The Capital CHEMIST

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## Peggy Geimer to Address CSW Meeting, Preceded by Collegiate Awards Ceremony

Dr. Peggy Nilsson Geimer, Corporate Medical Director for Arch Chemicals, Inc., Norwalk, CT, will speak on the subject "Chemistry and Clean Water" at the CSW February dinner meeting at the Mary Graydon Center, American University, in Washington DC. The address will be preceded by an achievement awards ceremony for college students. Details of the dinner meeting are on page 2; please see abstract, page 4.

Dr. Geimer is a Diplomat of the American Boards of Internal Medicine and Preventive Medicine (Occupational Medicine). Prior to Arch, she was the Corporate Medical Director for Olin Corporation and Cytec. She has also held staff positions at American Cyanamid and the Westchester Community Health Plan. She received her Bachelor of Science degree Cum Laude from the State University of New York at Stony Brook, and her Doctor of Medicine degree from the State University of New York Health Science Center at Brooklyn.

Dr. Geimer holds appointments as an Instructor in Clinical Medicine at Columbia University, College of Physicians and Surgeons and as an Assistant Clinical Professor of Medicine in the Department of Occupational and Environmental Medicine at the Yale School of Medicine. She is actively involved in teaching both medical students in the Columbia program and post graduate fellows in the Occupational and Environmental Medicine in the Yale program.

Dr. Geimer is a member of the National Academies' Institute of Medicine where she participates on the Roundtable on Environmental Health Sciences, Research, and Medicine. In addition, Dr. Geimer is on the Operating Committee of the Chlorine Chemistry Division of the American Chemistry Council and has represented the Chlorine Chemistry Council on the EPA's Stage 2 Safe Drinking Water - Microbial and Disinfection By-Products Federal Advisory Committee. She also sits on the Strategic Science Team of the Long Range Research Initiative (LRI) of the American Chemistry Council.

## *Statement from Incoming CSW President Dr. Carol J. Henry*

The CSW 2009 monthly meetings got off to a great start with the Science Café at the University of Maryland on January 15. Drs. Robert Peoples, Jennifer Young and Lawrence Sita led a lively discussion around the intriguing title: "The Green Tsunami: Will You Sink or Swim." The enthusiasm and thoughtfulness of audience and speakers - we could have gone on for several more hours with these discussions - suggest we need to keep this topic on our radar and perhaps re-visit it in the future. I was particularly struck by the way this session reflected the issues and recommendations from the CSW Long-Range Planning Committee (LRPC).

In 2007, under Ted Becker's leadership, the LRPC examined the demographics of the CSW, together with its perceived strengths and weaknesses. The Committee investigated unmet opportunities for development of CSW programs, and concluded that priority emphasis should be given to engaging younger members of the Society, and to providing increased services to chemistry graduate students, postdoctoral fellows, and high school science teachers.

The current CSW Mission Statement simply says: *The Mission of the CSW is to promote career development and professional interactions among members of the chemical profession in the greater Washington area.*

The LRPC felt that this statement is good so far as it goes, but that it does not fully describe the range of activities within CSW. The Committee thought it important to emphasize the use of the collective strength, knowledge, and experience of CSW members to benefit more of its members and to serve the chemical community in the greater Washington area. The 2007 LRPC Report may be found on the CSW Website, www.csw-acs.org.

In addition to the mission statement (see box, page 3), two other important conclusions ***(continued page 3)***

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**THE CHEMICAL SOCIETY OF WASHINGTON PRESENTS:**
***1085th Dinner Meeting***

**Thursday, February 12th** **6:00 pm SOCIAL HOUR**
**American University Mary Graydon Center** **7:00 pm DINNER**
**4400 Massachusetts Ave., NW** **COST** $30.00 Members and Guests
**Washington, DC 20016** $15.00 Students

**Menu: SOCIAL HOUR: Cash bar, vegetable and dip tray. DINNER: Mesclun Mixed Greens with Gorgonzola Cheese and Balsamic Vinaigrette; Spinach Pasta with Fontina and Parmesan Cheese, Mushrooms and Peas; Chicken Breast Stuffed with Mushrooms, Herbs and Cheese in Marsala Wine Sauce; Focaccia and Tuscan Bread; Tiramisu and Coffee**

