



The ENSO Field Measurement Campaign Phase III: Water in Our Environment

WEBINAR #9- May 10th, 2018 Greetings from Suriname Anton Resida openbaar MULO











Anton Resida, Wanica, Suriname













There are 350 students at our school between the ages of 12 and 18.

After school the students like to do different activities

such as:

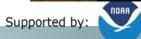
GLOBE activities

- Horse riding
- Playing guitar
- Soccer
- Karate and
- Ballet













We receive our water from the national water company. The water is pulled out of the ground.



The water bodies we studied are mostly used to discharge wastewater. One of the water bodies

is used for recreation and cultural rituals.

There is enough freshwater for the entire community in the district Wanica, but we don't know if everyone has access to water.











Our Research on Water in Our Environment

In April 2018 the GLOBE teachers started to teach us more about water.

We were interested in the quality of the water in our environment. We especially wanted to know if our water is safe to swim or bathe in.

We chose 3 locations in the vicinity of our school. All 3 water bodies are connected to each other.









Location 1

Our first location was a ditch that is connected to the Saramacca canal.

The water here was stagnant and the waterbody was shallow.





Location 2

Our second location was a ditch that is connected to the Saramacca canal.

The water body was deep and the water was flowing











THE GLOBE PROGRAM Location 3

Our last location was the Saramacca canal. All the previous locations are connected to this canal.

This canal is connected to the Saramacca river, one of the 7 major rivers in Suriname













Protocol	Measuring instruments	
Water temperature	Alcohol filled thermometer	
рН	LaMotte Salt water aquaculture test kit: - Test tube - Wide Range pH indicator - Octa- Slide viewer - pH Octa-Slide Bar	
Dissolved oxygen	LaMotte water monitoring kit: - Small tube - 2 Dissolved Oxygen TesTabs - Dissolved Oxygen color chart	
Turbidity	LaMotte water monitoring kit: - Secchi disk icon sticker - Kit container - Turbidity Chart	
Air temperature	Alcohol filled thermometer	
Clouds	Clouds Chart	









Water temperature















pН

- 1. Rinse a test tube three times with sample water
- 2. Fill test tube to 5 ml line with water sample
- 3. Add 8 drops * Wide Range pH Indicator. Cap and mix.
- 4. Insert test tube into Octa- Slide Viewer.
- Insert pH Octa-Slide Bar. Match color.
- 6. Record as pH.













Turbidity

The water test kit container is used to perform the Turbidity test.

- Remove the backing from the secchi disk icon sticker
- 2. Adhere sticker on the inside bottom of the large white jar(kit container). Position the sticker slightly off center.
- 3. Fill the jar to the turbidity fill line located on the outside kit label









Turbidity

4. Hold the Turbidity Chart on the top edge of the jar. Looking down into the jar, compare the appearance of the secchi disk icon in the jar to the chart. Record the result as Turbidity in JTU (Jackson Turbidity Unit).













Dissolved oxygen

- 1. Record the temperature of the water sample
- 2. Submerge the small tube(0125) into water sample. Carefully remove the tube from the water sample, keeping the tube full to the top.
- 3. Drop 2 Dissolved Oxygen TesTabs(3976A) into the tube. Water will overflow when tablets are added.
- 4. Screw the cap on the tube. More water will overflow as the cap is tightened. Make sure no air bubbles are present in the sample.











Dissolved oxygen

- Mix by inverting the tube over and over until the tablets have disintegrated. This will take about 4 minutes.
- 6. Wait 5 more minutes for the color to develop
- 7. Compare the color of the sample to the Dissolved
- 8. Oxygen chart. Record the
- 9. result as ppm(parts-per-million)
 Dissolved Oxygen













Results

Location /Time	Date	Turbidity (JTU)	Water temperature	рН	Dissolved Oxygen
1 (14.26)	28-4-18	0 - 40	26.5	6.5	0-4 ppm
(10.43)	5-5-18		28	7.0	0-4 ppm
2 (13.05)	2-5-18	0 - 40	25.3	6.5	0-4 ppm
(09.13)	5-5-18		27	6.5	0-4 ppm
3 (10.03)	5-5-18	40-100	28	6.5	0-4 ppm







THE GLOBE PROGRAM Results

Location	Date	Time	Air temperature	Clouds
1	28-4-18	14.26	26.5 ° C	Nimbostratus >90%, Overcast
	5-5-18	10.43	27.5 ° C	Cumulus, Stratocumulus >50% to 90%, Broken
2	2-5-18	13.05		Cumulus >50% to 90%, Broken
	5-5-18	09.13	25.5 ° C	Stratocumulus, Cumulus >50% to 90%, Broken
3	5-5-18	10.03	26 ° C	Stratocumulus >50% to 90%, Broken

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Conclusion

Because we have not gathered enough data, we can not draw any conclusions yet. But we can make a few statements.

Some statements about the 3 water bodies on the different days and times:

- The air temperature was between 25.5 and 27.7 degrees Celsius
- More cumulus and stratocumulus were observed with a cloud cover between> 50% to 90%, Broken









- If we look at the turbidity of water body 1 and 2 in relation to water body 3, we see that the turbidity is less than 40 JTU, which means that the turbidity is good
- The water temperature of water body 2 is the lowest
- The pH of the 3 water bodies are usually 6.5, it is more acidic
- Striking is that all water bodies have a dissolved oxygen content between 0-4 ppm









Conclusion

- We have learned to do water measurements ourselves
- We have learned about the water quality and we want to know more about the waters in our environment
- Our water bodies are polluted with plastic bottles and plastic bags. We have become more aware about the harmful effects of plastics in our water and realized that we need to remove it from our environment







Conclusion

- We are planning to contact the Ministry of Public
 Works so that the water bodies can be cleaned up
- We need to gather more data to know more about the waters in our environment
- Soon we will share the collected data with GLOBE











Names of GLOBE Teachers and students

GLOBE Teachers

- Cheyenne Samson
- Meriam Kalloe

GLOBE students

- Drishti Pheria
- Elizah Halfhide
- Feroeskha Lachman
- Ienascha Orie



- Rauhl Mahabier
- Rohan Khoesiaal
- Xavier Artist







