DataStreme ECS

ANNOUNCEMENTS and ANSWER KEY

Week Eight: 24 – 28 October 2016

ANNOUNCEMENTS
28 October 2016

Happy Halloween – Boo!

1. In your weekly mentoring sessions, please focus your participant's attention on his/her Plan of Action for working with their colleagues following completion of the course. The Plan will be collected electronically on the course evaluation, about the time of your final meeting. Recall that we also want you to forward an electronic copy of each participant's sample Lesson Plan to DataStreme Central for our reference and use with reporting agencies.

   We especially appreciate hearing of impacts that DataStreme ECS has had on teachers and students. If you hear of such circumstances, please let us know.

2. This semester we need to continue our gathering of information from you and the participants pertinent to our coordination with NOAA's mission. We will ask for this information in the final electronic evaluations. This will include awareness of atmospheric, oceanic and climatic literacy as presented in the following statements. ***[See below.]*** Please scan these statements of principles so you can expeditiously fill out the brief evaluation when we complete the semester. ***Thank you!***

3. In addition to the possibility of bills from Brockport, a very few previous participants may receive an official letter from Brockport regarding Social Security Numbers and IRS fines. If they had refused to provide a SSN on a previous term's SUNY Registration Form, the IRS wants one. The issue is over possible income tax deductions for education expenses and receipt of federal scholarship money. While the letter may be scary and demands a return of forms to Brockport by some date, it doesn't apply for our people.

   IF THEY CONTACT YOU: What they need to do is initial the box at the bottom of the letter and return it to Brockport. It may state: "I understand I will be subject to an annual penalty of $50 levied by the IRS" – that only applies if tax benefits are requested. We have no financial involvement with our courses and the initialing will cover their need to respond. The response needs to be made but no bodily harm will incur. We also need to be aware of any bills.

Atmospheric Science Essential Principles and Fundamental Concepts (online at http://eo.ucar.edu/asl)

SUMMARY: People who are literate in atmospheric science understand the "big ideas" of the relevant scientific knowledge. Armed with this understanding, they will have the basis to communicate about the Earth's atmosphere in a meaningful way, and be equipped to make informed and responsible decisions about activities that impact the Earth's atmosphere.

Key Principles:

- Earth has a thin atmosphere that sustains life.
- Energy from the Sun drives atmospheric processes.
- Atmospheric circulation transports matter and energy.
- Earth's atmosphere changes over time and space, giving rise to weather and climate.
- Earth's atmosphere continuously interacts with the other components of the Earth System.
- We seek to understand the past, present, and future behavior of Earth's atmosphere through scientific observation and reasoning.
- Earth's atmosphere and humans are inextricably linked.

Ocean Essential Principles and Fundamental Concepts (online at http://eo.ucar.edu/asl/pdfs/OceanLitChart.pdf and http://greatlakesliteracy.net/)

SUMMARY: Ocean literacy is an understanding of the ocean's influence on you and your influence on the ocean. An ocean-literate person: understands the Essential Principles and Fundamental Concepts about the functioning of the ocean; can communicate about the ocean in a meaningful way; and is able to make informed and responsible decisions regarding the ocean and its resources.

Key Principles:

- The Earth has one big ocean with many features.
- The ocean and life in the ocean shape the features of the Earth.
- The ocean is a major influence on weather and climate.
- The ocean makes Earth habitable.
- The ocean supports a great diversity of life and ecosystems.
- The ocean and humans are inextricably interconnected.
- The ocean is largely unexplored.

Climate Essential Principles and Fundamental Concepts (online at http://downloads.globalchange.gov/Literacy/climate_literacy_lowres_english.pdf

SUMMARY: You are climate literate if you understand the influence of climate on yourself and society and your influence on climate. A climate-literate person: understands the essential principles of all aspects of the Earth system governing climate patterns that

are presented in this document; knows how to gather information about climate and weather, and how to distinguish credible from non-credible scientific sources on the subject; communicates about climate and climate change in a meaningful way; communicates about climate and climate change in a meaningful way; and is able to make informed and responsible decisions with regard to actions that may affect climate.

Key Principles:

- The Sun is the primary source of energy for Earth's climate system.
- Climate is regulated by complex interactions among components of the Earth system.
- Life on Earth depends on, is shaped by, and affects climate.
- Climate varies over space and time through both natural and man-made processes.
- Our understanding of the climate system is improved through observations, theoretical studies, and modeling.
- Human activities are impacting the climate system.
- Climate change will have consequences for the Earth system and human lives.

Earth Science Essential Principles and Fundamental Concepts (online at http://www.earthscienceliteracy.org/es_literacy_6may10_.pdf

SUMMARY: Earth Science Literacy is an understanding of Earth's influence on you and of your influence on Earth. Earth Science Literacy is an ongoing process, continually reshaped and rewritten by new discoveries in the areas of Earth science and learning theory. An Earth-science-literate person understands the fundamental concepts of Earth's many systems, knows how to find and assess scientifically credible information about Earth, communicates about Earth science in a meaningful way, and is able to make informed and responsible decisions regarding Earth and its resources.

Key Principles:

- Earth scientists use repeatable observations and testable ideas to understand and explain our planet.
- Earth is 4.6 billion years old.
- Earth is a complex system of interacting rock, water, air, and life.
- Earth is continuously changing.
- Earth is the water planet.
- Life evolves on a dynamic Earth and continuously modifies Earth.
- Humans depend on Earth for resources.
- Natural hazards pose risks to humans.
- Humans significantly alter the Earth.

ANSWER KEY

A. CHAPTER PROGRESS QUESTIONS:

1. hockey stick
2. do not

3. abrupt
4. few
5. external
6. Spörer
7. all of these
8. have
9. sulfur dioxide and ash
10. amplify
11. positive
12. release of methane
13. have
14. atmospheric aerosol
15. carbon dioxide
16. [as appropriate by participant]
17. [as appropriate by participant]

Please check for responses to Questions 16 and 17. Mentors should also focus on the answers submitted to these items for dialogue. Please follow up if a participant fails to respond to either item.

B. CONCEPT OF THE WEEK:

1. largely depends upon
2. a general balance between positive and negative feedbacks

C. INVESTIGATIONS RESPONSES

INVESTIGATION 8A:

1. east to west
2. from tropical to polar latitudes in the Northern and Southern Hemispheres
3. –0.3
4. 1600s
5. 1815
6. St. Helens
7. 3
8. 9
9. 35
10. likely
11. 4
12. Komaga-Take

INVESTIGATION 8B:

1. warming
2. northern-

3. –3.8
4. no
5. 1
6. greater
7. higher
8. positive
9. decreases
10. higher
11. negative
12. negative
13. positive
14. bare
15. bare

CURRENT CLIMATE STUDIES 8

1. amplify
2. all of these
3. extreme heat
4. both of these
5. historical conditions
6. urban
7. are affected by and contribute to
8. 24
9. 92
10. 81
11. 64
12. transportation
13. summer

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