

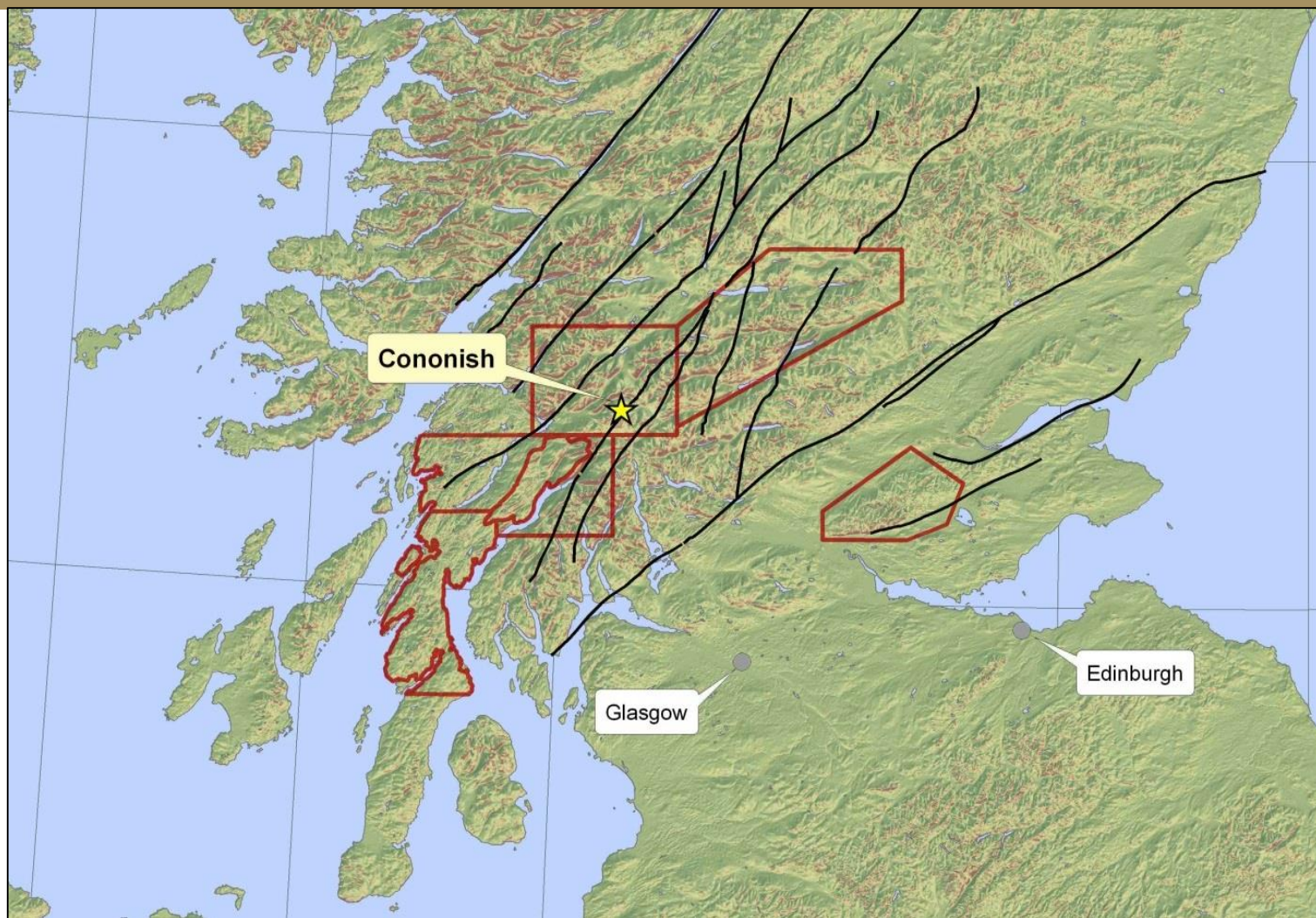
# Geology introduction



- **Location of the Grampian Project and Cononish deposit**
- **Geology of Scotland**
- **How and when the geology we see in Tyndrum today formed**
- **The history and geology of the Cononish gold deposit**



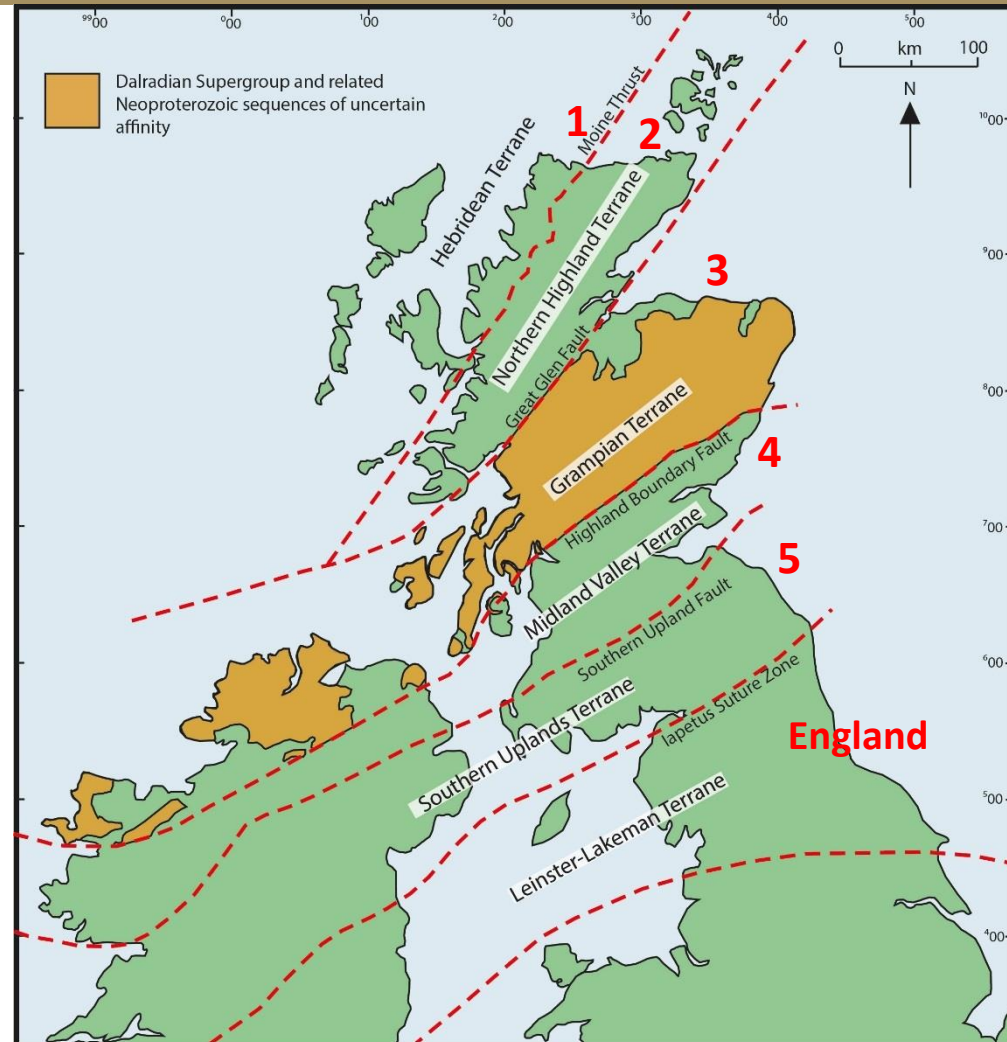




# Geology of Scotland

# Geology of Scotland

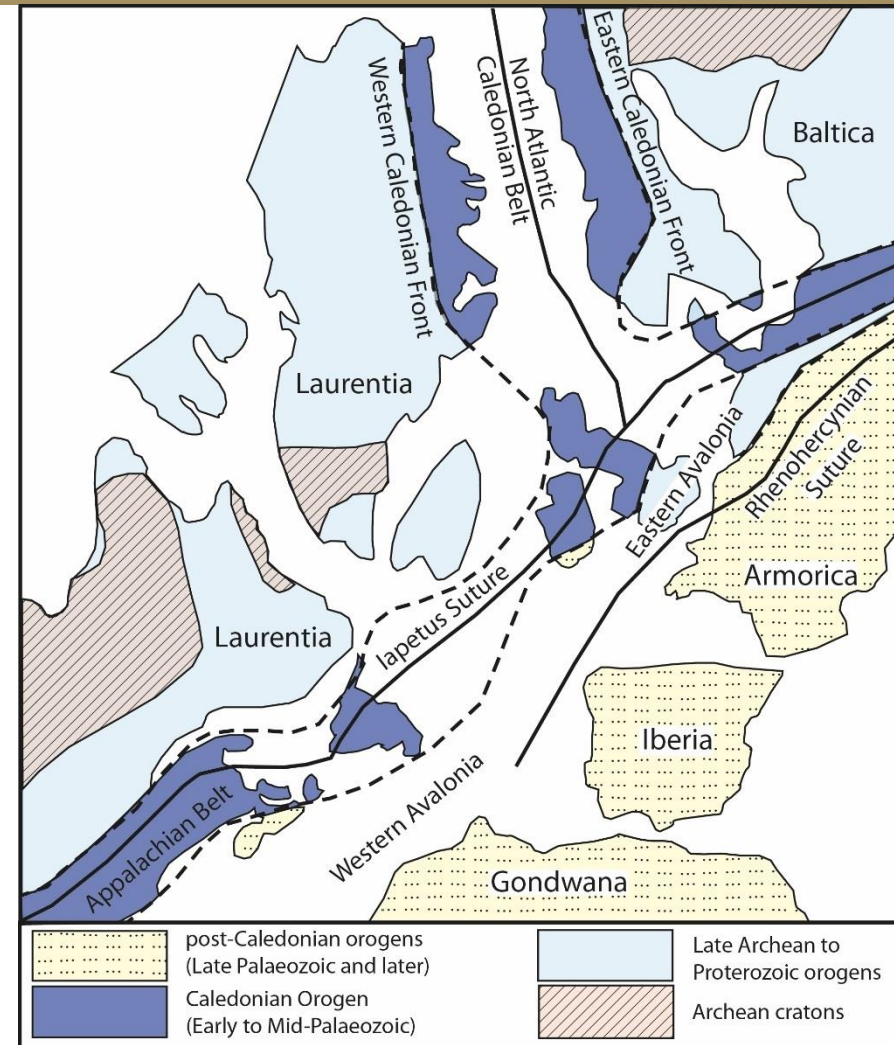
- 5 distinct terranes form Scotland
- England once separated by an ocean
- Terranes defined by different geology
- Currently in Grampian terrane





