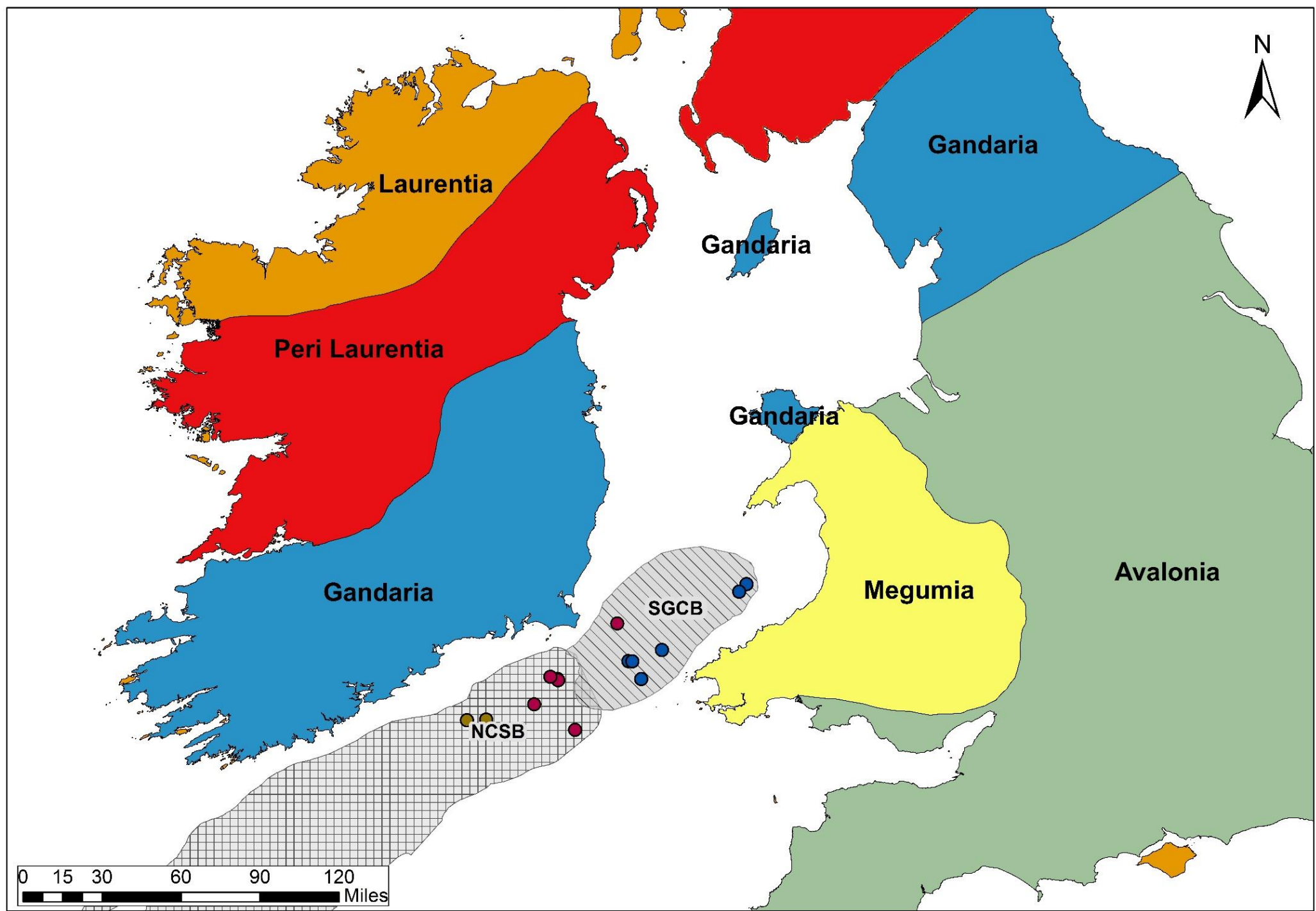


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Establishing the provenance of sediments from source to sink is critical in oil exploration. The North Celtic Sea Basin (NCSB) and St. George’s Channel Basin (SGCB), offshore of Ireland’s east coast, are proven economic prospects and the subject of this study (Fig 1. & 3.). This study will adopt a multidisciplinary approach including quantitative sedimentary petrology, detrital single grain geochronology and heavy mineral analysis (HMA) to elucidate the provenance and transport mechanisms of these Mesozoic Basins.



