

## **REPORT ON POGO PROJECT**

### **Contractor's Report**

**Project Title:** An EOVS and impact based Boundary Currents Ocean Observing System

**Name of Contractor:** Tamaryn Morris, South African Environmental Observation Network (SAEON)

**Names of Participants:** See Appendix A

**Total expenditure (please attach a financial report with copies of receipts):**

EUR 10 000, of which 75% has been transferred to SAEON thus far for venue workshop support.

### **1) Please provide a brief description of the activities undertaken by the project.**

The workshop was held as a hybrid event at the President Hotel in Sea Point, Cape Town, from 9-12 September 2024. Approximately 72 in-person participants, with a further 10 online, attended the workshop with various backgrounds ranging from observational researchers of different disciplines, modellers, operational forecasting, fisheries, search and rescue, academia and two South African national government departments (DFFE and DSTI). The workshop also attracted participation from 20 Early Career Ocean Professionals (ECOPs), and a poster session was held to showcase some of their work as part of the event.

Boundary currents directly influence the understanding of regional weather systems, significantly impact marine heatwaves and tropical cyclones and impact the local fisheries and aquaculture. The purpose of this workshop was to create an overview of observations and modelling efforts already ongoing within the Agulhas Current, develop priority gap areas and thus observational requirements and a resulting start to the development of a backbone design of an ocean observing system to better understand key features in the Agulhas Current region. The workshop also aimed to determine potential overlaps and opportunities for other key features to be considered in the design for monitoring and assessment purposes including (but not limited to) tropical cyclones, fisheries and marine heatwaves, all of which impact or are impacted by the Agulhas Current with a changing climate.

The "Backbone Observing System" is the minimal set of sustained observations needed to capture key processes in the Agulhas Current region and to constrain regional numerical simulations.

Though the Backbone Observing System may not adequately capture some process of interest to stakeholders, it provides a framework that can be augmented with additional observations for those phenomena.

### **2) Please describe the milestones and deliverables achieved.**

- Stakeholder mapping: The workshop allowed for a number of key participants to discuss challenges in understanding the Agulhas Current and adjacent regions in terms of their knowledge base (researchers and modellers) and industry (fisheries, search and rescue). outputs from the workshop will assist in developing continued stakeholder engagements through 2025.
- Execution of the workshop: The workshop was successfully held from 9-12 September 2024 in Cape Town, South Africa
- Participants numbers: 72
- Early Career Ocean Professional: 20
- Online Participation: 10
  
- Recommendations for additional analysis:
  - Governance: Assess responsibility for system/systems and potential mandates that are requiring regional groups such as the weather service to implement certain components of the system.
  - Mapping of data stewardship and FAIR practices incl. infrastructure (e.g., data storage) and other data sectors.
  - Enhanced stakeholder engagement with marine economists, fishing community, social sciences, and the National Ocean and Coastal Information Management System (OCIMS) developed for South(ern) Africa.
  - Career and location development incl. for scientists, technicians and modellers.
  - Impact assessments: Explore potential opportunities to utilize OSE/OSSE/FSOI to design and verify ocean observing system designs.
  - Economic assessments: Linking ocean economy and land economy assessments already ongoing and undertaken a gap analysis where these could be conducted to raise the importance of this system to the local economy.
  - Funding analysis: Explore funding potential (e.g., private sector, UN Ocean Decade, Industry, incl. the SAMREF - South African Marine Research and Exploration Forum).
  
- Recommendations on priority gaps of the system:
  - Mesoscale circulation within the Agulhas Current and shelf regions
  - Ocean-atmosphere to land interactions such as extreme rainfall events impacting the agriculture industries
  - Shelf edge upwelling along the east and south coasts of South Africa impacted by the Agulhas Current, but also the Benguela region along the west coast. This includes shelf-slope exchanges with the coastal regions and linking to air-sea interactions.
  - The Agulhas Retroflection zone, the Indo-Atlantic exchange, the Benguela Jet Current and the impacts on the global climate system.
  - Agulhas Current transport of volume, heat, salt, pollutants and nutrients.
  - Wave-current interactions, particularly in the Agulhas Current itself.

**3) Is this project likely to continue beyond the dates outlined in the original proposal?**

Yes, we are finalizing the official Workshop report for release and the draft backbone design based on the recommendations established during the workshop. Additional plans are being made to consult with stakeholders, especially end users, and conduct additional analysis (i.e., OSE/OSSE design, funding analysis, economic assessments).

