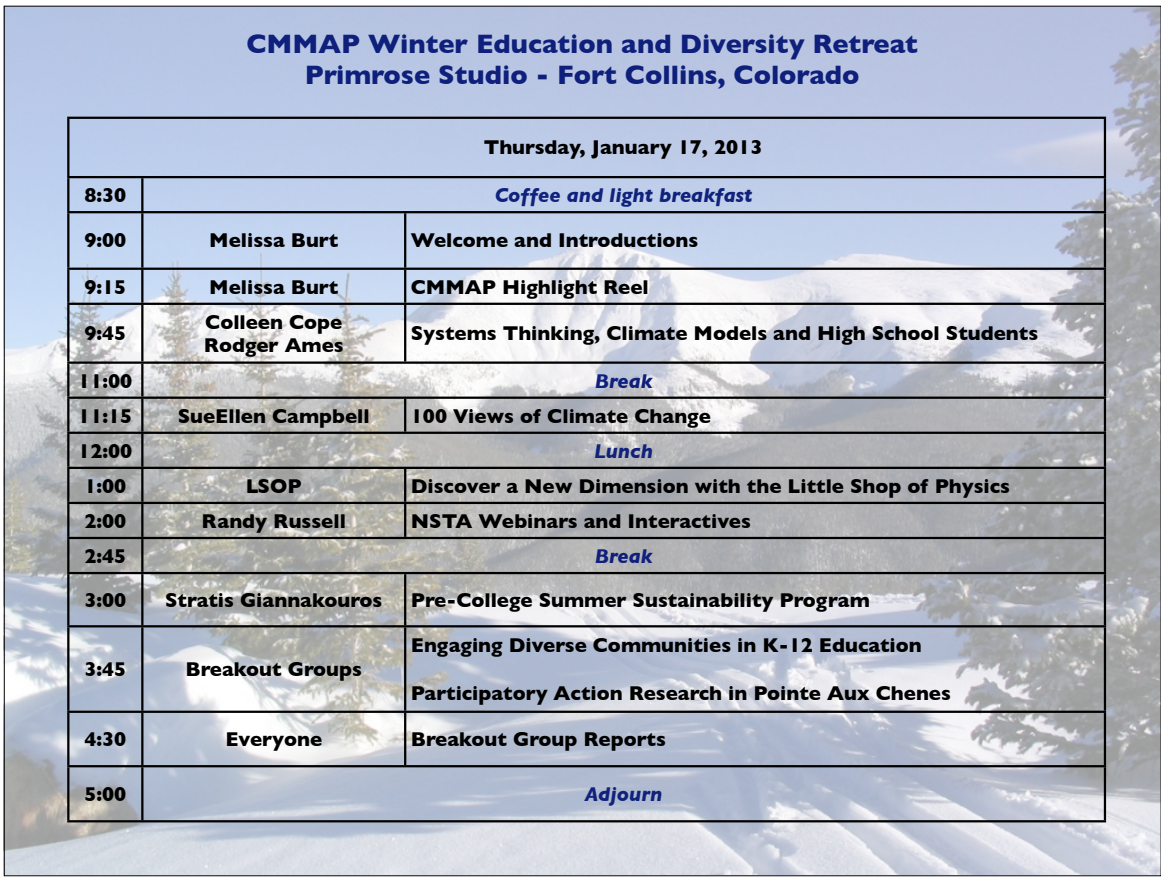
CMMAP Winter Education and Diversity Retreat
Primrose Studio, Fort Collins, CO

Thursday, January 17, 2013
8:30am - 5:00pm

Meeting Minutes

Participants:
Leonard Albright, Rodger Ames, Michele Betsill, Melissa Burt, SueEllen Campbell, Colleen Cope, Alta Cutler, Scott Denning, Marcia Donnelson, Howard Drossman, Sheila Ferguson, Claire Fleming, Stratis Giannakouros, Brian Jones, Rebecca Haacker-Santos, SueEllen Kempton, Mike Lacy, Heather Michalak, Raj Pandya, Randy Russell, Andrea Weinberg, Barbara Whitten

Agenda:



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Thursday, January 17, 2013		
8:30	*Coffee and light breakfast*	
9:00	Melissa Burt	Welcome and Introductions
9:15	Melissa Burt	CMMAP Highlight Reel
9:45	Colleen Cope Rodger Ames	Systems Thinking, Climate Models and High School Students
11:00	*Break*	
11:15	SueEllen Campbell	100 Views of Climate Change
12:00	*Lunch*	
1:00	LSOP	Discover a New Dimension with the Little Shop of Physics
2:00	Randy Russell	NSTA Webinars and Interactives
2:45	*Break*	
3:00	Stratis Giannakouros	Pre-College Summer Sustainability Program
3:45	Breakout Groups	Engaging Diverse Communities in K-12 Education Participatory Action Research in Pointe Aux Chenes
4:30	Everyone	Breakout Group Reports
5:00	*Adjourn*	

9:00 am - Welcome and Introductions (Melissa Burt)

Melissa Burt began the meeting with introductions and an overview of the day.

