OceanX + OceanQuest - Around Africa Expedition 2025

Leg 4, Mindelo, CV – Mindelo, CV

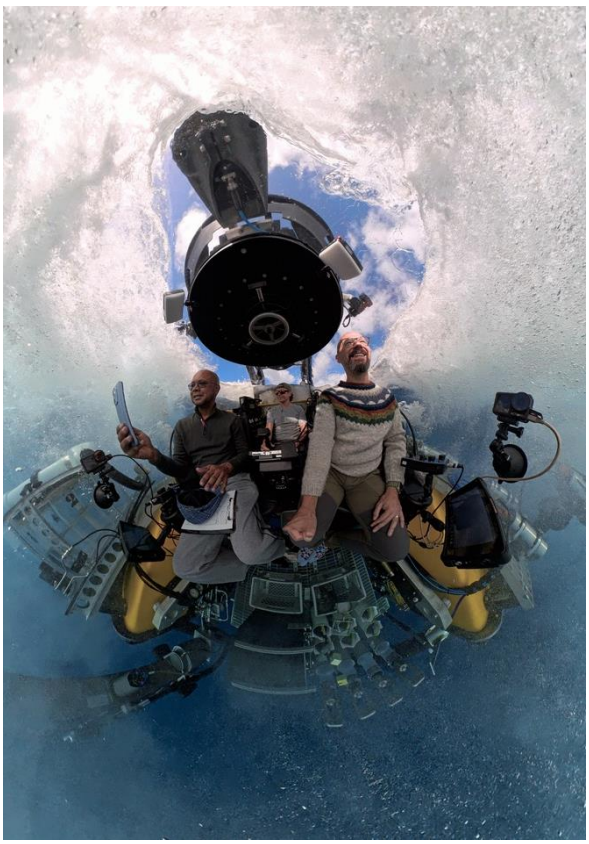
Weekly Report 1 (26 March – 01 April 2025)

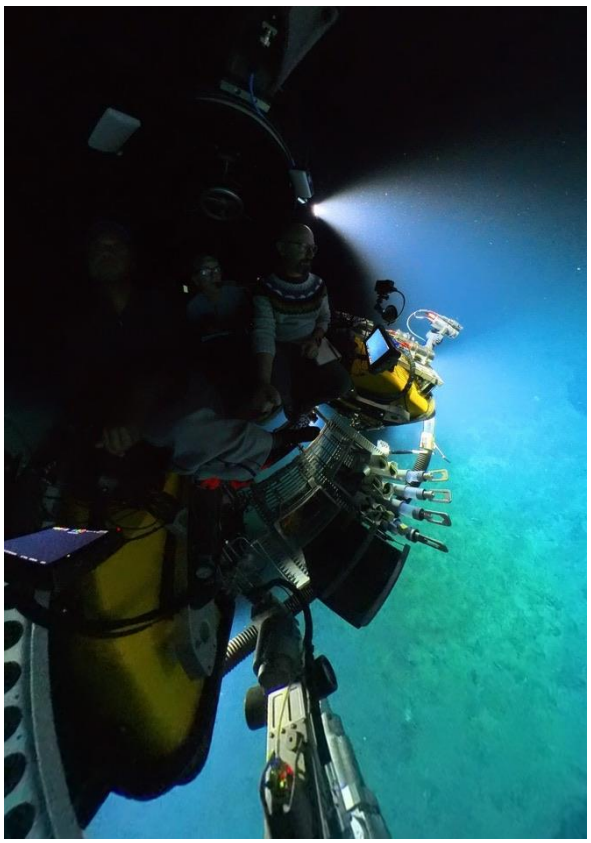
The new batch of scientists boarded OceanXplorer at 10:00 a.m. on 26 March. Most OceanQuest personnel had already arrived a few days earlier, having attended a workshop in Brazil ahead of the new science leg departing from Mindelo, on the island of São Vicente, Cabo Verde. We now have 15 guest scientists from six different countries on board — including Brazil, South Africa, the United Kingdom, Saudi Arabia, and Germany. The largest group by far is the Cabo Verdean team: eight scientists taking the scientific lead on this leg under the leadership of Yara Santos Rodrigues (Instituto do Mar, IMar) and Pericles Silva (Ocean Science Center Mindelo, OSCM).

