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Global



1. Farewell to Shamila Nair-Bedouelle

Dear National Ozone Officers,
Dear Colleagues,
Dear Friends,

As some of you may know, my journey with you as the Head of OzonAction has now come to an end.

I take over my new responsibilities beginning of April as the Assistant director general of the natural sciences at UNESCO.

It has been indeed a great pleasure, profound privilege and honor for me to work with you all and to serve the Montreal Protocol community. I am indeed

humbled to have been part of the 'pristine' OzonAction team.

Your support to the OzonAction unique mandate will reinforce the institutional capacities necessary to take the Montreal Protocol and its Kigali Amendment to another dimension.

As citizens of the world, you are all 'ozone heroes', protecting our Mother earth and planet for current and future generations.

I will cherish the wonderful years I have spent in the Ozone Community. I sincerely thank you for all your support to me personally over the last years.

Yours faithfully,
Shamila Nair-Bedouelle

2. Implications of constant CFC-11 concentrations for the future ozone layer



Abstract. This investigation is motivated by the results presented by Montzka et al. (2018). They discussed a strong deviation of the assumed emissions of chlorofluorocarbon-11 (CFC-11, CFC13) in the past 15 years, which indicates a violation of the Montreal Protocol for the protection of the ozone layer.

A Chemistry-Climate Model (CCM) study is performed, investigating the consequences of a constant CFC-11 surface mixing ratio for stratospheric ozone: In comparison to a reference simulation (REF-C2), where a decrease of the CFC-11 surface mixing ratio of about 50 % is assumed from the early 2000s to the middle of the century, a sensitivity simulation (SEN-C2-fCFC11) is carried out where after the year 2002 the CFC-11 surface mixing ratio is kept constant until 2050.

Differences between these two simulations are shown. These illustrate possible effects on stratospheric ozone. The total column ozone (TCO) in the 2040s (i.e. the years 2041–2050) is in particular affected in both polar regions in winter and spring. At the end of the 2040s maximum discrepancies of TCO are identified with reduced ozone values of up to around 30 Dobson Units (in the order of 10 %) in the SEN simulation.

An analysis of the respective partial column ozone (PCO) for the stratosphere indicates that strongest ozone changes are calculated for the polar lower stratosphere, where they are mainly driven by the enhanced stratospheric chlorine content and associated heterogeneous chemical processes.

Furthermore, it turns out that the calculated ozone changes, especially in the upper stratosphere, are smaller than expected. In this altitude region the additional ozone depletion due to the catalysis by reactive chlorine is compensated partly by other processes related to enhanced ozone production or reduced ozone loss, for instance from nitrous oxide (NOx).

This discussion paper is a preprint. It is a manuscript under review for the journal Atmospheric Chemistry and Physics (ACP).

[Atmospheric Chemistry and Physics \(ACP\), 18 March 2019](#)

3. Helping enforcement catch up with environmental laws



When Pakistani customs officers last year seized massive amounts of R-22 refrigerant—a powerful ozone-depleting substance and greenhouse gas—it showed how strong enforcement of environmental laws can make a real difference to protecting the planet.

In the largest seizure of its kind for Pakistan, customs authorities confiscated 18,000 kilograms of the refrigerant at Karachi Port in October 2018. The bust came when a customs officer, Rahmatullah Vistro, received a tip about the smuggling plans.

Vistro is one of many customs officers around the world who have received UN Environment training to identify ozone-depleting substances smuggled by methods such as misdeclaration and mislabelling—as was the case with this shipment.

Countries are phasing out hydrochlorofluorocarbons like R-22 under the Montreal Protocol, the treaty that protects the ozone layer. According to the latest Scientific Assessment of Ozone Depletion, stratospheric ozone has been recovering at a rate of 1 to 3 per cent per decade since 2000, thanks to actions taken under the Montreal Protocol.

R-22's destructive impacts on the ozone layer are compounded by its huge global warming potential—over 1,800 times that of carbon dioxide. The greenhouse gas emissions from this shipment would have been equivalent to burning over 132,000,000 kilograms of coal.

Even so, demand for controlled substances is still high in some places where alternatives are expensive or don't work as well at extremely high temperatures. The illegal trade in ozone depleting substances is worth almost US\$70 million per year, according to the latest estimates.

Such successes show that enforcement of environmental laws is possible, even if it is not yet the norm. UN Environment's first-ever global assessment of environmental rule of law, the result of exhaustive research throughout 2018, found weak enforcement to be a global trend that is exacerbating environmental threats, despite a 38-fold increase in environmental laws since 1972.