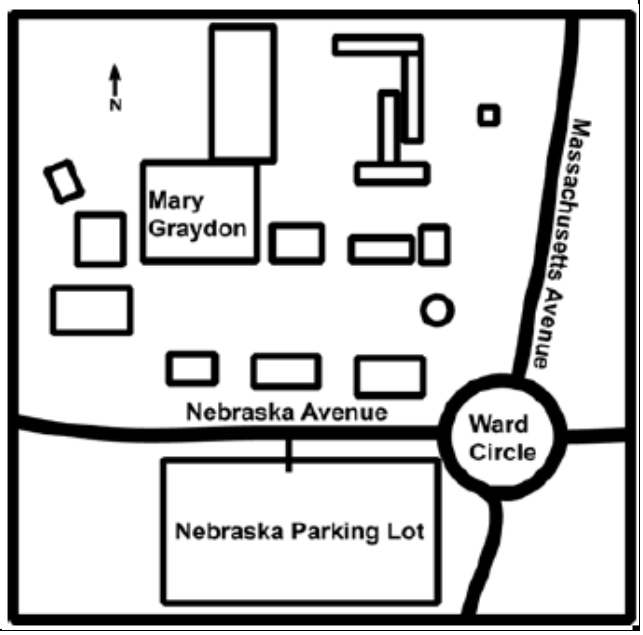
**8:00 p.m. College Chemistry Achievement Awards Presentation**
**8:30 pm SPEAKER: Peggy Geimer, MD, Corporate Medical Director, Arch Chemicals, Norwalk, CT**
**TITLE: "Chemistry and Clean Water"** ***See abstract, page 4.***

Make reservations by **Monday 12:00 noon, February 9, 2009,** to the CSW office: csw@acs.org or 202-659-2650. Please designate the names in your party. The public is invited to attend. You may attend the talk only, but reservations are appreciated. *Those who make a reservation but are unable to attend should send a check for the cost of their meal to the CSW office.*

**Directions**: From Interstate 495 (Capital Beltway), take exit 39 and carefully follow the signs for River Road (Maryland Route 190) east toward Washington. Continue east on River Road to the fifth traffic light. Turn right onto Goldsboro Road (Maryland Route 614). At the first traffic light, turn left onto Massachusetts Avenue (Maryland Route 396). Continue on Massachusetts Avenue for about two miles, through the first traffic circle (Westmoreland Circle). About one mile further on, enter a second traffic circle (Ward Circle). Take the first right turn out of the circle, onto Nebraska Avenue. The campus is on your right.

**Parking**:
Parking is available in the large lot south of Nebraska Avenue. Other lots on campus are usable in the evening.

**METRO**:
The closest Metro stop to American University is Tenleytown/AU (also called Tenley Circle) on the Red Line. AU runs a free shuttle bus from the Tenleytown/AU METRO stop.



# CSW President's Message, Dr. Carol J. Henry

***(continued from page 1)*** should be noted from this report:

• CSW carries out a wide range of excellent activities. The Committee could not identify any program that is redundant, or that should be terminated or reduced in scope.

• A principal shortcoming of, and continuing challenge for, CSW is the failure to attract enough younger and mid-career chemists to CSW programs, and to foster the participation of larger numbers of faculty and students at local universities. CSW is forced to rely too heavily on a small number of dedicated individuals to carry out much of the active work, year after year.

**CSW Mission Statement proposed by the Long Range Planning Committee**

The Chemical Society of Washington, as a local section of the American Chemical Society, subscribes to the ACS Vision of improving people's lives through the transforming power of chemistry.

With its unique and diverse membership, CSW provides value and service to its members and to the CSW scientific and engineering community by:

• Advancing professional interactions and building networks through meetings and communication mechanisms

• Developing partnerships within the local community

• Promoting opportunities for mentoring, leadership and professional recognition, especially for younger chemists

• Fostering professional growth and continuing-education initiatives

• Advocating the essential role of chemistry to society through public dialogue, education, service, and outreach.

