

## SESSION: From Physics to Top Predators at islands and seamounts in the Southern Ocean

### MARS Themes:

Ecosystems, biodiversity and biodiscovery

Oceans and marine ecosystems under global change

### Title:

Towards ecoregionalisation of the eastern subantarctic pelagic zone – mapping zooplankton communities at the Prince Edward Islands

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### Abstract:

Ecoregionalisation is the process of partitioning a large ecosystem into smaller ecoregions using assemblage data, such as relative species abundances. The distribution of plankton, along with that of mesopelagic fish and top predators (birds and mammals), is considered essential for ecoregionalisation of the subantarctic region, which is required to identify priority areas for conservation. We present recent and ongoing efforts to map zooplankton distribution in the subantarctic zone south of the African continent, with most effort in the vicinity of the Prince Edward Islands (PEIs). Large-scale distribution patterns of zooplankton taxa are obtained using a Continuous Plankton Recorder (CPR), which is towed near the surface behind research or commercial vessels. Annual tows between Cape Town and the PEIs during autumn since 2013 by the SA Agulhas II remain to be analysed, but taxonomic data are available for CPR tows from Japanese and German vessels between 1999 and 2009 during summer. Zooplankton net sampling has been conducted in the vicinity of the PEIs for over four decades, also mainly in autumn, and many studies have reported on meso- and macrozooplankton community composition at the archipelago. Annual sampling of zooplankton along standard transects near the PEIs was initiated in 2013, and image analysis is being used to investigate taxonomic and size composition of these communities. Relating patterns in zooplankton distribution to hydrographic conditions including mesoscale features and fronts (abiotic factors) is also an important objective. Future plans include DNA metabarcoding of zooplankton net samples, and comparison of CPR zooplankton data with acoustic data collected en route to the PEIs.

**Format:**

Either oral presentation or e-poster

**Keywords:** (add ; between keywords)

Ecoregionalisation; Subantarctic; Zooplankton; Image analysis; Continuous Plankton Recorder