A rare and special sight: two iconic research vessels crossing paths during active operations at sea. Here, OceanXplorer and the German research vessel Meteor meet side by side in the bay of Tarrafal, off the west coast of Santo Antão, Cabo Verde.

We left the port of Mindelo shortly after boarding at noon and set course for the bay of Tarrafal, located on the western side of the island of Santo Antão. There, we rendezvoused with the German research vessel Meteor, which is operating in the region at the same time under the leadership of the GEOMAR Helmholtz Centre for Ocean Research in Kiel. Since our time at the Nola Seamounts is limited to just a few days, the team aboard Meteor is supporting our efforts by collecting essential CTD profiles and ocean current data. In addition, they'll carry out water column observations using ROV

and tow cameras and share the results with us. In exchange, the GEOMAR team will receive our bathymetric maps and ROV seafloor footage from this leg of the mission. Through these two-ship operations, we're building a more complete picture of biodiversity at the Nola Seamounts. After the meeting — and capturing some stunning aerial drone footage of the two iconic vessels side by side — we continued on to the Nola Seamounts, where we began mapping the westernmost of the two underwater volcanoes during the night.

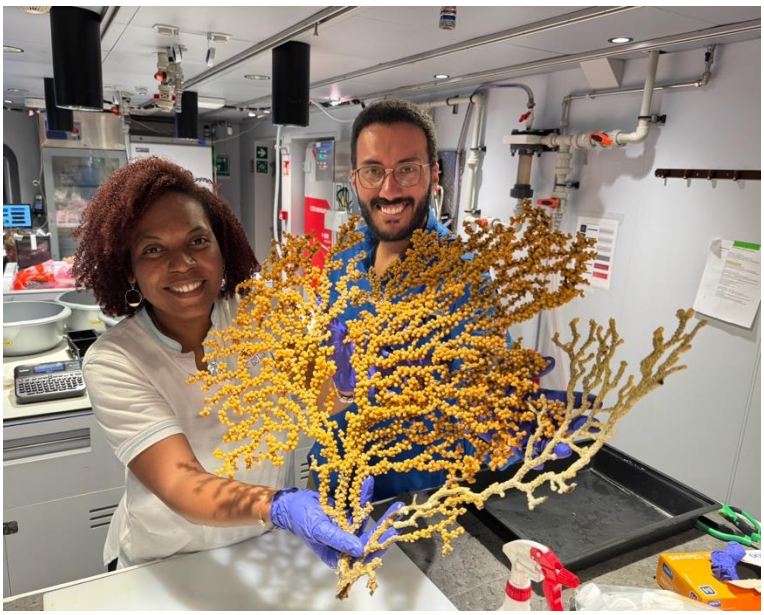




360° views from inside the acrylic sphere of submersible Neptune during its first dive to 904 meters with Pericles Silva (IMar) and Nico Augustin (OceanQuest). At this depth, they explored an ancient underwater volcanic landscape teeming with life — including corals, sponges, and deep-sea species like this goosefish.

Our first dive at the western Nola Seamount was planned for 27 March, but the weather had other plans. To avoid strong winds and waves, we repositioned closer to shore, finding shelter in the wind shadow of Santo Antão. Fortunately, the move paid off — we were able to deploy all assets, both in the air and underwater. The ROV and submersibles explored a volcanic ridge between 900- and 550-meters depth. Aboard the submersibles were Pericles Silva (OSCM) and Nico Augustin (OceanQuest) in Neptune, and Dario Évora (IMar) in Nadir. Meanwhile, two helicopter flights were conducted to search for marine megafauna such as sharks, whales, and turtles, led by Jaquelino Varela (University of

