

American Chemical Society – Kalamazoo Local Section Newsletter

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Comments from the Chair

Elke Schoffers

Dear Readers,

I look forward to welcoming the many guests for the annual Awards Ceremony on Monday, May 20 at WMU. A special thank you goes to all KACS Education Committee members, Executive Officers and the many volunteers who helped out in planning this event.

In this newsletter please find several Earth-related reports, including a summary of events held through the Chemists Celebrate Earth Day (CCED) initiative that the American Chemical Society (ACS) began 10 years ago. Readers will also find information about the ACS Climate Science Toolkit that contains explanations of the basic science behind climate change. At this point I would like to personally thank Drs. Steve Bertman, David Karowe, John Miller and Terrell Hodge who are members of the WMU interdisciplinary study group dedicated to research, education and community outreach. They are new KACS collaborators as part of a recent ACS grant and will spearhead various climate education activities.

Lastly, please note that KACS is looking for various volunteers. This already includes a call for help for our National Chemistry Day at the Kalamazoo Valley Museum. Please consider helping out.

Thank you!



Maren Zanotti (CCED Coordinator, left) with Elke Schoffers, Ph.D. Professor, (WMU) Chair (KACS)

CONSIDER BECOMING A VOLUNTEER
- SEE PAGE 3 -

KACS website: <http://www.wmich.edu/acs/>

Do you have questions, comments, or would like to contribute to this newsletter?
Send an email to: ACSkzoo@gmail.com

Selected ACS Links and Contacts

By Lydia E. M. Hines (KACS Councilor)

Below please find some useful URL and email addresses (selected information can be found in the April Councilor Report).

General ACS Resources

m.wu@acs.org – contact information for ACS President Marinda Wu
www.acs.org/leadscopeqa - ACS vs. Leadscope questions and answers
www.acs.org/newmember - information on “Why should I join the ACS?”
nomelect@acs.org – email address for the Committee on Nominations and Elections
www.acs.org – then click on “About Us” and scroll down to ACS Financial Information for information on the Society’s finances
safety@acs.org – email address for comments and suggestions about chemical safety to the Committee on Chemical Safety
www.acs.org/bulletin5 - ACS governing documents including information on petitions and certified bylaws for all units
bylaws@acs.org – email to send petitions (May 22 deadline)
www.acs.org/ei - information on the ACS Entrepreneurial Initiative
www.acs.org/supportfedscience - information on ACS materials related to federal S&T funding
www.acs.org/ethics - information on the ACS Committee on Ethics
<http://nationalethicscenter.org> – “Ethics CORE” web address and the chemistry landing page which links to chemistry related ethics content (click ‘resources by discipline’ then click ‘chemistry’)
www.acs.org/climatescience - “ACS Climate Science Toolkit”, the fundamental science to help you understand and communicate climate science; launched by 2012 ACS President Bassam Shakhshiri.

Local Section Resources

www.acs.org/getinvolved - grant information, important deadlines and officer resources
www.acs.org/forms - submit annual reports, record meetings, activities and events year round
speakers@acs.org – nominate speakers for Online Speaker Directory
outreach@acs.org – information on “Celebrating Chemistry” for 4th – 6th graders



Marinda Li Wu, Ph.D.
ACS President



Thomas J. Barton
ACS President-Elect



Bassam Z. Shakhshiri, Ph.D.
Past ACS President

Feel free to contact KACS at Elke.Schoffers@wmich.edu if you would like to announce specific events or share links.



Find us on
Facebook

KACS Volunteers WANTED



Photography Volunteers WANTED

Do you like to take photos? KACS is looking for volunteers (plural) who can help cover upcoming events. Photos will be included in online postings on our website and on Facebook. Please consider becoming a volunteer for KACS (membership not required). Please contact the Chair at Elke.Schoffers@wmich.edu.

Webmaster Volunteer WANTED

KACS is looking for someone to post updates for our website at www.wmich.edu/acs. If you know how to manage a website using Dreamweaver or related software, or know of someone who may be interested in helping us out please contact Elke.Schoffers@wmich.edu. KACS membership is not required.

