

Argo Floats Video Answers

Thursday 19 June

1. Researching the Undersea World

The library is a nice quiet space on the *RV Tangaroa* with a coloured map of New Zealand. But this is no ordinary map. Oceanographer Phil Sutton uses the map to show where you are and to explain why we're here (and not somewhere else!).

1. Name New Zealand's three large underwater land masses?
 - Answer: Campbell Plateau, Chatham Rise and Challenger Plateau
2. What sort of water did Phil want to test the new Deep Argo Floats?
 - Answer: over 5,000m deep with a flat bottom (with no seamounts)
3. How do you know (by looking at the map) that the area here has the same depth over a large area?
 - Answer: it has the same colour (purple)
4. What is the latitude and longitude of this special place?
 - Answer: 36° South and 177° West
5. Phil explained that the heat arriving on the planet from the sun ends up warming the atmosphere, the land and the oceans. Scientists can calculate where most of the heat goes but there is some that is unaccounted for. A question for scientists: where is the missing heat? Question for you: What might the Deep Argo Floats tell us that might be useful?
 - Answer: The Deep Argo Floats will tell us the temperature of the lower ocean where the missing heat might have gone.

Next step learning: Find out about how greenhouse gases warm the planet.

2. Preparing a Regular Argo Float for Deployment

There is a special brown box on the deck of the *Tangaroa*. It's tied up with yellow tape and is being prepared for a big adventure! Inside, the Regular Argo Float is all set for a lifetime's work out in the oceans.

1. How is the yellow tape released so the box will float away?
 - Answer: There is a small starch tablet in the water release mechanism that releases the cord and sets the box free.
2. How does the box open up so the Argo Float can be free?
 - Answer: The tape around the box is made from cellulose that turns to mush and the box can open.
3. How is the Argo float started?
 - Answer: You swipe a magnet across the reset area on the side of the Argo Float.

Next step learning: Think about all the costs of deploying an Argo Float. Write down as many as you can.

3. Deploying a Deep Argo Float

The Deep Argo Floats are very new. The prototypes on this voyage are called 'Deep Solo II' Argos. They are being released to see if they can successfully travel down to 5,500m and still return to the surface to send their information to satellites. Scientist Nathalie Zilberman tells the story.

1. What was done to enable the Deep Argo Float to communicate with satellites **before** deployment?
 - Answer: It was shifted out on to the deck and taken out of its box
2. How was the Float put into the water?
 - Answer: It was lifted away from the ship's side and lowered gently into the water
3. How deep is its first test dive?
 - 150m
4. How deep is the second test dive?
 - 400m
5. If both test dives are successful how deep will the regular dives be?
 - 5,500m
6. What will happen after 1 year?
 - The Float will be recovered and the measurements checked.

Next step learning: Find out about the word *prototype*. Describe a prototype (eg a vehicle or machine).