Student Presentations (Concurrent Sessions)

Themes
Environmental Problems and Solutions
Developing a Sense of Connections Between Observations and Measurements Across Spheres
New Technologies and GLOBE

Monday 2 July

Location/ Time	Ballroom	Mangerton	InnesFallen
2:00	SPM1. Occurrence of Malaria in Kenya Based on Climatic Zones *School/Country: St. Scholastica Catholic Primary School, Kenya*	SPM2. The Effect of Precipitation on Malaria Prevalence in Guinea *School/Country: Lycée Francais Albert Camus de Conakry, Guinea*	SPM3. Free Artificial Containers X Captivity Traps: What is the Famous Villain's Favorite Deposit? *School/Country: Escola Municipal Minas Gerais, Brazil*
2:10	SPM4. Mosquito Larvae and Water Qualities in Chiangrai Province, Thailand *School/Country: Samsenwittayalai School, Thailand*	SPM5. The Effect of ENSO on Dengue Cases in Muang Nakhon Si Thammarat, Thailand *School/Country: Princess Chulabhorn Science High School Nakhon Si Tammarat, Thailand*	SPM6. Relation of Mosquito-Borne Diseases and Malaria *School/Country: George High School, South Africa*
2:20	SPM7. Is there a Correlation Between Aerosol Levels and the Level of Industrial Development in a Region? *School/Country: St. Joseph's Secondary School, Ireland*	SPM8. Cadmium-Removing Water Filter *School/Country: Triamudomsuksa School, Thailand*	SPM9. The Sustainable Exploitation of Forest Products in Mfoundi Division, Yaounde, Cameroon *School/Country: Government Bilingual High School Etoug Ebe, Cameroon*
2:30	Questions	Questions	Questions
2:40	SPM10. GLOBE Data Used in Mosquito Investigation *School/Country: Pan American International School, Puerto Rico, USA*	SPM11. The Effect of Distance From the Center 's Curve on Water Quality & Heavy Metals in Chien Yai River *School/Country: Princess Chulabhorn Science High School Nakhon Si Tammarat, Thailand*	SPM12. Doggos Drink Water: Water Quality Around Boulder, Colorado *School/Country: Boulder High School, Centennial Middle School, Mackintosh Academy, United States*

2:50	☼SPM13. Analysis of the 2017 Solar Eclipse at 80% Totality *School/Country: Crestwood High School, United States*	SPM14. Why Do Students Absent? *School/Country: Skola za Medicinske Sestre Vrapce, Croatia*	SPM15. Phenology on Differently Oriented Branches *School/Country: Kantonsschule Olten, Switzerland*
3:00	☼SPM16. The Influence of Fireworks During New Year's Eve on the Amount of Aerosols *School/Country: Helen Parkhurst, The Netherlands*	SPM17. What are the Effects of Atmospheric Rivers on the Precipitation in Medford, NJ, USA? *School/Country: Medford Memorial Middle School, United States*	SPM18 Hydrology at Very Different Locations of a Stream *School/Country: Kantonsschule Olten, Switzerland*
3:10	Questions	Questions	Questions
3:20	Break	Break	Break
3:40	SPM19. Physico-Chemical Pollution Indicators in Freshwater Systems *School/Country: Goodwood Secondary School, Trinidad and Tobago*	SPM20. New SMAP Soil Moisture Protocol to Improve Volumetric Water Content Data *School/Country: Medford Memorial Middle School, United States*	☼SPM21. Surface Ozone *School/Country: St. Francis Xavier Catholic School, United States*
3:50	SPM22. The Effect of (i) Rainfall, (ii) Light Intensity and (iii) Temperature on the Sugar Content of the Nectar of the Ixora Flower *School/Country: Brazil Secondary School, Trinidad and Tobago*	SPM23. Can Plants Remove Heavy Metals From Soil? *School/Country: Thirkell, United States*	SPM24. How Did the Average Atmospheric Optical Thickness (AOT) at our Site Compare to Other Regions of the World This Spring? *School/Country: Portlaoise College, Ireland*
4:00	SPM25. The Relationship Between Clouds and Precipitation *School/Country: St. Francis Xavier Catholic School, United States*	SPM26. The Effects of Nitrate, pH, and Temperature on Dissolved Oxygen *School/Country: St. Francis Xavier Catholic School, United States*	SPM27. Air Quality in our Parking Lot *School/Country: Our Lady of Mount Carmel School, United States*
4:10	SPM28. Source Water and Corrosivity in Urban Waters *School/Country: Cass Tech, United States*	SPM29. Cloud and Ground Temperature Observation Data *School/Country: Hot Springs High School, United States*	SPM30. The Water Quality of Hirase River *School/Country: Kanagawa Prefectural Ikuta High School, Japan*
4:20			
4:30	Questions	Questions	Questions

☼IVSS Drawing Winner

STUDENT PRESENTATION ABSTRACTS
Monday 2 July

SPM1 **Occurrence of Malaria in Kenya Based on Climatic Zones**

TEAM: JoyAnn Maina, Age 12, Grade 7

TEACHER: Charles Maina

ABSTRACT: *Malaria is one of the main killers in the world, more so in the developing countries. Kenya has many cases of Malaria reported and treated. However, many unreported cases result in death. This is partly because Kenya has different climatic zones and the occurrence of Malaria differs for each region.*

COUNTRY: Kenya

SPM2 **The Effect of Precipitation on Malaria Prevalence in Guinea**

TEAM: Gouyombia Kongba Zeze Charles Philippe Melvin, Age 11, Grade 6

TEACHER: Ylliass Lawani

ABSTRACT: *This research studies the effect of precipitation on malaria prevalence in Guinea. Our research question: "Does precipitation affect mosquito proliferation?" We analyzed data from Guinean meteorology center and from Hospital in Conakry to confirm that there is relation between precipitation and malaria prevalence and conversely with mosquito larvae hatching.*

COUNTRY: Guinea

SPM3 **Free Artificial Containers X Captivity Traps: What is the Famous Villain's Favorite Deposit?**

TEAM: Juliana Karina Garcia Vilella, Age 12, Grade 8

TEACHER: Inês Mauad

ABSTRACT: *The study investigated the Aedes aegypti breeding sites preference in the surroundings of the school. The presence of Aedes aegypti, mosquito that transmits diseases, in an urban area represents potential risk to the population. The Mosquito larvae collected showed that black artificial deposits breeding sites, were preferred for this species.*

COUNTRY: Brazil

SPM4 **Mosquito Larvae and Water Qualities in Chiangrai Province, Thailand**

TEAM: Krittiyakorn Pochai Pitchayapak Pakpongsir, Pakamon Chaiyamool, Age 16, Grade 11

TEACHER: Wanwipa Sutthakiet

ABSTRACT: *This study investigated the differences in container types, mosquito types, water qualities, altitudes and their numbers between seven temples and two gardens in Chiangrai province, Thailand in February 2018. We found that container types and numbers differed significantly among the sites. Water qualities and elevation were different among sites.*

COUNTRY: Thailand

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SPM5 **The effect of ENSO on Dengue Cases in Muang Nakhon Si Thammarat, Thailand.**

