-- Agenda for the 2011 ESIP summer conference teacher track sessions --

Tuesday July 12th

8:30 – Welcome, Introductions & Workshop Overview
9:00 – **Climate Change 101 and Climate Knowledge for Action**
Margaret Mooney, CIMSS/SSEC, UW-Madison
10:00 – Break
10:30 – **How do we understand climate?**
LuAnn Dahlman, NOAA Climate Program Office
11:15 - **Classroom activities and interactive web tools to explore the Earth Carbon Cycle**
Tommy Jasmin, CIMSS/SSEC, UW-Madison

12:00 – Lunch

1:00 to 1:45 *Two concurrent sessions*
Using SEDAC TerraViva! to Analyze Earth Science Data
Robert R. Downs, CIESIN, Columbia University
Using web GIS tool to explore Bioenergy resources
Presenters: Ranyee Chiang & Rahul Ramachandran, DOE

1:45 to 2:30 *Two concurrent sessions*

The Climate Literacy and Energy Awareness Network (CLEAN) Pathway Collection and Community
Tamara Ledley, Climate Literacy Network
Finding and using map and data services for data intensive science teaching
Karl Benedict, EDAC/University of New Mexico

2:30 to 3:00 Break

3:00 to 3:45 - *Two concurrent sessions*
SEAICEBOX
Annette Schloss, University of New Hampshire
Real-Time Science Collaboration, Connecting Scientists & their Data with Students
Rafael Ameller, StormCenter Communications, Inc.
3:45 to 4:30 - - *Two concurrent sessions*
Observing the Earth and Visualizing the Future
John Moore, Einstein Fellow, NSF Geosciences
Utilizing the Global Change Master Directory (GCMD)
Tyler Stevens, NASA

4:30 - Adjourn

Wednesday July 13th

8:30 **– Federation of Earth Science Information Partners (ESIP) Overview**
Erin Robinson, ESIP
9:00 **– Communicating Climate Change: Perfecting your elevator speech & responding to concerned parents**
Margaret Mooney & LuAnn Dahlman
9:45 **- Break**
10:00 **– Taking it back to the classroom** (divide into 2 groups, middle & high school)
10:30 **– Report back from break-outs & General Share-a-thon**
11:15 **- Staying Connected with the ESIP Wiki**
Becky Reid, Santa Barbara School District
11:45 **– Evaluations and stipend paperwork**

NOON**- Lunch**

AFTERNOON **– ESIP Plenary *or* BLM Geology Field Trip 1 to 4pm –** *transportation is limited; however, additional participants are encouraged to car-pool & caravan*
5:00 **– ESIP Poster Session and Reception**

2011 ESIP Teacher Workshop Session Descriptions – (June version)

Title: ESIP Overview
Presenter: Erin Robinson, ESIP
Description:
The Federation of Earth Science Information Partners (ESIP Federation) is a broad-based community comprising researchers and associated groups that produce, interpret and develop applications for Earth and environmental science data. By increasing the use, usability, and value of the world's leading data and tools, the ESIP Federation paves the way for science data and information to be used by people concerned about the health of our planet. This session will provide an overview of the ESIP Federation and the 2011 Summer Conference.

Title: How do we understand climate?
Presenter: LuAnn Dahlman, NOAA
Description:
NOAA monitors, studies, and makes predictions about climate. This session will provide an overview of these processes and demonstrate resources and activities that can help students understand them. We'll explore hands-on activities that highlight observational platforms and instruments to help students develop a concrete understanding of where and how climate data are collected. We'll also take a look at Web sites that enable students to access and explore local to global climate data. Finally, we'll consider climate models and explore how students can analyze trends to make their own predictions about future climate.

Title: Using SEDAC TerraViva! to Analyze Earth Science Data
Presenter: Robert R. Downs, CIESIN
Description:
The 2011 TerraViva! SEDAC Viewer DVD contains satellite-based data, maps, socioeconomic data, and geographic information system (GIS) tools that enable easy integration and visualization for analysis and demonstration. Applicable to lessons in the physical sciences and the social sciences, the GIS tools foster global and regional data analysis. Session participants will each receive the DVD and have an opportunity to use the 2011 TerraViva! SEDAC Viewer to visually analyze satellite-based data along with socioeconomic data and maps to explore and demonstrate relationships between humans and the environment.

Title: Using web GIS tools to explore Bioenergy resources
Presenters: Ranyee Chiang & Rahul Ramachandran, DOE
Description:
Renewable energy impacts energy security, economic opportunities, and the environment. The Bioenergy Knowledge Discovery Framework helps consumers, policymakers, and researchers to access and integrate the range of data that is needed to make informed decisions about bioenergy. This session will demonstrate how teachers and students can use the Bioenergy KDF to learn about the agriculture, energy, infrastructure, and environmental issues around bioenergy, and to answer questions about the feasibility, benefits, and regional impacts of a bioenergy industry.

Title: Climate Change 101 and Climate Knowledge for Action
Presenter: Margaret Mooney, CIMSS/UW-Madison
Description:
Climate change is happening and actions we take today can make a difference for everyone's tomorrow. This session starts with a review of key observations of warming before providing an overview of a few resources educators can use to ground their knowledge in science, including a UW-Madison on-line course based on the 2007 IPCC Summary for Policy Makers. (http://cimss.ssec.wisc.edu/climatechange/) With a firm foundation, we'll end with examples of actions individuals can take to mitigate climate change.

