



EEOP Newsletter

Environmental Education Outreach Program (EEOP)
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Web version @
<http://www.nau.edu/eeop/newsletter>

The Newsletter

This newsletter is a service of the Institute for Tribal Environmental Professionals (ITEP) Environmental Education Outreach Program (EEOP). We've created this newsletter specifically for K-16 students and educators that are interested to learn more about environmental issues with a focus on air quality. There will also be information and articles directed towards tribal environmental professionals.

We still need a title for the newsletter. Students are encouraged to submit their ideas to Mansel A. Nelson at mansel.nelson@nau.edu. Please provide your suggested title and any explanation that you think is necessary. A committee of ITEP staff will review the suggestions and select a title. The person that submits the winning title will receive a \$30 gift card. If more than one person submits the same title, the first one to send the email will receive the award.

GLOBE training for teachers in the Four Corners Region

Global Learning and Observation to Benefit the Environment (GLOBE) is a hands-on, school-based science and education program that unites students, teachers, and scientists in study and research about the dynamics of the Earth's environment. Over a million GLOBE students in thousands of schools located in over 100 countries are taking important environmental measurements. Their data are used in their own research activities and also by scientists around the world. For more information about GLOBE, visit the GLOBE website at <http://www.globe.gov/>.

In an effort to meet the needs of teachers in the Four Corners Region, the EEOP staff is planning a GLOBE workshop for April 6, 2006. The workshop will focus on atmospheric protocols. You will find a flyer and a registration form at http://www.nau.edu/eeop/eeop_workshops.html.

If you have any questions about the workshop or want to learn more about GLOBE, contact Matthew Zierenberg at matthew.zierenberg@nau.edu or 928 523 8864.

Water Education

The EEOP staff is conducting several water education workshops in Northern Arizona and Northern New Mexico. The workshops will cover a variety of hydrology concepts, such as groundwater and non-point source pollution. Some of the workshops will also address water quality. Each teacher attending will receive water education curriculum. Teachers that attend the water quality workshop will be able to borrow water testing kits from EEOP. The water testing kits can be used to test water

quality parameters such as dissolved oxygen, pH, and temperature. We are interested in increasing the awareness of water issues in the southwest and working with Native American students that would like to study hydrology in college. With the current long-term drought, we need to be thinking about water conservation and provide opportunities for students to understand how they can make a positive impact. For more information about the EEOP Water Education program visit our website at <http://www.nau.edu/eeop/water/index.html>.

You will find a flyer and a registration form for each workshop at http://www.nau.edu/eeop/eeop_workshops.html.

If you have any questions about the workshops or want to learn more about the EEOP water education program, contact Mansel A. Nelson at mansel.nelson@nau.edu or Christine DeCarlo at 928 523 1496.

Air Quality – Global Warming

Global warming is a topic of debate among scientist today and is increasingly become a public issue/concern. The global warming theory proposes that the rise in global temperature is a result of burning fossil fuels, oil and gas-released methane which create greenhouse gases. Nitrous oxide, methane and particularly carbon dioxide, are examples of greenhouse gases responsible for greenhouse gas warming that insulate the earth and block heat from escaping into space.

One of the biggest producers of carbon dioxide is electricity generation; other contributing factors include vehicles, agriculture, chlorofluorocarbons from aerosol sprays, packing materials, refrigerants, and blowing agents in foams, and forest destruction. Trees use carbon dioxide, trees can store about 13 pounds a year, and one acre of forest 2.8 tons of carbon dioxide, the burning of forests frees carbon dioxide that was stored in the tree to contribute to global warming. Chlorofluorocarbons come from refrigerants and aerosol propellants but their use is slowly declining. Over the past century, the carbon dioxide levels have increased significantly. The United States emits approximately 6.6 tons or about 15,000 pounds of carbon greenhouse gases per person every year. In comparison, many other countries emit less than 1 ton of carbon greenhouse gases per person.

Industry can help reduce the possibility of global warming by using energy efficient technologies and renewable resources especially in electricity generation. Each kilowatt-hour of electricity produces 1.5-2.0 pounds of carbon dioxide. We can all help global warming by reducing use of electricity in our homes by using energy efficient products. Insulating your home, wrapping your water heater in an insulating jacket, installing energy saving window models, using less water when showering and using energy star products will all help decrease the use of energy and produce less carbon dioxide. You can also drive a fuel efficient car, carpool or use public transportation. Additional actions that will help are recycling, reusing, and decreasing the use of disposable products.

We can also reduce carbon dioxide by considering alternative energy sources. Solar panels, wind turbines and hydro-electric can provide power, while producing less carbon dioxide. Solar hot water panels can be installed at home to heat water and solar photovoltaic panels to provide electricity. Solar panels have even been used to power cars and boats.