TEAM: Kasima Theangtum, Age 17, Grade 11; Nichakan Chanprasit, Age 17, Grade 11

TEACHER: Kanokrat Singnui

ABSTRACT: *We investigated ENSO affecting dengue cases and HI in Mueang NST, Thailand. Randomly selected 32 households, collected mosquito larvae, identified Aedes larvae and compared dengue cases between ENSO group during 2011-2017. The results showed that Dengue cases in Muang NST between groups were different (F2,36=9.422, P<0.05) and HI showed for dengue risk area.*

COUNTRY: Thailand

SPM6 **Relation of Mosquito-Borne Diseases and Malaria**

TEAM: Nikita Orange, Age 16, Grade 10; Bronwyn Apollis, Age 17, Grade 11

TEACHER: Charles Orange

ABSTRACT: *Mosquitoes are responsible for the transmission of several harmful diseases, infecting masses of people and are the source of 1 million deaths each year. The mosquito is the deadliest animal, and the disease is spread biologically (through mosquito bite) globally, due to climate change and global development status.*

COUNTRY: South Africa

SPM7 **Is There a Correlation Between Aerosol Levels and the Level of Industrial Development in a Region?**

TEAM: Abbie Duffy, Eimear O'Brien, Aoife Hessessy

TEACHER: Caroline McGrath

ABSTRACT: *We identified four GLOBE schools in regions with varying levels of industry. Although the results surprised us, we shared some suggestions on what future research could look like.*

COUNTRY: Ireland

SPM8 **Cadmium-Removing Water Filter**

TEAM: Kamolsom Trakultritrung, Age 19, Grade 12; Weeraya Pruktanakul, Age 17, Grade: 12; Sakhila Teerakidpisan, Age 18, Grade 12

TEACHER: Thiparpa Sirvarakul

ABSTRACT: *This research introduces a cadmium-removing water filter using phytoremediation and biosorbtion. We study the cadmium uptake potential of fresh and dried water lettuce and hydrilla, in which dried hydrilla has the best potential. Then, we invent a cadmium-removing filter using multiple weights of dried hydrilla. The result shows dried hydrilla's weight's an influence on cadmium uptake potential.*

COUNTRY: Thailand

SPM9 **The Sustainable Exploitation of Forest Products in Mfoundi Division, Yaounde, Cameroon**

TEAM: Bawe Bilanyuh Mutap, Age 15, Form 4 Bil; Abongujung Fru William Blake Carington Guemuh, Age 15, Lower Sixth Science

TEACHER: Ateghang Epse Nkwenti

ABSTRACT: *Forest products have been destroyed due to climatic change: temperature, rainfall, drought and deforestation. Most of them have been extinct and thereby putting the population in scarcity. We encouraged domestication of forest products for maintenance, sustainability and availability. These wildlife and food products among others are endangered, requiring salvation.*

COUNTRY: Cameroon

SPM10 GLOBE Data Used in Mosquitoes' Investigation.

TEAM: Melanie Koops Isasi, Age 15, Grade 9; Alejandro Martínez López, Age 15, Grade 9; Caia Dejesus Cibils Daher, Age 15, Grade 9

TEACHER: Agatha Boveda

ABSTRACT: *This exploratory research will later be related with the larvae and mosquito protocol results that we are carrying out. We tested the hypothesis that it was possible to show positive correlation among the factors that affect a mosquito's life cycle with available data in GPADAT.*

COUNTRY: United States

SPM11 The Effect of Distance from the Center's Curve on Water Quality & Heavy Metals in Chien Yai River

TEAM: Satayawan Khwanmaung, Age 16, Grade 10, Poomin Chumpoo, Age 16, Grade 10

TEACHER: Thapanawat Chooklin

ABSTRACT: *We investigated the effect of river's curve distances on water quality and heavy metals in Chien Yai river, NST, Thailand. Sample were collected at 50m, 100m, 150m and 200m, The result showed the value of DO, Transparency and the Iron content were positively correlated with the distance. (DO; = 0.13, P<0.01, Transparency; = 0.17, P<0.05; Fe; =0.09, P<0.05)*

SPM12 Doggos Drink Water: Water Quality Around Boulder, Colorado

TEAM Olivia Malmberg, Age 15, Grade 10; Aspen Malmberg, Age 13, Grade 8; Eleanor Malmberg, Age 10, Grade 4

TEACHER: Jason Malmberg

ABSTRACT: *This research assesses water quality at various locations in Boulder, Colorado, USA. We checked the water quality of spots where our dogs like to drink water. Using Vernier probes, we measured water temperature, pH, and dissolved oxygen. We also talked to a vet about what is ideal for keeping dogs healthy and happy.*

COUNTRY: United States

SPM13 ☼Analysis of the 2017 Solar Eclipse at 80% Totality

TEAM: Maysam Aidibi, Age 17; Leanne Alawieh, Age 17; Ali Eter, Age 16; Sara Komaiha, Age 16; Hana Salami. Age 16

TEACHER: Diana Johns

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ABSTRACT: *A total solar eclipse recently occurred on August 21st, 2017. A group took surface temperature, air temperature, light intensity, and cloud observation measurements on grass and asphalt sites every ten minutes from 12:27 P.M. to 4:27 P.M. with totality being at 2:27 P.M.*

COUNTRY: United States

SPM14 Why do Students Absent?

TEAM: Estera Opačak, Age 17, Grade 2; Luka Bakonji, Age 16, Grade 1; Josip Novosel, Age 6, Grade 1

TEACHER: Ira Beck, Marinela Labas, Jelka Skoton

ABSTRACT: *Are absences connected with meteorological changes, quality of sleep, student obligations? Respiratory or digestive system respond to damp and warm closed areas; pressure and air humidity values cause fatigue, dizziness, lower concentration, headache, poorer mood; stress and reduced sleep quality reduce the activity of the immune system.*

COUNTRY: Croatia

SPM15 Phenology on Differently Oriented Branches

TEAM: Larissa Stebler, Age 17; Lou Keller, Age 17

TEACHER: Andreas Schmid

ABSTRACT: *Is there a connection between the development of buds and leaves and the direction in which the branches on which they grow point? We want to answer that question by observing a birch, two lime trees and three cherry trees, collecting data twice a week.*

COUNTRY: Switzerland

SPM16 ☼The Influence of Fireworks During New Year's Eve on the Amount of Aerosols

TEAM: Sanne Streekstra, Age 15; Eva Janssen, Age 16; Sander de Beet, Age 15; Rozemarijn van den Born, Age 16

TEACHER: Maaike Vollebregt

ABSTRACT: *Do the fireworks during New Year's Eve affect the amount of aerosols? We did a background study on aerosols. We measured the amount of aerosols via two methods and collaborated with another school. Our conclusion was that the fireworks during new Year does not affect the amount of aerosols.*

COUNTRY: The Netherlands

SPM17 What are the Effects of Atmospheric Rivers on the Precipitation in Medford, NJ, USA?