Title: Utilizing the Global Change Master Directory (GCMD) for Discovering Science Related Educational and Outreach Materials
Presenter: Tyler Stevens, NASA
NASA's Global Change Master Directory (GCMD) enables users to discover and access Earth science data sets and data services relevant to global change and Earth science research. Data Services allows users of data to find tools to manipulate and manage Earth science data. Teachers can use the directory to find and access curriculum support materials and interactive programs to educate students about Earth science and climate change. Visit the GCMD at http://gcmd.nasa.gov/.

Title: Observing the Earth and Visualizing the Future
Presenter: John Moore, Einstein Fellow, NSF Geosciences
Description:
This session will feature demonstrations of emerging data files for Google Earth that allow teachers and students to observe earth system variables in near real time along with demonstrations of a Space to Earth: Earth to Space (SEES) model for ground truth verification. These skill sets may be applicable to the GLOBE Program Student Climate Research Campaign.

Title: The Climate Literacy and CLEAN Pathway collection
Presenter: Tamara Ledley, Climate Literacy Network
Description:
The CLEAN Pathway project (http://cleanet.org) has identified existing climate change educational resources for grades 6-16 and reviewed them for scientific accuracy, pedagogical effectiveness, and technical quality/ease of use. Resources that have passed this review process have been aligned with the Climate Literacy Essential Principles and the AAAS Project 2061 Benchmarks for Science Literacy. The CLEAN Pathway project facilitates use of these resources through the "Teaching Climate Science and Energy Awareness" pages (http://cleanet.org/clean/literacy/index.html) and online professional development opportunities.

In this workshop we will review the CLEAN Pathway site to help you identify the resources that will be useful in your classroom, and look at specific examples of activities in the collection taken from the Earth Exploration Toolbook (http://serc.carleton.edu/eet) and EarthLabs (http://serc.carleton.edu/earthlabs).

Title: Finding and using map and data services for data intensive science teaching
Presenter: Karl Benedict, EDAC
Description:
Scientific progress increasingly depends upon access to large data collections that are both impractical to store on local computer systems and are exposed through data services on the Internet. This session will provide an overview of some key data access approaches that can streamline the delivery of remote science data into the classroom as an example of this emerging research model. In particular, a set of core data access and visualization standards will be introduced with a specific emphasis on how science data can be visualized through free mapping tools (including Google Earth), and downloaded in formats that are usable in the classroom (e.g. Excel spreadsheets, KML). Some existing sources of these data and visualization products will be used to demonstrate these services and provide a starting point for data that may be of interest in the classroom.

Title: ESIP Teacher Wiki
Presenter: Becky Reid, Santa Barbara School District
Description:
Learn about an on-line work space to maintain connections created at ESIP workshops to continue conversations, network, share ideas and resources.
http://esipteachers.pbworks.com

Title: Real-Time Science Collaboration, Connecting Scientists & Data with Students
Presenter: Rafael Ameller, StormCenter Communications, Inc.
Description:
A motivating aspect of learning is the student can speak directly to the scientist and ask him/her questions about their area of research. From extreme weather to climate change to earthquakes and tsunamis students have been fascinated by the power of nature and how it affects us here on Earth. StormCenter Communications is working to connect scientists with students and teachers LIVE in the classroom through the power of real-time collaboration. The purpose of this workshop is to demonstrate the Envirocast® Vision™ Collaboration Module (EVCM) to the attendees, let them participate and provide feedback on how useful this technology could be in the classroom. Scientists can display their datasets remotely while explaining to students what those datasets mean and answer any questions LIVE. We believe that this is an engaging way to promote and inspire STEM learning…what do you think?

Title: Classroom activities & interactive web tools to explore the Earth Carbon Cycle
Presenter: Tommy Jasmin, CIMSS/UW-Madison
Description:
This session will give teachers a basic understanding of the Earth carbon cycle, and demonstrate two lessons they could employ in their classrooms. Both lessons are "game" oriented and revolve around an applet created at the University of Wisconsin-Madison (http://cimss.ssec.wisc.edu/wxfest/CarbonCycle/Carbon.html) The first is intended for high school level, and focuses on mitigation activities to get stabilization of atmospheric CO2. A middle school version is simplified with the goal of getting students to understand the basic concepts.

Title: SEAICEBOX
Presenter: Annette Schloss, University of New Hampshire
Description:
What is sea ice and why do we care about it? Sea ice is made from frozen ocean water, occurs in the Polar Regions, and is important in regulating climate. Students can use changes in sea ice as a starting point for studying local-to-global consequences of a changing climate. For examples, recent observations of decreasing sea ice in the Arctic have local consequences on people and animals that live there, and global consequences as ice reflects much more of the Sun's energy back into space than does dark water.

This workshop will demonstrate the SEAICEBOX, an online application for observing and making some simple measurements of changes in sea ice without having to download any images. (http://iceplanetearth.org/seaicebox/) The program uses monthly satellite imagery from the National Snow and Ice Data Center of sea ice in the Arctic and Antarctic regions since 1979 and is updated daily with the latest sea ice image. Laptops are welcome.

SEAICEBOX was created with funding from the National Science Foundation.

Title: Communicating Climate Change
Presenters: Margaret Mooney & LuAnn Dahlman
Description:
Climate Change is a complicated topic, but your message can be simple if you stick to the facts. This session will start with pointers on how to communicate climate change before acting out a few role playing exercises and some "climate change improv" scenarios to address concerned parents, doubtful adults, convinced yet pessimistic people or confused and therefore overly cautious citizens.