



WAXI- West African Exploration Initiative
IXOA- L'Initiative d'Exploration Ouest Africaine

P934A West African eXploration Initiative

**The tectonics & mineralisation
of northern Burkina Faso**

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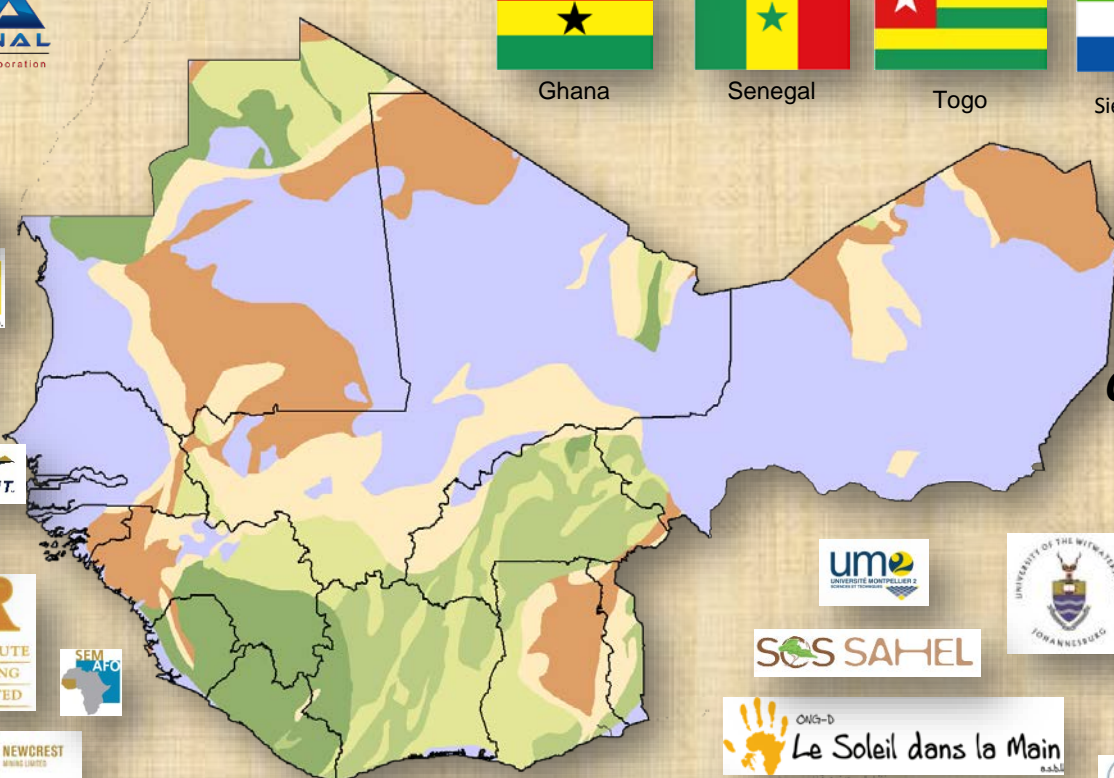
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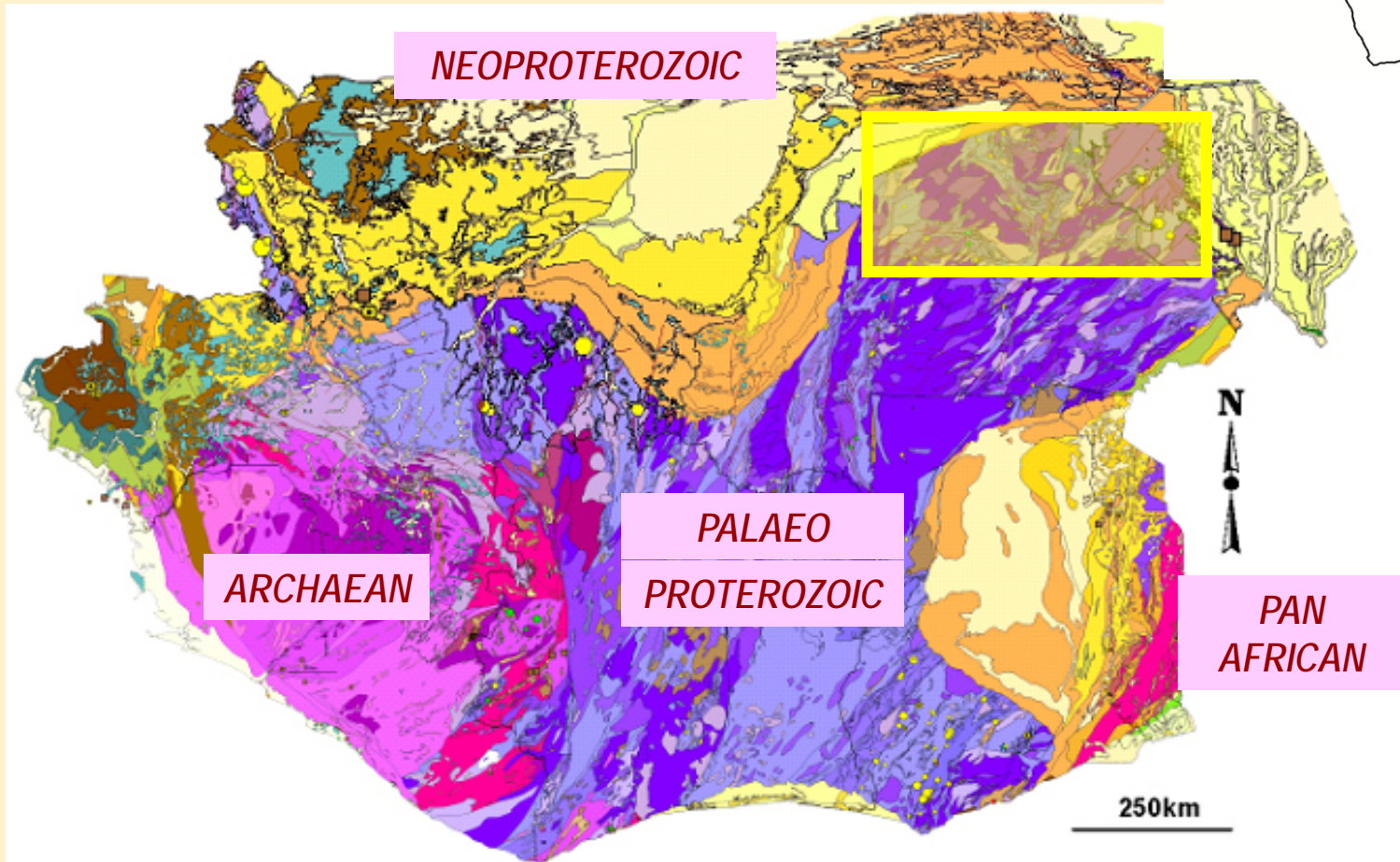