TEAM: Alexander Cappello, Age 14, Grade 8; Brett Peterson, Age 14, Grade 8; Royce Jacobs, Age 13, Grade 7

TEACHER: Vicky Gorman

ABSTRACT: *NASA JPL scientists analyzed data from the Global Precipitation Measurement mission to identify Atmospheric Rivers (AR). An AR is a long, thin plume of water vapor stretching from the tropics into higher latitudes. After consulting with JPL, we decided to research the effect of AR on precipitation in our area.*

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COUNTRY: United States

SPM18 Hydrology at Very Different Locations of a Stream

TEAM: Diana von Arx, Age 17; Jasmin Baumgartner, Age17; Silas Schibli, Age 18

TEACHER: Andreas Schmid

ABSTRACT: *In our project, it's all about hydrology. We try to find out if there is a difference between the water quality of a canalized and a renaturated part of a stream. For collecting the data, we use bioindication and analyzing the water at to different places about the chemical composition.*

COUNTRY: Switzerland

SPM19 Physico-Chemical Pollution Indicators in Freshwater Systems

TEAM: Darnell Fredrick, Age 13, Grade 7; Tristan Grant, Age 13, Grade 7; Jelanie Ross, Age 13 Grade 7; Antoinette Lewis, Age 13, Grade 7; Faith Hope, Age 13, Grade 6

TEACHER: Karen Jones

ABSTRACT: *The health of freshwater systems on the island of Tobago is being threatened by unsustainable human practices, particularly in agriculture and urban development/spontaneous settlements. A comparative assessment of the physio-chemical pollution indicators in a rural and an urban river system was the focus of this study.*

COUNTRY: Trinidad and Tobago

SPM20 New SMAP Soil Moisture Protocol to Improve Volumetric Water Content Data

TEAM: Alessandro Garistina. Age 14, Grade 8; Sydney Bernhardt, Age 13, Grade 7

TEACHER: Vicky Gorman

ABSTRACT: *Last year, Medford Memorial Middle School students conducted soil moisture research using the GLOBE SMAP protocol. However, the hypothesized results were not seen. This was partly attributed to a need for a change in the soil collection technique. This year, we implemented a new technique with very good results.*

COUNTRY: United States

SPM21 ☼Surface Ozone

TEAM: Anna Willard, Age 12, Grade 7

TEACHER: Amy Woods

ABSTRACT: *If there are more clouds, then higher levels of bad ozone will be present in the troposphere, because the clouds will prevent the ozone molecules from escaping higher up. In conclusion, the data showed the more clouds observed, the less ozone, and the fewer clouds observed, the more ozone present.*

COUNTRY: United States

SPM22 The Effect of (i) Rainfall, (ii) Light intensity and (iii) Temperature on the Sugar Content of the Nectar of the Ixora Flower

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TEAM: Jessica Isaac, Monique Reid, Dariana Seeram

TEACHER: Kameel Mohammed-Ali

ABSTRACT: *none submitted*

COUNTRY: Trinidad and Tobago

SPM23 Can Plants Remove Heavy Metals From Soil?

TEAM: Nia Patton, Age 14

TEACHER: Connie Atkisson

ABSTRACT: *This project's purpose was to determine if Raphanus sativus can remove lead from water used to nurture plant growth. Raphanus sativus (common radish) plants will be watered daily and tested at different times to determine if the plants have absorbed the lead from the water used to grow them*

COUNTRY: United States

SPM24 How did the average atmospheric optical thickness (AOT) at our site compared to other regions of the world this spring?

TEAM: Katarzyna Polak, Alisha Zambra Delaney, Karyna Tehza

TEACHER: Katherine Kinsella

ABSTRACT: *We first researched what caused and influenced AOT levels. Then, we picked two other GLOBE schools, compared the data and made some hypotheses to be tested in future research.*

COUNTRY: Ireland

SPM25 The Relationship between Clouds and Precipitation

TEAM: Gabriel Woods, Age 11, Grade 5; Sophia Willard, Age 11, Grade 5; Molly Fleming, Age 11, Grade 5 (not attending)

TEACHER: Amy Woods

ABSTRACT: *What is the connection between clouds and precipitation? If cumulonimbus/nimbostratus clouds are observed during the day, there will be measurable rain in the next 48 hours because those are the clouds that produce precipitation. It seemed that cirrus clouds were more popular with high and low measurements of precipitation.*

COUNTRY: United States

SPM26 The Effects of Nitrate, pH, and Temperature on Dissolved Oxygen

TEAM: Lily Shriner, Age 13, Grade 7

TEACHER: Amy Woods

ABSTRACT: *The hypothesis states when the nitrate levels are high, the dissolved oxygen levels will be low, and pH and temperature will not affect the DO as much as the nitrate level will. The nitrate did appear to be the main contributor to the lack of dissolved oxygen in Lake Heritage.*

COUNTRY: United States

SPM27 **Air Quality in our Parking Lot**

TEAM: Eliza Baddar, Age 13, Grade 7; Zachary Runyan, Age 12, Grade 6 (not attending)

TEACHER: Angela Rizzi

ABSTRACT: *Handheld Calitoo instruments were used to measure AOT (aerosol optical thickness) before, during and after carpool at our school to determine if the cars idling the parking lot had a significant impact on AOT.*

COUNTRY: United States

SPM28 **Source Water and Corrosivity in Urban Waters**

TEAM: Kyan Wilson

TEACHER: Connie Atkisson

ABSTRACT: *With the challenges urban cities are facing with their waters, water samples from five cities were tested for three years and compared to determine the healthiest residential drinking water. Historical data was also gathered to examine raw water quality and determine if it had an effect of drinking water corrosivity*

COUNTRY: United States

SPM29 Cloud and Ground Temperature Observation Data

TEAM Jenny Scrivner, Age 16, Grade 10; Sage Jackson, Age 15, Grade 10; Sydney Jackson, Age 15, Grade 10; Laci Lien, Age 15, Grade 10; EmmaRae Rasmussen, Age 15, Grade 9

TEACHER: Beau Herman

Abstract: *The relationship of cloud type and cover to surface temperature was closely analyzed based on data collected at solar noon in Hot Springs, Montana. Data suggested increased cloud cover and cirrostratus clouds were associated with warmer temperatures. Though elevation, climate type, and latitude should be considered when analyzing surface temperature.*

COUNTRY: United States

SPM 30 The Water Quality of Hirase River

TEAM: Chihiro Nishimura, Age 16, Grade 2 High School; Shuji Kawahara, Age 16, Grade 2 High School; Rino Hashimoto, Age 16, Grade 2 High School; Daiki Iwasaki, Age 16, Grade 2 High School; Sota Yanagi, Age 16, Grade 2 High School

TEACHER Reiko NEZU

Abstract: *We're doing water survey on Hirase river, which is near our school, once a week. We are checking about the following items: pH,COD,NH4+,NO2-,NO3-,PO43-, the water temperature and the muddy condition. We are going to tell you about the findings based on the data.*