Interpreted Diagram of the Paleococontinents of Ireland and the UK. Each Paleococontinent feeds sediment with a different composition allowing for the differentiation of source regions.

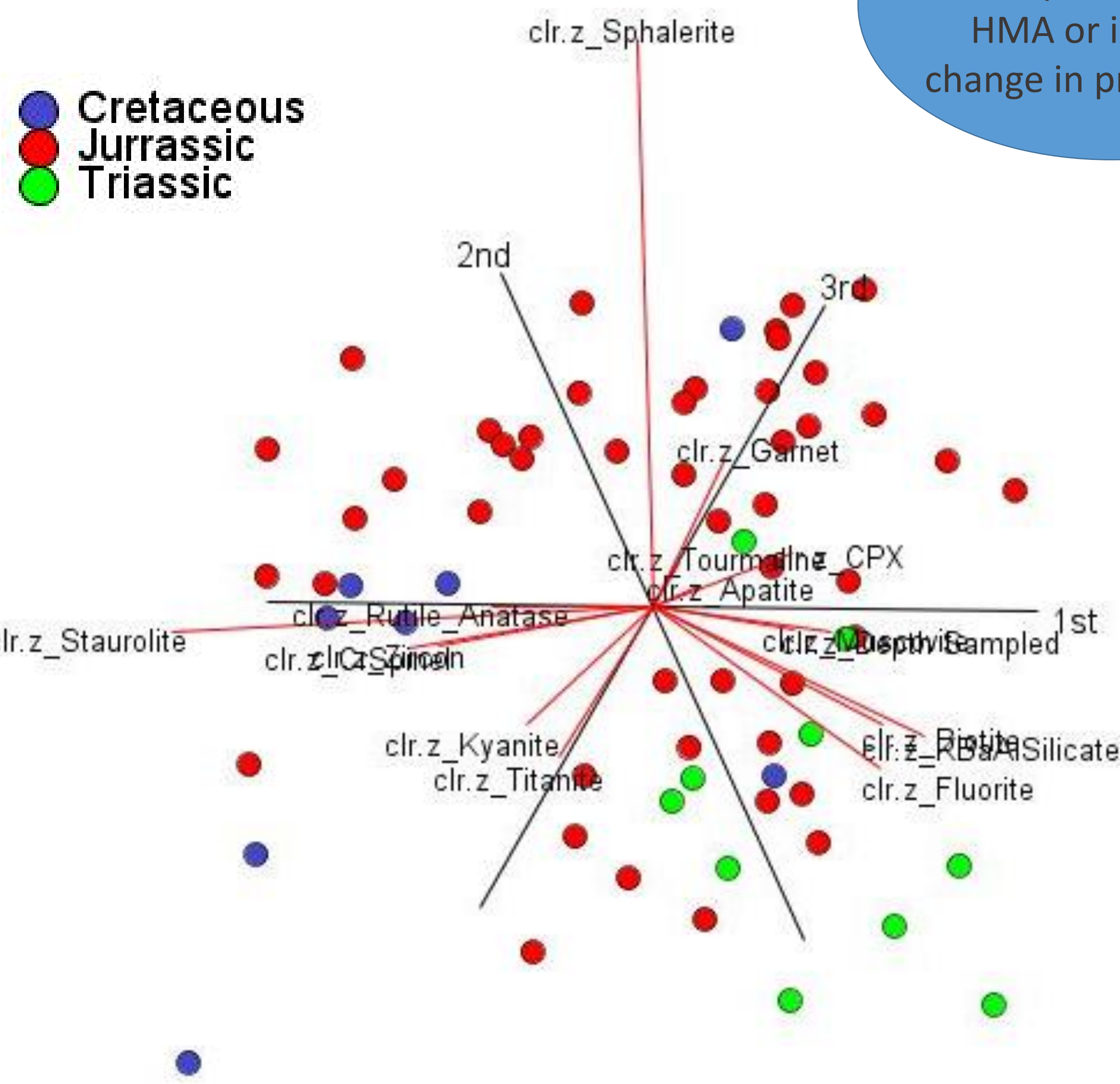
Key Points

- Basins show HMA variation through the Mesozoic
- Spatial variation in HMA also present
- Diagenesis has not affected apatite abundance
- CPX found only with carbonate sediments indicating a carbonate, volcanic source region
- HM analysis can effectively characterise the temporal evolution of Mesozoic sediments