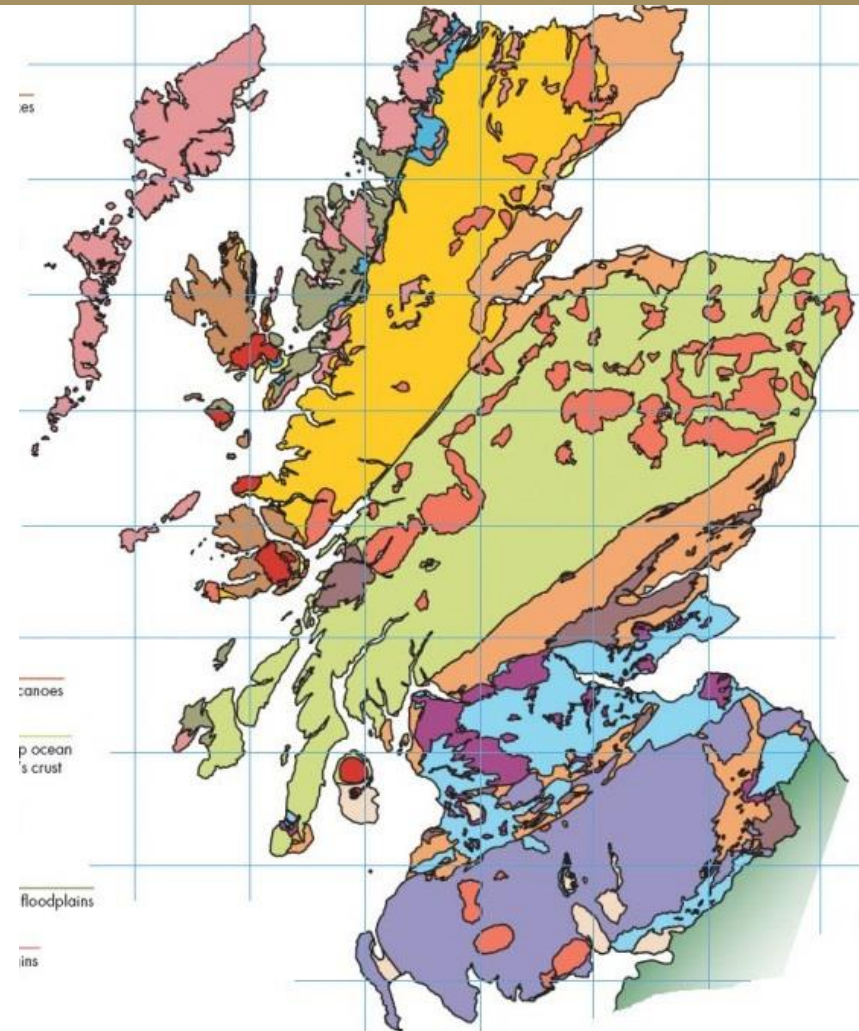
# Geology of Scotland

- Grampian terrane is part of the Caledonide belt
- Mountain range similar size to the Alps
- Stretching from Norway through Scotland, Ireland, Newfoundland to Appalachians, USA.



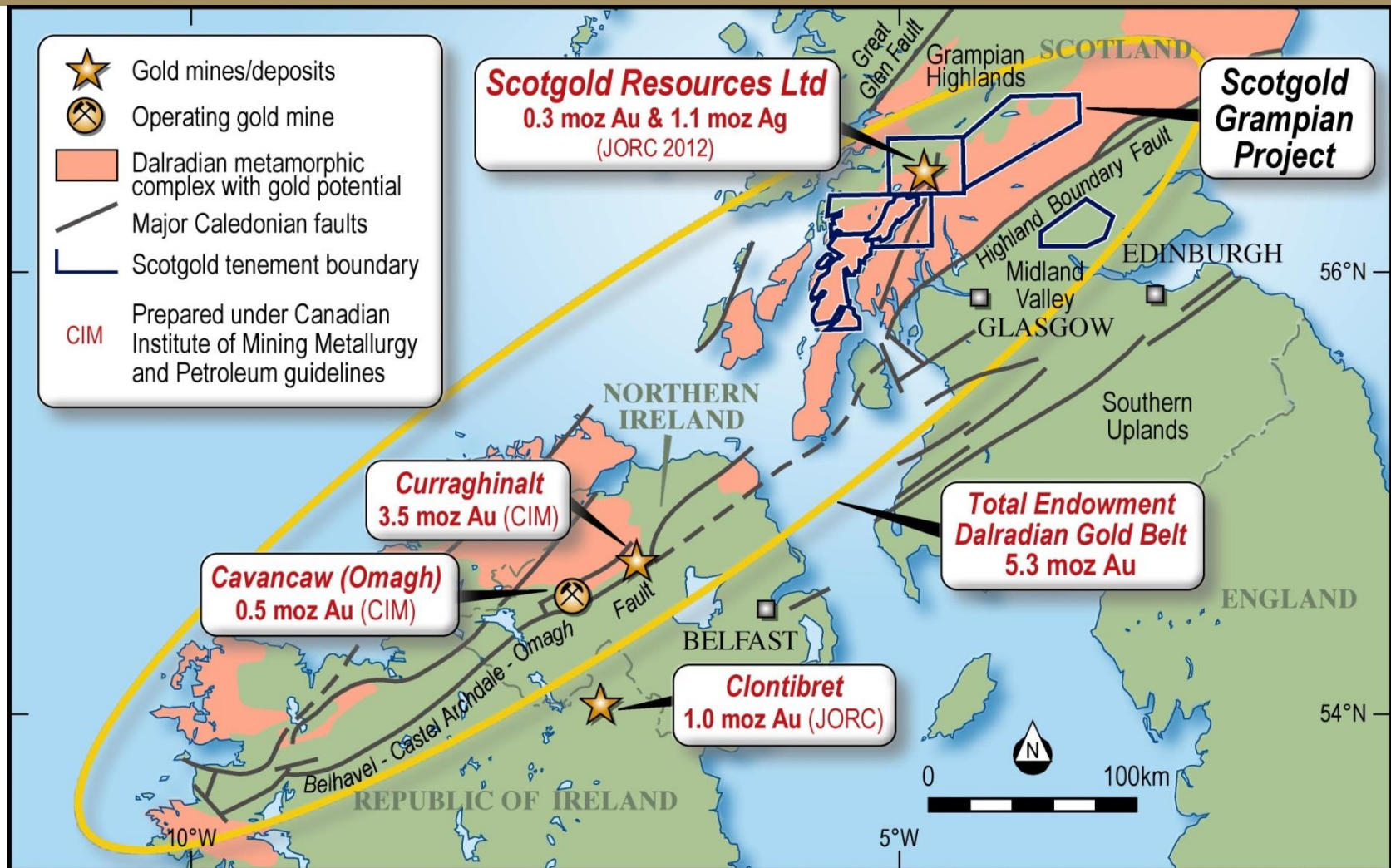
# Geology of Scotland

- In Scotland Grampian terrane consists of Dalradian Supergroup
- Mixed rocks metamorphosed and deformed by various processes
- Important area because of its high gold potential





