

## Weekly Report of Expedition Sonne-257

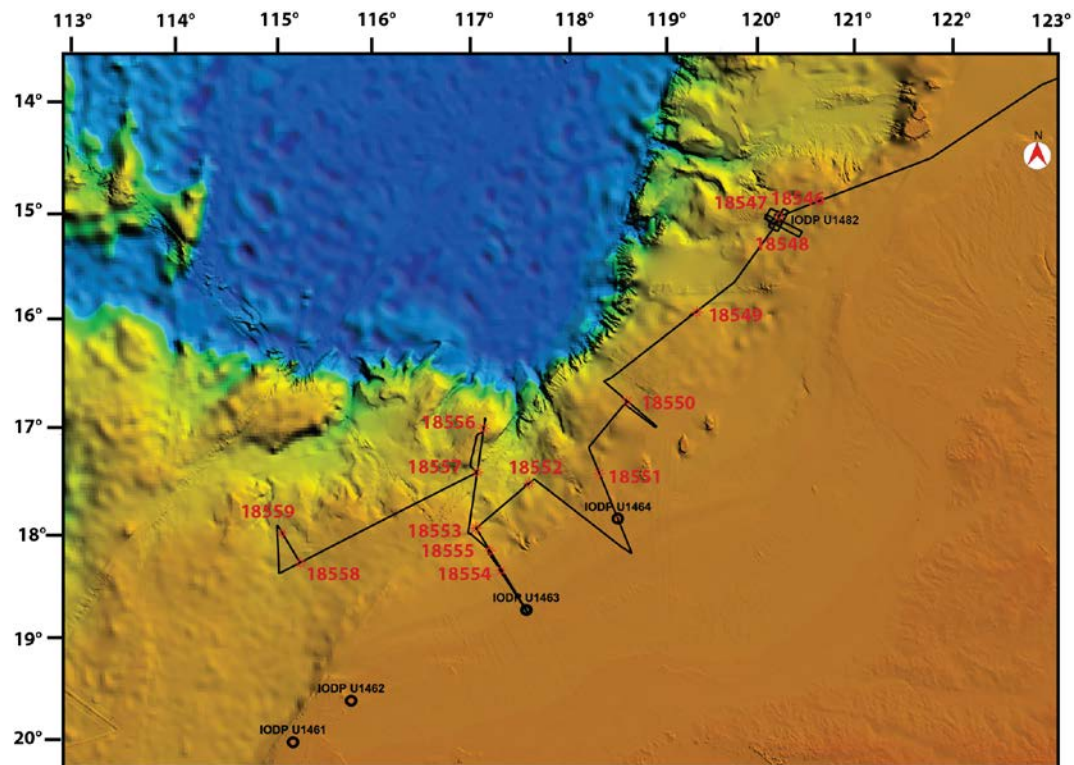
May 14-21, 2017

### Western Australian Climate History from Eastern Indian Ocean Sediment Archives, WACHEIO

Following a two-day transit from Darwin, we arrived in the first work area on the NW Australian continental margin, NE of the Rowley Shoals at 14.97°S/120.48'. In the following five days we deployed the CTD, multicorer, gravity- and piston-corer along a route starting from IODP Site 1482, NW of the Rowley Shoals to the NE part of the Exmouth Plateau. CTD- und Multicorer delivered water property measurements and samples for oxygen isotope stratigraphy of water masses as well as core top samples for calibration of geochemical and micropaleontological proxies for water temperature, salinity and productivity. Until now, we had 13 successful multicore deployments with 12 core tops as well as 5 piston cores and six gravity cores, which recovered 11.3 to 19.6 m sediment from water depths 500 to 2400 m. Except for one, all cores were undisturbed with well preserved sediment that can be correlated with the multicores. All cores were immediately split into working and archive halves. Initial shipboard stratigraphic analyses (sediment description, magnetic susceptibility, line-can photography, spectrophotometry, smear slides and micropaleontological analyses of the core catcher) were carried out immediately after the cores were split. The first scientific highlight was the discovery of a late Pleistocene tephra layer, which can be identified in three cores and provides a distinctive marker horizon for stratigraphic correlation.

All deployments were successful, which was largely due to the competence and engagement of the crew and coring technicians. In total, we recovered until now 165 m of gravity- and piston cores, which are all of excellent quality (also partially due to clement weather and smooth seas). Until now, we also ran 18 seismic profiles with high resolution multichannel-seismic and penetration of over 500 m in the vicinity of IODP Sites U1482, U1464 und U1463. Preliminary shipboard analyses already provide new insights on the Neogene to recent mass deposits along the NW Australian continental margin. The international team, including a large group of undergraduate and graduate students from the Institute of Geosciences und GEOMAR Research Centre in Kiel, the University of Melbourne, University of Western Australia, Australian National University in Canberra (Australia), Brown University,

Moss Landing Marine Labs and Woods Hole Oceanographic Institution (USA) and Northwestern University, Xi An (China) is excited and enthusiastic. We are all looking eagerly forward to the upcoming research on the southern part of the Exmouth Plateau and off the Western Australian Coast.



**Abb. 1.** Cruise track, coring stations and seismic lines during the first week of expedition SO-257.

Prof. Dr. Wolfgang Kuhnt