This project is continuing under the UN Decade Program Ocean Observing Co-Design umbrella. The learnings from this workshop are driving the development of a best practice on co-designing observing systems with stakeholders that will be tested and released by 2026 and this work will be influencing work in other boundary current systems.

**4) Please provide your comments on the POGO-funded Initiative (e.g. has the funding made a significant difference in the progress of this project?).**

Funds were used to support the international Boundary Currents Design workshop with representatives from key stakeholders to set priorities and identify requirements. Funds were utilized to provide workshop support and catering for 72 in person participants and an early career focussed poster session. Additional funding was acquired to support travel for Early Career Professionals to participate in this meeting and catering for the poster session.

The funds from POGO were critical in enabling the Boundary Currents Exemplar team and AtlantOS to bring together various stakeholders to inform the development of a requirements report, co-designed [across the stakeholder community] targeted priorities and gaps. This workshop was the first of its kind and the cross-collaboration across observations, modeling and forecasting centers resulted in fruitful conversation and clarity on needs. Some end users were able to attend including the fishing community and local search and rescue operational teams, which were able to raise critical needs of the community that are now being considered in the draft design.

Going forward, more conversations are being planned to finalize the design of a backbone observing system outlining recommendations for observing platform placement and ways for investment.

**Please return completed form by e-mail to [pogoadmin@pml.ac.uk](mailto:pogoadmin@pml.ac.uk) and enclose copies of the Workshop reports, if applicable.**

## APPENDIX A

### PARTICIPANTS LIST

LAST NAME	FIRST NAME	LAST NAME	FIRST NAME
Morris	Tammy	Govender	Ashrenee
Zinkann	Ann	Deyzel	Shaun
Veitch	Jenny	Kaylan	Brishan [ECOP]
Yu	Weidong	d'Hotman	Jethan
Audh	Riesna [ECOP]	Cotiyane-Pondo	Phumlile [ECOP]
Van Stavel	Jordan [ECOP]	Bizani	Mfundo [ECOP]
Hermes	Juliet	Bornman	Tommy
Stienbarger	Cheyenne	Makgati	Lebogang
Glenn	Scott	Rapolaki	Ramshoneng
Looney	Lev	Ramjukadh	Carla-Louise
Lamont	Tarron	Bernard	Stewart
Issufo	Halo	Rautenbach	Gustav
Welch	Clea [ECOP]	Braby	Laura [ECOP]
Ansorge	Isabelle	Memela	Nkuleko [ECOP]
Burgher	Nasreen [ECOP]	Mtetandaba	Aphiwe [ECOP]
Herbette	Steven	Chang	Nicolette
Aurelia Muvhango	Thabelo [ECOP]	Dtjeuchouang	Laique Merlin
Ganyaza	Alungile [ECOP]	Whittle	Christo
Mtyenene	Sikelelwa [ECOP]	Sweijd	Neville
Rasehlomi	Tshikana	Smit	AJ
Van Franken	Cooper	Malange	Mathabo
Spolander	Bruce	Sejeng	Caroline
Bilski	Sidney	Mvula	Philile [ECOP]
Martinengo	Lisa	du Plessis	Nicole
Taukoor	Sheveenah [ECOP]	Matusse Junior	Antonio Fernando
Huggett	Jenny	Salum Msabaha	Leila
Horwitz	Rebecca [ECOP]	Rong	Cui [ECOP]
Johnson	Ashley	Wang	Linhai [ECOP]
Siko	Gilbert	Wahyudi	A'an Johan
Bopape	Mary-Jane	Khalfan	Zahor Mwalim
Chengwe	Refilwe	Huang Lixuan	Lixuan
Monteiro	Pedro	Todd	Robert (online)
Abiodun	Babatunde	Rémy	Elizabeth (online)
Augustynn	Johan	Berry	David (online)
Sands	Mike	O'Brien	Kevin (online)
Kirsten	Alexander	Moore	Andy (online)
Landman	Robert	Sloyan	Bernadette (online)
Maphumulo	Aneliswa [ECOP]	Ayoub	Nadia (online)
Mahlangu	Mpho [ECOP]	Martín Míguez	Belén (online)
Molefe	Pretty	Penven	Pierrick (online)
SAMSA	Representative	Gorringe	Patrick (online)