National Chemistry Week/Chemistry Day at the Museum Volunteers WANTED

This is an **appeal to you to volunteer** to set up and share an activity on **Saturday, October 12, from noon to 4 PM** during our **Chemistry Day at the Kalamazoo Valley Museum (KVM)** in conjunction with the ACS **National Chemistry Week (NCW)** celebration. For publicity purposes the KVM is aiming to have **plans for Fall programs in place by July** and we need to comply if we want to continue our synergistic relationship with them; we get amazing set-up and material support from the KVM, so **PLEASE indicate your willingness to be a volunteer** for that outreach by **sending your name and e-mail address by June 20** to our NCW coordinator, **Lydia E. M. Hines**, at lemhwgh@gmail.com!

This year NCW is October 20-26, and the **theme** is "**Energy! Now and Forever!**". We will have an opportunity to share, in simple terms, with the 800-1000 visitors (ages 4 -104) who come through the Museum doors that day how chemistry is central to our lives and how chemists may contribute to our energy needs and conservation. Children love the fun at the KVM, learn the importance of chemistry, and they and their parents (and teachers) get reading/activity materials to take home and to school.

ACS Earth Day – 10th Anniversary

Elke Schoffers and Lydia Hines (Photos by Elke Schoffers)

This year the ACS celebrated its tenth annual Chemists Celebrate Earth Day (CCED), an event aimed at showing Chemists' involvement in preserving the planet we call home. Our Local Section offered two events that day:

Information Table and Hands-on Experiments at the Kalamazoo Nature Center

As we have for the past six years, our Local Section celebrated CCED by participating in the Kalamazoo Nature Center's Earth Day program on April 20, 2013 from 10 AM to 4 PM.

Thanks to Maren Zanotti (CCED coordinator and WMU chemistry major), Kevin Heinze (WMU), Ashleigh Holden (K-College chemistry major) and Emily Wright (K-College chemistry major) KACS was represented for six hours on a Saturday. An information table at the Kalamazoo Nature Center (KNC) also offered CCED booklets and hands-on experiments to make "flowers" through color diffusion on filter paper. Children were invited to draw on a piece of filter paper before it was developed in a beaker for this chromatography experiment. The resulting paper became part of a flower.



Chromatography "flowers".



Ethan Morgan (left) visited KACS volunteers (left to right): Kevin Heinze, Maren Zanotti, Ashleigh Holden and Emily Wright.



Children enjoyed playing with markers and observing the diffused color on their "flower".



ACS Earth Day (cont'd)



Kevin Heinze and Maren Zanotti set up and manned the KNC table beginning at 10 AM.



Ashleigh Holden and Emily Wright helped out in the afternoon.

Information Table at the Oshtemo Library

In addition to our 7th year of collaboration with the Kalamazoo Nature Center, Lydia Hines volunteered for our first-time participation at a second venue - an afternoon of music, a program sponsored by the Oshtemo Branch of the Kalamazoo Public Library. Because of the very chilly outdoor weather, visitors were ushered into the Library's Auditorium (more limited in space than the outdoors venue) where they listened to several Bands play and sing Earth-theme-related music. In doing so visitors were "forced" to pass by our table of information materials; many young people grades K-6 were present with their parents. Our CCED educational literature was happily received, and adults (teachers, parents, grandparents) asked questions about our activities. Children as well as interested adults were treated to experiments with "magic sand" and superabsorbent polymer; there was constant traffic. Informational sheets concerning our programs and other on-call activities were handed out to teachers and one enthusiastic Middle School Principal (Portage Central Middle) and to a Kalamazoo City Environmental Chemist.



Dr. Lydia Hines (left) with two guests at the Oshtemo library.

