The deformation and exhumation of the Wyangala granite, Cowra, New South Wales

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The fractionated, megacrystic Wyangala Granite, of the Eastern Lachlan Fold Belt in central NSW provides an excellent natural laboratory for regional scale analysis of strain localisation. The granite forms irregular shaped areas of relatively undeformed granodiorite with large (10 cm) K-feldspar megacrysts to outcrops dominated by variably spaced S/C fabric, especially where it is adjacent to basalt and volcanioclastic sediments. The granite was passively emplaced during the late Early Silurian into domes in the multiply deformed Ordovician turbidites and volcanics of the Macquarie Arc. During cooling and saussization minor epidote-quartz veins formed in the granite. These were preferentially deformed in the late Middle Devonian Tabberabberan orogenic event (~ 380 Ma). This resulted in the pervasive S/C fabrics and mylonitisation of parts of the pluton. Exhumation may have been facilitated by early Devonian extension, later 380 Ma thrusting and/or a final phase of deformation during the Early Carboniferous.