The predicted consequences of global warming include drastic impacts on wildlife, plant life and weather around the world. These consequences include biodiversity loss, sea level rising, increased flooding changes, weather changes such as increased drought, and increased flooding and storms. Many observations have been made by scientists that are attributed to global warming. Coastal

ecosystems, such as coral reefs are disappearing and becoming damaged so that they will not be able to sustain the natural ecosystem of its inhabitants because of ocean water temperature change. Polar bears are weighing less and having lower reproductive success, as a result of warming waters decreasing their hunting season more and more. Temperature increases will allow mosquitoes to roam further and transmit diseases such as malaria to humans. Fresh water plant life near oceans is dying, habitats are disappearing or have serious changes and coastlands are receding because of the rising sea level and the salt water intrusion. These are just a few examples of the effects attributed to global warming.

The long term consequences of global warming are unclear; it depends on its effect on rainfall and where and to what degree changes will occur. The general expected outcomes are rising sea levels, changes in precipitation and changes in climate. These changes will alter human, animal, and plant life directly through the water supplies, food, and crop yields.

Global Warming & the Greenhouse Effect is a teacher's guide to providing fun, interactive and exciting classroom activities for middle school students. The book presents the theory and evidence behind global warming and also gives students the opportunity to see both sides of the global warming issue. Teachers are provided with extensive information explaining global warming, its cause and effect, and a guide of questions to ask students. The eight activities encompass global warming and empower students to develop their own views. The website <http://www.lhsgems.org/> offers more information on the GEMS publications and products.

This is part three of a series on air quality. Next month we will take a look at the Clean Air Act since over the past 15 years. For more information on air quality visit the EEOP website at <http://www.nau.edu/eeop/>.

Air Quality Web-Quest

Want to learn more about air quality? You are invited to participate in an EEOP web-quest on air quality. If you are interested, visit the EEOP website to participate <http://www.nau.edu/eeop/aqwebquest/>.

EEOP Mentorship Program

Soon the EEOP staff will be announcing an EEOP mentorship program for students and tribal professionals. What is mentorship and why is the EEOP staff developing a mentorship program? The primary purpose of mentorship is learning and sharing. Mentorship is a reciprocal and collaborative learning relationship between mentor and mentee. Mentoring combines the impact of learning with the compelling human need for connection. A mentorship relationship can be tailored to meet the unique learning needs of those involved.

There are many reasons for being a mentor. However, being a mentor takes time and energy. In return you will probably find that helping others is personally rewarding. You may find that a mentoring relationship also provides you an opportunity to further your own growth. When you apply to become an EEOP mentor, we will ask you to reflect on your reasons for being a mentor.

As a mentor you will want to establish a climate conducive to learning and involve the mentee in planning how and what they will learn. You can facilitate learning by asking questions and listening reflectively to your mentee's ideas. You can also help the mentee reflect on their learning.

As a mentee you need to ask for help and take advice and feedback offered by your mentor. You should keep an open mind and carefully consider all the advice given. As a mentee you will want to maintain a positive outlook and remember that your failures may reflect poorly on the mentor.

Tribal Environmental Professionals typically face many challenges. A mentorship program can provide a support network and opportunities for learning. Many air quality staff learn on-the-job. A senior tribal professional can provide important information and connections.

The EEOP staff will be designing the mentorship program to help connect people. The program will provide on-going support for both the mentor and the mentee. More information will be coming soon via this newsletter and the EEOP website.

Spotlight

Travis Lopez, a freshman at Northern Arizona University, just completed a one-week internship at Gila River Indian Community (GRIC) Department of Environmental Quality (DEQ). He is a graduate of Skyline Technical School and a member of the Gila River Indian Community. While in high school Travis was recognized by Ricoh awards for his science project that could provide produce and fish for families living in marginal arid lands. He plans to pursue a degree in Environmental Science. During the recent internship Travis had an opportunity to learn more about environmental issues in his community. He learned about the Clean Air Act and about methods for monitoring air quality. He learned more about his community and the programs designed to protect the natural resources of the community.

For more information about internships visit the EEOP website at www.nau.edu/eeop/. You can also get more information by contacting Matthew Zierenberg at matthew.zierenberg@nau.edu or 928 523 8864.

Credits and Contacts

The US Environmental Protection Agency (USEPA) Office of Air and Radiation provides part of the funding to make this newsletter possible. Contact us with your ideas for future issues of the newsletter at mansel.nelson@nau.edu.

The newsletter is disseminated on various list serves. If you would like to join the newsletter list serve, contact mansel.nelson@nau.edu.

Our staff looks forward to providing new services and developing new programs, as well as continuing existing programs. We especially look forward to hearing from you. So please visit our website at <http://www.nau.edu/eeop> or contact us via telephone or email.

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