Other memorable contacts: 1) A young woman and her mother who regularly attend our National Chemistry Week **Outreach at the Kalamazoo Valley Museum** came asking for "everything we had to offer"; 2) An invitation was given to a [non-member] chemist seeking re-entry into the work-force to check out our **Chem-Able Grant**; and 3) our Section received thanks from a set of parents for our **Awards Program** which helped their son initiate his college studies several years ago; they commended us for continuing the program. Overall it was a favorable 3-hour experience, which I hope our Section can repeat.

"The American Chemical Society is among the major scientific organizations that have issued position statements acknowledging the reality of climate change and recommending action on this great global challenge. The ACS policy statement (www.acs.org/policy) says that people need a basic understanding of climate science to make informed personal decisions, and it describes climate-change education for the public as 'essential.'" [C&EN, December 3, 2012, page 38] Please continue reading about more Earth-related activities and details that involve the new ACS Climate Science Toolkit.



ACS Press Release: Climate Science Grant

Press Release

American Chemical Society
Office of Public Affairs



Contact: Joan Coyle
202-872-6229
j_coyle@acs.org

FOR IMMEDIATE RELEASE

Kalamazoo chemists win grant to explain climate change to the public

WASHINGTON - Members of the Kalamazoo Local Section of the American Chemical Society (ACS) are winners of a \$3,000 grant to help public audiences better understand the science behind climate change. The announcement was made at the Society's recent national meeting in New Orleans.

According to Elke Schoffers, Ph.D., chair of the Kalamazoo ACS Section Local Section, the local section will collaborate with the Western Michigan University Climate Change Study Group to reach out to diverse audiences. They will use concepts from the ACS's "Climate Science Toolkit" to provide outreach and training to community leaders such as middle school, high school, and faith-based educators and scout group leaders. The project goal is to facilitate discussions of climate change by providing support and resources to leaders in these communities.

The ACS Climate Science Toolkit (www.acs.org/climatescience) is a web-based resource that explains the chemistry and physics of climate change. Launched last December, it was one of the major initiatives of 2012 ACS President Bassam Z. Shakhashiri.

Kalamazoo is one of 12 of the Society's local sections that will receive the first ACS Presidential Climate Science Challenge Grants.

Shakhashiri explained that the mechanisms of climate change are based on fundamental concepts that may not be familiar to scientists working in disciplines unrelated to climate change. They need a robust understanding themselves in order to help others who are not scientists understand the issues relevant to maintaining a livable climate.

"These inaugural grants will encourage ACS members to take up the mantle as scientist-citizens and reach out with climate science information to their colleagues and others," said Shakhashiri. "These include teachers, college and university faculty, industrial scientists and business leaders, civic and religious groups, professional science and educational organizations, and elected public officials at all levels and in all branches of government."

The grants, \$3,000 each, were awarded to the following ACS local sections: Central New Mexico; Dallas-Fort Worth; Illinois Heartland; Iowa; Kalamazoo, Mich.; Maine; New York; Northern W.V.; Portland, Ore.; Puerto Rico; Puget Sound; and Wakarusa Valley in Kansas.

The American Chemical Society is a nonprofit organization chartered by the U.S. Congress. With more than 163,000 members, ACS is the world's largest scientific society and a global leader in providing access to chemistry-related research through its multiple databases, peer-reviewed journals and scientific conferences. Its main offices are in Washington, D.C., and Columbus, Ohio.

To automatically receive news releases from the American Chemical Society, contact newsroom@acs.org.

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American Chemical Society

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Climate Science Toolkit

.... for the benefit of Earth and its people

ACS Climate Science Toolkit

The fundamental science to help you understand and communicate climate science

Tell Us What You Think 

Global climate change, whether a result of natural variability or of human activity, is a vital issue for life on Earth and involves many processes and concepts related to chemistry. Engaging with this issue in deliberative discourse with colleagues and others requires understanding the fundamental science that determines Earth's climate. This fundamental science is the core content of the ACS Climate Science Toolkit.



Getting Started

Navigate quickly to the Toolkit topics or issues of most interest to you.



Energy Balance & Planetary Temperature

The balance between incoming solar and outgoing thermal infrared energies sets planetary temperatures. Planetary atmospheres can strongly influence this balance.