Lisbon), whose primary interest lies in shark sightings, though all large fauna observations are recorded. After a full day of ROV, submersible, and helicopter operations, we concluded with a plankton tow using a bongo net at around 200 meters depth. While we didn't reach the Nola Seamounts just yet, it was a productive and successful start to this leg. Overnight, we conducted hydroacoustic mapping to further refine our bathymetric data of the area. On Friday, 28 March, the weather and sea-stat were better at the Nola seamounts, and we planned operations likewise the first day. However, some technical issues canceled the submersible dives in the morning, so the ROV was lounged solely first. Additionally, a helicopter flight was conducted in the morning to search for marine megafauna. Neptune was launched for a dive after the issue was fixed. However, Nadir had to remain aboard due to another unrelated problem with its carrier platform that required a bit more time to resolve, which meant only Neptune dived with Angel Perez (Universidade do Vale do Itajaí, Brazil) and Elizandre Rodrigues (IMar). Despite the few drawbacks, the science program successfully completed biodiversity assessments at Nola Seamount along the 500 m and 1000 m depth contours, as well as a megafauna survey and continued with seafloor mapping during the night.



Whether it's biology or geology — the result is the same: big smiles all around when scientists finally get their hands on the samples brought up by the ROV and submersibles.

The following day, 29 March, began with an early ROV dive at the western Nola Seamount to complete the visual transect along its 500-meter contour, which was wrapped up by around 9:00 a.m. At 8:45 a.m., the helicopter lifted off for São Vicente to pick up Eng. Jorge Santos, Cabo Verde's Minister of the Sea, for an onboard visit while operations were in full swing. By 9:30 a.m., both submersibles had entered the water to explore biodiversity along the 250- and 150-meter contours of western Nola. On board Nadir was Eliza Denniz (Cardiff University), while Neptune carried Mari-Lise Franken (South African National Biodiversity Institute) and Jaquelino Varela (University of Lisbon).

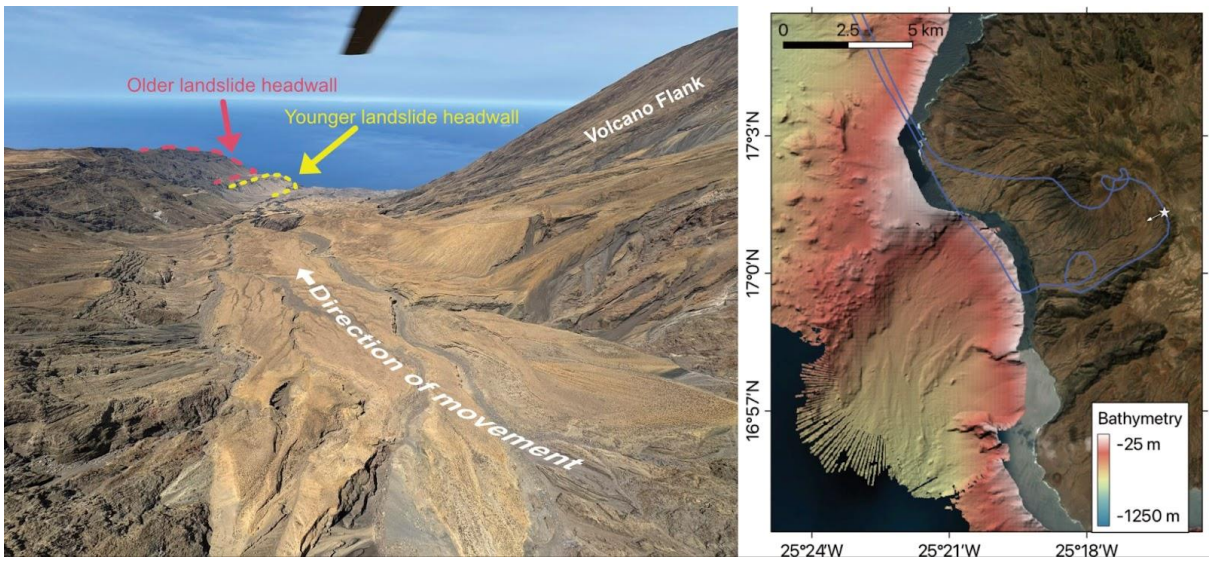
The Minister arrived on board at 10:30 a.m. and stayed until early afternoon. During his visit, he received a guided tour of the vessel, observed ROV operations at the 350-meter