# Geology of Scotland

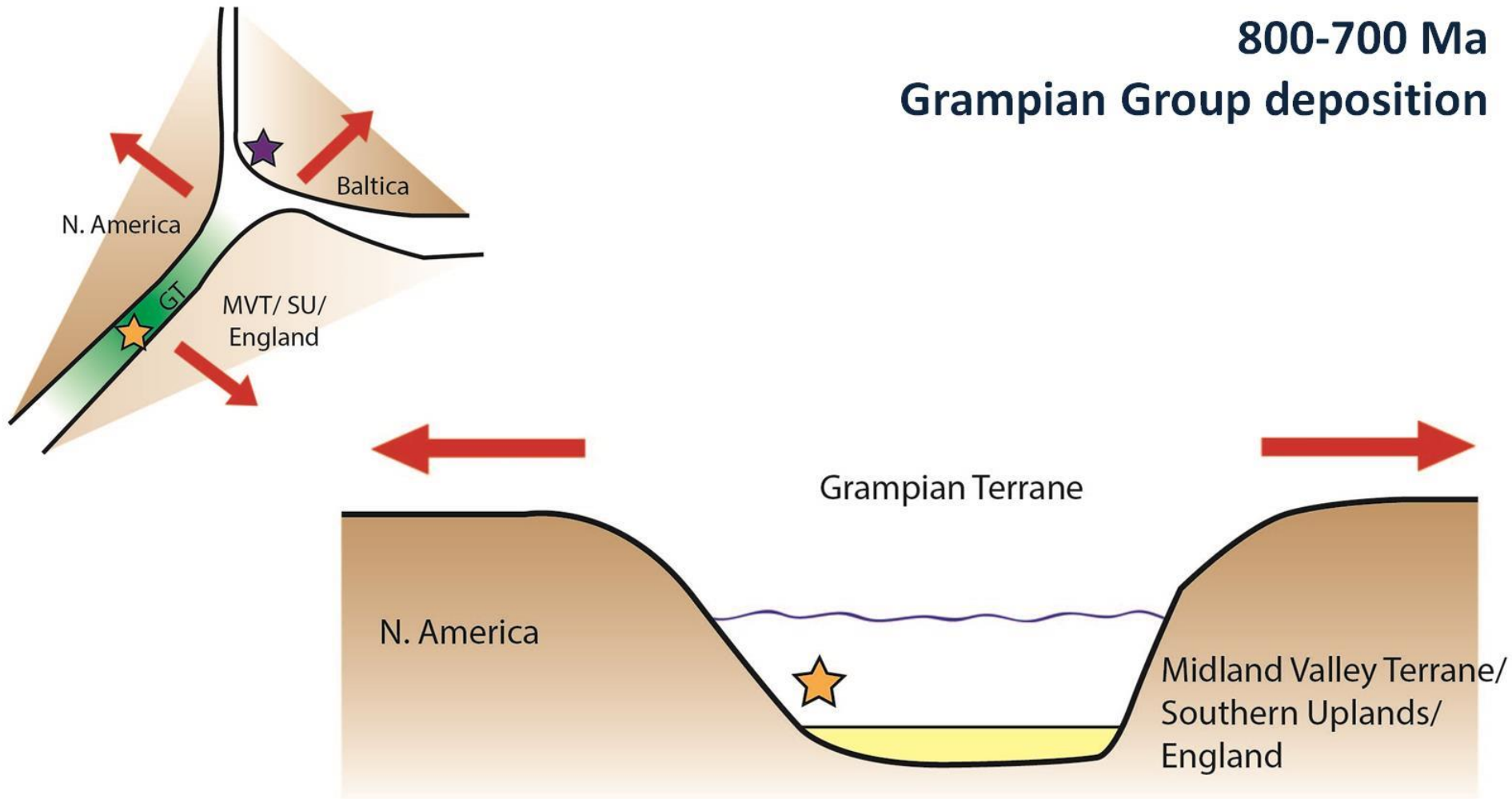






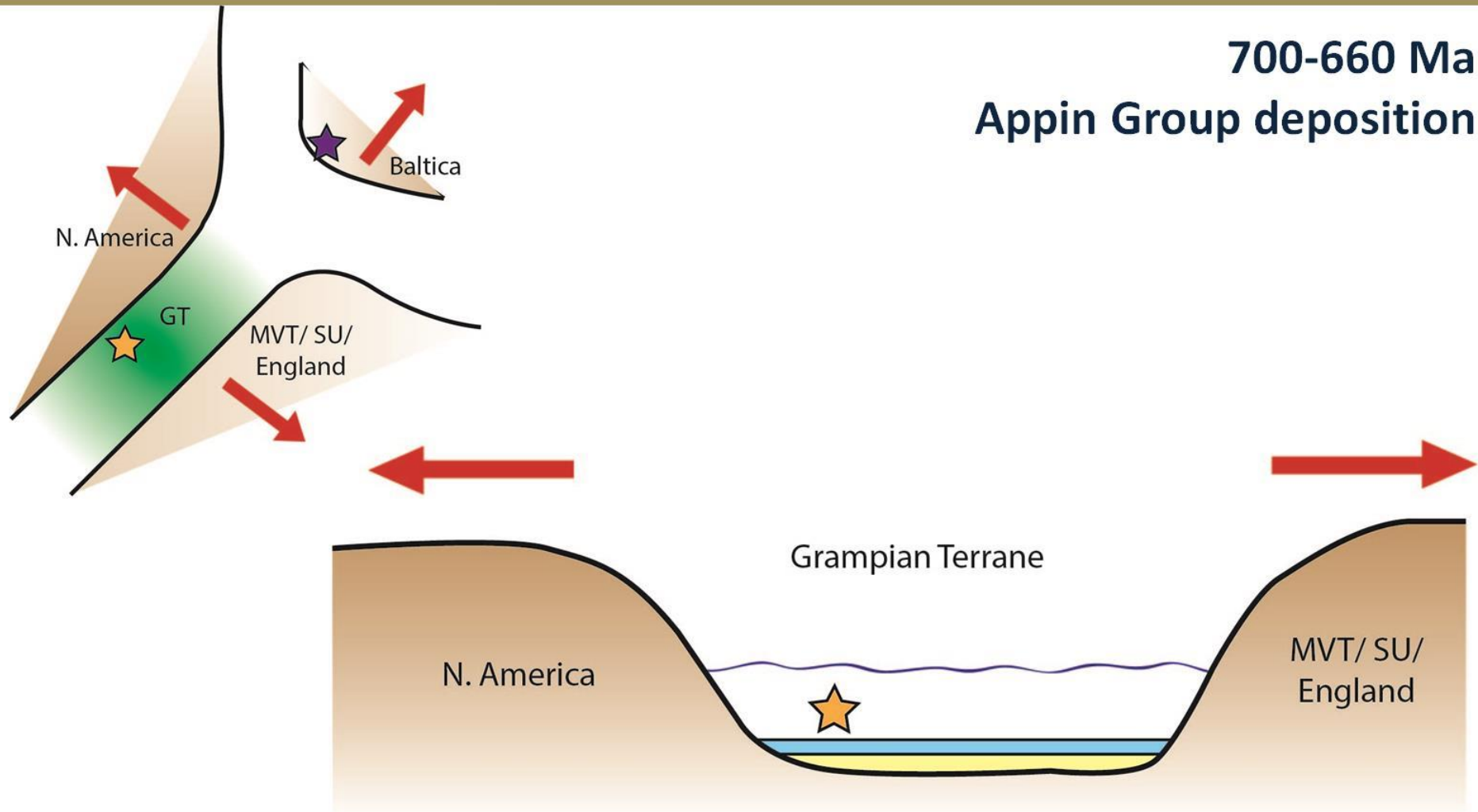
# Formation of Dalradian Supergroup

# Formation of Dalradian Supergroup

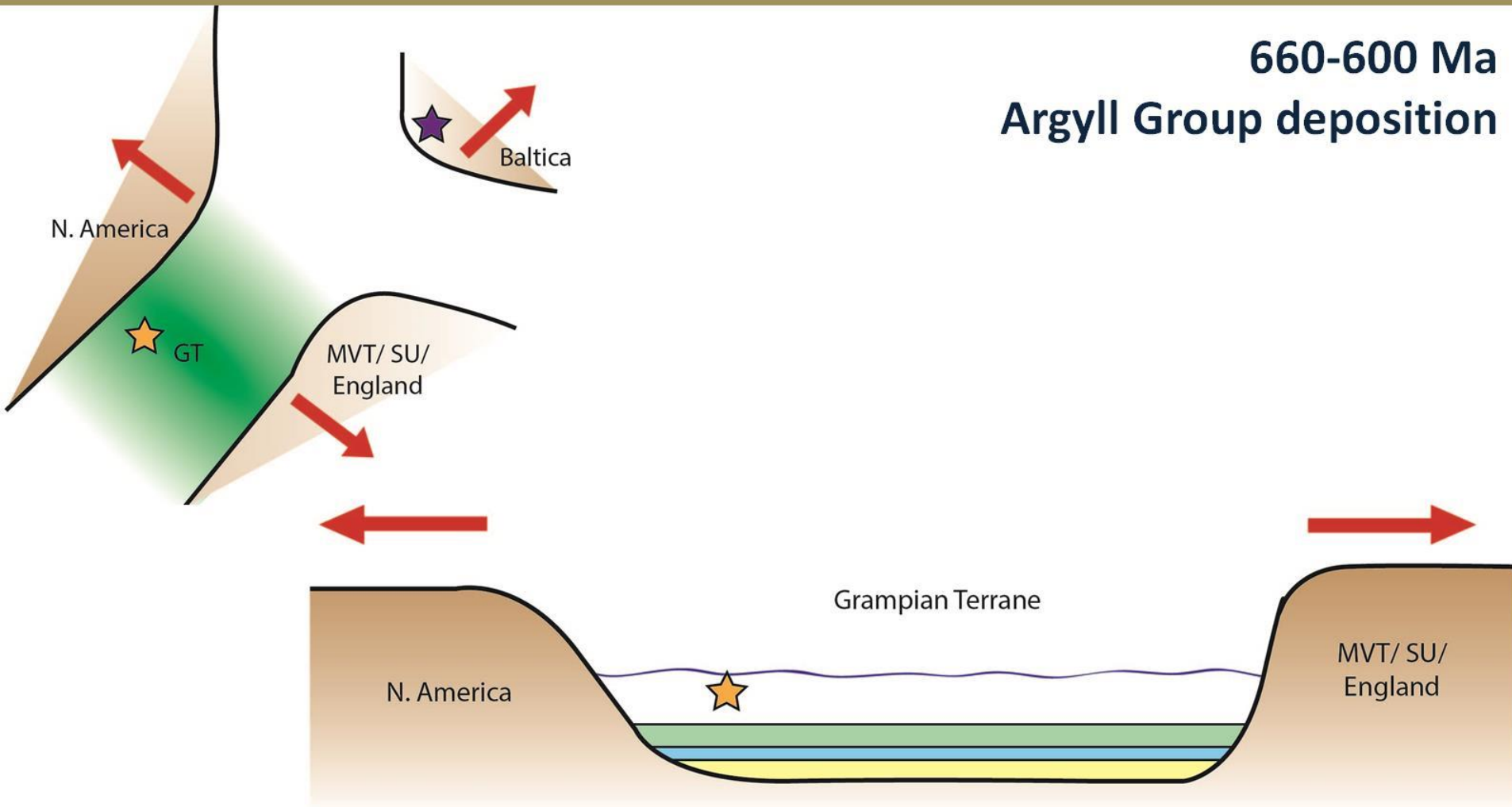




# Formation of Dalradian Supergroup

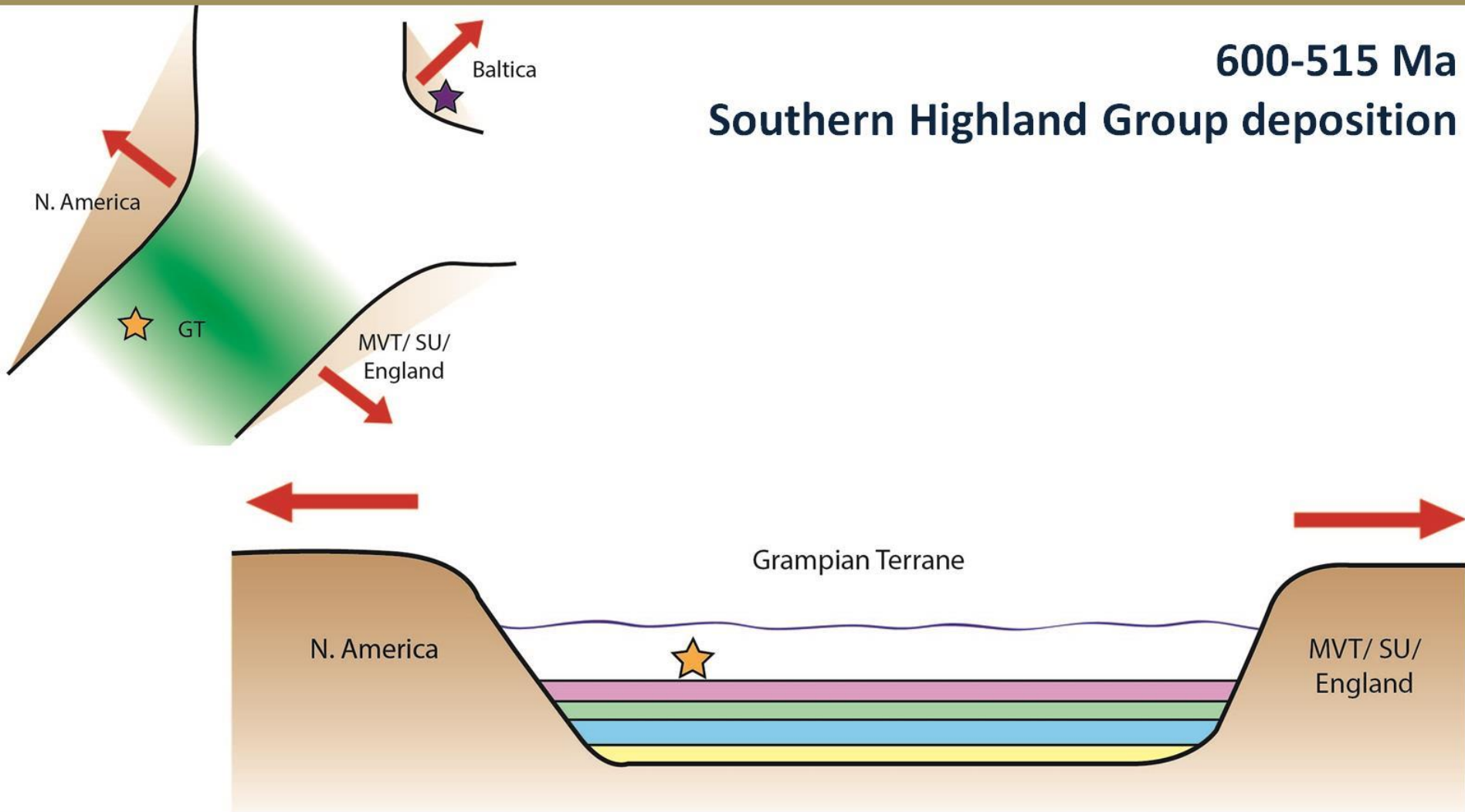


# Formation of Dalradian Supergroup

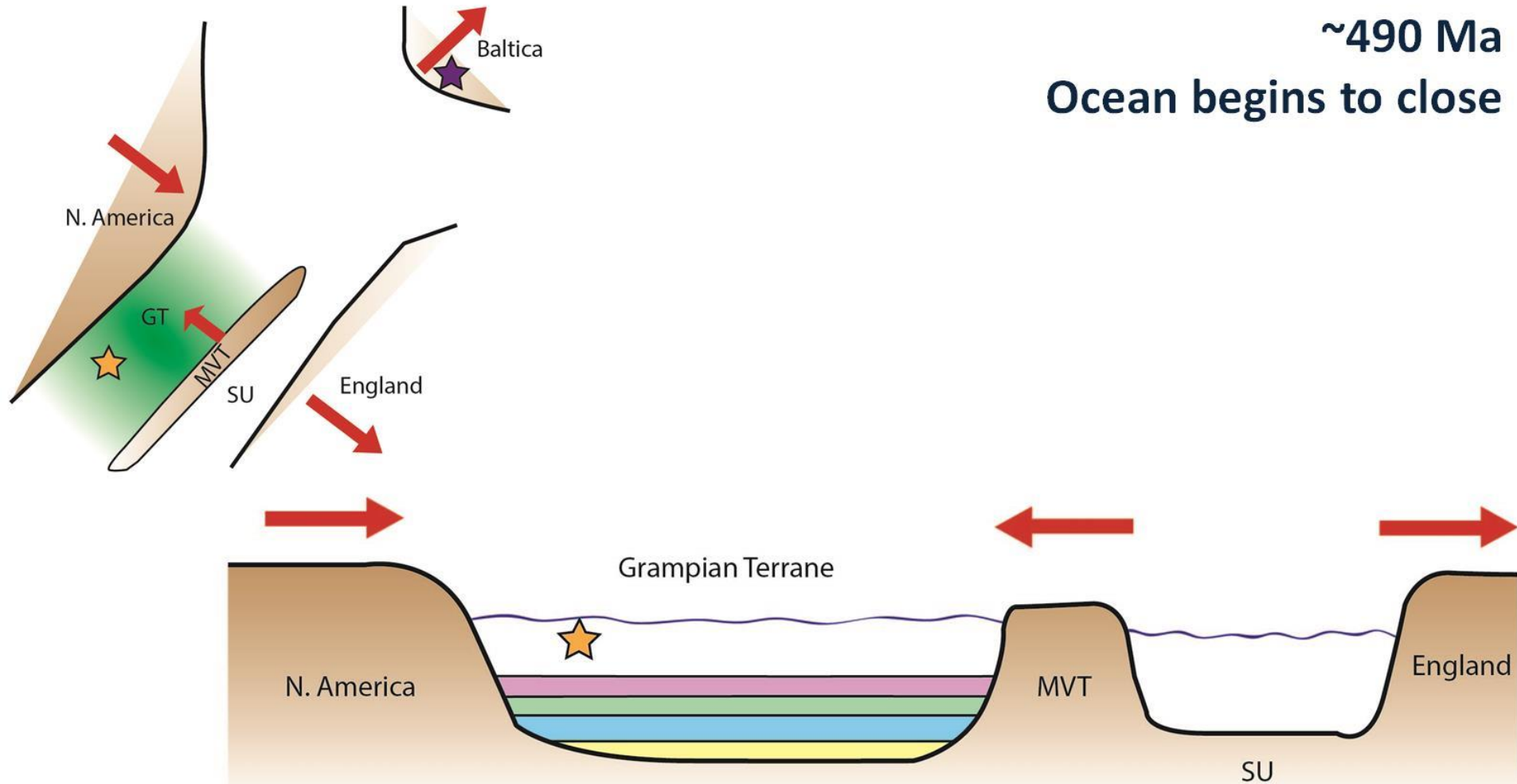