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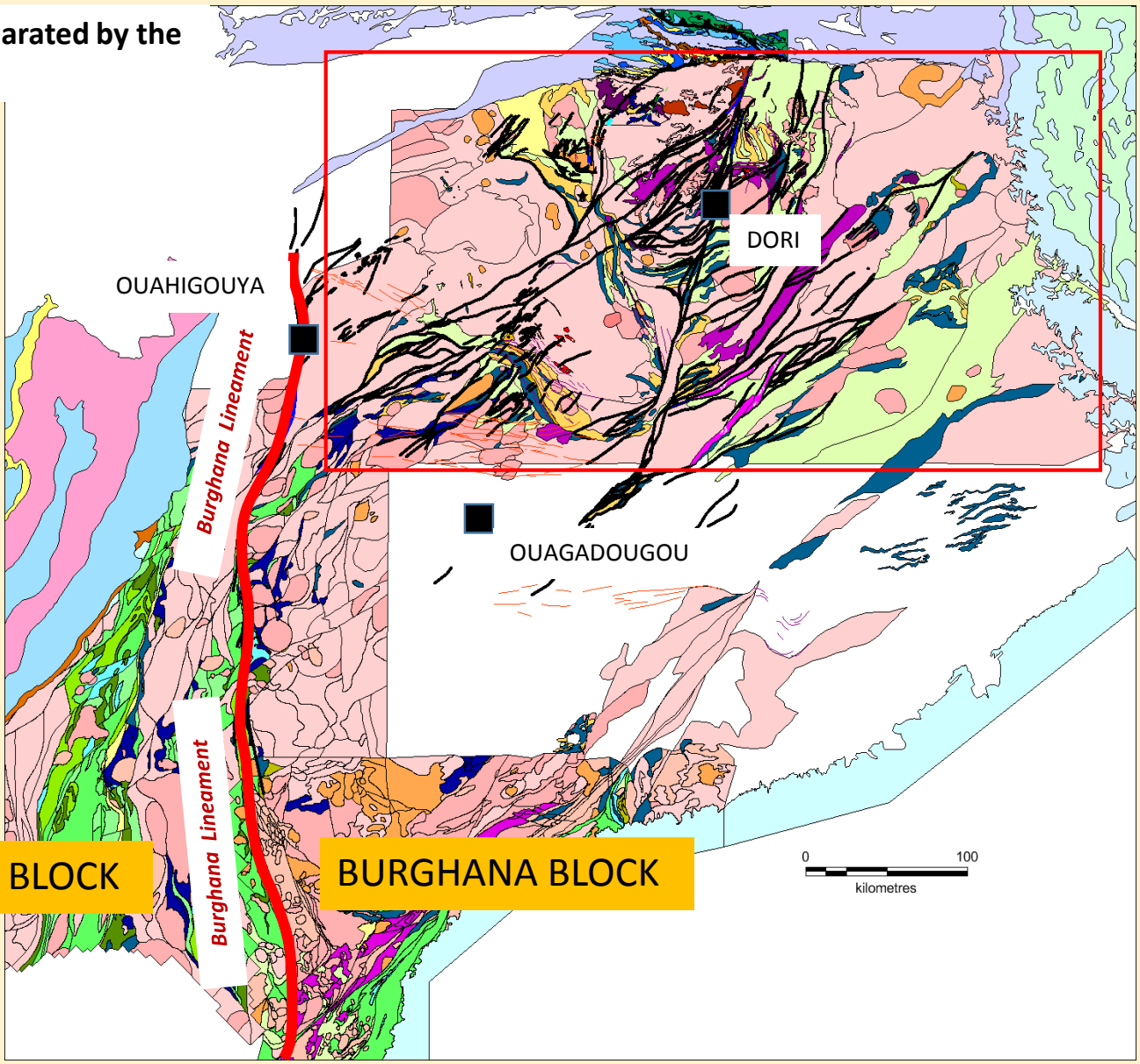
West African Craton , Leo Man shield



*Geological Synthesis of West Africa:
Achaean and Proterozoic rocks in shades of
Purple. BRGM 2003.*