COUNTRY: Japan

Tuesday 3 July

Location/ Time	Ballroom	Mangerton	InnesFallen
2:00	SPT1. Garonne, a River Under Surveillance. *School/Country: Middle School Jules Valles, France*	SPT2. Diesel and Aerosols in Paderborn *School/Country: Gymnasium Schloß Neuhaus, Germany*	SPT3. A Vanishing Future: Erosion Along the Kwethluk River and Subsequent Loss of Indigenous Heritage *School/Country: Ket'acik & Aapalluk Memorial School, United States*
2:10	SPT4. The Effects of Predators on Mosquito Larva Numbers in Trang Province, Thailand *School/Country: Princess Chulabhorn Science High School, Thailand*	SPT5. Macroinvertebrates as Water Quality Bioindicators *School/Country: Science Club Huechulafquen, Argentina*	SPT6. GLOBE vs climatic data, evidence of global warming *School/Country: Lycée Palissy, France*
2:20	SPT7. Status of Mosquito Larvae and Water Qualities in Shrimp Ponds in Trang Province, Thailand *School/Country: Princess Chulabhorn Science High School Trang, Thailand*	SPT8. Substrate Evaluation for Horticultural use *School/Country: CEI San Ignacio, Argentina*	SPT9. The Quality of Potable Water in Mvomeka'a *School/Country: Lycee Classique et Moderne Mvomekaa, Cameroon*
2:30	Questions	Questions	Questions
2:40	SPT10. Water Quality in Thale Noi,Thailand *School/Country: Papayompitthayakom School, Thailand*	SPT11. Bud Burst - Measuring Climatic Conditions in Clem's Garden at Connect Charter School-Calgary, Canada *School/Country: Connect Charter School, Canada*	SPT12. Who Do Mosquito Like? *School/Country: Prirodoslovna I Graficka Skola Rijeka, Croatia*
2:50	SPT13. The Comparison of Soil Benthos Diversity and Latex Products Rubber Plantations Type *School/Country: Papayompitthayakom School, Thailand*	SPT14. Range of Visibility *School/Country: Základni Škola TG. Masaryka Moravské Budějovice, Czech Republic*	SPT15. Soil Moisture Memory after a Precipitation Event *School/Country: Medford Memorial Middle School, United States*
3:00	SPT16. Impact of Environmental Factor to Firefly Density *School/Country: Jatukamwittayacom School, Thailand*	SPT17. European Trees within European Weather *School/Country: ZS Trebec, ul.kps.Jarose 836, Czech Republic*	SPT18. Cloud Observations and Weather Prediction *School/Country: Medford Memorial Middle School, United States*
3:10	Questions	Questions	Questions
3:20	Break	Break	Break

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3:40	SPT19. Factors Effecting Concentration of PM2.5 in Phayathai, Bangkok, Thailand *School/Country: Samsenwittayalai School, Thailand*	SPT20. Monitoring Plant Growth With Near-IR Photography and Drones. *School/Country: Notre Dame School, Dominican Republic*	SPT21. Artificial Lakes as Sources of Pollution *School/Country: Miina Härma Gymnasium, Estonia*
3:50	SPT22. A Comparative Study of SMAP Satellite Soil Moisture Data and Student Soil Moisture Data *School/Country: Jennings CLC, United States*	SPT23. Long Term Phenology: Green Up & Green Down 2001-2016 *School/Country: Palmer High School, United States*	SPT24 The Variability of the Functional Diversity of the Phytoplankton the Lakes in Võrumaa *School/Country: Kääpa Basic School, Estonia*
4:00	SPT25. The Effects of K and D.O. On Freshwater Ecosystems *School/Country: Garfield High School, United States*	SPT26. Comparative Water Quality Index in Restored Waterways *School/Country: Toledo Natural Science Technology Center, United States*	SPT27. Peatland vegetation in relationship with water and peat conditions *School/Country: Tartu Katoliku School, Estonia*
4:10			
4:20			
4:30	Questions	Questions	Questions

STUDENT PRESENTATION ABSTRACTS
Tuesday 3 July

SPT1 **Garonne, a river under surveillance**

TEAM: Larrieu-Lacoste Aurelie, Age 14, Grade 9; Larrieu-Lacoste Julie, Age 12, Grade 6

TEACHER: LARRIEU-LACOSTE Sandrine

ABSTRACT: *This year, we studied the problem of climate change on the hydrological cycle of the Garonne river. First, we statistically studied the climate GLOBE data. Then, to monitor the river level, and to check the satellite in-situ data, we construct a water level sensor with the arduino microcontroller.*

COUNTRY: France

SPT2 **Diesel and Aerosols in Paderborn**

TEAM: Florian Schmidtmann, Age 15, Grade 9; Lenny Korsch, Age 14, Grade 8

TEACHER: Anna Heyne-Mudrich

ABSTRACT: Westphalia and Ghana : Climate Change and the Development of Data

COUNTRY: Germany

SPT3

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A Vanishing Future: Erosion Along the Kwethluk River and Subsequent Loss of Indigenous Heritage

TEAM: Tristan Chimegalrea, Age 19, Grade 12; Jessie Nicholas, Age 19, Grade 12; Amber Alexie, Age 19, Grade 12; Janna Pavilla, Age 19, Grade 12

TEACHER: Whitney Spiehler and Pauline Morris

ABSTRACT: *Land loss due to human and environmental influence led us to utilize GLOBE protocols for gravimetric soil water measurements to study erosion and soil moisture along our riverbank. Losing land will mean losing history; we want to preserve the land of our elders and their way of life.*

COUNTRY: United States

SPT4 **The Effects of Predators on Mosquito Larva Numbers in Trang Province, Thailand**

TEAM: Suleeporn Saingam, Age 17, Grade 12; Phiramon Srisuk, Age 17, Grade 12

TEACHER: Patchara Pongmanawut and Jaruwan Chootan

ABSTRACT: *This study investigated the effects of predators on mosquito larvae numbers in Trang province. We randomly sampled 120 houses and collected mosquito larvae and predators from containers based on the GLOBE mosquito protocols. The results showed that there were 11 species of predators in containers with and without mosquito larvae.*

COUNTRY: Thailand

SPT5 **Macroinvertebrates as Water Quality Bioindicators**

TEAM: Marianela Pepe, Age 15, Grade 10

TEACHER: Ana Beatriz Prieto

ABSTRACT: *In 2015, before the eruption of the Calbuco Volcano, an investigation of macroinvertebrates was carried out in the Chimehuín River. Sampling was continued in the summers of 2016 and 2017 to study the impact caused by the disturbance of the fallen ashes and the anthropic impact.*

COUNTRY: Argentina

SPT6 **GLOBE vs kClimatic Data, Evidence of Global Warming**

TEAM: Camilia Tritah, Age 16, Grade 10; Mathilde Gouget, Age 16, Grade 10

TEACHER: Pedurand

ABSTRACT: *We want to quantify the global warming. We search all stations with data in Europe and USA. We collect temperature data's for the different stations (year 2017) and climatic data's for the same stations. We have 70% of 2017 values upper than climatic values.*

COUNTRY: France

SPT7 **Status of mosquito larvae and water qualities in shrimp ponds in Trang province, Thailand**

TEAM: Prangnapas Kongneam, Age 17, Grade 12; Annop Sangkhamanee, Age 18, Grade 12

TEACHER: Patchara Pongmanawut and Jaruwan Chootan

ABSTRACT: *This research aimed to study the mosquito larvae and water qualities in shrimp ponds of Trang province. We collected mosquito larvae based on the GLOBE mosquito protocols. We found only Culex spp. were present only in nine ponds and Culex spp. larvae numbers did not differ among these nine ponds.*

COUNTRY: Thailand

SPT8 **Substrate evaluation for horticultural use**

TEAM: Félix Aliaga, Age 19, Grade 12

TEACHER: Ana Prieto

ABSTRACT: *The objective of this work was to evaluate volcanic ash and yerba as a substrate for the growth of radishes. Water retention and growth in the orchard were compared to the greenhouse using the following substrates: volcanic ash, volcanic ash and soil mix, vermicompost, yerba and control soil.*

