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NASA NICE Workshop –Wrap up Activity
2012 Elizabeth City State University

Produce 1 to 2 page document that describes your initial plan for using the workshop tools and datasets you have experienced over the last week.

Include in your plan …

- **Which course(s) you will include workshop tools and materials.**
  The course name is BIOL 315: WATER QUALITY MANAGEMENT. The title of the textbook used in this course is *Principles of Water Resources: History, Development, Management and Policy* by Thomas V. Cech.

- **When will this most likely be implemented Fall 2012, Spring 2013, Summer 2013**
  The NASA-NICE workshop tools and materials will be implemented in the Fall 2012 academic semester.

- **Describe the type of students that typically take the course, and be sure to include the approximate number of students that are pre-service teachers.**
  This course will include Junior and Senior Biology and Environmental Science students. The course usually facilitates about 25 students. Three of the 25 students will probably be pre-service teachers

- **Describe the overall learning objectives for the lesson plan or unit that will include the workshop tools and datasets.**
  I will be implementing water quality laboratory exercises that are linked to "Observing the Marine Biosphere with NASA Ocean Color"; demonstrated and presented by Dr. Timothy S. Moore. In this exercise:
  1. Students will be able to observed the perpetual movement of the ocean and understand why climate conditions persist and weather conditions are always changing.
  2. Students will be able to use spectral colors and satellite images to identify surface temperature changes.

3. Students will be able to identify seasonal changes using spectral colors and satellite images.
4. Students will be able to interpret graphs and correlate satellite images with temperature changes.

After performing the laboratory exercises students will have a greater understanding terms and concepts from the textbook:

1. Climate definition
2. Coriolis Effect
3. Global trade winds
4. Intertropical convergence zone
5. Weather definition
6. El Nino
7. Greenhouse gases
8. Jet Streams
9. Southern Oscillation

- **Describe any learning objectives as they specifically relate to climate education (you must have at least one climate education learning objective)**

I will implement the **GIOVANNI-web-based** application to focus on seasonal cycles; demonstrated and presented by Dr. Timothy S. Moore. In this exercise:

1. Students will be able to navigate and manipulate GIOVANNI for specific areas of interest in the ocean.
2. Students are able to create a time series plot for ocean events.
3. Students will be able to describe and explain the role of phytoplankton in the marine environment.
4. Students will be able to explain or describe the climate variability of ocean currents.
5. Students will be able to measure chlorophyll *a* as a consequence of satellite images.
6. Students will be able to generate graphs of interest using satellite images.

- **Identify what specific climate education module(s) from this workshop you intend to use, and whether you plan to use the total module or customize it for your specific needs.**

GIOVANNI-web-based Application.

- In no more than one page, share your current thoughts on what you will use and how.

The GIOVANNI-web-based application will be use to enhance the student's scientific literacy skills and research readiness skills. After using a hands-on approach to generate data, the students will be required to investigate a specific problem using the scientific method: Statement of the problem, formulating the hypothesis, observation/experimentation, and

conclusion. For example, students will be asked to investigate phytoplankton survival in the Gulf of Mexico after Hurricane Katrina and Hurricane Rita. To do this, students would have to create a time line before each hurricane occurred. In addition, they must document

- **Identify any big challenges or obstacles that immediately come to mind in your implementation?**

  The laboratory time is three hours, once a week. Pre-laboratory exercises must be done to acquaint students with the GIOVANNI web-based application.

- **Describe how you plan to determine (assess) if the climate education module(s) you use was effective at reaching the overall learning objectives, and specific climate education objectives.** I will use formal assessments such as laboratory project grades. Students are deemed successful when they make the grade of "B" or above on projects.