contour, and had the chance to speak with members of the Cabo Verdean science team leading this leg of the expedition. The atmosphere was relaxed and welcoming, and the onboard media team documented the occasion with photos and video, including a group photo under the Cabo Verde and UN Ocean Decade flags. After joining the team for lunch, the Minister departed with warm words of thanks on behalf of the Government of Cabo Verde. The rest of the day was dedicated to continued ROV and submersible operations followed by a short megafauna survey by helicopter and mapping during the night.

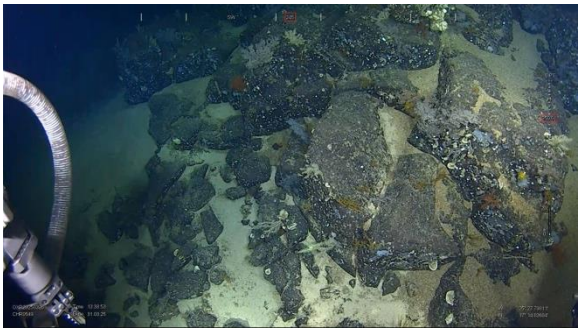
The visit of José Maria Neves, President of Cabo Verde, was a proud and memorable highlight for the mission and a milestone for future marine expeditions in the region. Both he and Martin Visbeck, CEO of OceanQuest, returned from their submersible dives with big smiles and a thumbs-up. A moment captured together in the sub and a group photo with the OceanQuest flag reflect the excitement and spirit of exploration that defined the day.

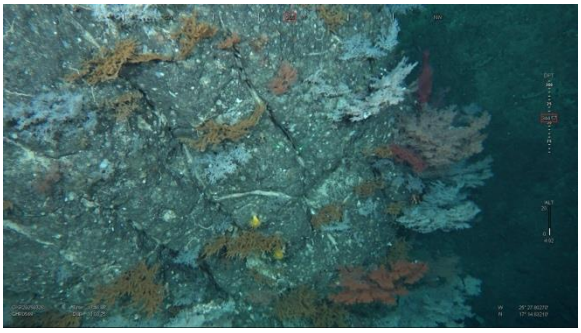
Following the Minister of the Sea's visit, Sunday, 30 March, became another very special day aboard OceanXplorer: José Maria Neves, the President of Cabo Verde, visited the vessel with his delegation. During the night, we continued seafloor mapping to fill the remaining gaps in the dataset. As daylight approached, we moved closer to the island to map shallower areas and took position in the bay of Tarrafal, where we awaited the President's arrival by helicopter. The visit had originally been scheduled for the previous day, but due to travel delays, President Neves requested to postpone by one day. As a result, the Minister of the Sea had visited separately on Saturday. Sunday, however, marked the official presidential visit — a proud and memorable moment for the entire expedition team. The President arrived on board at 10:50 a.m. and received a tour of the

bridge, the submersibles, and the ROV, which happened to be inspecting a nearshore site off Santo Antão at the time — and by sheer luck, discovered a vibrant and healthy patch of benthic biodiversity. The President was talking to the scientists on board and was then briefed for his upcoming submersible dive, scheduled for after lunch. Shortly after 12:30 p.m., the submersibles descended to a depth of around 150 meters. Neptune carried the President and his security officer, while Nadir hosted Martin Visbeck (CEO of OceanQuest). Both subs resurfaced about 75 minutes later, at 1:45 p.m., to plenty of smiles and excitement. Back on deck, the President took part in a brief Q&A interview, followed by a series of short presentations introducing OceanX, OceanQuest, the Around Africa Expedition, and the Cabo Verde science mission in particular. The visit concluded at 3:30 p.m., as the President and his delegation departed for São Vicente, where he later answered questions from the press. Overall, the visit was a tremendous success. The President left visibly impressed — having witnessed OceanXplorer operations in full swing, experienced a sub dive firsthand, and even seen two international research vessels working side by side, with RV Meteor conducting nearby operations at the same time. The remainder of the day was dedicated to additional seafloor mapping as we made our way back toward the Nola Seamounts, where we arrived the following morning.