COUNTRY: Argentina

SPT9 **The quality of potable water in Mvomeka'a**

TEAM: Beti Abate Martin Dupont, Age 16, Grade Seconde C; Mendomo Larissa, Age 15, Grade Seconde A4 ALL

TEACHER: Medjo Jerome

ABSTRACT: *We took data for six weeks and observed that the best form of potable water is the modern well with neutral pH and high turbidity. Water should be properly treated and many more modern wells constructed for the population of Mvomekaa since the pipe born water source is not reliable.*

COUNTRY: Cameroon

SPT10 **Water Quality in Thale Noi ,Thailand**

TEAM: Khwankhao Voranetiwudt, Age 13, Grade 7

TEACHER: Paninee Voranetivudti

ABSTRACT: *This study investigated the water quality of five areas (buffalo, purple swamphen, lotus, big Chinese net, and water area) and to test the differences in water qualities among these areas. The result shows that the water quality in five areas were in the standard range of aquaculture. Keyword: water quality, Thale Noi, Thailand*

COUNTRY: Thailand

SPT11 **Bud Burst - Measuring Climatic Conditions in Clem's Garden at Connect Charter School-Calgary, Canada**

TEAM: Patrick O'Connor, Age 10, Grade 5

TEACHER: Erin Piper

ABSTRACT: *Using GLOBE Budburst Protocol- I, with my Grade 5 class at Connect Charter School in Calgary, Alberta, Canada, are looking at the buds every day on two different poplar trees in*

our school garden. We marked the trees and monitor them until the buds become leaves. I am sharing my results with a local scientist and we discuss the changes seen in our location and over the past years.

COUNTRY: Canada

SPT12 Who do mosquito like?

TEAM: Margareta Kljun, Grade 12; Patricia Pesic, Grade 10

TEACHER: Marina Pavlic

ABSTRACT: *New environmental problem in our County are mosquitoes. Inhabitants and students got strong allergic reactions after mosquito bites, they think it's just a nuisance. They use a lot of repellents that pollute the environment. GLOBE students found natural repellents and anti itching compounds environmentally friendly. We used GLOBE protocols for study.*

COUNTRY: Croatia

SPT13 The comparison of soil benthos diversity and latex products rubber plantations type

TEAM: Nathan Chumkhot, Age 17, Grade 11; Phatcharee Nu-aek, Age 17, Grade 11

TEACHER: Paninee Voranetivudti

ABSTRACT: *This study found that benthos diversity and soil quality as pH, soil temperature, and soil humidity of the organic plantation higher than the chemical plantation. While the latex products of the chemical is higher than the chemical plantation. However, the organic plantation has net income higher than the chemical plantation.*

COUNTY: Thailand

SPT14 Range of Visibility

TEAM: Adam Zima, Age 14, Grade7; Martin Kosmák, Age 15, Grade 9

TEACHER: Romana Průšová

ABSTRACT: *Students of Eco School Club at elementary school of TomÃ¡Å¡ Garrigue Masaryk dealed with a task last year: How far can you see from the school windows? Afterwards they investigated the factors influencing the visibility.*

COUNTRY: Czech Republic

SPT15 Soil Moisture Memory after a Precipitation Event

TEAM: Maggie Bowman, Age 14, Grade 8; Nate Levas, Age 14, Grade 8

TEACHER: Vicky Gorman

ABSTRACT: *Using data from the SMAP satellite, scientists from MIT and NASA's JPL have determined there can be a five-day soil moisture memory after a precipitation event. Our research used in situ soil samples before and after rain events to see if there was a similar moisture memory.*

SPT16 Impact of Environmental Factor to Firefly Density

TEAM: Nubtong Wanniyom, Age 10, Grade 4; Prawnapa Arunsot, Kanyarat Puddon, Age 11, Grade 5

TEACHER: Jintana Motong

ABSTRACT: *Firefly is an indicator of the abundance of the environment. The colleagues interested in studying some factor of environmental impact on firefly density at Ban Phrao, Tambon Don, Amphoe Pak Thong Chai, Nakhon Ratchasima, Thailand in November 2016 to January 2017. The firefly density depended on trees, soil property, air quality and water quality near the Lam Phra Pleang canal.*

COUNTRY: Thailand

SPT17 European Trees within European Weather

TEAM: Inka Veverkova, Age 14, Grade 8; Tereza Konecna, Age 14, Grade 8; Iva Kucharikova, Age 14, Grade 8; Jan Vavrinek, Age 14; Grade 8; Karolina Dennerova, Age 13, Grade 7

TEACHER: Vera Keselicova

ABSTRACT: *Project is focused on the phenology and meteorology reseach. Students from our school, Latvian and Croatian school observe two trees: birch and oak and do meteorology measurements. They process the measured values and results of observations and make conclusions about climate and its influence to trees.*

COUNTRY: Czech Republic

SPT18 Cloud Observations and Weather Prediction

TEAM: Andrew Carr, Age 14, Grade 8; Bhavan Dhulipalla, Age 14, Grade 8

TEACHER: Vicky Gorman

ABSTRACT: *Research indicates cloud observations can be used to help predict the weather. But… "How accurately can we predict weather events by direct cloud observation?" "Are there ways to make clouds more relevant to a person's daily routine?" "Can we, as junior scientists, excite the public to look skyward more often?"*

COUNTRY: United States

SPT19 Factors effecting concentration of PM2.5 in Phayathai, Bangkok, Thailand

TEAM: Pannaporn Kalkoljuck, Age 16, Grade 11; Kanokpron Prechatrammaruch, Age 17, Grade 11; Puttipong Chaichotkulchai, Age 17, Grade 11

TEACHER: Wanwipa Sutthakiet

ABSTRACT: *The researchers conduct the research about PM2.5 in Phayathai District. Researchers collect the daily data of PM2.5 concentration in 2016 and 2017.The researchers applied the linear regression technique to see factors affecting PM2.5 concentration. Those factors are amount of NOx, PM10, wind speed, and relative humidity.*

COUNTRY: Thailand

SPT20 Monitoring plant growth with near-IR photography and drones.

