Tuesday 5 December :

Southern Atlantic Ocean and Antarctica Seminar (Cape Town)

South Africa and Norway have a long history of cooperation in the Antarctic region. The seminar and its associated workshops (by invitation only) seek to exhibit and expand this fruitful relationship by bringing together experts from relevant academic and government sectors. On a more technical level, this seminar aims to highlight the key questions relevant to the Atlantic sector of the Southern Ocean, including interactions between the Southern Ocean and the Antarctic ice shelf, and to highlight the approaches that can be used to address them

Program Directors:

- Dr Nalân Koç, Research Director, Norwegian Polar Institute (NPI)
- Mr Ashley Naidoo, Chief Director: Oceans and Coastal Research, Department of Environmental Affairs

Venue:

DAFF Research Aquarium, Sea Point Promenade, Sea Point, Cape Town, 8005

Refreshments and registration

08.00-08.30 Registration, coffee, tea, refreshments

Opening and Welcome

08.30-09.00 *Opening and Welcome*

- Ms Trine Skymoen, Ambassador of Norway to South Africa

- Ms Judy Beaumont, Deputy Director General, Branch Oceans and Coasts, Department of Environmental Affairs (DEA)

- Dr Nalân Koç, Research Director, Norwegian Polar Institute (NPI)

Cooperation within the area of Science and research

09.00-09.30 *New SANAP Research Cycle / Direction 2018 - 2020*

Ms Tracy Klarenbeek, Director SANAP, NRF

09.30-09.50 *The importance of long-term ocean measurements for assessing the impact of climate change on the Antarctic ice sheet"*

Dr. Laura de Steur (NPI)

09.50-10.00 Questions and discussion

10.00-10.20 *Plankton research in South Africa, with special emphasis on Southern Ocean*

Dr. Jenny Huggett, Department of Environmental Affairs (DEA)

10.20-10.30 Questions and discussion

10.30-11.00 Break. Refreshments, tea and coffee

11.00- 11.20 *Future challenges to fill the gaps in the marine chemistry and estimates of the ocean's capacity for atmospheric CO_2 sequestration in the Atlantic sector of the Southern Ocean*

Dr. Melissa Chierici, Institute for Marine Research (IMR)

11.20-11.30 Questions and discussion

11.30-11.50 *Exploration of the role of iron in the microbial carbon pump*

Dr. Murat V. Ardelan, NTNU

11.50-12.00 Questions and discussion

12.00- 12.20 *Trace metal Iron (Fe), an important element to measure at sea*

Dr. Thato Mtshali, Department of Science and Technology (DST)

12.20-12.30 Questions and discussion

12.30- 12.50 *The Missing Link: overwinter sampling of the physics and biology of the Southern Ocean using marine mammals - an extension of MEOP*

Dr. Kit Kovacs, NPI

12.50-13.00 Questions and discussion

13.00- 13.20 *Open Discussion and Wrap Up*

Ashley Naidoo / Nalân Koç

13.20- 13.30 *COMNAP Chairperson's Award Ceremony (Mr. Henry Valentine)*

John Guldahl, COMNAP EXCOM

13.30-14.30 Lunch

14.30-16.00 Networking / End of the day programme

This seminar will focus on addressing the knowledge gaps of future issues of marine research in a changing Antarctic and Southern Ocean system:

Despite the importance of the Southern Ocean in terms of global climate regulation, carbon cycling and ocean CO_2 uptake, monitoring efforts are often hampered by the typical logistical challenges of operating in polar seas. The Southern Ocean is a physically and chemically dynamic ocean due to seasonal sea ice, ice shelf - ocean interaction, deep-water formation, frontal systems and upwelling, and plays an important role in the interaction with the global oceans. From understanding carbon flux variability to ecosystem linkages between commercially-fished species and sea ice variability, collecting scale-relevant data in this inhospitable region is critical. The Southern Ocean Observing System (SOOS) has recognized this need, and is attempting to develop a suite of key ecosystem Essential Ocean Variables (eEOV's) that are both amenable to monitoring and provide relevant insight into the function of the Southern Ocean. Sophisticated ocean gliders, ice-resistant ARGO floats and higher resolution remote sensing data are all now an integral part of understanding how the Southern Ocean functions and at what scales we must monitor it in order to identify real change as opposed to inherent variability. At very high latitudes, where such technologies are incapable of collecting information, the employment of marine mammals as oceanographic sensor platforms has provided a relatively new stream of oceanographic and biological data. The Marine Mammals Exploring the Oceans Pole to Pole (MEOP) consortium has, for the last 15 years, added considerable improvements to the observing system of the Southern Ocean particularly at the higher latitudes. However, at present these platforms are limited in the use of chemical sensors, since the sensors are under development. The Southern Ocean is facing future changes due to climate change such as warming, melting of ice shelves, increased freshwater and ocean acidification. These changes will affect the marine environmental chemical and physical conditions, and ultimately impact upon ecosystem processes. Estimating future responses of this changing marine system requires time series data on plankton, biogeochemical cycles, ocean's uptake capacity of CO_2 and inventory of anthropogenic CO_2 collected at scales which require international cooperation.

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