During my time on the BOM, I have been most involved with the CSW's education and outreach activities. It has been gratifying to see the positive responses from high school students, local science teachers, instructors, undergraduates, and graduate students to CSW's programs. However, the current efforts have reached only a small percentage of those who might benefit. With a membership of almost 4,000, it would seem we have only scratched the surface of what we might do. To that end, I established a Task Force for Engaging CSW Members, and am seeking suggestions and opportunities for ways of doing things that will engage and appeal to students and younger chemists. We may experiment with different ways of meeting. Science Cafés have been championed by ACS, and the format seems to work well. Focusing such a format specifically for students might be one experiment.

As a chemist turned toxicologist, I have always been interested in how the greater chemistry enterprise included the impacts of chemicals on health and the environment. As I became familiar with CSW's activities and programs, it became clear to me that education and outreach are most effective in addressing such issues. The enthusiasm and interest shown in January's Green Tsunami Science Café, and the Chemical Toxicology in Action workshop held last April, have each demonstrated how effective such outreach can be. Forming educational and mentoring networks, and facilitating educational and career opportunities are high priorities for CSW so as to contribute to the success of students and young chemists.

The ongoing programs under CSW's Education and Outreach activities are varied and many, including: Project SEED (summer laboratory experiences for economically disadvantaged youth interested in chemical-related sciences), College Chemistry Achievement Awards, the Chemistry Olympiad, Chemathon activities, Chemagination events, Earth Day activities, National Chemistry Week, and supporting and judging local Science Fairs. This year especially there will be increased opportunities to participate in CSW's Education and Outreach activities as CSW will be the local host for the 238th National ACS Meeting at the DC Convention Center, August 16-20, 2009. On behalf of the Board and myself, we would welcome more participation in these and related CSW activities. Those interested in working with the CSW Host Committee, please indicate your special talent, past experience or specific interest in Committees for the Hospitality Booth, Tours, Special Issue of *The Capital Chemist*, Souvenirs, or Special Projects. Send your name, email address and brief message of interest to csw@acs.org by mid-February.

I am deeply honored to serve as CSW President and am privileged to work with a talented, energetic, and dedicated Board of Managers and Councilors. Together with your help, I believe that we have the ***(continued, page 4)***

# Student Awardees Named for February Dinner Meeting Ceremony

The following are names and universities (with research advisors, unless otherwise noted) of the collegiate chemistry award recipients at the February CSW dinner meeting:

Luigi J. Alvarado, Catholic University (Dr. Ildiko M. Kovach, Academic Advisor)

David An, Georgetown University (Dr. Toshiko Ichiye)

Eric D. Nellis, Georgetown University (Dr. Steven Metallo)

Elizabeth Hirst, George Washington University (Dr. Cynthia Dowd)

Clare E. Rowland, George Washington University (Drs. Michael King and Christopher Cahill)

Christopher Ryan Cammarata, St. Mary's (Dr. Pamela S. Mertz)

Daniel Douglas Powell, St. Mary's College (Dr. Randy Larsen)

Amine Lambarqui, UDC (Dr. Hailemichael Seyoum)

Yishan Zhou, Maryland (Dr. Steve Rokita)

CSW congratulates these students and mentors for their efforts.

## *Geimer Address: "Chemistry and Clean Water"*

**Abstract:** We take it for granted – thinking nothing of turning on the tap and getting water that is safe to drink. Water looks so pristine when it flows out of that tap. What does it take to make sure it is safe to drink – chemistry!

Just over 100 years ago, Jersey City and Chicago became the first cities in the United States to chlorinate their drinking water. As most major US cities adopted water chlorination, Typhoid Fever and Cholera rates plummeted. Drinking water chlorination is recognized as one of the most important public health achievements in modern history! And yet, today, more than 1.2 billion people, one-sixth of the world's population, still do not have access to safe water. Infectious diarrhea from contaminated water still kills more than 2 million people a year.

Chemistry plays a crucial role in the delivery of clean water. Not only does it have a role in disinfection, chemistry is also used to coagulate and agglutinate solid materials, remove toxins, and will be used in the future to remove things like pharmaceuticals from our water supply. How do we optimize the use of this chemistry in developed nations and how to we get it to those who do not have access to safe water?

# CSW President Henry's Statement

***(continued from page 3)*** opportunity to make CSW into a focal point for chemists of all ages in the Washington metropolitan area.

