



Voyage ss2011_v05

The influence of natural hydrocarbon migration and seepage on the geological and biological systems of the offshore northern Perth Basin.

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Contribution to Australia's national benefit

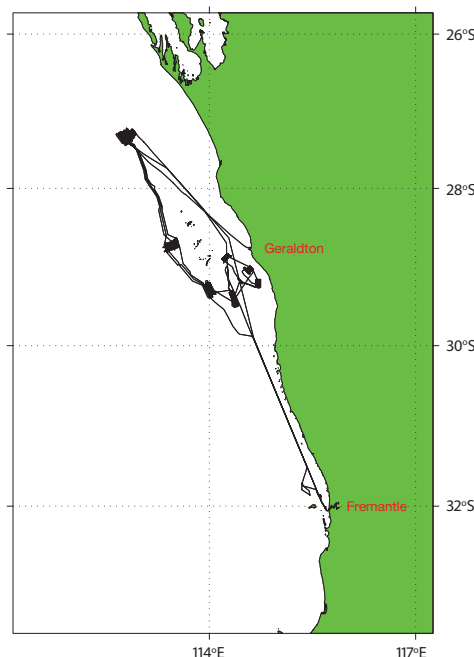
The results of the survey will potentially contribute to:

- Developing deep earth resources – mapping and quantifying natural hydrocarbon seepage in the offshore northern Perth Basin may assist in understanding the effectiveness of petroleum systems and integrity of hydrocarbon traps, which could influence the petroleum prospectivity of the region.
- Reducing and capturing emissions in transport and energy generation – understanding the sealing or leaking nature of geological structures and faults within the Perth Basin may facilitate more effective selection of potential sites for geological storage of CO₂.
- Sustainable use of Australia's biodiversity – potential sites of natural seepage may be found to support biological communities that rely on chemosynthesis of the seeping hydrocarbons as their primary source of energy. Biological data characterising seepage sites could be utilised in considering future Marine Protected Areas (MPAs) for Australia's southwest margin.
- Responding to climate change and variability – understanding the input of methane from natural hydrocarbon seepage to the carbon budget will increase the certainty in future climate modelling scenarios.

As a result of this voyage:

1. We have a better understanding of the nature and spatial distribution of potential natural hydrocarbon seepage in the offshore northern Perth Basin, which informs us about the effectiveness of the petroleum systems within this part of the basin, and the influence on benthic habitats along this part of Australia's southwest margin.
2. We have found that natural hydrocarbon seepage, if present at all, is rare in the offshore northern Perth Basin, and that such a low level of seepage is unlikely to have an impact on geological or biological systems or anthropogenic activities in the region.
3. We have mapped, in the northern part of the survey area, multiple lines of evidence consistent with known natural hydrocarbon seepage, including potential fluid migration pathways through the strata below the seabed, hydro-acoustic flares in the water column, and pockmarks and carbonate blocks on the seabed.
4. We have commenced a program of analysing sediment and biological samples in order to provide further evidence that may support a natural hydrocarbon seepage interpretation for the northern part of the study area, or may reveal low-level seepage not identified during the survey.

> Voyage track ss2011_v05



Itinerary

Departed Geraldton,
15:00 Wednesday, 21 September 2011
Arrived Fremantle,
06:00 Tuesday, 18 October 2011