"This report solves the mystery of why problems such as pollution, declining biodiversity and climate change persist despite the proliferation of environmental laws in recent decades," says David Boyd, United Nations Special Rapporteur on Human Rights and the Environment. "Unless the environmental rule of law is strengthened, even seemingly rigorous rules are destined to fail and the fundamental human right to a healthy environment will go unfulfilled."

Strong institutions can enforce environmental laws and ensure more effective management of natural resources. UN Environment works with countries to strengthen enforcement and compliance by promoting a rights-based approach to environmental management and by strengthening capacities to enforce legislation and combat violations.

UN Environment works to build public support for the fight against environmental crime, thus encouraging governments and authorities to crack down through the laws already in place. For example, the Wild for Life campaign has mobilized millions of people in the fight against wildlife trafficking since its launch in May 2016. In 2018, the campaign's advocacy helped bring greater protection for the snow leopard when the Government of Mongolia revoked mining licenses in Tost Nature Reserve.

UN Environment and partners also encourage further action through recognizing and awarding those who enforce laws.

For example, when a Thai court in 2018 sentenced wildlife kingpin Boonchai Bach, a 41-year-old Thai-Vietnamese national, to two years in prison for smuggling 11 kilograms of rhino horn, worth US\$700,000, it was a major coup worthy of recognition. The team that delivered the evidence—the Thai Customs, the Royal Thai Police, and the Department of National Parks, Wildlife and Plant Conservation—received one of the Asia Environmental Enforcement Awards 2018 for their work.

"I just dream about how to achieve a big goal like this, to hit the top of the syndicate," says Klairong Poonpoon, a director in the Wildlife Conservation Bureau of the Department of National Parks, Wildlife and Plant Conservation. "We wanted to do something that can have an impact on the region."

Learn [more](#) about our work on environmental governance.

This article is part of a series of stories highlighting UN Environment's work and published in the [2018 Annual Report](#).

[UN Environment, 25 March 2019](#)

4. Colossal barocaloric effects in plastic crystals

Abstract

Refrigeration is of vital importance for modern society—for example, for food storage and air conditioning—and 25 to 30 per cent of the world's electricity is consumed for refrigeration.

Current refrigeration technology mostly involves the conventional vapour compression cycle, but the materials used in this technology are of growing environmental concern because of their large global warming potential.

As a promising alternative, refrigeration technologies based on solid-state caloric effects have been attracting attention in recent decades.

However, their application is restricted by the limited performance of current caloric materials, owing to small isothermal entropy changes and large driving magnetic fields. Here we report colossal barocaloric effects (CBCEs) (barocaloric effects are cooling effects of pressure-induced phase transitions) in a class of disordered solids called plastic crystals.

The obtained entropy changes in a representative plastic crystal, neopentylglycol, are about 389 joules per kilogram per kelvin near room temperature. Pressure-dependent neutron scattering measurements reveal that CBCEs in plastic crystals can be attributed to the combination of extensive molecular orientational disorder, giant compressibility and highly anharmonic lattice dynamics of these materials. Our study establishes the microscopic mechanism of CBCEs in plastic crystals and paves the way to next-generation solid-state refrigeration technologies.

Authors: Bing Li, Yukinobu Kawakita, Seiko Ohira-Kawamura, Takeshi Sugahara, Hui Wang, Jingfan Wang, Yanna Chen, Saori I. Kawaguchi, Shogo Kawaguchi, Koji Ohara, Kuo Li, Dehong Yu, Richard Mole, Takanori Hattori, Tatsuya Kikuchi, Shin-ichiro Yano, Zhao Zhang, Zhe Zhang, Weijun Ren, Shangchao Lin, Osami Sakata, Kenji Nakajima & Zhidong Zhang

[Nature, International Journal of Science, volume 567, pages 506–510, 27 March 2019](#)



Abstract

Refrigeration is of vital importance for modern society—for example, for food storage and air conditioning—and 25 to 30 per cent of the world's electricity is consumed for refrigeration¹. Current refrigeration technology mostly involves the conventional vapour compression cycle, but the materials used in this technology are of growing environmental concern because of their large global warming potential². As a promising alternative, refrigeration technologies based on solid-state caloric effects have been attracting attention in recent decades^{3–5}. However, their application is restricted by the limited performance of current caloric materials, owing to small isothermal entropy changes and large driving magnetic fields. Here we report colossal barocaloric effects (CBCEs) (barocaloric effects are cooling effects of pressure-induced phase transitions) in a class of disordered solids called plastic crystals. The obtained entropy changes in a representative plastic crystal, neopentylglycol, are about 389 joules per kilogram per kelvin near room temperature. Pressure-dependent neutron scattering measurements reveal that CBCEs in plastic crystals can be attributed to the combination of extensive molecular orientational disorder, giant compressibility and highly anharmonic lattice dynamics of these materials. Our study establishes the microscopic mechanism of CBCEs in plastic crystals and paves the way to next-generation solid-state refrigeration technologies.

