



## **The Strain Probe: local two-dimensional Strain Determination from moving Points – Applications to regional GPS Data**

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‘The strain probe’ calculates a least-square fit to the two-dimensional strain recorded by the displacements of three or more points. By calculating a strain from the motion of any set of specifically selected points, the probe can detect and map sharp local strain gradients and discontinuities that may be associated with heterogeneities in underlying mechanical behaviour. The strain calculated can also be assessed statistically. Easy to implement and to adapt to specific problems, it is a useful complement or an alternative to existing methods of strain analyses from point displacements. Published GPS displacement velocity measurements in the South-Western United States illustrate the use of the probe and how it differs from previous methods of strain calculations.