

## 2021-09-21 Woods Point Earthquake Focal Mechanism and First Arrivals

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### Abstract

A focal mechanism is obtained for the Woods Point earthquake from the polarity of first arrivals of Australian stations. The resulting mechanism is fairly well constrained in strike, but not in dip. It is consistent with moment tensors from USGS and others. Stacking of arrays proved useful. Polarities from more distant stations in Australia are mostly in the noise level. Polarities from overseas arrivals are much more difficult to pick, and polarities reported from Europe reveal the level of uncertainty.

The fine detail of the first break shows that the event is not simple. A small prior event makes picking the first arrival more difficult. This is not uncommon, and means that first motion focal mechanisms for larger events in Australia can be difficult or unreliable. By contrast, polarities for small events can be much easier to pick, with more reliable mechanisms.

**Keywords:** focal mechanism.