Supplementary data

Vorticity

To determine the vorticity of the Bergen Arc shear zone during D2 the orientation of 121 quartz veins was measured in XZ thin sections and each vein was categorised as indicative of shortening, extension or shortening then extension according to well-established microstructural criteria[1]. The angle between veins and the foliation was plotted from a central point and the vein orientations defined a sector for shortening at 0-40° from the foliation, for shortening and extension at 40-148° and extension from 149-180° (Fig. S6). The presence of just one sector for each type of vein indicates that the Bergen Arc shear zone had a vorticity of 1[1,2], that is, that shearing was simple shear only.

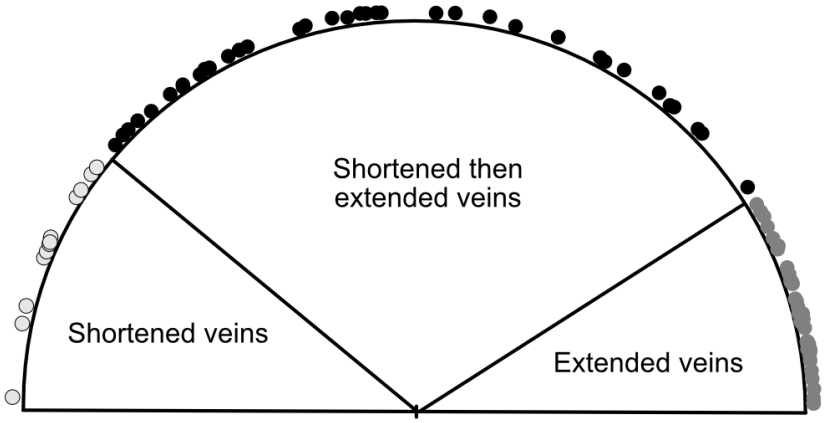

Figure S6. The distribution of deformed vein orientation in geographic space relative to a central point in the Bergen Arc shear zone.

References

1. Passchier C. Reconstruction of deformation and flow parameters from deformed vein sets. *Tectonophysics* 1990, **180**(2): 185-199.

2. Passchier C. A Mohr circle construction to plot the stretch history of material lines. *Journal of Structural Geology* 1990, **12**(4): 513-515.