Update - geology of northern Burkina Faso

Two crustal blocks separated by the Burghana lineament



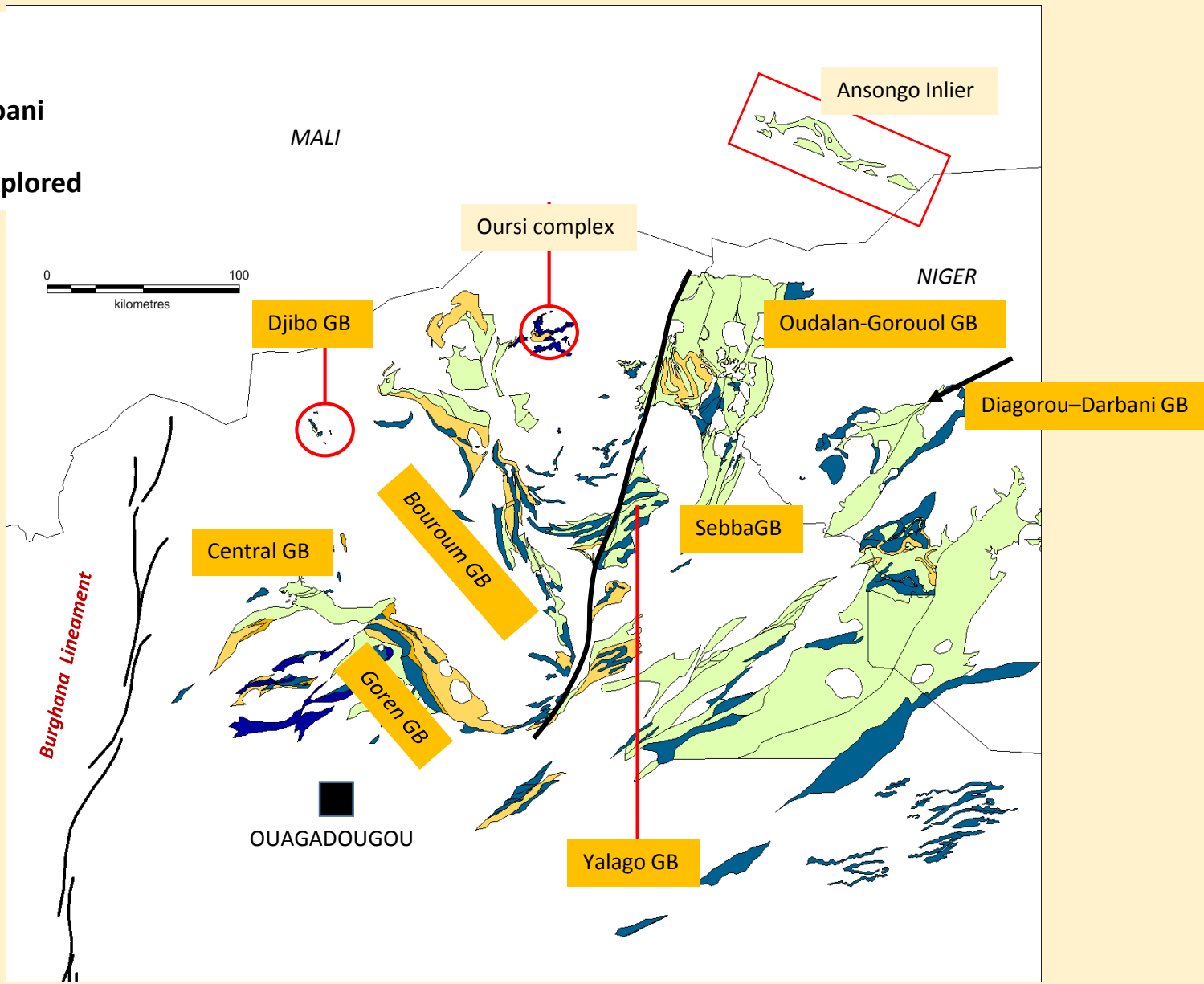
KATOUBA BLOCK

BURGHANA BLOCK

0 100
kilometres

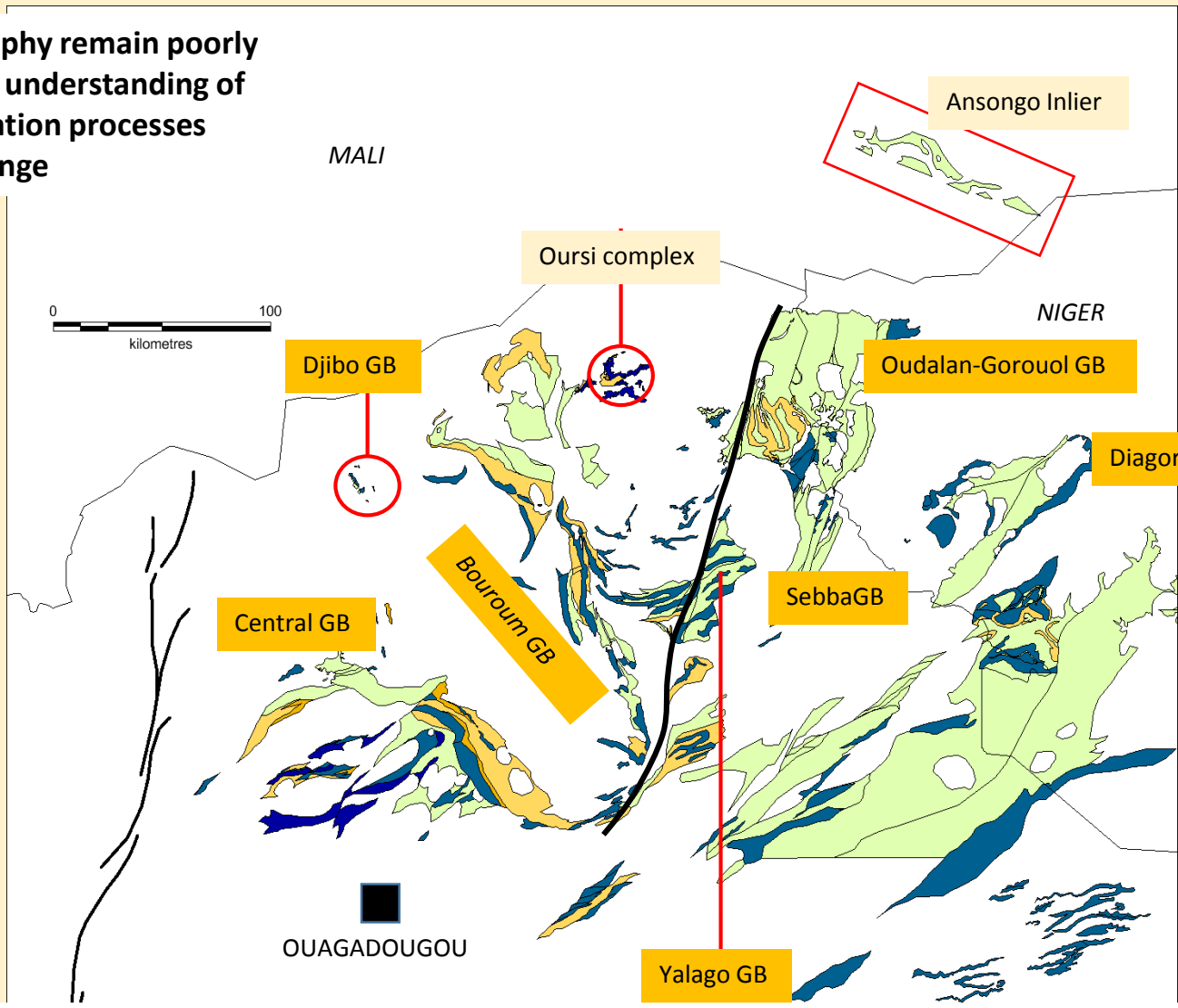
Update – Birimian greenstone belts

**Bouroum,
Yalago,
Diagorou-Darabani
Sebba GB
=> are under explored**



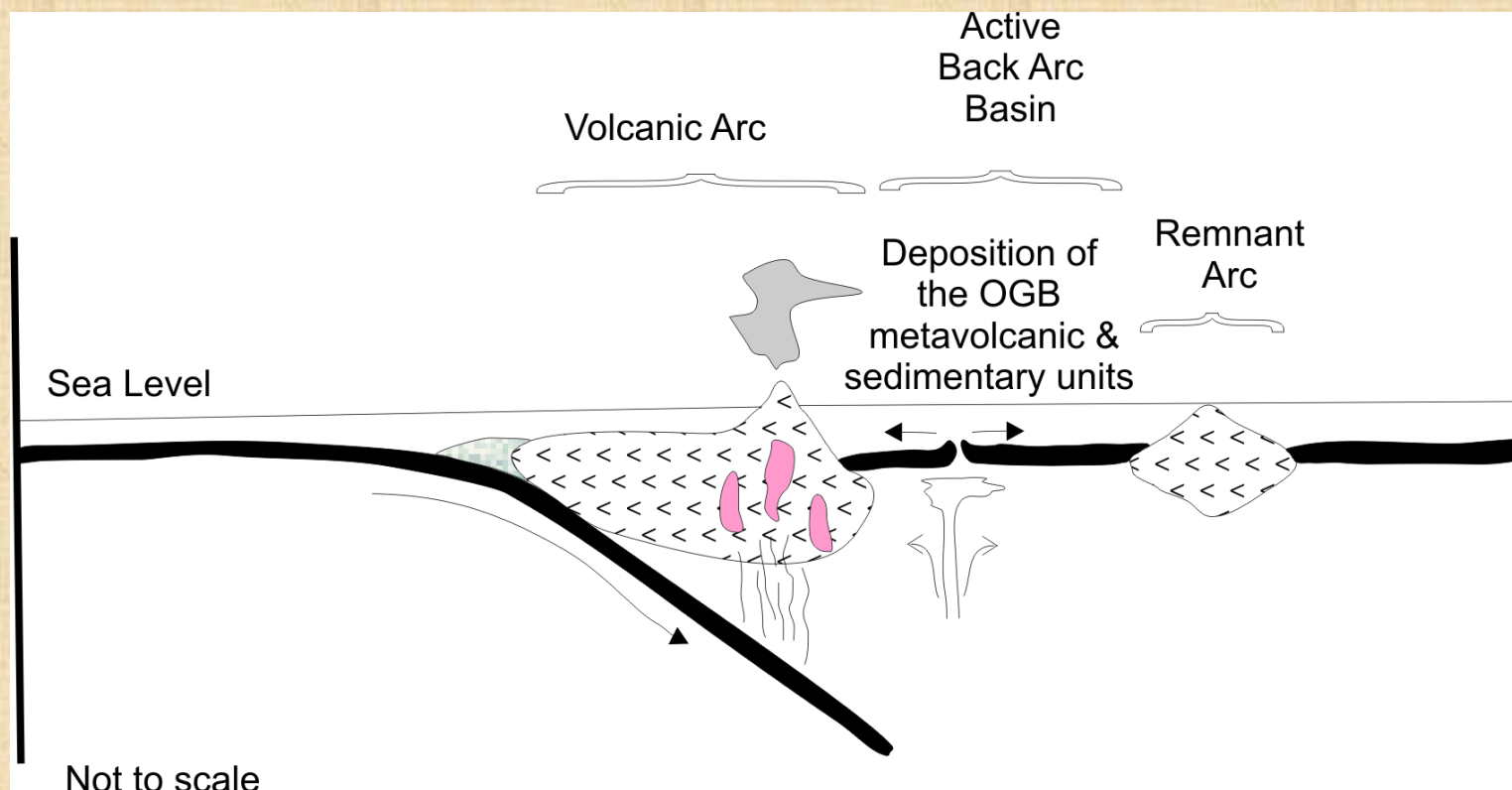
Update – Birimian greenstone belts; 2238 Ma - 2177 Ma