# Formation of Dalradian Supergroup



# Formation of Dalradian Supergroup

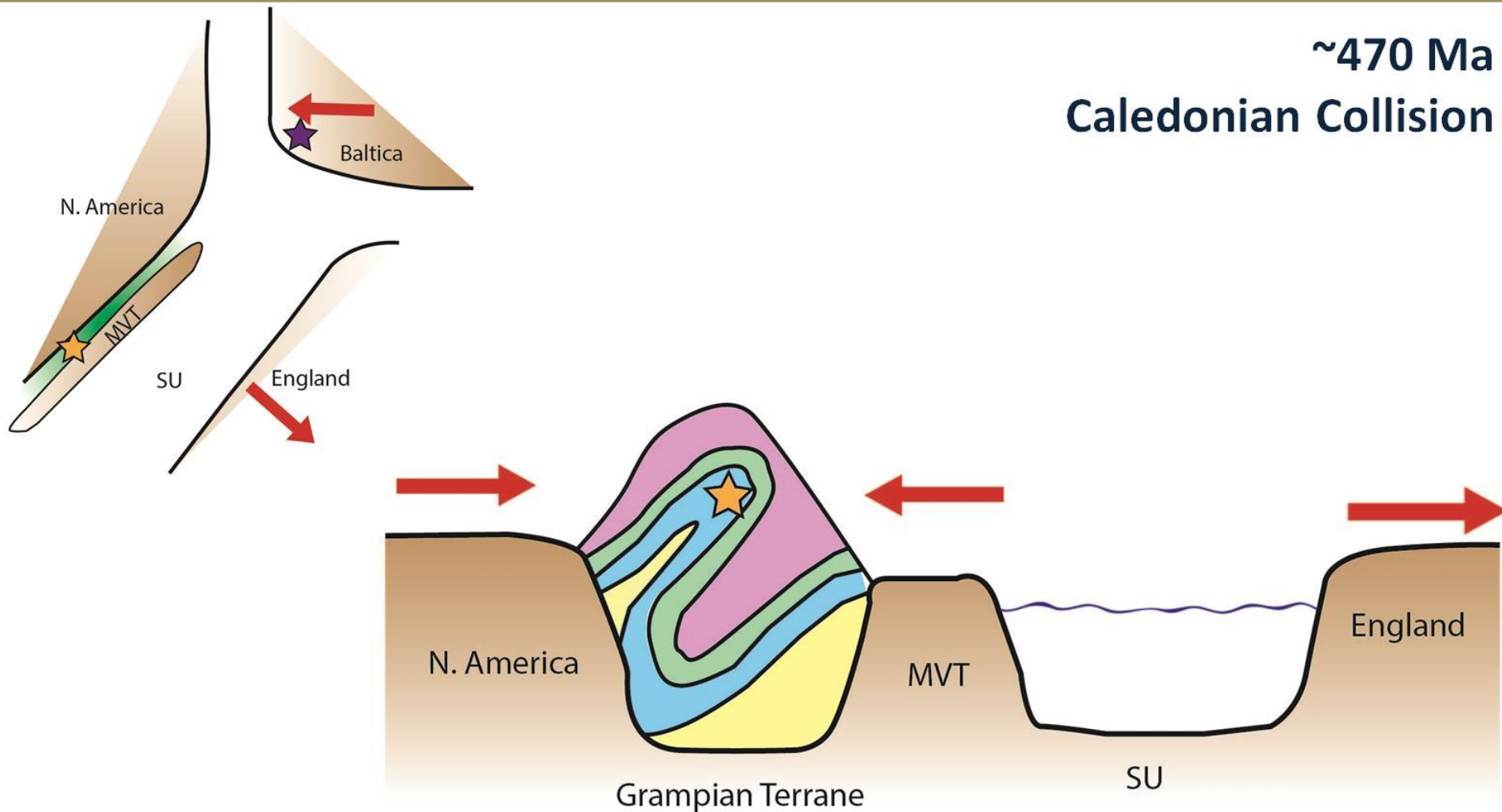




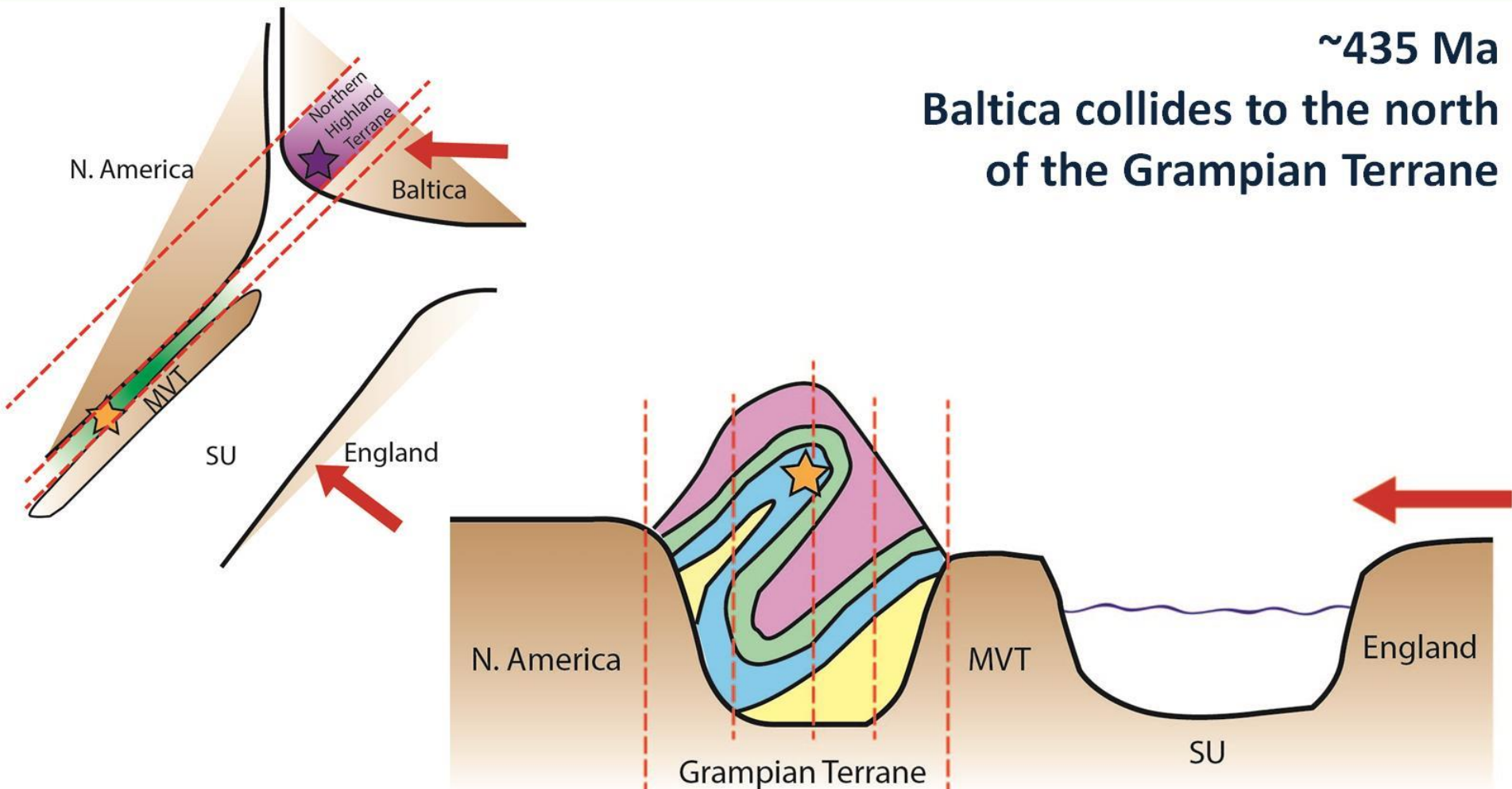
# Formation of Dalradian Supergroup

~470 Ma

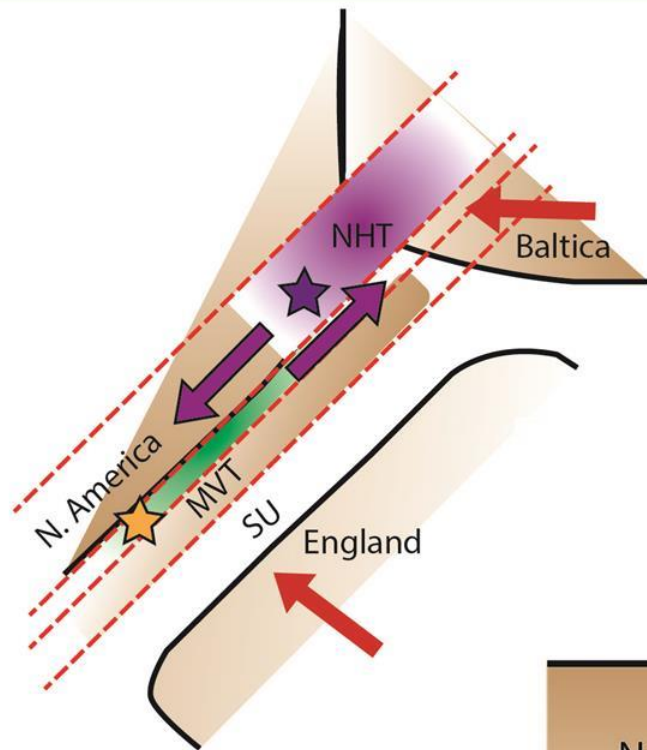
Caledonian Collision



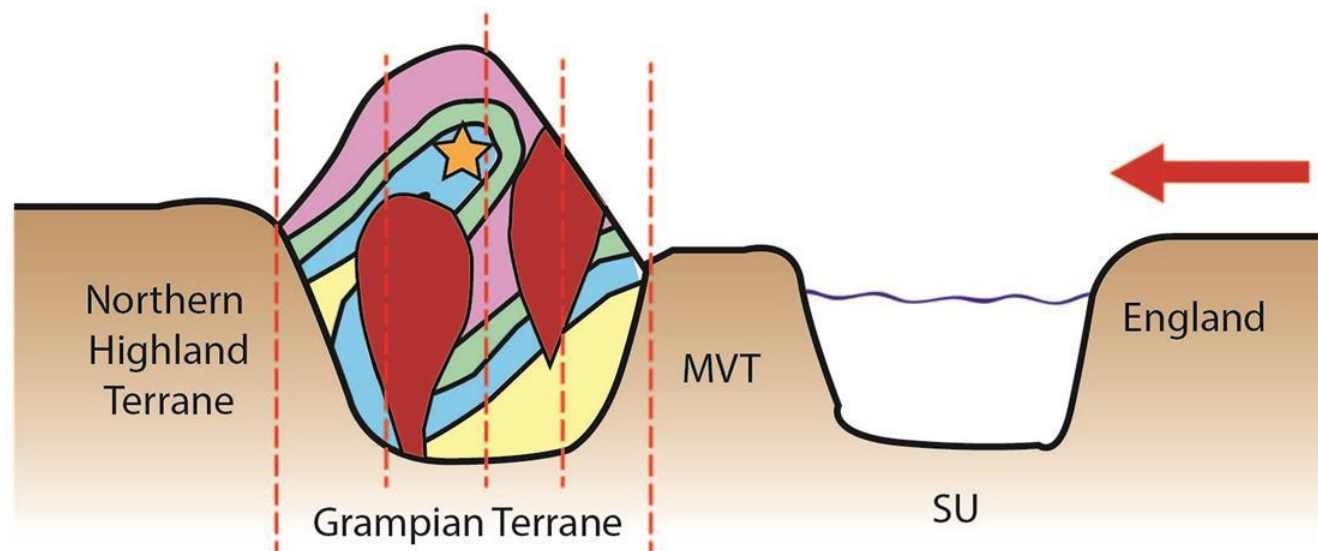