Stunning aerial view of the massive landslide on the western flank of Santo Antão, extending well beyond the coastline into depths exceeding 1000 meters. The photo was taken facing southwest, with the helicopter positioned above the eastern edge of the structure.





From vibrant sponge grounds to surreal lava formations and coral-covered volcanic rocks — the seascape of Eastern Nola Seamount is nothing short of spectacular. A true highlight of Leg 2 of the Around Africa Expedition 2025. The ROV footage offers just a glimpse of the breathtaking scenes witnessed by our colleagues aboard the submersibles.

On Monday, 31 March, we returned to more routine science operations at the eastern flank of Nola Seamount. While the wind picked up a bit, conditions remained favorable for both submersible and ROV dives. The day's focus was dedicated to surveying the 500 m, 350 m, and 150 m depth contours. The sub dives revealed a vibrant and surprisingly rich ecosystem that left quite an impression on the observers: Yara Rodrigues (IMar) and Mattie Rodrigue (OceanX) aboard Neptune and Ali Alabyadh (KAUST) in Nadir. Meanwhile, the ROV lab audience enjoyed an equally stunning show on screen. The landscape was dramatic - steep volcanic cliffs, deep cavities, and broad lava slabs, all teeming with life. Colorful sponges and corals blanketed the rocky surfaces while crustaceans and fish filled the scene. As the wind increased slightly, the submersibles wrapped up their mission after completing the 350 m transect, and the ROV continued solo to finish surveying the 150 m contour. As with every day, operations concluded with a bongo net tow, and all collected samples were processed in the wet lab. Another highlight of the day was a brief helicopter flight alongside the ongoing aerial megafauna surveys. This flight targeted a prominent landslide feature at the western end of Santo Antão - an impressive structure extending over 25 km offshore. The goal was to scout exposed volcanic basement outcrops and identify potential sampling sites for a planned onshore campaign in the summer of 2025. The night shift focused on continued multibeam mapping, extending coverage along the western margin of our dataset and targeting the Charles Darwin volcanic field southwest of the Nola Seamounts.

This volcanic rock, features large crystals formed deep in the magma chamber. A rare find and true highlight for the onboard geologists eager to decode the seamount's fiery past.

Tuesday, 01 April marked the final day of our short but eventful expedition. The day began with an ROV dive along the 1000 m contour line at East Nola Seamount, wrapping up the biodiversity assessment we started the day before. Due to increasing winds and rougher seas, submersible dives were put on hold, but the ROV delivered one last geological surprise: a rock sample containing large, well-formed crystals. Needless to say, the geologists on board were thrilled - these crystals hold valuable clues about the magmatic processes that shaped the seamounts deep below, long ago. After the ROV was safely back on deck, we began our return transit to Mindelo (mapping some more seaflor) where the OceanXplorer arrived at the pilot station right on schedule at 3:00 PM. With a few hours to spare, the team packed up final samples, worked on the cruise report, tidied cabins, and of course, gathered for a group photo to capture the moment.

Happy crew, happy scientists! After an intense but successful few days at sea, the team celebrates a job well done - and looks forward to the next adventure.

Although this expedition was short, it was packed with events, discoveries, and unforgettable moments. We truly enjoyed every second, and the spirit on board was nothing short of fantastic. Our deepest thanks go to Captain Roger, Chief Scientist Mattie, and the incredible OceanXplorer team - professional, passionate, and a joy to work with. Your support made these remarkable achievements possible in such a short time.

Greetings from OceanXplorer in Mindelo!

Yara, Nico & Martin