

ROYAL METEOROLOGICAL SOCIETY: AUSTRALIAN BRANCH MEETING

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The Leeuwin Current

G. Cresswell

The approximately 40 Fellows and visitors who attended the July meeting were treated to a description of one of those natural phenomena that from time to time emerge from detailed analysis to intrude across a range of disciplinary thought. Dr Cresswell described the analyses that have led to the identification of the Leeuwin Current, a narrow filament of tropical water that moves down the continental shelf off Western Australia during winter, rounds Cape Leeuwin, and penetrates eastward across the Great Australian Bight.

The talk began with an historical account, supported by an early Dutch map of Australia, of evidence pointing to the existence of the current. The stimulus for the investigation was the observations of corals on the reefs of the Abrolhos Islands that were not evident inshore; later studies in the Great Australian Bight revealed plankton of tropical origin. The first oceanographic data were obtained by the *Diamantina* and this was followed by a more detailed cruise between Perth and Geraldton by the *Sprightly* in 1973. Subsequent continuous measurements of temperature and salinity at Rottnest Island and Albany revealed the onset of the current in early May.

Detailed properties of the current have been analysed using satellite tracked drifting buoys and enhanced infrared imagery of the NOAA-6 satellite. The infrared analyses clearly show the warm water extending down the continental shelf of the west coast and across the Bight. Buoy trajectories confirm the suggested movement with drifts of the order of 3 m/s between Cape Naturaliste and Cape Leeuwin. Total transport is estimated at 10 to 12 sverdrups.

The early indicators of the existence of the current, including sightings of tropical turtles on the west Tasmanian coast, substantiate the influence of the warm intrusion on the botany and zoology of the continental shelf. Perhaps this source of energy also has a marginal effect on the littoral climate of winter, but this was an area where the speaker did not penetrate with his talk.

W.R.K.

