

COOPER BASIN AZIMUTHAL SEISMIC

I Djamaludin & S Brew

During recent years Santos Ltd has acquired three full-offset azimuthal 3D seismic surveys onshore Australia. Two of these were in the Cooper Basin and one in East Queensland. The techniques for achieving cross-line offsets equal to in-line offsets are reviewed, together with the considerations for processing such data.

The acquired data sets demonstrate that there is considerable anisotropy present in the data and that the degree of anisotropy varies both spatially and in two-way-time. The anisotropy manifests itself as differences in such parameters as stacking velocities, two-way-time and horizon amplitudes at intersections of stacked or gathered data binned at different azimuths. The implications of such anisotropic effects on 2D seismic surveys are considered.

Other investigations include the application of azimuthal processing techniques to conventionally acquired 3D data (that is, surveys in which the cross-line offset is not as large as the in-line offset) and a comparison of two different anisotropic analysis techniques on the same data set.

As anisotropy of P wave seismic data is considered to be caused by the impact of seismic waves passing through vertical fractures at different azimuths, maps which show the variation in estimated direction and density of fracturing are reviewed during the course of this presentation.