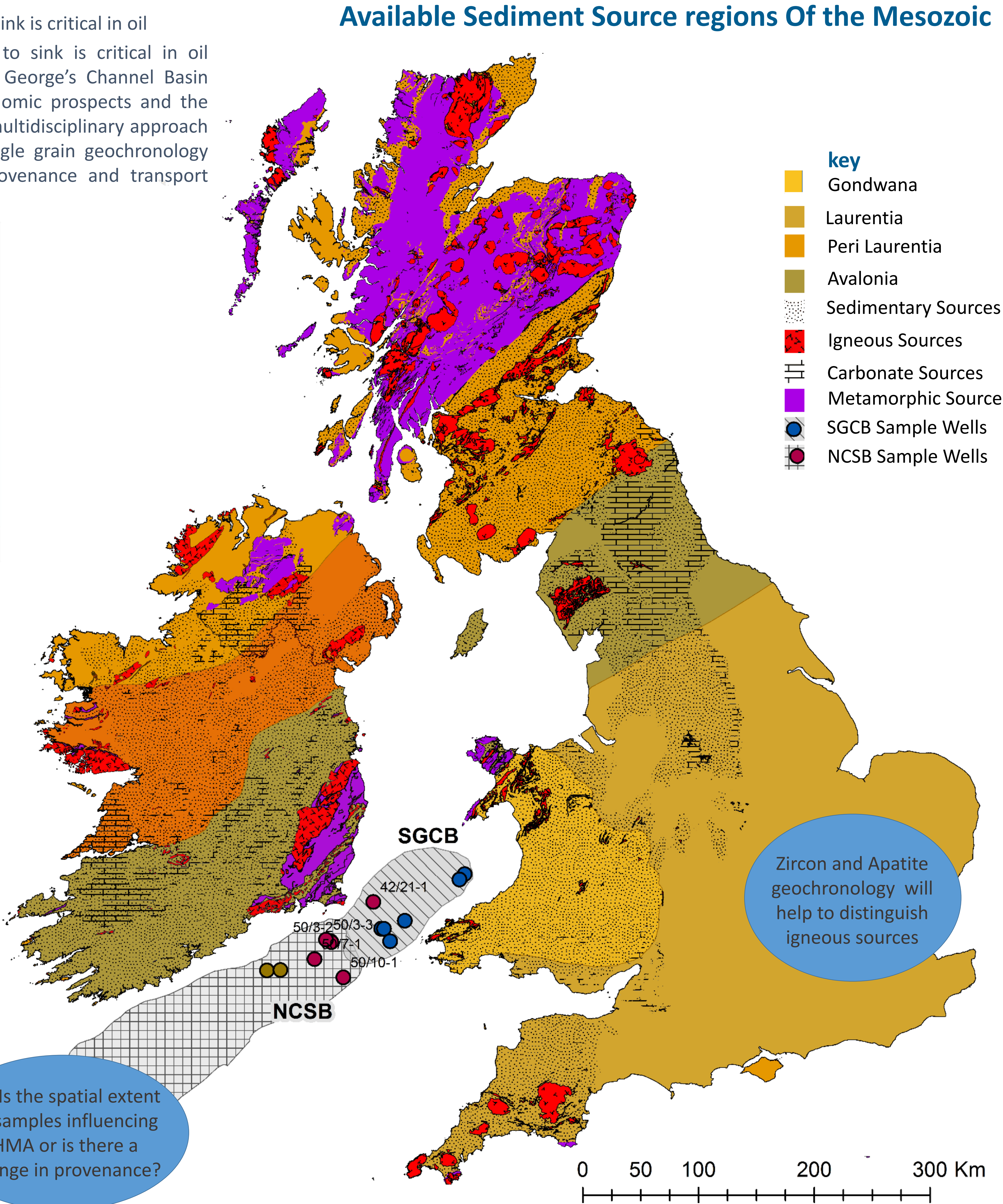
Whats Next?