5. ASHRAE/UNEP Lower-GWP Refrigeration and Air Conditioning Innovation Award

What Is Lower-GWP Refrigeration and Air-Conditioning Innovation Award?

The award promotes innovative design, research and practice by recognizing people who have developed or implemented innovative technological concepts applied in developing countries to minimize global warming potential (GWP) through refrigeration and air-conditioning management.

Who Are the Awarding Organizations?

Award recipients will be recognized by ASHRAE and UN Environment.

How Often Is the Award Issued/Awarded?

Annually

What Are the Award Categories?

First Place and Honorable Citation awards are made in two categories:

- Residential Applications
- Commercial/Industrial Facilities

What Are the Entry Criteria?

The award promotes innovative design, research and practice by recognizing people who have developed or implemented innovative technological concepts applied in developing countries to minimize global warming potential (GWP) Refrigerants.



How Do I Enter for the Award

ENTER FOR THE AWARD

The submission form requires descriptive responses to each of the following:

- Description of innovation in field of lower-GWP refrigerants
- Project/Applicant details (description must include confirmation project has been implemented and date of implementation)
- Extent of need.
- Description and goal of the research, design, practice or project
- Naming of low GWP refrigerants used and description of associated refrigerant management practices associated with the lower GWP refrigerants
- Environmental impact achieved including specific reference to the GWP chemicals' contribution
- Further application of project
- Financial feasibility in developing countries and economic impact of the research, design or practice
- Photographs illustrating the project and tables, figures or charts that present statistical data demonstrating the project's successful performance or experimental findings are encouraged to be provided with the application.

When Does the Entry Period Begin and End?

Submission of entries for 2019 awards will be accepted between January 2019 and May 15, 2019.

How are the Winners Selected?

The winners in each category will be selected based on innovative solutions for designs, practice or research using lower-GWP technologies. The selection will take into account the following criteria:

- Extent of need (25%);
- Innovative aspects in transforming conventional practices (25%);
- Technical replicability to developing countries (25%); and
- Economy feasibility to developing countries (25%).

What Happens to the Winning Projects

Winning projects will be publicized by both organizations, and the First Place recipients will receive a stipend to receive their award at a UN Environment event. UN Environment, represented by the Law Division (OzonAction), and ASHRAE have a Memorandum of Understanding to establish technical cooperation and mutual coordination toward providing professional technical services to the refrigeration and air-conditioning stakeholders (governmental, private, and public). The organizations work to ensure that up-to-date related technical

information and standards are properly introduced and promoted. ASHRAE is a worldwide technical society of more than 57,000 individual members.

[Lower-GWP Refrigeration and Air-Conditioning Innovation Award flyer](#)

Contact:

[Ayman Eltalouny](#), International Partnerships Coordinator OzonAction-UNEP

[W. Stephen Comstock](#), Manager of Business Development EMEA, ASHRAE

Africa

6. Sustainability in Africa's maritime industry



Some of the most important global sea lanes pass the continent of Africa. Major routes navigate the Cape of Good Hope between the Atlantic and Indian Oceans, through the Red Sea and east-west through the Mediterranean Sea. Although Africa's own maritime transport sector remains relatively undeveloped, more than 90 percent of all imports and exports in Africa are facilitated by sea through ports along the coast.¹ Africa is also home to one of the world's largest shipping registries. The Liberian Registry covers 11 percent of the world's oceangoing fleet. [...]

Green shipping is indicative of the strides made in the industry to address its various impacts on human health and the environment. It addresses the preservation and protection of the global environment from greenhouse gas (GHG) emissions and other pollutants generated by the industry and contributes to achieving the UN Sustainable Development Goals. In practice, the "green" standard entails compliance with the major IMO pollution-related conventions and their protocols that many coastal African countries have ratified. [...]

With the rise of global trade and increased fuel consumption in the shipping industry that accompanies it, air emissions from shipping continue to rise. In May 2005, Annex VI of MARPOL took effect to address the negative impacts of air emissions from ships (from SOX, NOX, ozone-depleting substances and volatile organic compounds from shipboard incineration) and includes mandatory energy-efficiency measures to reduce GHG emissions. [...]

[Hellenic Shipping News Worldwide, 26 March 2019](#)

Latin America and Caribbean

7. Development of a National Cooling Plan for Trinidad and Tobago

Trinidad and Tobago signed the Kigali Amendment in November 2017 which expanded the scope of refrigerant to be phased out by this country to include hydrofluorocarbons (HFCs) which is harmful to the climate.