GB's & stratigraphy remain poorly constrained => understanding of the basin formation processes remain a challenge



Volcanic & volcano-sedimentary sequences were deposited in oceanic island arc –backarc environments @ between 2238 Ma - 2177 Ma

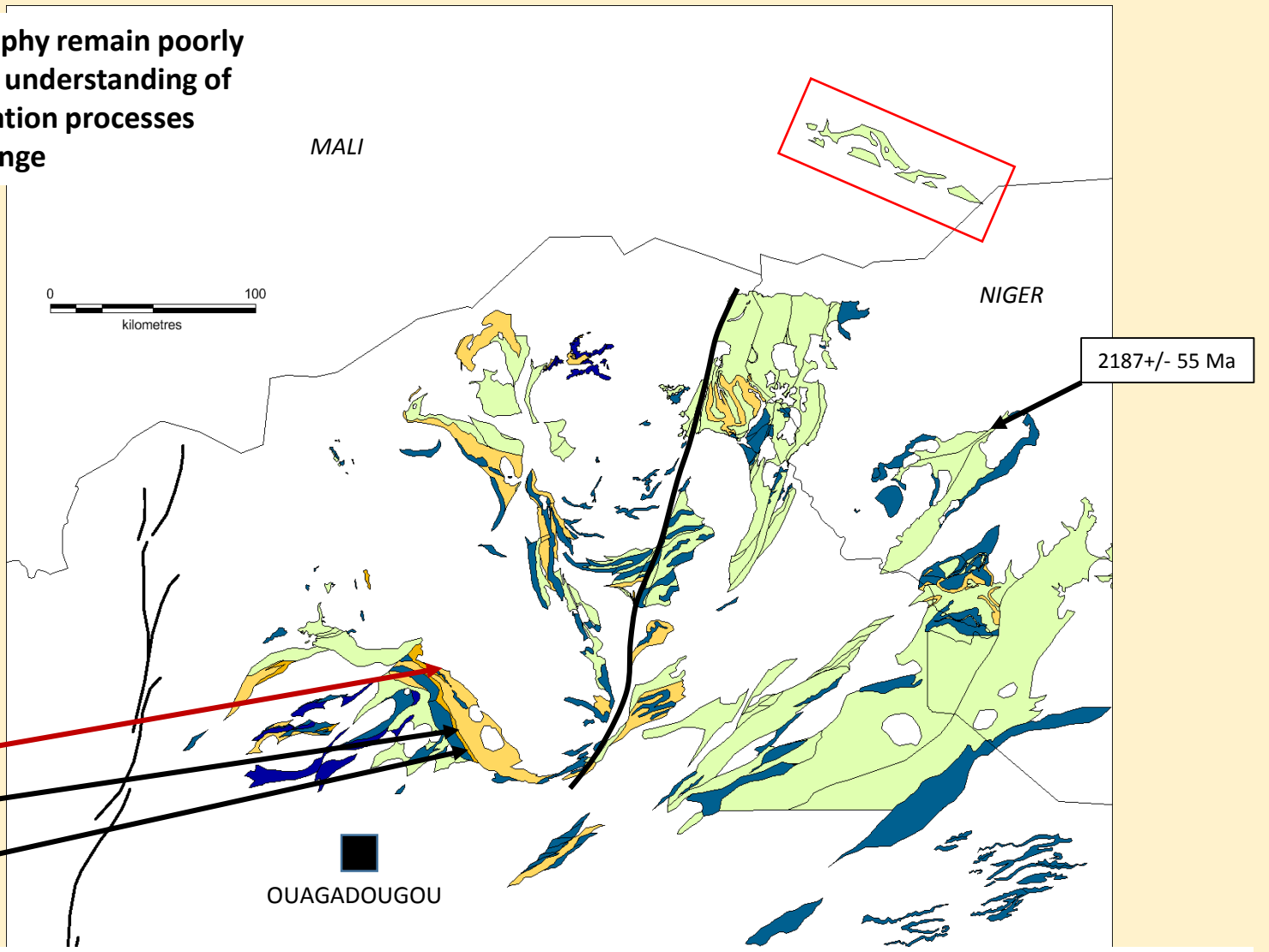
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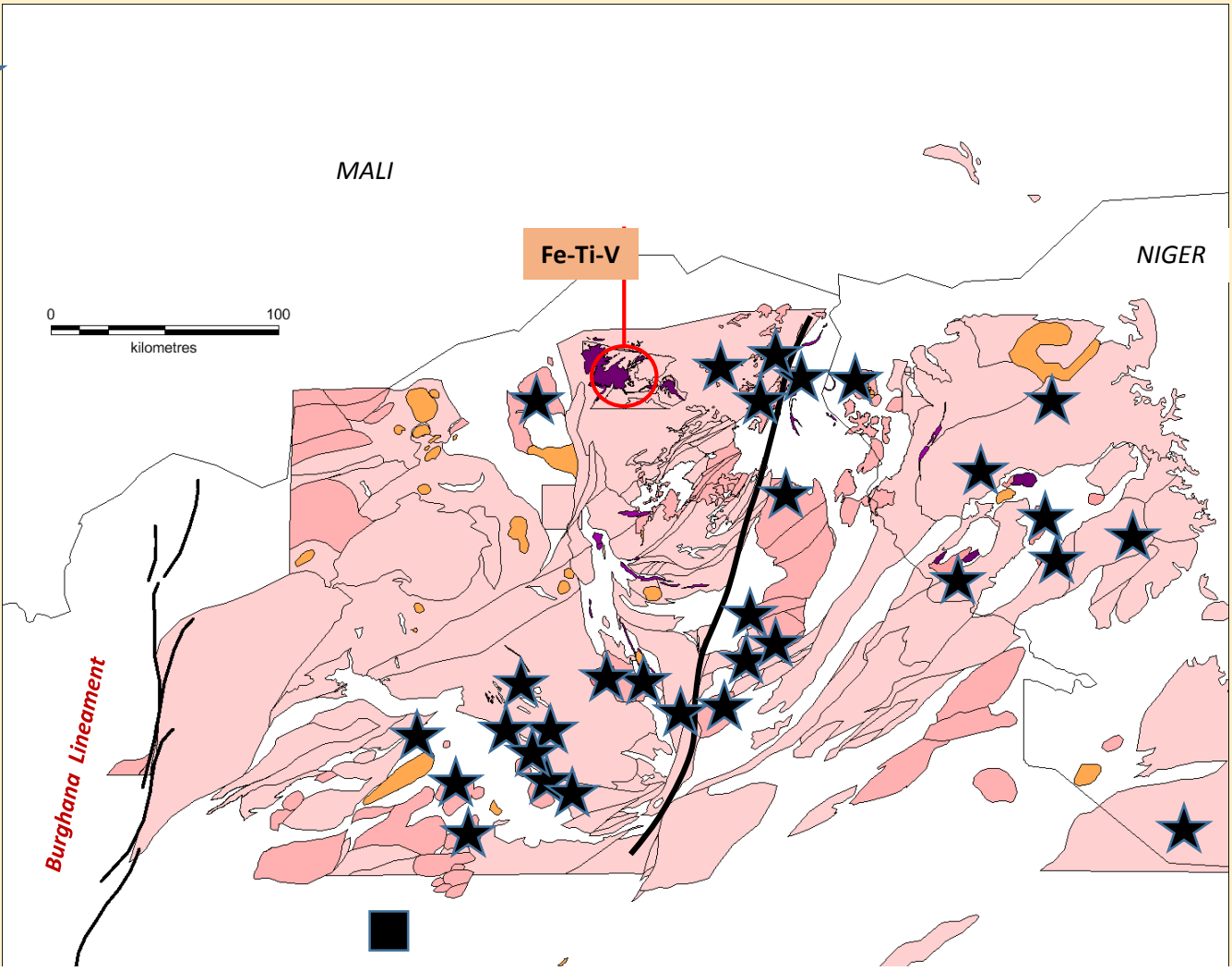
GB's & stratigraphy remain poorly constrained => understanding of the basin formation processes remain a challenge