TEAM: Lía Gómez, Age 15; Melanie Trimpín, Age 15; Alexia Lugo, Age 15; Gabriela Arias, Age 14

TEACHER: Roberto Fernandez

ABSTRACT: *Agricultural products are important in the GDP of the Dominican Republic. Using drones, infrared cameras and imaging software we analyzed agricultural areas for differences in soil moisture, crop damages, texture, green up and green down and MUC identification. Other factors will be considered as the investigation ends in June 2018.*

COUNTRY: Dominican Republic

SPT21 Artificial Lakes as Sources of Pollution

TEAM: Uku Andreas Reigo, Age 14, Grade 8

TEACHER: Ronald Laarmaa, Helgi Muoni

ABSTRACT: *Artificial water reservoirs are subject to human influence and require regular surveillance to prevent eutrophication. This investigation evaluated some physical-chemical parameters of lake water, partly using GLOBE protocols, and was carried out on two reservoirs. A negative, though not severe effect of the dam on the water quality was detected.*

COUNTRY: Estonia

SPT22 A Comparative Study of SMAP Satellite Soil Moisture Data and Student Soil Moisture Data

TEAM: Zack Shumway, Age 14, Grade 9

TEACHER: Steven Frantz

ABSTRACT: *The purpose of this project is to use the GLOBE Block pattern protocol to find out if the SMAP satellite takes correct soil moisture date. Soil moisture samples were taken when SMAP was overhead for comparison. It is easy to easy to say that the SMAP satellite is taking correct data.*

COUNTRY: United States

SPT23 Long Term Phenology: Green Up & Green Down 2001-2016

TEAM: Marna Ziegler, Sapphira Flint, and Blainey Dunyon, Age 16-7, Grade 11

TEACHER: Cheryl Williams

ABSTRACT: *Our objective was to find out if there were any significant changes in the growing seasons over the years, using green up and green down data. Our group used GLOBE data from both Palmer and Wasilla High School. The schools are located ten miles apart.*

COUNTRY: United States

SPT24 The Variability of the Functional Diversity of the Phytoplankton the Lakes in Võrumaa

TEAM: Kerstin Rätt, Age 15, Grade 9

TEACHER: Aiki Jõgeva, (Elli Altin)

ABSTRACT: *The aim of this research was to find out if the phytoplankton of 14 water bodies in Võrumaa (Estonia) is rather similar or different. The diversity (size distribution and shape variation) was studied. Both functional attributes are ecologically important and it is considered to be an indicator of ecosystem health.*

☼IVSS Drawing Winner

COUNTRY: Estonia

SPT25 The Effects of K and DO on Freshwater Ecosystems

TEAM: Leah Stanevich, Age 17, Grade 12

TEACHER: Steven Frantz

ABSTRACT: *Water quality is important for healthy environments. Studies show increased phosphorus from runoff into waterways has increased the risk for toxic algal blooms due to lack of dissolved oxygen. The hypothesis was ecosystems with high phosphorus contained lower D.O., promoting harmful anaerobic bacteria. The data does not support the hypothesis.*

COUNTRY: United States

SPT26 Comparative Water Quality Index in Restored Waterways

TEAM: Toy Stewart, Age 19, College Freshman

TEACHER: Laura Kubiak

ABSTRACT: *A non-restored and eroded section of Hill Ditch Creek's water quality was compared to a restored section of the creek. Results showed that both sites had similar overall water quality scores, other than counts of fecal coliform. All waterways connect and are affected by sites upstream.*

COUNTRY: United States

SPT27 Peatland Vegetation in Relationship with Water and Peat Conditions

TEAM: Roosi Ahas, Age 13, Grade 6

TEACHER: Jaan Pärn, Elli Altin

ABSTRACT: *To the dependence of peatland vegetation on soil physical factors, I use the Land Cover Sample Site Protocol and measure peat temperature at different depths, water level, water pH, and oxygen level in peatland sites in southeastern Estonia. I distinguish characteristic plant species for specific water and soil conditions.*

COUNTRY: Estonia

Thursday 5 July

Location/ Time	Ballroom	Mangerton	InnesFallen
2:00	SPTh1. Evaluating Bacteria Levels in Filtered Water after Hurricane Maria Devastated Puerto Rico *School/Country: Ramey High School, United States*	SPTh2. Aerosols and Air Quality *School/Country: Lycee Honore D'Estienne D'orves, France*	SPTh3. Does Traffic Influence the Level of Particles in the Air? *School/Country: St. Clair's Primary School, Ireland*
2:10	SPTh4. Water and Land Pollution in Accra	SPTh5. Smells and Atmospheres Particles in Biganos	SPTh6. The effect of drainage on water quality

☼IVSS Drawing Winner

	School/Country: University of Ghana Basic School, Ghana	*School/Country: Lycée de la Mer de Biganos, France*	*School/Country: Bibó István Gimnázium, Hungary*
2:20	SPTH7. Urban Rivers-Urban Waters *School/Country: Henry Ford Academy, United States*	SPTh8. Tracking the Size of Aérosol *School/Country: Collège Marguerite de Navvarre, France*	SPTh9. Improper Land Management Due to Urbanization *School/Country: Winfield High School, Khammam, Telangana State, India*
2:30	Questions	Questions	Questions
2:40	SPTh10. How to Treat Chlorides Soil for Palm Trees *School/Country: Prince Sultan Complex, Saudi Arabia*	SPTh11. The Effect of Gray Water on Soil Properties and Plant Growth *School/Country: Ibri, Oman*	SPTh12. Use of Filters to Clean and Purify the Rain Water that Enters the Dams During the Floods *School/Country: Empangeni High School, South Africa*
2:50	SPTh13. Recycling Cigarette Butts *School/Country: 1st Middle Girls School in Samta, Jazan, Saudi Arabia*	☼SPTh14. Investigating the Effectiveness of Using Common Reed in Plants *School/Country: Um Hani, Oman*	SPTh15. Water Extraction, Filtration and Defluoridation: The Future of African Water *School/Country: Empangeni High School, South Africa*
3:00	SPTh16. Water and Animals Ground Zero for the Next Plague Part 2 *School/Country: Harmony High School, United States*	SPTh17. Study of Mango Trees Non-flowering Reasons in Village Area of Al-Mazarei, Qurayat *School/Country: Um Al-Hakam Bint Al Zuber School, Oman*	SPTh18. Extraction of Fresh Water from the Sea Bed Aquifers *School/Country: Empangeni High School, South Africa*
3:10	Questions	Questions	Questions
3:20	Break	Break	Break
3:40	SPTh19. Toxic Waters School/Country: Hawkins High School, United States	SPTh20. Effect of Sewage Water (in Hadri Belad Village) on Water of Wells *School/Country: AlRefa Basic School, Oman*	SPTh21. Create Clean and Pure Water for Human Use and Consumption in Ezimbeni Area *School/Country: Empangeni High School, South Africa*
3:50	SPTh22. Improving Water Quality after Hurricane Maria *School/Country: Ramey Unit School, Puerto Rico, United States*	SPTh23. Study About the Water Quality And Validity In Sa'ara Falaj After A break of 16 Years *School/Country: Al-Khwarizmi Primary School, Oman*	SPTh24. Starting Long-Term Project On Insect Emergence In Spring *School/Country: Ida High School, United States*

☼IVSS Drawing Winner

4:00	SPTh25. Can Modifying the Soil with Erosion Control Techniques Lower the Risk of Erosion? *School/Country: Gesu, United States*	SPTh26. The Effect of Alansab Wetland on the Environmental Diversity *School/Country: Choueifat School, Oman*	SPTh27. Are Increased Aerosol Levels in Spring Related to the Burning of Solid Fuels? School/Country: Coláiste Muire, Ireland
4:10		SPTh28. The Effect of Indoor and Outdoor Humidity on PM2.5 *School/Country: Taichung Municipal Taichung Girl's Senior High School, Taiwan*	SPTh29. The Effect of Eco-Friendly Embankments *School/Country: Het Goese Lyceum, The Netherlands*
4:20			
4:30	Questions	Questions	Questions

STUDENT PRESENTATION ABSTRACTS
Thursday 5 July

SPTh1 **Evaluating Bacteria Levels in Filtered Water after Hurricane Maria Devastated Puerto Rico**