# Formation of Dalradian Supergroup



# Formation of Dalradian Supergroup



**435-410 Ma**  
**Rotation and faulting bringing**  
**Northern Highland and Grampian**  
**terrane together**  
**Igneous intrusions**

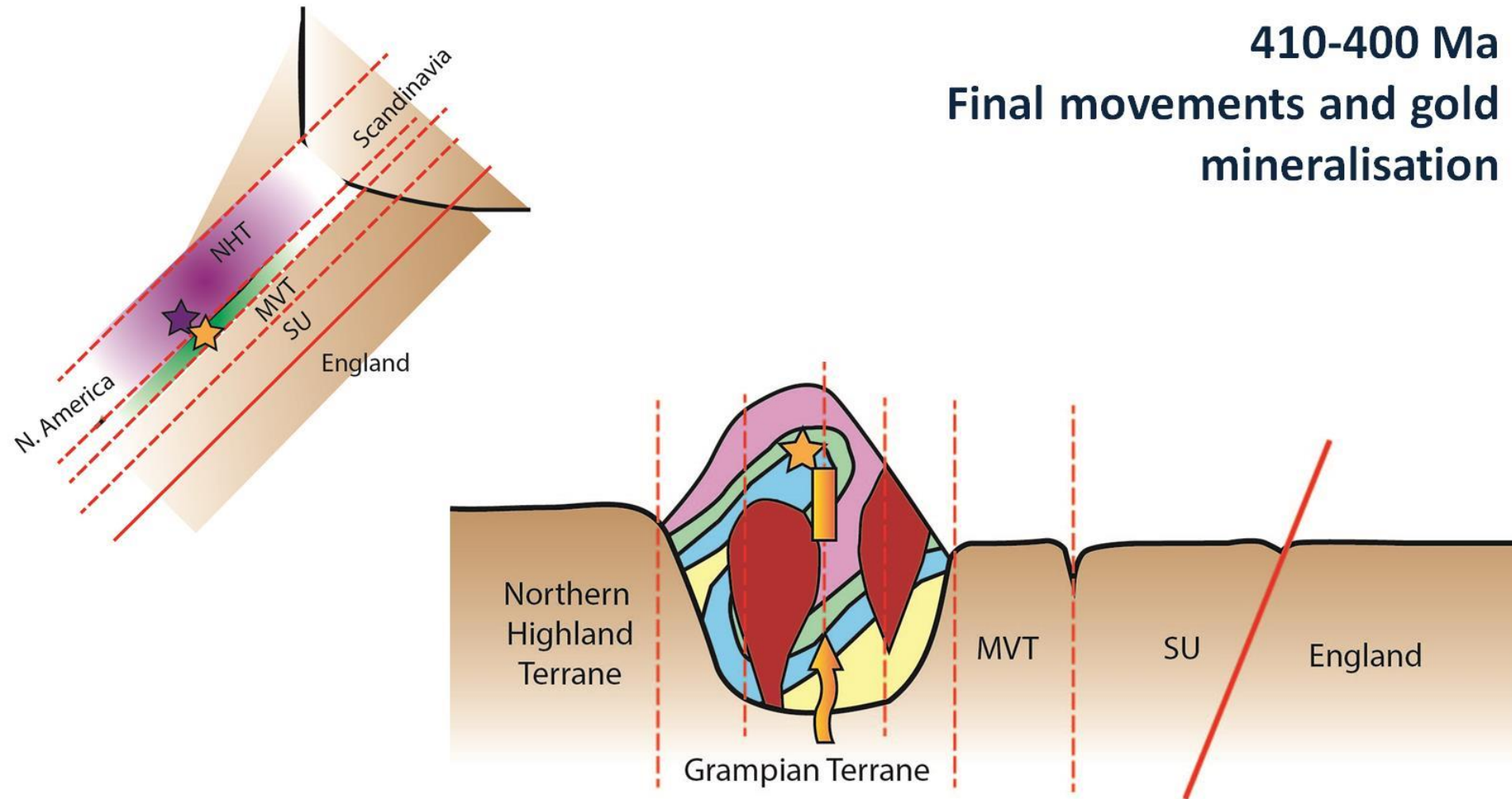




# Formation of Dalradian Supergroup

**410-400 Ma**

**Final movements and gold mineralisation**





# The Cononish gold deposit