Atmospheric Warming

Examine how thermal infrared emission from the top of the atmosphere sets Earth's thermostat and how changes in atmospheric composition reset the thermostat.



Greenhouse Gases

Human activities and natural sources add infrared-absorbing gases to the atmosphere. The effect of each on the temperature depends on its spectroscopic and chemical properties.



Oceans, Ice & Rocks

Oceans move great quantities of energy and carbon around the Earth. Almost all the energy added to a warming Earth ends up in warmer water and melting ice.



References & Resources

Probe more deeply and broadly into climate science topics and issues that particularly interest you.



Narratives & Presentations

Suppose you have the opportunity to speak to a civic, business, or educational group about climate science. Consider adapting one of these narratives or presentations as a starting point.

www.acs.org/climatescience

A Special Earth Day Report

Elke Schoffers

Environmentalism

1970 was the first year when Earth Day (April 22) was celebrated to support environmental protection in the U.S. 1970 was also the year when President Richard Nixon signed an executive order that eventually established the U.S. Environmental Protection Agency (EPA) on December 2 to enforce congressional laws that protect human health and the environment.

The Big Picture

The North American Monarch Butterfly is well known for its long migration south to spend the winter months in Mexico. This year's census found a significant decline, in fact an all time low, of less than 3 acres occupied by the overwintering population compared to 50 acres of butterflies in 1996. Among other factors, erratic weather has been implicated; cold wet winters in Mexico during some years while the drought and record-breaking heat in the spring last year hastened the most recent decline. This population trend is also due to current agricultural practices. The use of pesticide-resistant crops, mostly corn and soybean along the migratory route, has significantly eliminated milkweed, which is the butterflies' and its larvae's vital food source (Monarch Migration Plunges to Lowest Level in Decades, New York Times, 3/13/13).



Monarch butterfly and its caterpillar on a leaf of swamp milkweed. (Photos by Elke Schoffers)

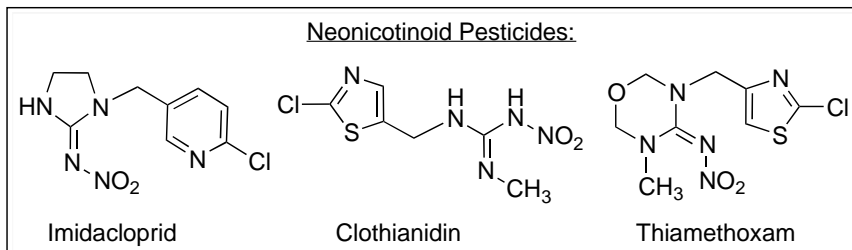
Other than the loss of a beautiful American butterfly and loss of biodiversity the extinction of the Monarch would have little to no impact on most people. However, its extinction could also be compared to a canary-in-the-coal-mine moment. The loss of insects has a big economic impact because of the important ecosystem services they perform. It is estimated that approximately 75% of all crop species require pollination by mostly bees but also flies, butterflies, birds and bats. Declining bee populations are big cause for concern.



Hobby gardeners can support native pollinators such as Mason bees, which are solitary, friendly bees that will reproduce in bee houses. . (Photos by Elke Schoffers)

This troubling trend has led to a two-year ban of three neonicotinoid pesticides by the European Commission (EC). Americans will continue to use them. Long-term effects of chemical applications have decimated pollinators in some areas of China where apple and pear farmers are forced to hand pollinate trees to ensure good crop yields.