TEAM: Giovanishka Gonzalez, Age 15 Grade 10; Kaymarie Jimenez, Age 14, Grade 9; Elisa Torres-Yeckley, Age 15, Grade 9 (not attending)

TEACHER: Richard Roettger

ABSTRACT: *Hurricane Maria devastated Puerto Rico, leaving the people without potable water and electricity for months. Various water filters were donated throughout the island. Our team decided to test the bacterial levels of unfiltered and filtered water to ensure safe drinking water for the people of Puerto Rico.*

COUNTRY: United States

SPTh2 **Aerosols and Air Quality**

TEAM: Emma Parente, Age 15; Fanny Sola, Age 15

TEACHER: Mrs. Lacour

ABSTRACT: *Aerosols, small particles in the atmosphere, play an essential part on our air quality. In this project, based on the GLOBE program, we will discover what those aerosols are, how they affect air quality, how to measure them with the CALITOO (AOT-meter) and how satellites survey them to control air quality.*

COUNTRY: France

SPTh3 **Does Traffic Influence the Level of Particles in the Air?**

TEAM: Isabel Kelly, Aisling McKeever, Matilda Murray

TEACHER: Maria Spring

ABSTRACT: *We complemented our AOT measurements with the capture of solid particles near our school using a home-made system. Unsurprisingly areas more exposed to traffic showed higher levels of particles.*

☼IVSS Drawing Winner

COUNTRY: Ireland

SPTh4 **Water and Land Pollution in Accra**

TEAM: Kojo Nyamekye Ansah, Age 13, Grade 8

TEACHER: Berthy Buah

ABSTRACT: *This project describes land and water pollution in Ghana and suggests possible ways to solve this problem. Information was gathered from online news reports that focused on land and water pollution as well as my personal observation of the problem in the city of Accra.*

COUNTRY: Chana

SPTh5 **Smells and Atmosphere's Particles in Biganos**

TEAM: Delannoy Mathilde, Age 17, Grade 1S; Isenbaert Lauryn, Age 17, Grade 1S; Bertrand Lou, Age 16, Grade 1S

TEACHER: Annie Carrasset

ABSTRACT: *There are some disgusting smells in our town coming from the neighboring plant. So, we wonder if it affects air quality. Is the Calitoo able to answer such a question analyzing the fine particles ?*

COUNTRY: France

SPTh6 **The Effect of Drainage on Water Quality**

TEAM: Borbála Szőnyi, Age 17; Izabella Kertész, Age 17

TEACHER: Piroska Tóth

ABSTRACT: *As part of our work with GLOBE we have been examining the water of the Dongér Canal. We wanted to know how improvements to the municipal sewerage system (2015) has influenced the quality of the water. After analyzing all the information, we found out the water quality has improved considerably.*

COUNTRY: Hungary

SPTh7 **Urban Rivers-Urban Waters**

TEAM: Takyra Jones, Age 15, Grade 9

TEACHER: Connie Atkinson

ABSTRACT: *Declining health of urban rivers led to research being conducted using historic and current primary data to determine if the Flint and Detroit Rivers showed improvement over time. Three years of data was collected, examined, and compared to a control model to determine if the hypothesis was valid or null.*

COUNTRY: United States

SPTh8 **Tracking the Size of Aérosol**

TEAM: Carbonnière Lucie, Age 13; Suzan Brito, Age 15

☼IVSS Drawing Winner

TEACHER: Puig Jean Noel

ABSTRACT: *How does the size of aerosols change the amount of light which goes through? Aérosols circulate in a closed pipe: the transmission of the different ligth wavelengths depends on the size of particles. The calitoo measure both the AOT and the α factor. That informs us about their origin.*

COUNTRY: France

SPTh9 Improper Land Management Due to Urbanization

TEAM: Vemuri Giri Sai Tej, Age 14, Grade Secondary X class

TEACHER: Gadde Pulla Rao

ABSTRACT: *Urbanization is phenomenon which is observed all over the world weather nation is developed or developing. Main cause being migration and increase in population, it has various impacts on the city structure. This study analyses the urbanization trends in Khammam, Telangana State, India causes of urbanization and its impacts on housing sector.*

COUNTRY: India

SPTh10 How to Treat Chlorides Soil for Palm Trees

TEAM: Nawaf Ahmed Altuajeri, Age 17, Grade 12; Read Bader AlBuryidi, Age 17, Grade 12

TEACHER: Mansour Bin Badi Almutari

ABSTRACT: *2016 Palms tree suffered and marked a deterioration in crops in Northern Buraidah, whereas this decline was not noticed in the West Buraidah. an increase in chlorides in groundwater which was harmful to the palm trees. The researcher recommended adding some chemicals which will reduce the salinity of the soil.*

COUNTRY: Saudi Arabia

SPTh11 The Effect of Gray Water on Soil Properties and Plant Growth

TEAM: Baraa Salim Said AlAbri, Age 14

TEACHER: Shaikha Mubarak Alsawafi - AlAnood Batti Alyaqoobi

ABSTRACT: *The Effect of gray water on soil properties and plant growth .The purpose was indicated aboue, plus, weather this water is suitable to answer this question ,researchers used tools including water , soil , land cover protocols and interviews .The results revealed this water wasn't suitable for irrigation without treatment .*

COUNTRY: Oman

SPTh12 Use of Filters to Clean and Purify the Rain Water than Enters the Dams During the Floods

TEAM: Sisanda Mahlobo, Age 14, Grade 8

TEACHER: Helena Joubert

ABSTRACT: *Floodwater becomes detrimental to the environment as it washes away the soil and destroy habitats. Building underground water tunnels to store the floodwater that was purified*

using specialised filters would maximising availability of fresh water during the droughts while barriers along the river banks would minimise damage to the environment.

COUNTRY: South Africa

SPTh13 Recycling Cigarette Butts

TEAM: Faii Ahmed Al Omar, Age 15, Grade 9; Wijdan Hasan Hazazi, Age 15, Grade 9

TEACHER: Saliha Abkar Abass

ABSTRACT: *Water is very important for all living creatures; therefore, any pollution will affect all living creatures in it. An experiment was conducted by gradually adding (1-4) butts in an aquarium. Change of watercolor, the death of fish and increasing water acidity resulted. It recommended recycling cigarette butts as a solution.*

COUNTRY: Saudi Arabia

SPTh14 ☼Investigating the Effectiveness of Using Common Reed in Plants

TEAM: Arwa Nasser Said ALjulndani, Age 15, Grade 9

TEACHER: Nawar

ABSTRACT: *This study investigated the effectiveness of using common reed in fertilizing plants and its effect on the water and the soil on which it grows.*

COUNTRY: Oman

SPTh15 Water Extraction,Filtration and Defluoridation: The future of African water

TEAM: Thobeka Mlambo, Age 17, Grade 12; Andiswa Dunge, Age 17, Grade 12

TEACHER: Helena Joubert

ABSTRACT: *Many African countries experience problems of excessive fluoride in drinking water. Household treatment units do not completely remove the concentration level of fluoride in drinking water. In combining well-known extraction, filtration and de-fluoridation methods, this project intends to create a 3-stationed system, to provide clean water for human consumption.*