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Plutonic rocks

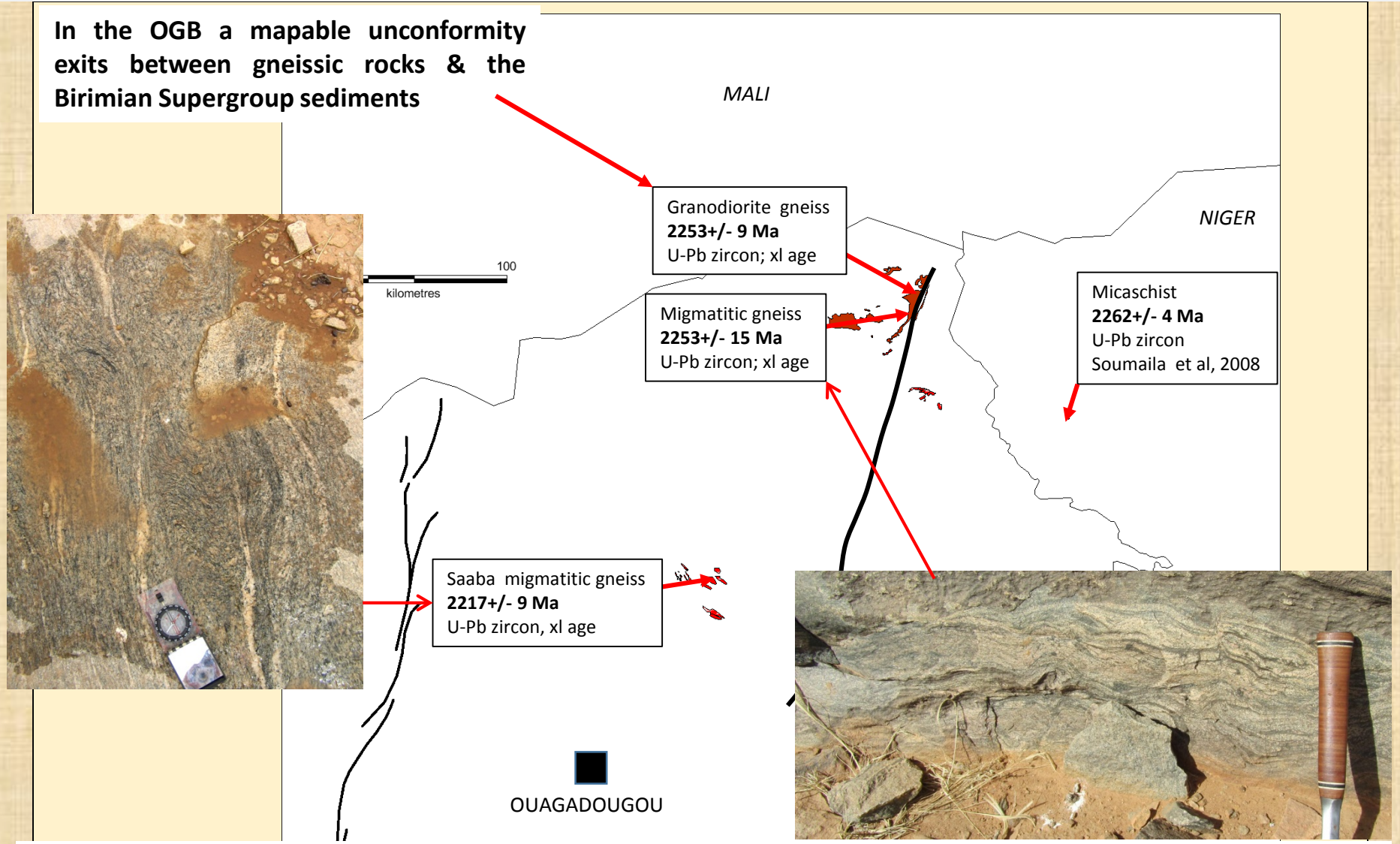
- ★ U-Pb z
- Pb-Pb z
- K-Ar
- Ar-Ar
- Rb-Sr
- Evap



Event 1 @ 2200-2181 Ma - Typically TTG batholith & granite intrusions
Event 2 @ 2160-2140 Ma - Discrete plutons & typically hornblende-rich or biotite-rich
Event 3 @ 2130-1980 Ma - Granodiorite -granite-monazite plutons & stocks

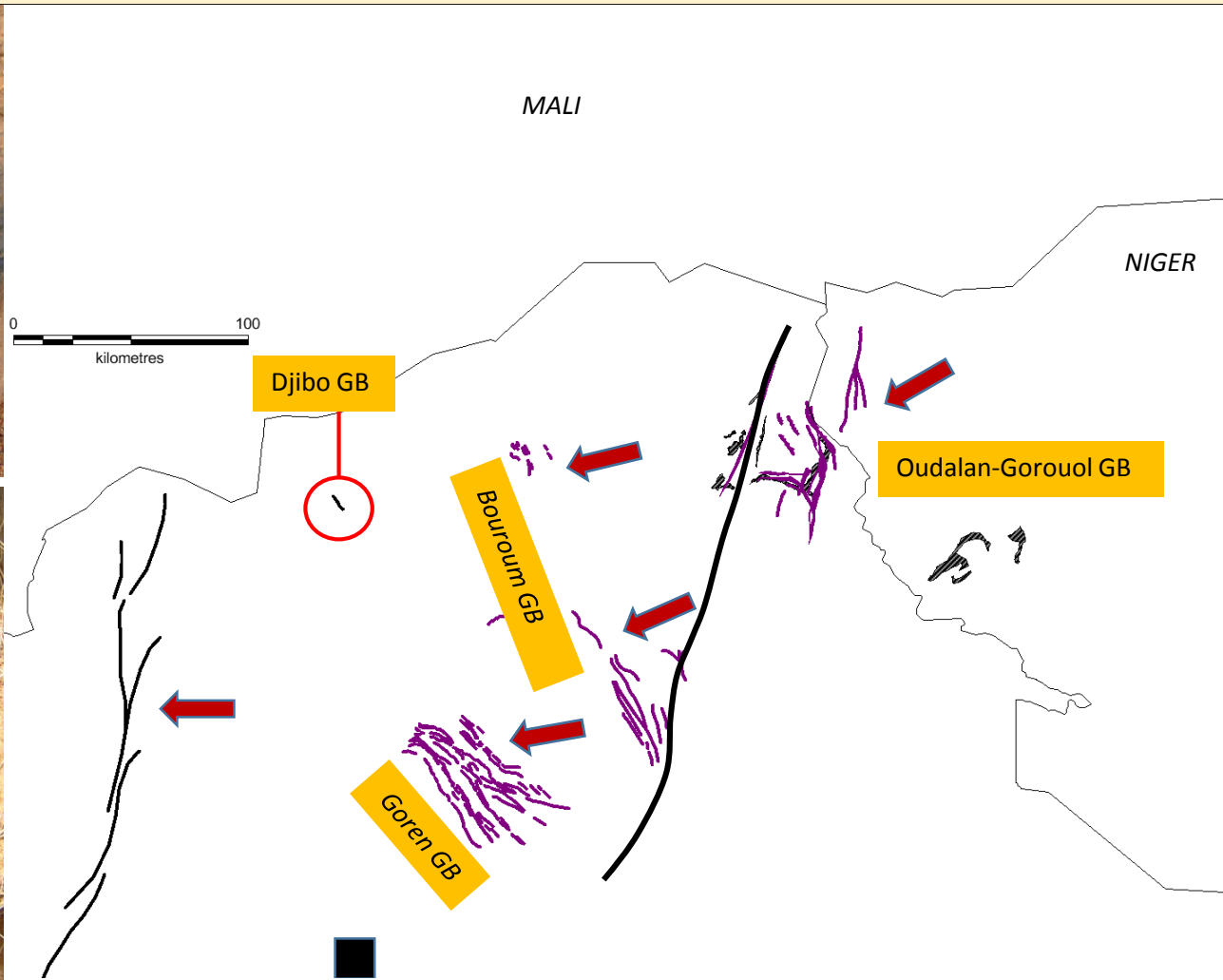
Pre-Birimian rocks; 2262 & 2253 Ma

In the OGB a mapable unconformity exists between gneissic rocks & the Birimian Supergroup sediments