- Raman spectroscopy analysis
- Geochronology Study:
  - Zircon
  - Apatite

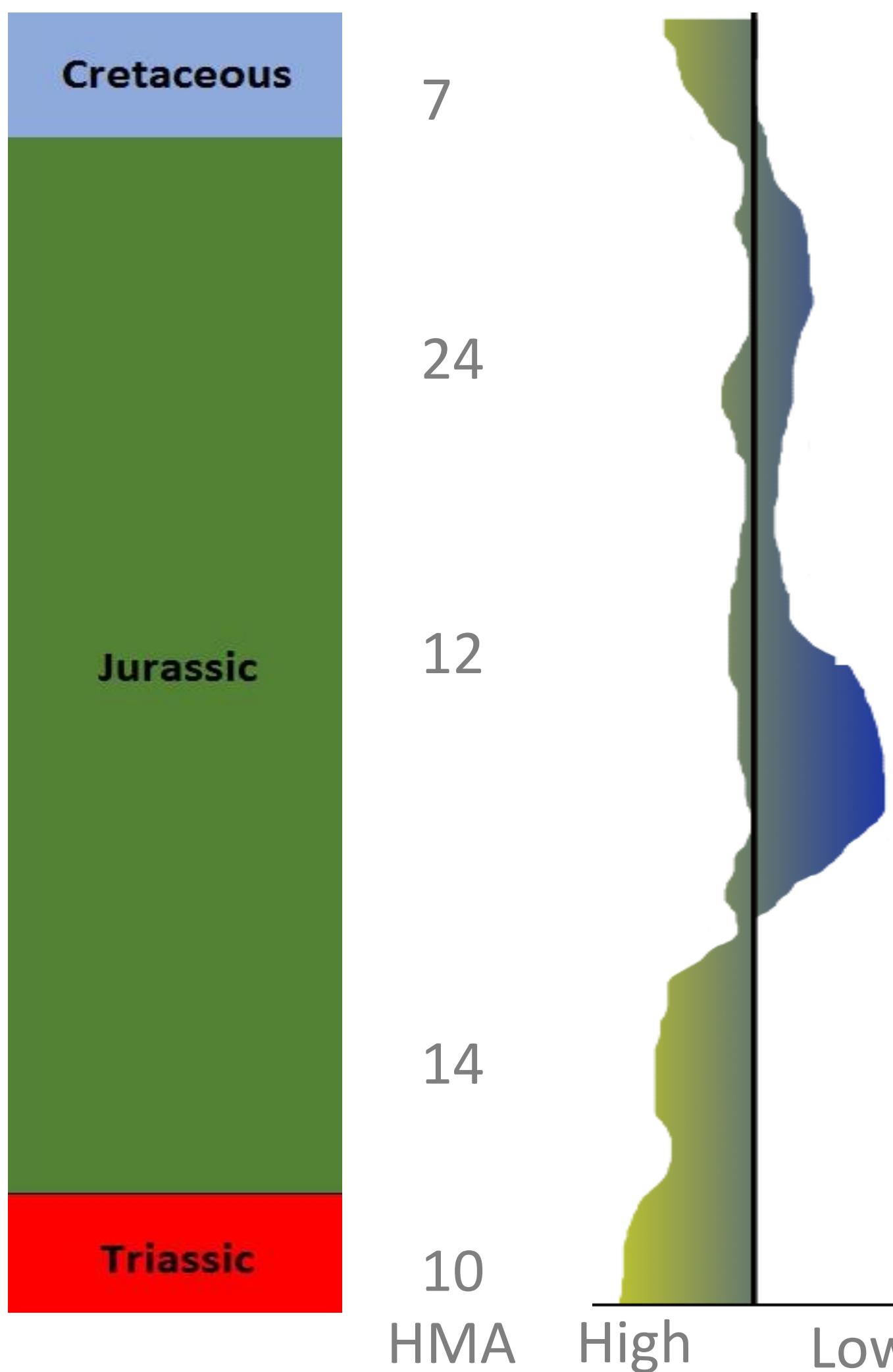
Heavy Mineral Analysis Results



Principle Component analysis biplot of heavy mineral ratios sampled throughout the NCSB and SGCB at different periods.



Sea level Change through The Mesozoic



Ternary diagram of principle component analysis results highlighting the inter period and inter basin variation