COUNTRY: South Africa

SPTh16 Water and Animals Ground Zero for the Next Plague Part 2

TEAM: Isaac Edwards, Age 16, Grade 11; Shane Sewell, Age 16, Grade 11; Brandon Mc Neil, Age 16, Grade 11; Matthew Scott, Age 16, Grade 11

TEACHER: Audra Edwards

ABSTRACT: *The group's aim is to test the likelihood of waterborne diseases occurring in regions around the world due to improper agricultural activities. They hope to raise awareness about the importance of cleanliness around water, and aims to find solutions to waters contaminated by agricultural pollution and the diseases caused by such.*

COUNTRY: United States

SPTh17 Study of Mango Trees Non-flowering Reasons in Village Area of Al-Mazarei, Qurayat

TEAM: Yaqyani Shamis Mohammed Albattashi. Age 15, Grade 9

TEACHER: Rahma salim Amer Al Talbi

ABSTRACT: *We discovered that water source is a valley flowing behind the farms, Al-Qarya area (a lightly-dark alkaline clay soil of moderate salinity, and significantly alkaline and water with low salinity). Juzair area (an alluvial very-dark soil of low alkalinity and high fertility with water of low alkalinity and high salinity).*

COUNTRY: Oman

SPTh18 Extraction of Fresh Water from the Sea Bed Aquifers

TEAM: Mpumelelo Shaun Zungu, Age 18, Grade 12

TEACHER: Helena Joubert

ABSTRACT: *Large quantities of low-salinity water trapped beneath the ocean floor could provide drinking water for countries like South Africa that faces water shortages. This project explores possible extraction of freshwater from huge aquifers beneath the ocean floor by drilling through the seabed from offshore platforms like the oil RIG.*

COUNTRY: South Africa

SPTh19 Toxic Waters

TEAM: Triston Dodson, Age 18, Grade 12; Dalton Wages, Age 17, Grade 12

TEACHER: Audra Edwards

ABSTRACT: *This is a comparison hydrology study of: Lone Star Lake and Lake Hawkins Tankersley Creek and Sabine River.*

COUNTRY: United States

SPTh20 Effect of Sewage Water (in Hadri Belad Village) on Water of Wells

TEAM: Tif Amer Said Al_Mashaiki

TEACHER: Shamsa Al-Hakmani

ABSTRACT: *The study aims at exploring the impact of sewage water in the drinking water wells. The tests reveal of the existence of two types of Colon bacteria in water which might affect humans' health. A periodic test for the water wells was recommended and to share the results with citizens. In addition there should be signs of suitability on these wells.*

COUNTRY: Oman

SPTh21 Create Clean and Pure Water for Human Use and Consumption in Ezimbeni Area

TEAM: Irfaan Sabat, Age 18, Grade 12

TEACHER: Helena Joubert

ABSTRACT: *Watertighting the three pits situated in Ezimbeni, above Lake Mbukwini, near uMfolozi River, by lining them with clay and redirect the water into the lake for purification can increase the amount of clean water available for human consumption in KwaZulu-Natal rural areas where untreated drinking water is a major concern.*

COUNTRY: South Africa

SPTh22 Improving Water Quality after Hurricane Maria

TEAM: Bria Roettger, Age 14; Janeliz Guzman, Age 14; Kailey Aponte, Age 13

TEACHER: Ingrid Rapatz-Roettger

ABSTRACT: *Hurricane Maria devastated Puerto Rico, leaving it without potable water or electricity. It exposed people to hazardous water that led to bacteria-related diseases. To prevent water contamination, we created an effective prototype to distill and eliminate bacteria using natural resources resulting in zero bacterial pathogens identified in filtered water.*

COUNTRY: United States

SPTh23 Study About The Water Quality And Validity In Sa'ara Falaj After A break Of 16 Years

TEAM: Majid Salim Suliman Alsaa'di

TEACHER: Ibrahim Habib Albalushi

ABSTRACT: *By the application of the water protocol at Umm Al-Falaj, the Busanda tower and the Sharia area we reached that the Falaj water is not suitable for drinking due to high acidity and salinity except in Umm Al-Falaj. We recommend to raise awareness of the community to take care of the Falaj.*

SPTh24 Starting Long-Term Project On Insect Emergence In Spring

TEAM: Timothy Czajkowski

TEACHER: Kevin Czajkowski

ABSTRACT: *We collected insects and temperature data on and off this spring with the goal to learn when certain insects come out of hibernation. Temperature observations are taken where the insects are found. The goal is to find how insect activity is affected by weather and climate in future years.*

COUNTRY: United States

SPTh25 Can Modifying the Soil with Erosion Control Techniques Lower the Risk of Erosion?

TEAM: Seth Kirk, Age 12, Grade 6

TEACHER: Darnise Woods

ABSTRACT: *Three major types of soil were tested for water runoff without any type of control method to determine which type would retain the most soil when impacted by a water event. A corrosion control technique was built and tested to determine if it would lower the risk of runoff.*

COUNTRY: United States

SPTh26 The Effect of Alansab Wetland on the Environmental Diversity

TEAM: Mohammed AlMamari, Age 14, Grade 8; Alreem Almamari, Age 15, Grade 10; Ghassan Al Sadi, Age 13, Grade 7; Yumna Al Sadi, Age 15, Grade 9

TEACHER: Naylaa Albalushi

ABSTRACT: *The goal of this study is to research the effect of Alansab Wetland which is human made from sewage treatment on the environment in the region, and how the presence of these lakes effect the climate, and how it affected the diversity of living organisms such as birds and plants.*

COUNTRY: Oman

SPTh27 Are Increased Aerosol Levels in Spring Related to the Burning of Solid Fuels?

TEAM: Clara Feeney, Lily Price, Ciara O'Connor

TEACHER: Nicola Meere

ABSTRACT: *We measured aerosols for twenty days in spring 2018 and noticed that aerosol levels tended to be higher on cold and overcast days. Could this be linked to the burning of solid fuels by households when it is cold? Future research could help confirm our hypothesis and develop solutions.*

COUNTRY: Ireland

SPTh28 The Effect of Indoor and Outdoor Humidity on PM2.5

TEAM: Su,Ching-Yi, Age 16, Grade 11; Li,Pei-Jou, Age 16, Grade 11; Chang, Chiun-Fang: Liu, Yu-Ming, Age 16, Grade 11

TEACHER: Cheng Chueh Liu

ABSTRACT: *Air pollution has become one of serious problems in Taiwan. Compared with outdoors, relatively small space of indoors may contain higher concentration of particulate matters (PM). In addition to the size of space factor, the humidity may also play an import role on the concentration of PM. Therefore, we analyze the effect of indoor and outdoor humidity on the concentration of PM.*

COUNTRY: Taiwan

SPTh29 The Effect of Eco-Friendly Embankments

TEAM: Eline van Toer, Yzon Dorreman, Thijs Hagenaars, Arco Hollestelle

TEACHER: Diane Robyn, Klaas Groot

ABSTRACT: *For our local water board. we investigated the effect of eco-friendly embankments on the water quality. Our research question was "What is the effect of making a ditch eco-friendly on the levels of ammonium and nitrate in the water in comparison to a ditch with non-eco-friendly embankments?".*

COUNTRY: The Netherlands