Measured *relative* change in sea level

POSSIBLE CAUSES:

Both

rising sea

and land

Rising land

*(uplift)*

Rising sea

*(incursion)*

Melting ice sheets faulting/tectonic forces

ASSUMPTIONS

It is assumed that there was no relative change in the positions of the two ‘markers’, (current sea level and the Hallett Cove Sandstone (HCS), during the past 3Ma. Removal of beds below the HCS, due to erosion, would reduce the difference in their elevation, as it appears today. Similarly, any uplift or subsidence during the past 3 million years could have impacted on the relative positions. To answer the question **“ Where was the shoreline on the Adelaide plains 3Ma? ”** (for example), it needs to be assumed that there has been no impact due to erosion, uplift, subsidence or any other factors that have changed the relative positions of the markers.

FURTHER EVIDENCE

To clarify which of the above causes contributed to the measured relative change in sea level it would be necessary to firstly research the geological history of the area, as previously interpreted in the literature. Secondly, it would be desirable to look for *other* evidence (of a similar relative change), over the same time period at nearby locations along the Fleurieu Peninsula.

UNCERTAIN OUTCOME

The topography of the Adelaide plains is likely to have been significantly modified by climate and rainfall changes since 3Ma. These changes would have occurred by the erosion of stream beds (particularly) during times of high rainfall. Anthropogenic change in the last 200 years have further modified the drainage pattern and earthworks such as the removal of sand dunes at West Beach (for example) further contribute to inherent uncertainty of the exact position of the 3Ma shoreline.