(continued on page 9)



Cause and effects are not always immediately obvious, especially when it involves complex systems such as the weather. The concept of global climate change is more widely accepted in Europe compared to the U.S., where many leading opinion makers and politicians still question this phenomenon. Earth just passed a 400 ppm CO₂ milestone. Bill McKibben commented that this is a “historic and ominous marker of the effect that human beings are having on the planet.” He is an environmentalist and author. His most recent book is titled “eearth – Making a life on a tough new planet”. [He intentionally spells the planet differently because it has drastically changed.] He is leading the organization www.350.org, which has the goal to advocate for 350 ppm CO₂ as an upper limit to avoid a climate tipping point. **Bill McKibben will visit WMU on October 10, 2013.**

Local Views

Recent environmental disasters included the BP Horizon oil spill (2010), and the earthquake and tsunami that led to the Fukushima Daiichi nuclear threat (2011). While powerful pictures can convey disastrous effects of these events, the daily lives of Michiganders were not directly affected. (Note that at some Japanese farmers markets it is now common to find a Geiger counter to check produce for radiation.) However, there are several local concerns that highlight the threats to our immediate environment. Just this week over a hundred people, including members of the Kalamazoo River Cleanup Coalition (KRCC), protested the EPA’s proposal to seal the Allied Paper Inc. Superfund site near downtown Kalamazoo instead of cleaning up hazardous chemicals such as PCB’s (polychlorinated biphenyls). 90 acres along Portage Creek are polluted with 1.5 million cubic yards of toxic waste, threatening the water supply of 48,000 people. Another recent threat to Michigan waters was the worst inland oil spill in U.S. history when the Enbridge Energy pipeline broke and toxic heavy Canadian tar sands, over 800,000 gallons, polluted the Kalamazoo River (2010). This week, Michiganders also learned that the Palisades nuclear facility near South Haven continues to have problems. It has been shut down several times in 2012 and 2013, most recently because it daily leaks about 79 gallons of radioactive water into Lake Michigan from a 300,000 gallons storage tank. After a repair last June, a leak of 38 gallons per day was agreed upon by the National Regulatory Commission (NRC) and Entergy, the operator of the plant. Currently, the NRC has scheduled an extra 1,000 hours of inspection at Palisades during 2013 (Kalamazoo Gazette, May 11)



Source: Wikispaces

“Patch and restart” is not an effective solution to leaks at Palisades Nuclear Power Plant, said David Lochbaum, director of the nuclear safety project at the Union of Concerned Scientists.... “Applying Band-Aid fixes every few months is not complying with this federal regulation,” wrote Lochbaum. [Kalamazoo Gazette, May 11, 2013; Lochbaum’s work can be found at www.ucsusa.org]



Photo Source: KRCC Facebook

(Any comments included in this summary reflect the views of the author and are not part of an official statement of the ACS.)

Sudoku Challenge (Solution to January 2013 Puzzle)

Congratulations to Ali Bolandi for solving our last Sudoku puzzle. Ali will receive a \$5 gift certificate to [Fourth Coast Café](#). Below is the solution. A brand new Sudoku Challenge awaits you below...

Difficulty: **MEDIUM**

Digits in **black** were given.
Digits in **red** were blank.

5	6	2	4	8	9	7	3	1
3	1	4	7	5	2	9	6	8
9	8	7	6	3	1	2	5	4
7	3	5	9	4	6	1	8	2
2	9	1	3	7	8	6	4	5
8	4	6	1	2	5	3	9	7
4	2	3	8	6	7	5	1	9
6	5	9	2	1	4	8	7	3
1	7	8	5	9	3	4	2	6

Sudoku Challenge

Solve the puzzle, win a prize!

Here's how to win a prize:

- 1) Solve this Sudoku puzzle on your own.
(please, **do not use** an online Sudoku solver)
- 2) Email the solved puzzle to ACSkzoo@gmail.com
- 3) Submission deadline is **June 1, 2013**.
- 4) Prizes will be awarded to the first 3 correct entries
(entries must be from Kalamazoo Local Section ACS members who have not won a prize in the most recent newsletter).
- 5) Winners and solution will be announced in the next newsletter.

Have fun!

First Name:

Last Name:

Email address:

Difficulty: **HARD**

6	4			3	7		
		8				6	3
			2			4	
	9			8			
5	8			4		2	1
				6			9
		4			8		
7	6					2	
		5	1				4 9

New to Sudoku? Click on the [link](#) to learn the few basic rules of the game.