*Dr. Carol J. Henry is an advisor and consultant to public and private organizations, focusing on issues in chemical toxicology and risk assessment and public and environmental health. She is Professorial Lecturer in the George Washington University School of Public Health and is certified in toxicology by the American Board of Toxicology. She retired as Vice President, Industry Performance Programs, at the American Chemistry Council in November 2007. Dr. Henry is a member of the Environmental Health Perspectives Editorial Review Board, the US National Children's Study Federal Advisory Committee, the National Research Council's Board on Chemical Sciences and Technology, and the Montgomery County Water Quality Advisory Group.*

## Volunteer Service Opportunities in the Scientific Community

**Science Fair Judging**. Members of CSW who have served as science fair judges report that it is always heartwarming to interact with the students about chemistry. CSW periodically receives requests from local school districts to provide science fair judges. If you would like to judge a science fair in your area, please contact the CSW office.

## Mary Trucksess, FDA, is AOAC Awardee

CSW member Mary Trucksess, FDA Scientist, has received a Study Director of the Year award from AOAC International .

The Study Director of the Year Award recognizes consistently outstanding performance by a Study Director over a period of years. Awardees receive an award at the AOAC International Annual Meeting.

Study Directors design and conduct collaborative studies, work with General Referees and Committee Statisticians, enlist and assist collaborators, and write up the collaborative studies.

**Visit CSW on the web at: www.csw-acs.org**

## *Chem-Mystery*

***A possibly amusing amalgamation of chemistry, wordplay and trivia***

What two US Senators' names include the name of a chemical element? (Answer, page 7)

# U.S., ACS to Host 2012 International Chemistry Olympiad

The U.S. will host the 44th International Chemistry Olympiad (IChO), which will be held in July 2012 at the University of Maryland, College Park. The campus will provide laboratory space and lodging for nearly 300 high-school-age competitors and their mentors. ACS is the national scientific organization that administers the U.S. National Chemistry Olympiad Program and will host the 2012 international competition.

As host, ACS will be financially responsible for most of the program's expenses in 2012. According to ACS Education Division Director Mary Kirchhoff, the society expects costs for 2012 will amount to approximately $3 million.

"All of us at ACS believe that it is important for the U.S. to assert some leadership in this area. We are not ready to cede science and technology to any other nation," ACS Executive Director and CEO Madeleine Jacobs says.

The competition will consist of two five-hour exams that test the students' knowledge in both chemistry theory and practice. But plenty of time is also available for sightseeing and cultural activities.

When talking about the 2012 IChO, Cecilia Hernandez' eyes light up. Hernandez, the ACS staff manager of the Olympiad Program, says, "The University of Maryland is perfect; I can already visualize the opening ceremony!"

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Editor's Note: Regina Cody, NASA Astrochemistry Laboratory and CSW member, was a principal contributor on the successful proposal that resulted in the Olympiad being held at the University of Maryland.

## Items of Interest from the January CSW Board of Managers Meeting

• The office of CSW President-elect remains unfilled. Per the CSW Bylaws, the Board must act to fill this vacancy at its March meeting.

• Walter Benson, Zory Glaser, Kim Morehouse, and Noel Turner were elected by acclamation to the at-large seats on the Executive Committee.

• Noel Turner was appointed chair of the Publications Committee.

• **CALL FOR VOLUNTEERS:** CSW is the host local section for the ACS Fall National Meeting in August. A special committee will be formed to oversee our duties in this respect, and volunteers for the committee are needed as soon as possible. Anyone interested in helping with host section duties, in any capacity, should contact CSW or the President as soon as possible, since the committee should be assembled by the end of January.

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## DC Area Chemistry Seminar Schedules

Listed below are chemistry-related seminar schedule web sites from area universities, that were up-to-date as of press time. More will be posted as they become updated. Contact the department to find out about general public admission, directions to campus, and parking. ***Viewing the PDF? Just click!***

**Georgetown Chem:** http://chemistry.georgetown.edu/news/seminars.html
**GMU Chem:** http://www.gmu.edu/departments/chemistry/seminar/seminar_spring2008.html
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**Maryland Chem Eng:** http://www.chbe.umd.edu/events/seminars.html
**Maryland Chemical Physics:** http://www.chemicalphysics.umd.edu/8_courses.htm

## DC Area Chemistry Seminars: Editor's Choice

Check web sites for times and locations.