# History of exploration at Cononish

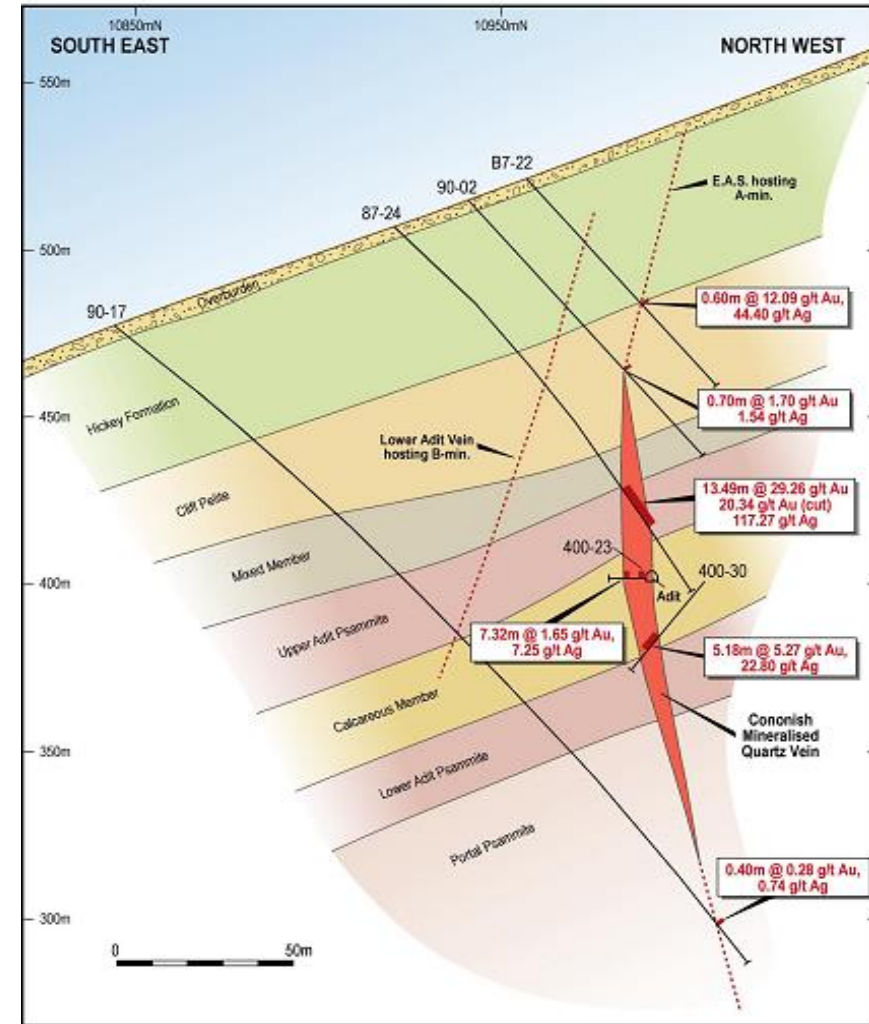
- **Discovered in 1984 by Ennex Int.**
- **Exploration 1985-1991, including >15,000 m drilling and 1,280 m underground development**
- **Caledonia Mining Corporation acquisition in 1995, planning granted 1996**
- **Scotgold acquired 2007, planning granted 2012 and amended 2015**