9:15 am - CMMAP Highlight Reel (Melissa Burt)

Melissa Burt highlighted some of the activities CMMAP Education and Diversity have been doing since our summer retreat.

Activities included:

- CMMAP Internship - Our 2012 summer interns presented their research at the CMMAP Team Meeting and at the annual meetings of the American Geophysical Union and American Meteorological Society. 2012 Intern Aryeh Drager won an Outstanding Student Paper Award at the AGU Meeting.

- NSTA Webinars - In September, Randy Russell and Scott Denning led the 2nd webinar in a four part series about Teaching Climate with Models. This webinar focused on the concepts of heat budgets, solar absorption and the impact of this process on Earth's current and future climate.

- Hispanic Engineering, Science &Technology Week (HESTEC) - LSOP and CMMAP traveled to South Texas to participate in the week long event. We held 2 workshops for teachers on Educator Day and 75 teachers participated. There were 4 days of hands on activities for middle schoolers and we saw about 4,000 kids. Community Day is open to the public and around 6,000 people visited our exhibit of hands on activities.

- Follow-up trip to Pointe Aux Chenes - Rebecca Haacker-Santos (SOARS), Scott Denning, and Melissa Burt took a follow-up trip to Pointe Aux Chenes, Lousiana. Three students this summer from SOARS/RESESS worked with the community to design research projects that met the needs of the community. Students were introduced to the community by Kris Petersen and Shirley Laska from CHART (Center for Hazards Assessment Response and Technology). During this folloow-up trip we discussed ways in which to continue the summer work through future collaborative proposals.

- Colorado Global Climate Conference (CGCC) - We held our 6th CGCC at CSU in October. There were 400 participants at this years CGCC from 19 schools around the state of Colorado and southern Wyoming. Four of the schools were members of CSU's Alliance Partnership.Highlights of the day included:
    - An engaging introduction by the Little Shop of Physics, complete with giant inflatable beach ball representing the average amount of CO2 produced by each participant before breakfast!
    - Keynote Presentation about climate change by Dr. Scott Denning
    - Well received new breakout sessions, such as "Atmospheric Profiling: How Scientists use Weather Balloons to Study the Atmosphere," with a live weather balloon launch by NCAR scientist, Kate Young; "Fire and Poop: How We're Trying to Help BILLIONS of People," a session about innovative energy solutions prioritizing human health, presented by the Engines and

Energy Conversion Lab (EECL) at CSU; "Universe at Your Fingertips with Google Liquid Galaxy," a session using CSU's new Google Liquid Galaxy wide-screen projection resource to explore Geographic Information Systems, hosted by the Geospatial Centroid at CSU; "Teaching About Climate and Energy Topics - For Teacher's Only," a session just for high school teachers in attendance to learn about available resources and networks supporting climate science and climate change education, presented by Dr. Anne Gold from the Education and Outreach Group at CIRES in Boulder.

- Recruiting trips to minority serving institutions - Tom Windham and Melissa Burt having been working over the last few months to build relationships with minority serving institutions (MSIs). We visited Florida International University and St. Augustine's University, where we met with faculty, had one-on-one meeting with students, and discussed faculty research collaborations.

- Book on the carbon cycle - Scott Denning took a few minutes to talk about a book he is writing on the carbon cycle, introducing readers to "the breathing of the Earth."

9:45 am - Systems Thinking, Climate Models and High School Students (Colleen Cope and Rodger Ames)

Colleen Cope discussed creating earth system science curriculum based on systems thinking. Rather than teaching students individual concepts, teach them to be systems thinkers -- where they take the perspective of seeing the big picture, use visual tools to find patterns and create mental models, explore cause and effect relationships, see how things change over time, take the parts and see how they fit into the whole, and to use systems models to make predictions. Colleen pointed out that historically teachers teach the concepts of climate, but it's the accumulations, rates of flow, time lags, feedbacks to the system that haven't been communicated. Through the example of "The Lorax," we talked about connection circles, feedback loops, and ultimately related this back to the Earth's Climate.