**Georgetown Chem:** Dr. Paul Carlier, Department of Chemistry, Virginia Tech: "Stopping the Clock; Capturing a Dynamically Chiral Potassium Enolate," February 19.

**GWU Chem:** Dr. Kit Bowen, Department of Chemistry, Johns Hopkins University: "Photoelectron Spectroscopy of Cluster Anions," February 20.

**GMU Chem:** Dr. Matthew Hartman, Massey Cancer Center, Department of Chemistry, Virginia Commonwealth University: "Diverse Natural Product-like Peptide Libraries: A New Source of Tools for Biological Inquiry," March 6.

## Obama Picks Berkeley Lab Director Steven Chu for Energy Secretary

President Barack Obama has nominated Steven Chu, Director of the Lawrence Berkeley National Laboratory (Berkeley Lab), to be Secretary of Energy. Dr. Chu was confirmed by the Senate on Inauguration Day.

Chu, 60, is a Nobel laureate physicist and a Professor of Physics and Molecular and Cell Biology at the University of California (UC), Berkeley. He is also one of the nation's foremost and outspoken advocates for scientific solutions to the twin problems of global warming and the need for carbon-neutral renewable sources of energy. He has called these problems "the greatest challenge facing science" and has rallied many of the world's top scientists to address it.

In speeches to organizations around the globe, Chu has delivered a consistent message. "Stronger storms, shrinking glaciers and winter snowpack, prolonged droughts and rising sea levels are raising the specter of global food and water shortages. The ominous signs of climate change we see today are a warning of dire economic and social consequences for us all, but especially for the poor of the world," Chu has said. "The path to finding solutions is to bring together the finest, most passionate minds to work on the problem in a coordinated effort, and to give these researchers the resources commensurate with the challenge."

Since assuming the directorship of Berkeley Lab in August, 2004, Chu has put his words into action by focusing the Laboratory's considerable scientific resources on energy security and global climate change, in particular the production of new fuels and electricity from sunlight through non-food plant materials and artificial photosynthesis. At the same time he has reinforced the Lab's historic leadership in energy-efficient technologies and climate science.

Chu is internationally recognized as a proponent of increased government investment in advanced energy research, and he has been a leader in national and international studies including the influential InterAcademy Council report *Lighting the Way: Toward a Sustainable Energy Future*, the National Academy's *Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future*, and the National Academies' ongoing study, *America's Energy Future*.

Chu earned undergraduate degrees in mathematics and physics from the University of Rochester in 1970, a Ph.D. in physics from the University of California at Berkeley in 1976, and was a postdoctoral fellow at UC Berkeley from 1976 to 1978, when he joined ATT's Bell Labs. He moved to Stanford University in 1987, where he was a professor of physics and applied physics, and where he received high academic honors and held a number of administrative posts before joining Berkeley Lab in 2004.

Chu is a member of the American Academy of Arts and Sciences' committee on Alternative Models of Federal Funding of Science, and is on the Steering Committee of the Energy Security, Innovation and Sustainability Initiative of the nongovernmental Council on Competitiveness. He also serves on the Board of Trustees of the University of Rochester, the Board of Directors of the William and Flora Hewlett Foundation, the Board of Directors of NVIDIA Corporation, the Governing Board of the Okinawa Institute of Science and Technology, and the Scientific Board of the Gordon and Betty Moore Foundation. He is a member of the National Academy of Sciences, the Academica Sinica, the American Philosophical Society, the Chinese Academy of Sciences, and the Korean Academy of Sciences and Technology. *From Lawrence Berkeley National Laboratory press release.*

### CSW Calendar

**CSW Monthly Dinner Meeting**
**Thursday, March 12**
**Location: NASA Goddard Rec Center**

**Board of Managers Meeting:**
**Monday, March 16**

## Nomination of EPA Alum Lisa Jackson Applauded by Administrator Johnson

U.S. Environmental Protection Agency Administrator Stephen L. Johnson issued the following statement on President Barack Obama's nomination of Lisa Jackson to be the next EPA Administrator:

"For almost forty years, EPA has led our Nation's efforts to protect human health and the environment, for today and for the future.

