

## **Pre to post-bomb $^{14}\text{C}$ history in the western Philippine sea: insights into the oceanographic changes in the South China Sea**

Yang Wu, Stewart Fallon

*Research School of Earth Sciences, Australia National University*

Compared to the natural production of  $^{14}\text{C}$ , thermonuclear tests have produced a globally abnormal  $^{14}\text{C}$  signal. To examine and reconstruct ocean circulation in the South China Sea, we generated a pre to post bomb  $^{14}\text{C}$  time series from a *Porites lobata* coral in the western Philippine Sea. Results show an early bomb peak in late 1955 as seen in corals from Ishigaki, Guam and Makassar Straits which is due to the immediate advection of  $^{14}\text{C}$  labelled water from nuclear test sites. Our post-bomb  $\Delta^{14}\text{C}$  peaked at 154 ‰ in 1975, which is ~10 years lagged behind the atmospheric peak, consistent with other marine records. Our coral also displayed clear seasonal  $\Delta^{14}\text{C}$  variability indicating different surface waters passed our coral site in western Philippine sea due to the seasonal variations of the East Asian Monsoon.