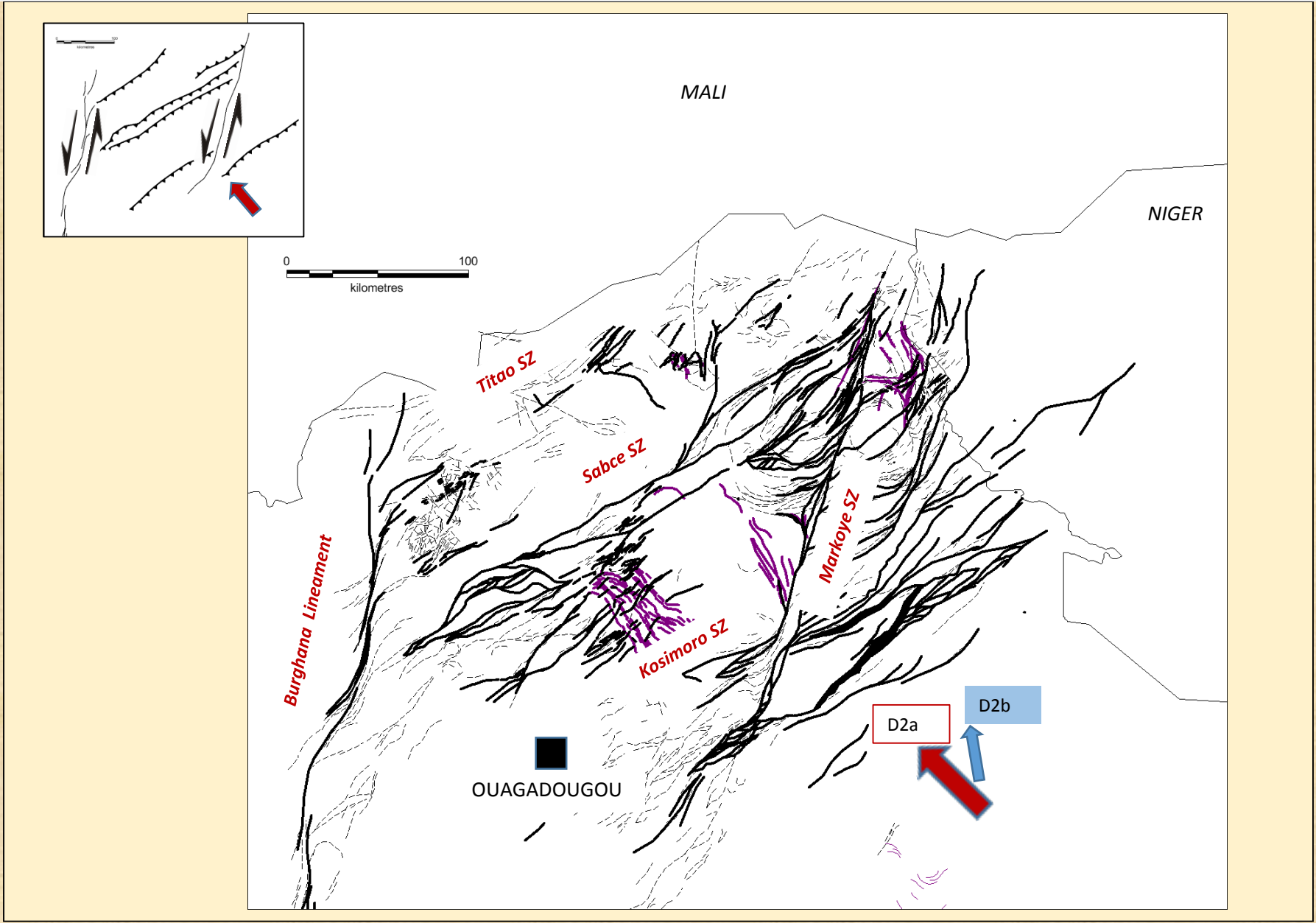
However the oldest rocks in the region are typically gneissic TTG or granite, or migmatite or mica schists & are dated at between 2262 & 2253 Ma

