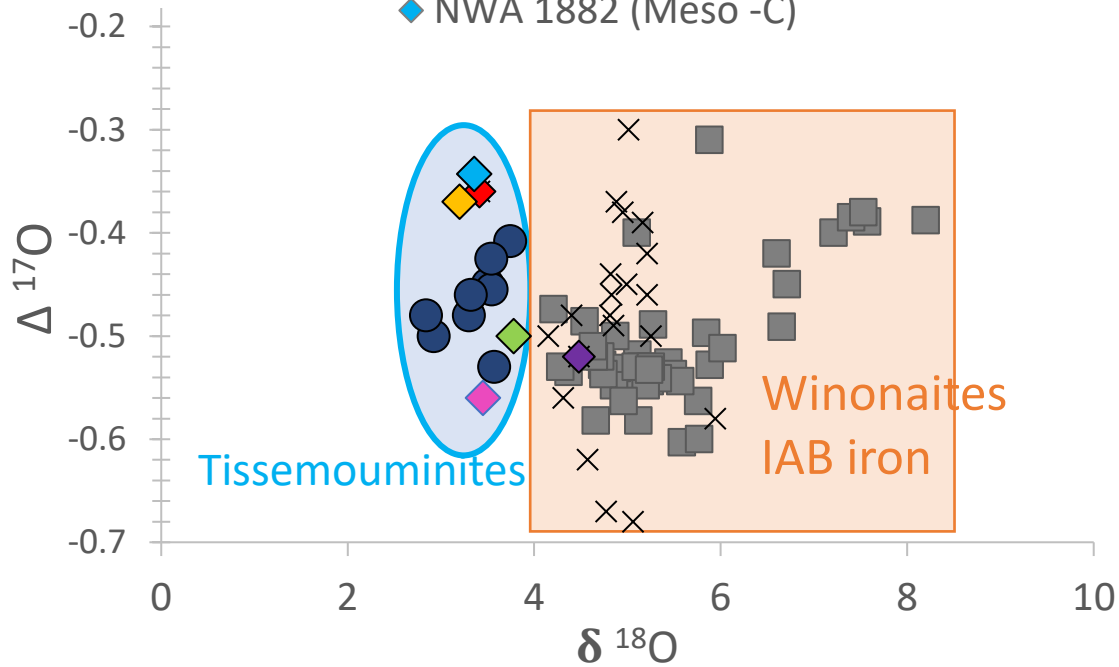
We found a new group of primitive achondrites, the **tissemouminites**, and we look for iron meteorites sampling the core of its parent body.



