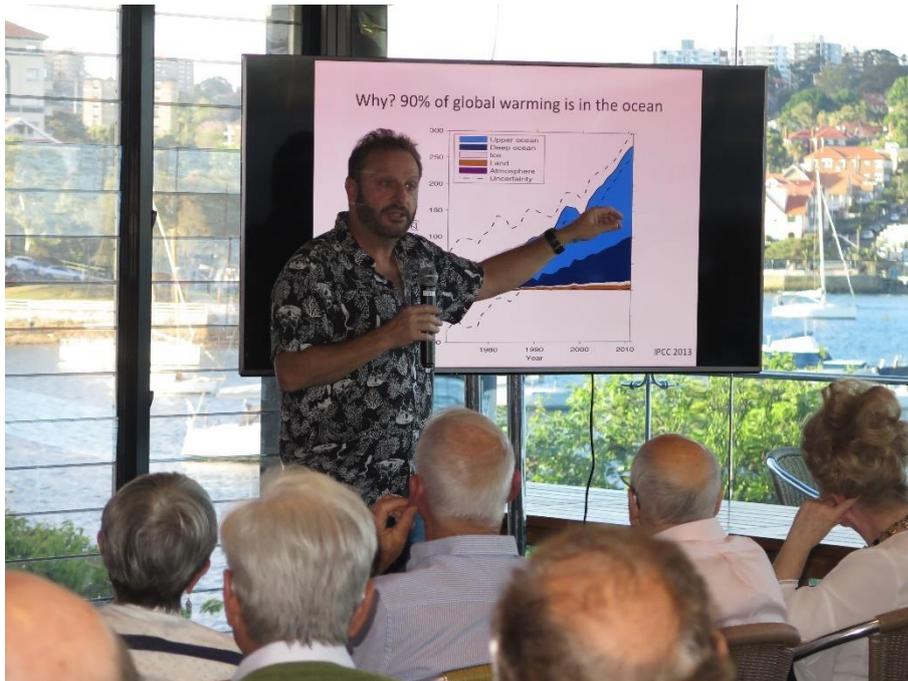


## Animals as Oceanographers

### By David Salt

On Wednesday 22 November the Cruising Division welcomed Professor Robert Harcourt, Clive McMahon and Kate Parsons from the Sydney Institute of Marine Science (SIMS). They described their work with marine animals and how they are used to augment the data collected by mechanical means on ocean currents, salinity, oxygen and temperature at various levels, plus information on the Institute's work in general.



Rob explained that currents circulate around the world like conveyor belts, and we need to understand their effects on our oceans and possible climate change. They explained that IMOS, the Integrated Marine Observing System, routinely operates a wide range of observing equipment throughout Australia's coastal and open oceans, making all of its data accessible to the marine and climate science community. Initially the majority of research was done using equipment lowered from the side of a ship, then the ARGO float was developed - essentially a submersible buoy which descends using its weight to a prescribed depth, drifts with the current and then re-surfaces using internal flotation. Once on the surface data is collected by satellite and the ARGO returns to selected depth which could be up to 2000 metres. The cycle is repeated up to approximately 140 times with a battery life of around four years. In 2001 only 262 ARGOs existed and now there are around 4000 throughout the oceans of the world.

One area of importance is the sea beneath the Antarctic Ice, and the ARGO cannot operate as it needs open water to transmit data. Initially holes were bored in the ice and equipment lowered beneath the ice. However, the seal is an ideal Antarctic animal as it needs to use, make or find a hole in the ice to breathe. They normally dive to 200 metres and for periods up to seven to eight minutes. Elephant seals can dive to 1500 metres and stay submerged for two hours. Transmitters are attached to the back of a seal using an epoxy glue which will last until the seal moults the next year. The data is collected by satellite when the seal is on the surface and transmitted to Toulouse in France where it is made available to interested parties. During their work with seals they have learnt to estimate the weight of the seal to ensure the correct dosage of tranquilliser. Mother seals weigh

around 500 kg when they give birth to a 25 kg pup; within a short time the mother loses 150 kgs and the pup increases around 60 kgs. The team are also using whales and penguins to collect data and are now using surfers' boards to collect data close to shore where the buoys cannot operate.

The subject of the sea, our harbour and the animals which use the water is obviously a passion which they were all glad to share, and we were enlightened as to what our Marine Scientists are achieving, the data they are collecting and the various methods of obtaining this data.



Kate Parsons then invited any member or family to visit the SIMS facility in Chowder Bay either on their open days each second Sunday in the month 10am - 2pm or to email Kate [kate.parsons@sims.org.au](mailto:kate.parsons@sims.org.au) to arrange a private tour. See separate flyer.