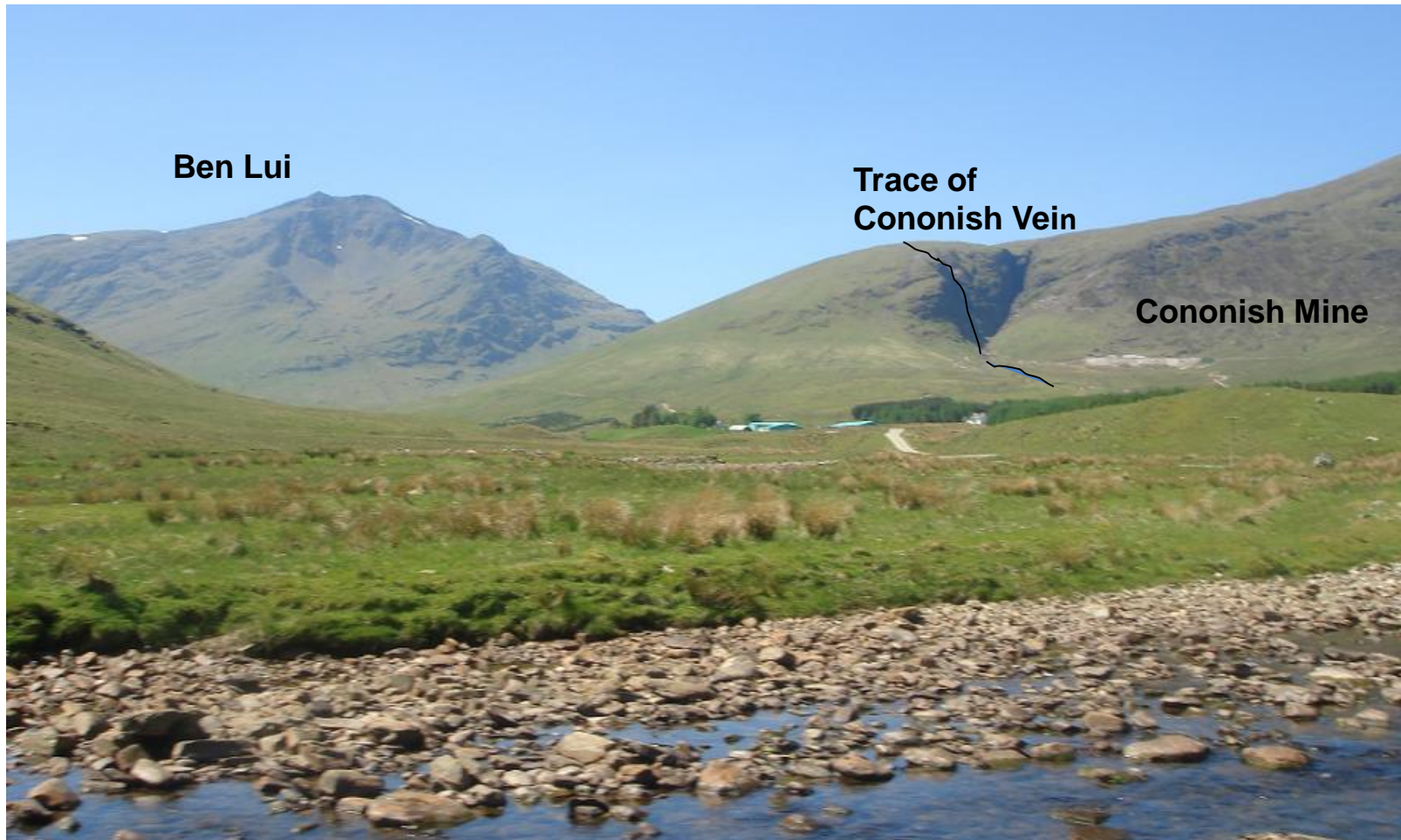


# The Cononish gold deposit

- Hosted in Upper-Grampian Group to Mid-Appin Group stratigraphy
- Cuts stratigraphy at near vertical
- Averages 2 m in width
- Emplaced at c. 410 Ma
- Average elemental abundances  
Au (10 g/t), Ag (>40 g/t)  
Pb (0.3%), Cu (0.1%), Zn (0.08%)  
Little or no As, Bi, Hg, Sb



# The Cononish gold deposit





# Vein structure at Cononish





# Where is the gold at Cononish?

- Hosted in quartz ( $\text{SiO}_2$ )
- Closely related to sulphides
  - Pyrite ( $\text{Fe}_2\text{S}$ )
  - Galena ( $\text{PbS}$ )
  - Chalcopyrite ( $\text{CuFeS}$ )
- Gold is found with silver as an alloy, electrum
- Some native gold

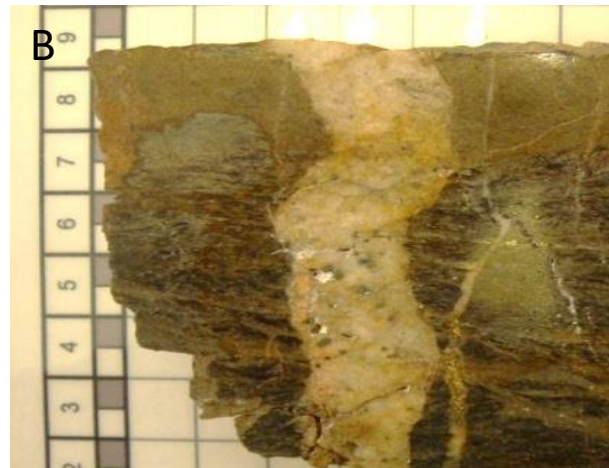


# Visible gold at the Cononish deposit

**A. Visible gold from  
Cononish core in  
hanging wall of vein**



**B. Visible gold from  
surface trenching above  
Cononish vein**

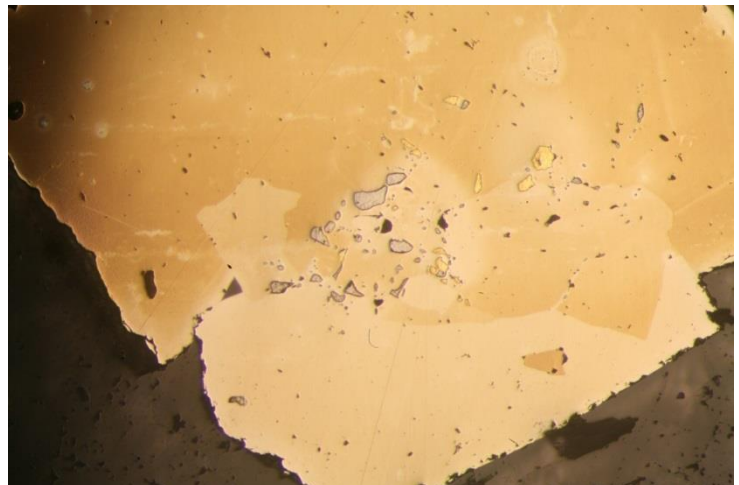
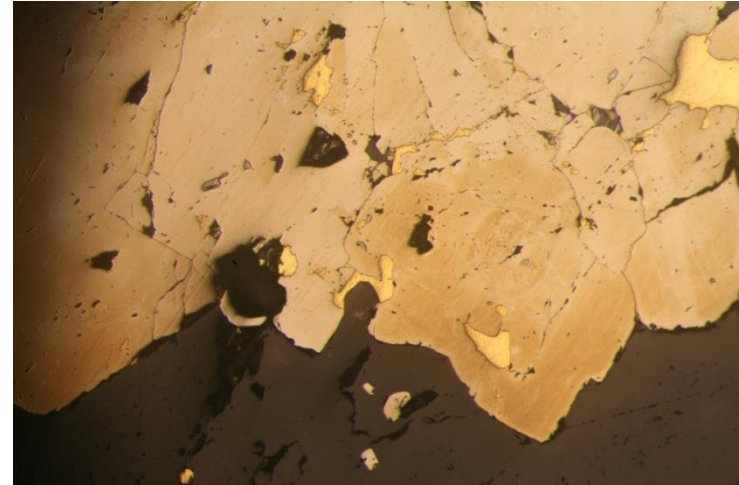