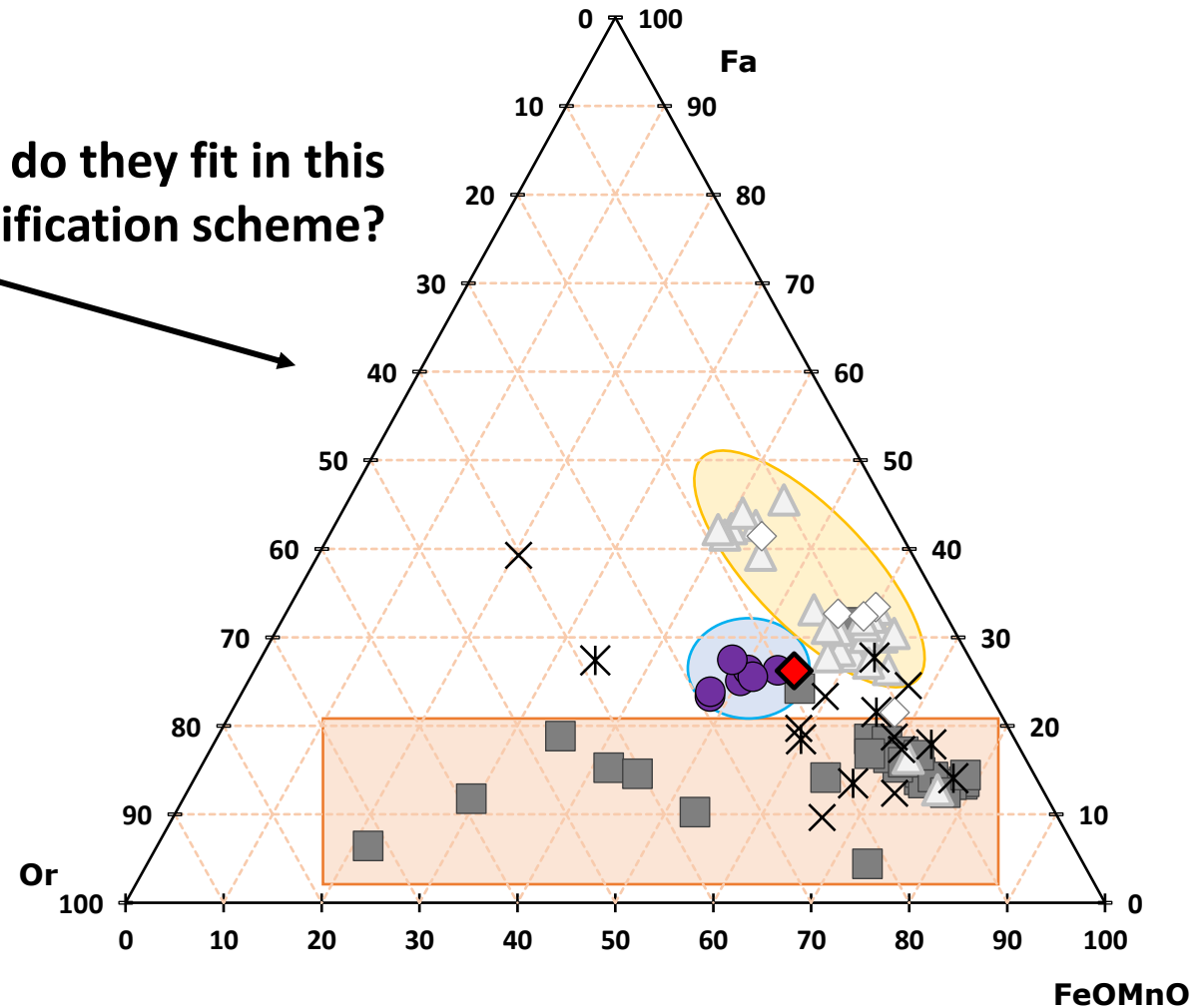
Potential candidates: iron and mesosiderites

Test need to be done on chemistry of silicate inclusions

- ◆ Enon (Ung)
- ◆ Mount Morris (IAB Ung)
- ◆ Pine River (IAB-sLL)
- ◆ RPKA 79015 (Meso-ung)
- ◆ NWA 1982 (Meso -C)
- ◆ NWA 1882 (Meso -C)



Where do they fit in this classification scheme?



Planning

Objectives:

The oxygen isotopes of some IAB ungrouped, sLL and mesosiderite-C could fit with the primitive achondrite Tisseouminites. So we are moving to measure mineral chemistry of silicatic inclusions. Having crust & core samples, we can study the petrogenesis of a parent body.

Methodology:

Preliminary, two samples have been requested from the Buseck Centre for Meteorite Studies, USA.

Mineralogic and geochemical analyses of silicate inclusions will also be performed with electron microprobe to look for similarities with Tisseouminites.

Oxygen isotopes of silicate inclusions found in these samples will be re-performed at the Open University, UK by laser fluorination.

Deliverables:

We expected to present our results through conference abstracts and following one peer-reviewed publication within 2023.

Other samples has been selected, some from the Buseck Centre for Meteorite Studies, USA, others from private collection.

Labs are ready for our samples, so measurements will be managed as soon as samples will arrive.

DELAYED: Silicate inclusions need to be cut of iron samples and this required more time that those expected by our colleagues in USA. Moreover, for new samples, it is difficult to acquire by private collector, so we are looking to expand our research to other museums. Anyway this will be an extra.

We had to consider to shift our results to 2024