D1 – Tangaeen-(Eburnean I-Eoeburnean); 2.20-2.15 Ma



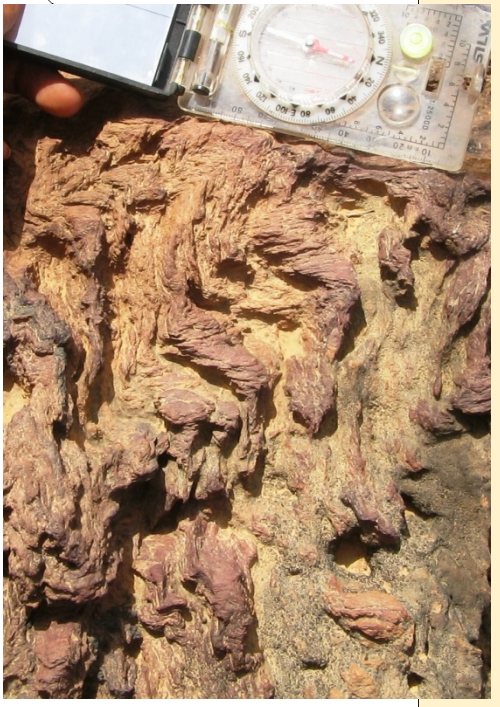
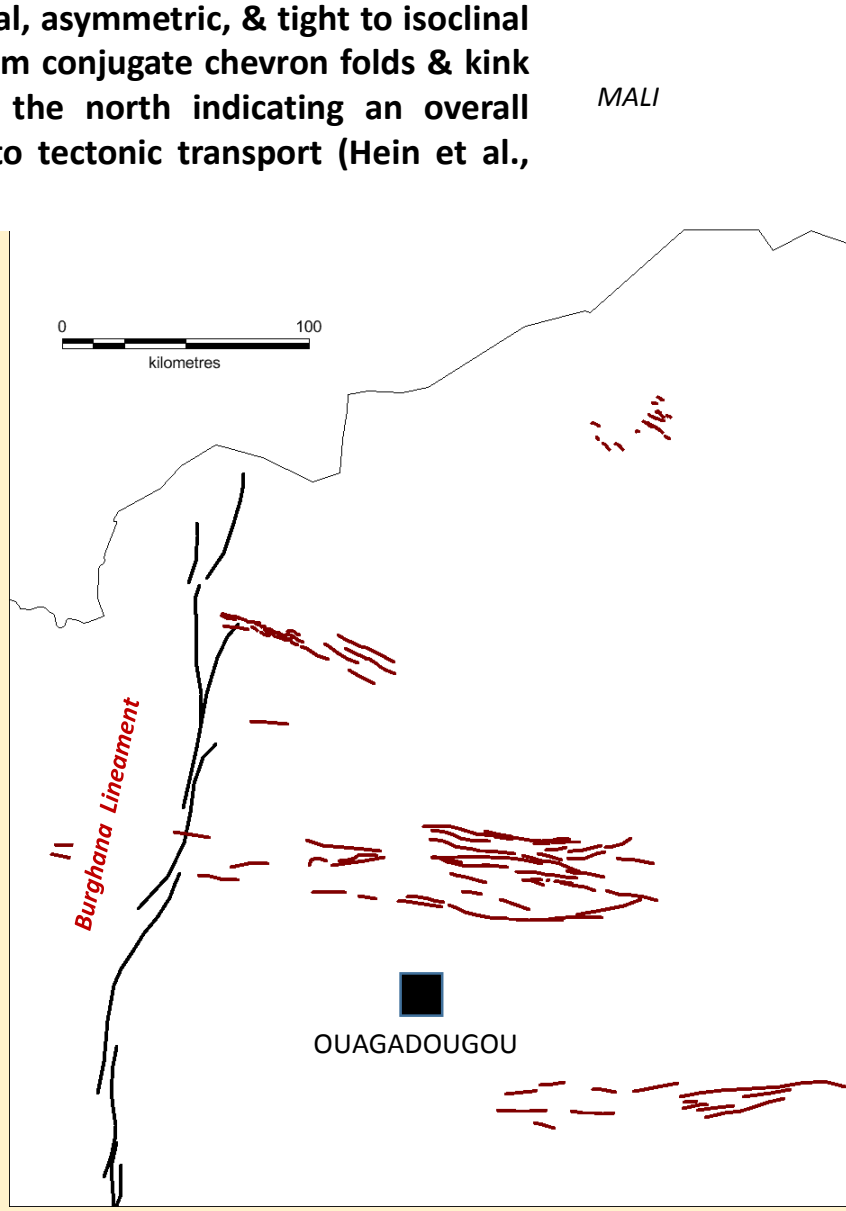
As suggested by Tshibubudze the Tangaeen Event of Hein et al. & Tshibubudze, et al., Eburnean I of Allibone et al. (2002), Eoeburnean of De Kock et al. (2011) & Perrouty et al. (2012), are subsets that bear similar tectonic characteristics & geochronological constrains. They can be interpreted as the same tectonic event that took place at approximately 2.20-2.15 Ma => **NEEDS A NEW NAME**

D2 – Eburnean A & B; 2130–1980 Ma



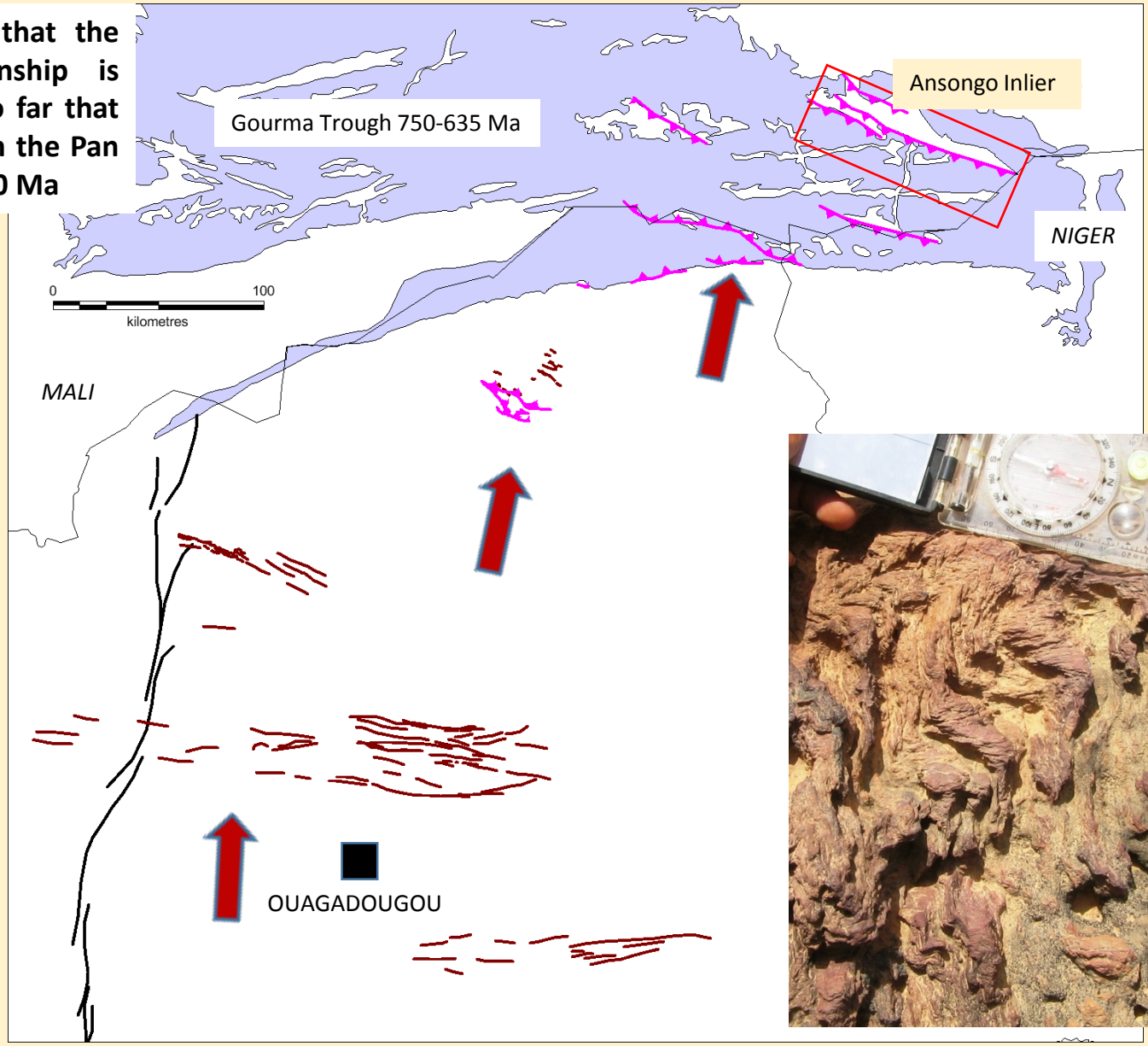
D3 – Wabo-Tampelse Event

F3, are non-cylindrical, asymmetric, & tight to isoclinal in fold profile, or form conjugate chevron folds & kink sets They verge to the north indicating an overall northerly direction to tectonic transport (Hein et al., 2004).

