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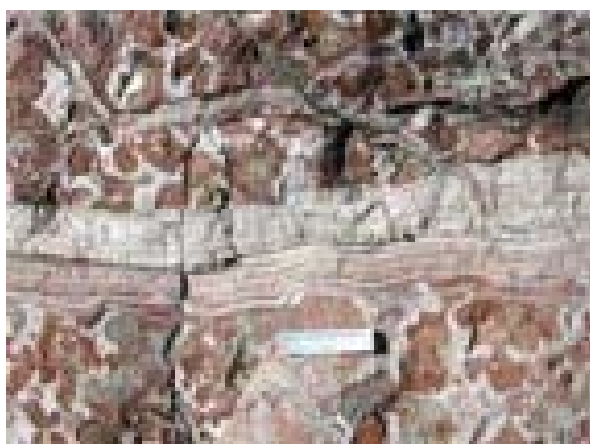
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Research Interests

My research interests are principally in carbonate diagenesis. **Echinoderm skeletons:** - the transformation of modern echinoid Mg calcite skeletons to dolomite and calcite by heating has been investigated. The identification of closed system transformation of fossil echinoderms has allowed their composition to be used as a proxy for seawater chemistry throughout the Phanerozoic. **Oilfield diagenesis:** Porosity occlusion in the Andrew oilfield, West Texas (collaboration with Unocal) has been shown to be due to late stage cements generated from descending hypersaline brines created by solar evaporation. Continuing work on a contemporary field from the giant Horseshoe atoll shows it to have significantly different diagenesis. The **Neoproterozoic carbonate platform of Namibia** with differential GPS technology (spatial positioning 2cm accuracy) was accomplished in 2001. Discovery of the oldest, heavily biomineralised fossil (predating the Cambrian “explosion” by 15 Ma) was made during this mapping and an investigation of carbonate cements from these rocks is underway. GPS is also being used in the **Canning Basin Western Australia** to accurately map lithofacies from the reef margin and produce a fine scale forward model for reef development



Sedimentary sill filled with radiaxial calcite cement. Dingo Gap, Canning Basin, Western Australia



Calcite on saddle dolomite filling mineral vein; calcite stained to show Fe zoning, Alston, Cumbria, U.K.