"Lisa Jackson has a wealth of experience and a solid record of achievement in environmental service. As a former EPA executive, she is uniquely qualified to recognize the challenges facing the agency and lead from day one. This is an exciting time at EPA, and Lisa will direct an agency that is poised to build on the many environmental successes accomplished since 2001.

"While environmental responsibility is everyone's responsibility, I am particularly proud of the role EPA has played in bringing about record results on behalf of the American people and our environment. Our air is cleaner, our water is purer, and our land is better protected than just a generation ago.

"EPA has not only helped change the way our environment looks, it has helped change the way each of us looks at our individual duty to protect the environment. The hard-working professionals at EPA lead the way in environmental protection, and I'm confident they will continue to do so with Lisa Jackson as Administrator."

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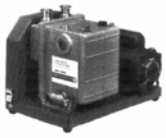

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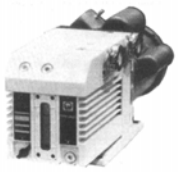

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## Chem-Mystery Answer

Sen. Russell Feingold, D-WI
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# Methane-on-Mars Discovery has Numerous DC Area Ties

A team of NASA and university scientists has achieved the first definitive detection of methane in the atmosphere of Mars. This discovery indicates the planet is either biologically or geologically active.

The team found methane in the Martian atmosphere by carefully observing the planet throughout several Mars years with NASA's Infrared Telescope Facility and the W.M. Keck telescope, both at Mauna Kea, HI. The team used spectrometers on the telescopes to spread the light into its component colors, as a prism separates white light into a rainbow. The team detected three spectral features called absorption lines that together are a definitive signature of methane.

"Methane is quickly destroyed in the Martian atmosphere in a variety of ways, so our discovery of substantial plumes of methane in the northern hemisphere of Mars in 2003 indicates some ongoing process is releasing the gas," said Michael Mumma of NASA's Goddard Space Flight Center in Greenbelt, MD. "At northern mid-summer, methane is released at a rate comparable to that of the massive hydrocarbon seep at Coal Oil Point in Santa Barbara, CA." Mumma is lead author of a paper describing this research that appeared in *Science Express*.

Methane is the main component of natural gas on Earth. Astrobiologists are interested in these data because organisms release much of Earth's methane as they digest nutrients. However, other purely geological processes, like oxidation of iron, also release methane.

"Right now, we do not have enough information to tell whether biology or geology -- or both -- is producing the methane on Mars," Mumma said. "But it does tell us the planet is still alive, at least in a geologic sense. It is as if Mars is challenging us, saying, 'hey, find out what this means.' "

If microscopic Martian life is producing the methane, it likely resides far below the surface where it is warm enough for liquid water to exist. Liquid water is necessary for all known forms of life, as are energy sources and a supply of carbon.

"On Earth, microorganisms thrive about 1.2 to 1.9 miles beneath the Witwatersrand basin of South Africa, where natural radioactivity splits water molecules into molecular hydrogen and oxygen," Mumma said. "The organisms use the hydrogen for energy. It might be possible for similar organisms to survive for billions of years below the permafrost layer on Mars, where water is liquid, radiation supplies energy, and carbon dioxide provides carbon. Gases, like methane, accumulated in such underground zones might be released into the atmosphere if pores or fissures open during the warm seasons, connecting the deep zones to the atmosphere at crater walls or canyons."

It is possible a geologic process produced the Martian methane, either now or eons ago. On Earth, the conversion of iron oxide into the serpentine group of minerals creates methane, and on Mars this process could proceed using water, carbon dioxide and the planet's internal heat. Although there is no evidence of active volcanism on Mars today, ancient methane trapped in ice cages called clathrates might be released now.

"We observed and mapped multiple plumes of methane on Mars, one of which released about 19,000 metric tons of methane," said co-author Geronimo Villanueva of the Catholic University of America in Washington. "The plumes were emitted during the warmer seasons, spring and summer, perhaps because ice blocking cracks and fissures vaporized, allowing methane to seep into the Martian air.

One method to test whether life produced this methane is by measuring isotope ratios. Isotopes of an element have slightly different chemical properties, and life prefers to use the lighter isotopes. Methane and water released on Mars should show distinctive ratios for isotopes of hydrogen and carbon if life was responsible for methane production.

*From NASA press release.*

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