Rodger Ames introduced the Earth Carbon climate App which is based on systems thinking. The team divided into small groups and tested the iPad App called "Earth Carbon," and provided feedback on the intended use of the app in classrooms.

11:15 am - 100 Views of Climate Change (SueEllen Campbell)

SueEllen Campbell talked about the ChangingClimates program that she co-directs with John Calderazzo. ChangingClimates provides college-level content with primer-level clarity. The target audience for ChangingClimates are nonspecialist adults, especially college students & teachers. SueEllen also gave us a tour of the 100 Views of Climate Change website highlighting some of the main features of the website and what resources are available. SueEllen and John are trying to decide what they should

continue to put their energy into (lecture series, curriculum infusion, etc.) and how they should advertise ChangingClimates.

1:00 pm - Discover a New Dimension with the Little Shop of Physics (LSOP Crew)

Brian Jones, Sheila Ferguson, Heather Michalak, Alta Cutler, and SueEllen Kempton talked about a variety of new things happening with the Little Shop of Physics. They have a new type of video that they are producing called “10 Things You Should Know About...” They featured the first new video called “Ten Things You Should Know About the Atmosphere.” LSOP showed the group a few hands-on activities and a new and exciting kinesthetic activity on greenhouse gases and the greenhouse effect. The Annual Open House is scheduled for Feb 23, 2013 and LSOP is looking for cheap scientific giveaways. Other highlights of the last few months included trips to HESTEC, Pine Ridge, and the Southern Ute Reservation. University of Texas Pan America, creators of HESTEC, visited LSOP this week to discuss creating a LSOP franchise in South Texas and future collaborations.

2:00 pm - NSTA Webinars and Interactives (Randy Russell)

Randy gave a brief overview of a webinar that he did with Scott Denning on September 24, 2012. Heating and Warming: Sensitivity of Earth’s Climate to Atmospheric CO2 was the second installment of a four-part series. Approximately 50 teachers attended the webinar. The next webinar is scheduled for February 28th with a focus on future climate projections. Randy also showed some of his animated interactives that he is currently working on and new features of the NCAR Mesa Lab exhibit area (Clouds Field Guide, Make a Thunderstorm, Cloud Matching Game).

3:00 pm - Pre-College Summer Sustainability Program (Stratis Giannakouros)

Stratis Giannakouros works for the School of Global Environmental Sustainability (SoGES) and is putting together a Summer Sustainability Program for high achieving high school students. This eight-day summer residential program consists of various academic modules supported by faculty and students in sustainability with six focal areas: Energy and Climate, Food Security, Environmental Institutions and Governance, Sustainable Communities, Land and Water Resources, Biodiversity Conservation and Management. There will be an atmospheric science component of the program and Stratis wanted to meet with us to brainstorm about what should be included in this section of the program.

3:45 pm - Breakout Groups

Breakout 1: Engaging Diverse Communities in K-12 Education
This breakout focused on how we can make deeper connections in the Latino communities of south Texas during our week long trip to HESTEC. Rather than sweeping into the community and showing off our hands-on science, why don’t we

involve the local students and community in the process. A few things we discussed were having the UTPA folks teach us as a learning exchange, maybe conduct a “build it” afternoon where we can work with UTPA students and have them create some of their own hands-on activities, feature hands-on exhibits produced by UTPA and even kickoff the week with a tie-dye party.

Breakout 2: Participatory Action Research in Pointe Aux Chenes

This breakout focused on the participatory action research that we’ve been doing in Southern Louisiana over the last few months and what we plan to do in the future. A new collaborative proposal between CSU, UCAR, University of New Orleans and the Terrabone Community was discussed in which we propose to develop a network of community leaders, social scientists, and natural scientists capable of supporting coastal people with information and resources according to their own priorities. Rather than define science questions a priori and imposing a design on coastal systems, we seek to build partnerships to co-create science priorities, collect data, and disseminate results. We propose to leverage existing strengths in climate and social science and education as well as deep relationships with coastal communities in Southern Louisiana. We will develop a process using science to address community priorities while building a foundation to train the next generation of natural and social scientists to work across disciplinary boundaries as required as coastal systems feel the impact of rising seas.

The meeting adjourned at 5:00 pm.