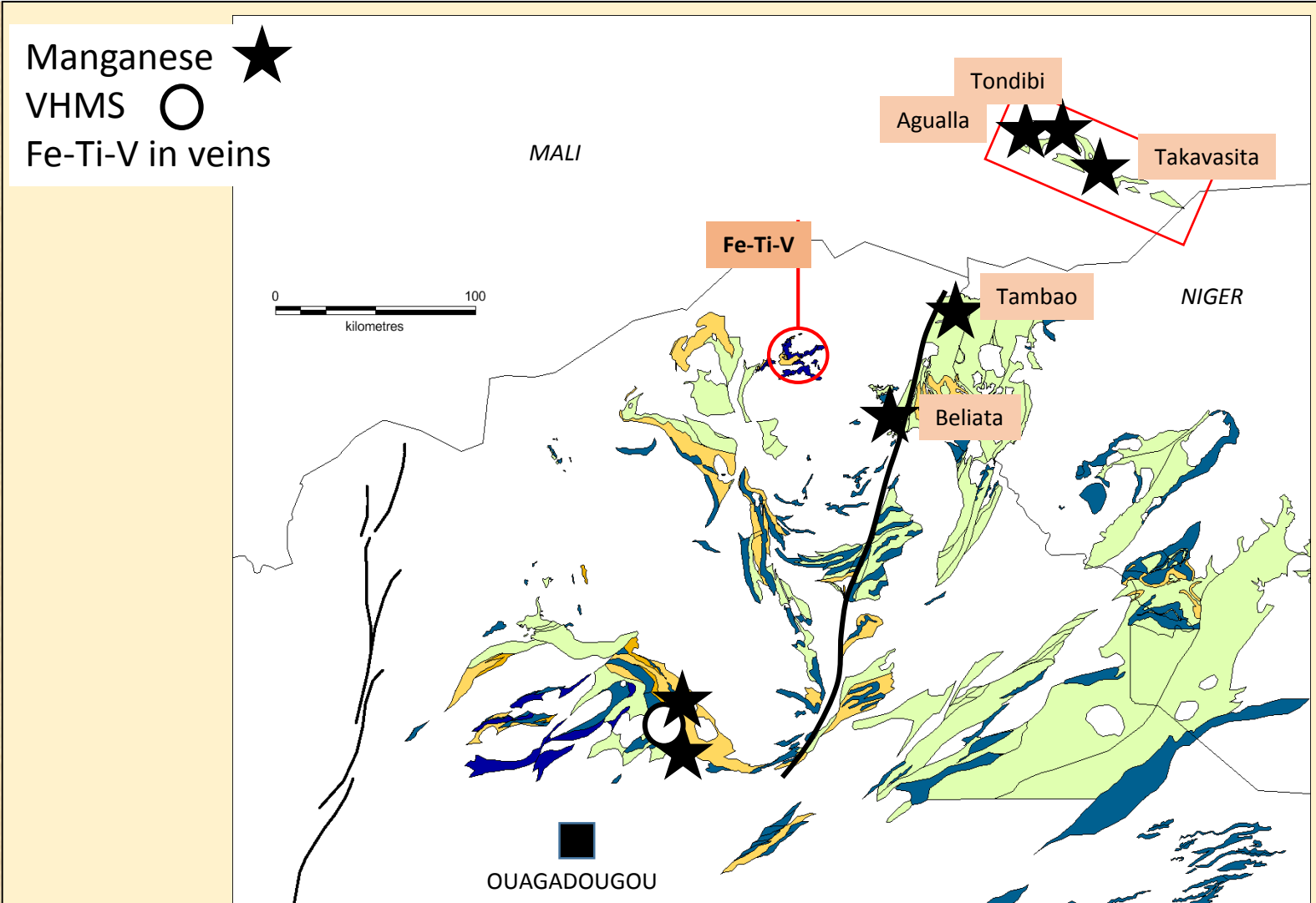


D3 – Wabo-Tampelse Event; a Pan African event at ~ 500 Ma

We would suggest that the crosscutting relationship is the best evidence so far that D3 is associated with the Pan African event at ~ 500 Ma

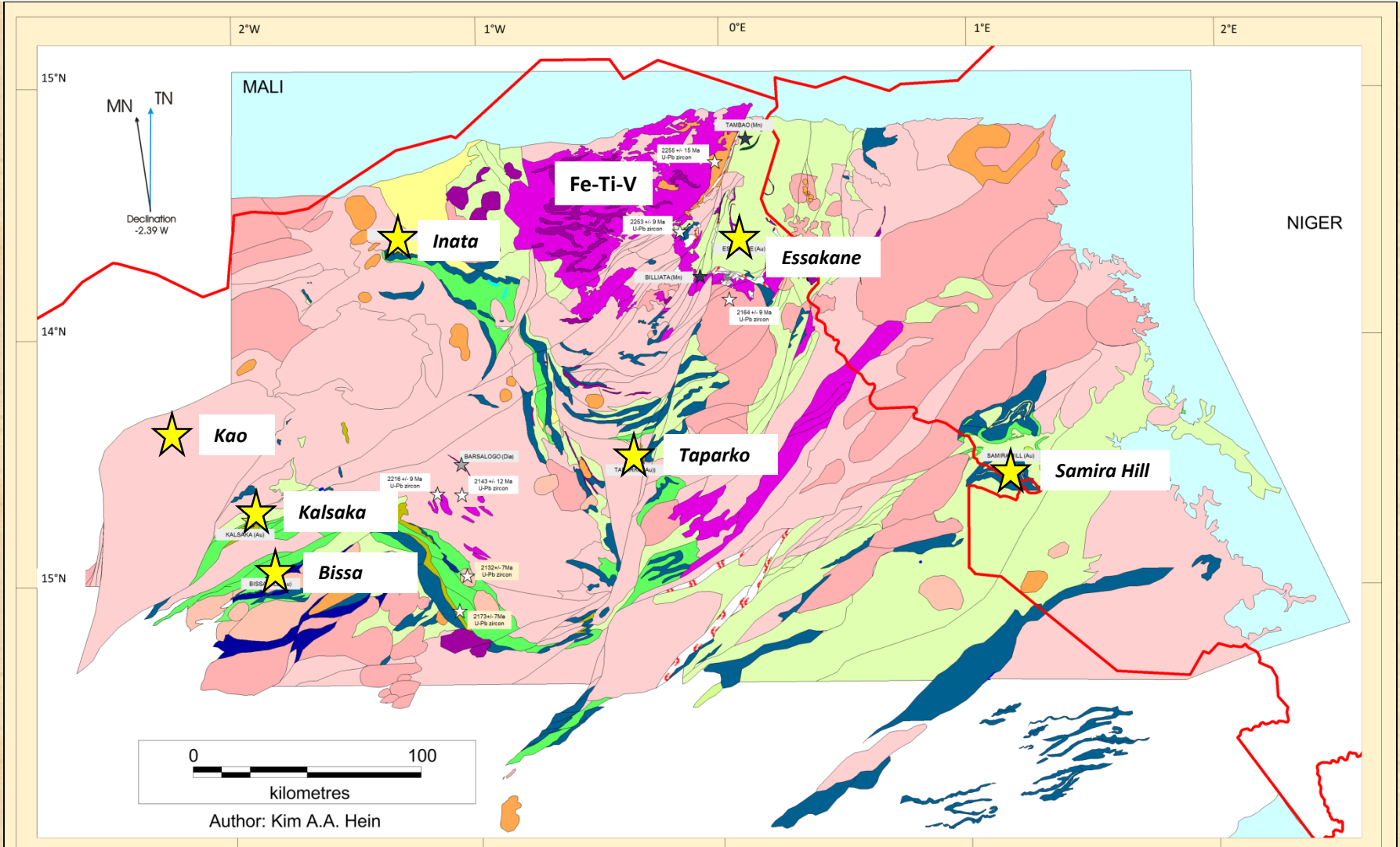


Mineralisation - exhalite or chemical sedimentary deposits



Primary manganese carbonate, shale & siltstone of the Birimian Supergroup (2.3-2.1 Ga) form a low-grade resource & is overlain by a saprolitic residuum that formed during the Miocene-Eocene & is enriched in manganese up to 52% Mn oxide.

Mineralisation formed during the D2a & D2b switch in tectonic direction



1. Gold deposits at Kao, Kalsaka, Bissa, Taparko, Samira Hill, Inata and Essakane goldfields
2. The Fe-Ti-V deposit in the Oursi region in north Burkina Faso

Simplified geotectonic summary