**C & D. Panned gold  
from burns around  
Tyndrum**





# Sub-visible gold at the Cononish deposit

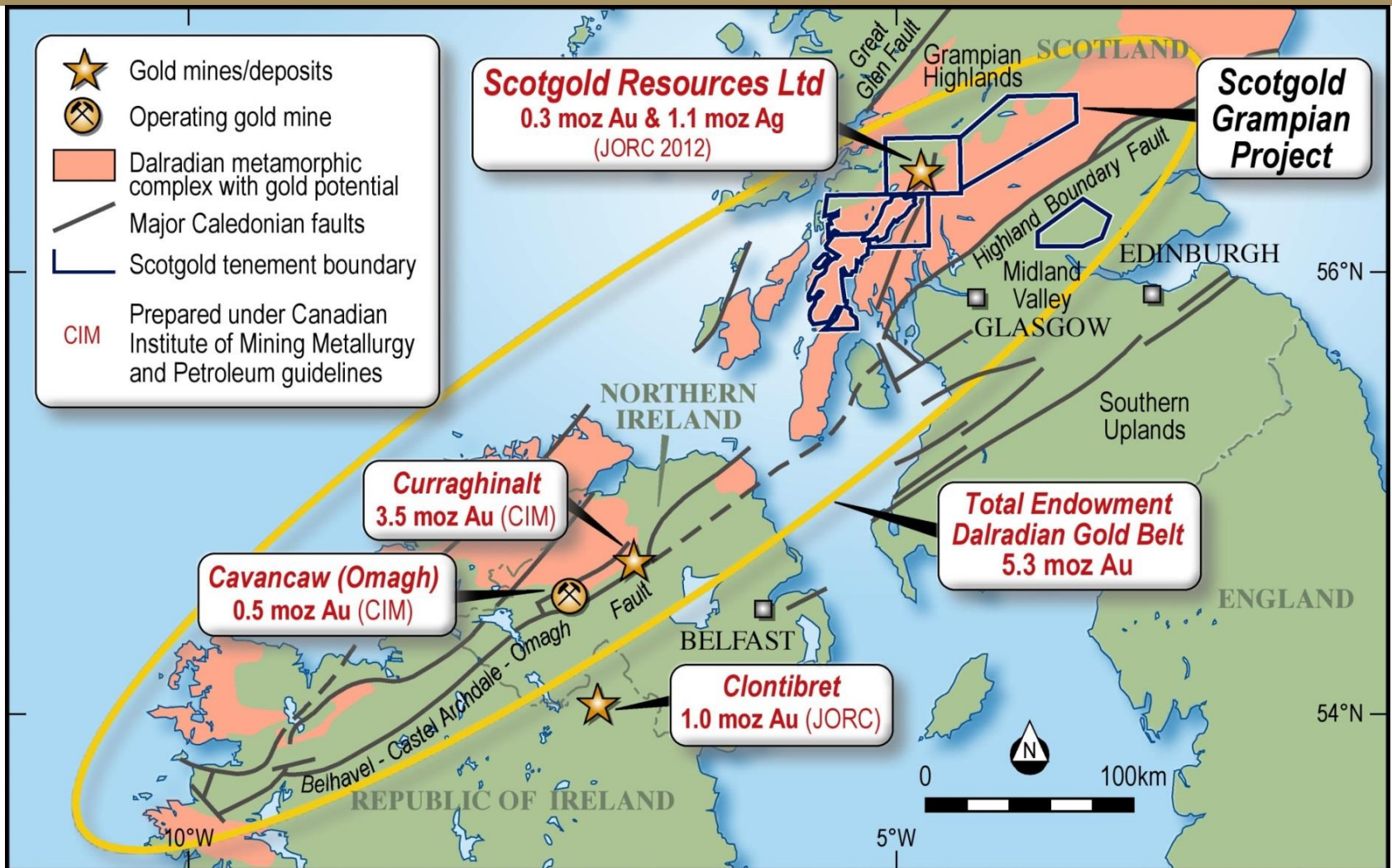




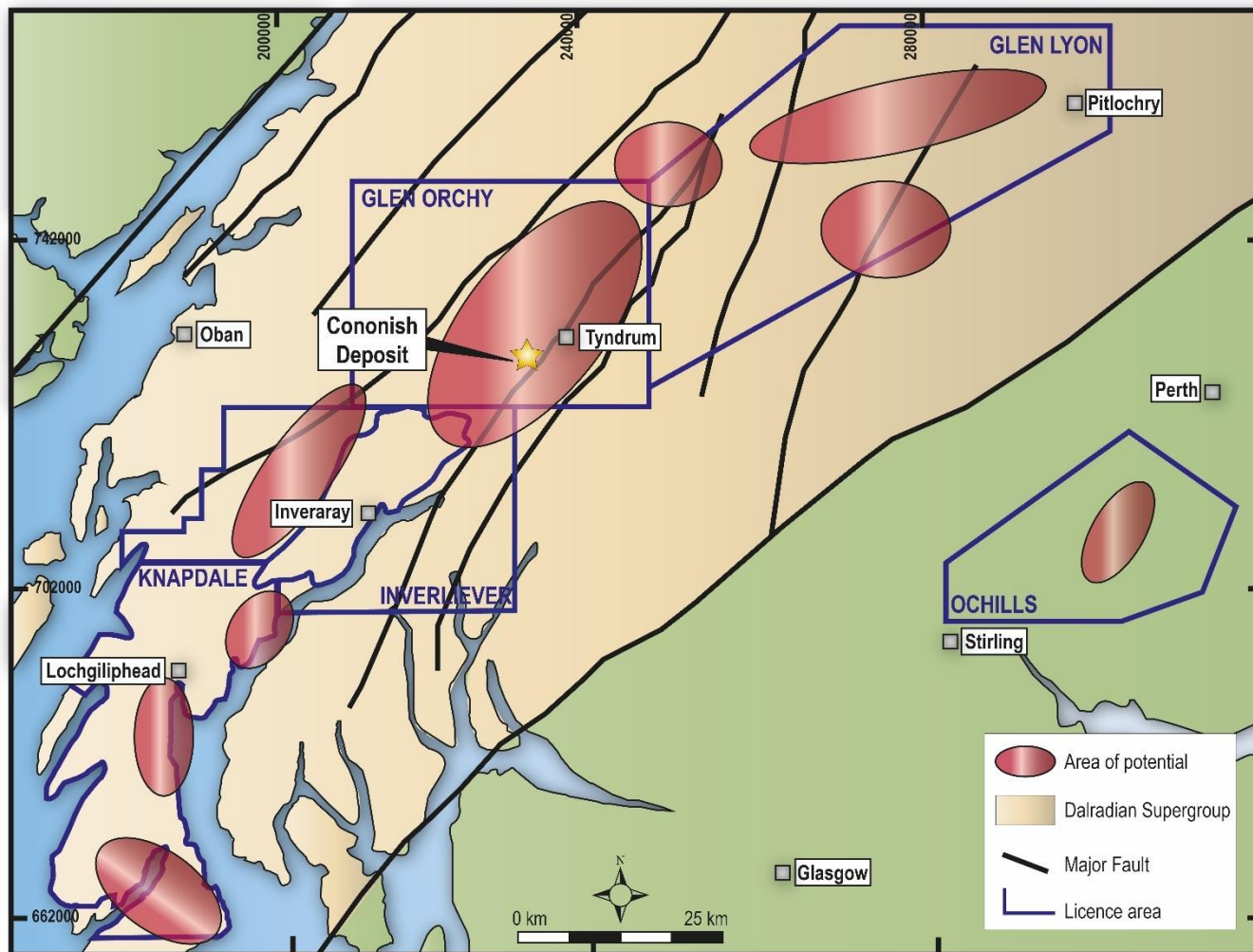


# The Grampian Project

# The Grampian Project

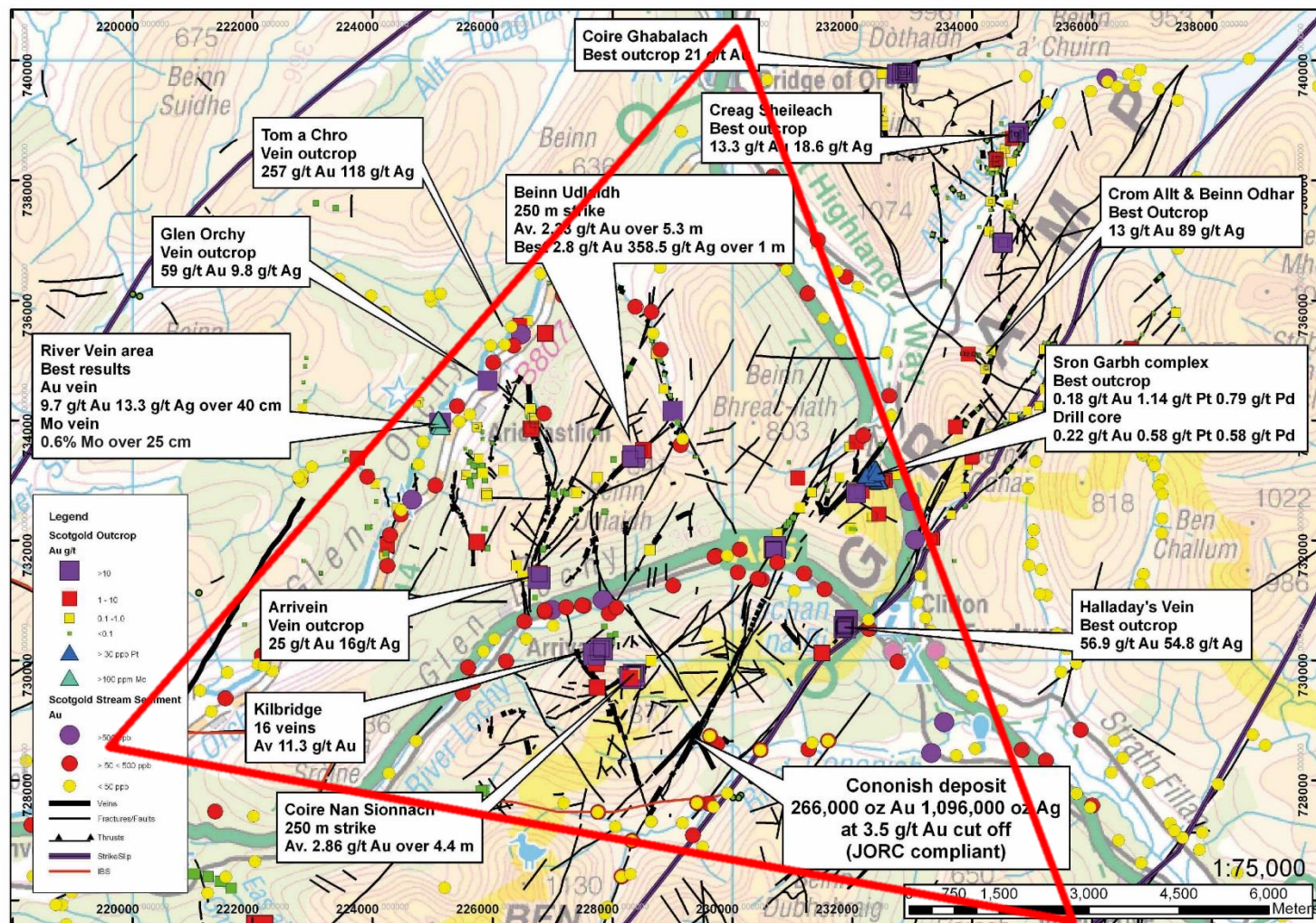


# The Grampian project





# Near Mine Potential





# Near Mine Potential