Several initiatives have been encouraged under the Kigali Amendment, one being for countries to develop National Cooling Plans (NCP) or cooling road maps. Developing an NCP can offer major benefits for countries, including:

- Delivering cost savings through enhanced energy efficiency for businesses and consumers;
- Reducing emissions which cause to climate change, while creating a stronger, more sustainable energy system and cleaner air;
- Reducing food waste, improving health, and increasing productivity through improved access to cooling.

Against this background, the National Ozone Unit has spearheaded the development of an NCP using a multisectoral stakeholder approach, bringing together several key stakeholders in the cooling industry, energy efficiency, and alternative refrigerants as well as research entities. It provides an holistic outlook on how the cooling demand in Trinidad and Tobago will evolve and grow, and outline strategies and actions that promote sustainable and smart cooling practices across the nation while mitigating adverse environmental impacts both to the ozone layer and the climate.

Consultations have begun in both Trinidad, and Tobago, to ensure the document reflects the concerns and ideas of those involved in the air conditioning and refrigeration sector.

[Trinidad and Tobago National Ozone Unit, 18 March 2019](#)



North America

8. The Naturally Cool Movement

Did you know that refrigerant management is listed as the #1 global solution to climate change in [Project Drawdown](#)? Despite the global impact and importance of this topic, the average person has no idea what “refrigerant management” means.

[Naturally Cool](#) is designed to bring the impact of refrigerants into the public spotlight and drive broad support for climate-friendly refrigerants.

The time to act is now. Together, with a network of concerned citizens, environmentalists, and volunteers, we can transform public awareness of this issue and drive swift results.

Why Naturally Cool?



NATURALLY
COOL

The Naturally Cool Movement

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- Why Naturally Cool?
- How You Can Support Naturally Cool?
- Volunteer for Naturally Cool
- Contribute to Active Initiatives

Over the past three years, the North American Sustainable Refrigeration Council (NASRC) has secured widespread support from supermarket industry stakeholders, who have dedicated time and energy to our mission.

The problem is that time is running out to address the impact of refrigerants on the climate. HFC refrigerants have been identified as the fastest growing source of greenhouse gas emissions globally, and the demand for HFCs is on the rise. Scientists have estimated that unless something changes, emissions from HFCs could contribute to a rise in global temperatures up to 0.5°C.

Though the NASRC has made tremendous progress with widespread support from the supermarket industry, we need to think and act bigger as the urgency of our mission surges. We need to leverage broader support and awareness from the public to accelerate our progress.

The Naturally Cool Movement is designed to expand support for the industry and complement core initiatives through public awareness. [...]

[North American Sustainable Refrigeration Council \(NASRC\), March 2019](#)

9. Ozone depleting substances turn-in procedures (USA)

DEPARTMENT OF DEFENSE
OZONE DEPLETING SUBSTANCES

TURN-IN PROCEDURES

The Defense Logistics Agency (DLA) is assigned the mission of managing the Defense Reserve of Ozone Depleting Substances to ensure that the supplies for mission critical uses are available. DLA provides central management for the receipt, storage and issuance through the DLA Aviation which is the activity within DLA that manages these substances.

The DLA Distribution Richmond is the primary storage site for ODS. It is imperative that your Military Service or Defense Agency turn in to the Reserve the following excess CFCs 11, 12, 114, 500, 502; Halons 1202, 1211, 1301, 2402; and HCFC-22 .

MARCH 2019

The Reserve accepts both used and new CFCs, Halons, and HCFC-22 in a relatively pure state (i.e. not as a component of other products). These chemicals may have been purchased under the Federal Supply Classes (FSC) 6830 and 4210, or from a commercial source. CFC/Solvent -113 (Type I & II) and 1,1,1 Trichloroethane (FSCs 6850 and 6810) can also be turned in to the Reserve provided they have never been used and the containers in which the chemicals reside have never been opened or unsealed. [...]

[The Defense Logistics Agency \(DLA\), March 2019](#)

10. A Case for Closing the Case: Retro-Fitting Open Refrigeration - Upcoming US EPA GreenChill Webinar



US EPA GreenChill Webinar upcoming webinar titled: [A Case for Closing the Case: Retro-Fitting Open Refrigeration](#)

Date: Tuesday, April 23, 2019

Time: 2:00 pm to 3:00pm (Eastern time)

Description: Deanna Cooper (Remis America) and Alex Inman (ICF; Energy Trust of Oregon representative) will present on retro-fitting open refrigeration. The conversation will focus on lowering energy use with zero energy doors while improving customer shopping experience. They will also discuss existing ways to lower the cost of retro-fit projects.

To join the webinar:

1. Visit the webinar access page: A Case for Closing the Case: Retro-Fitting Open Refrigeration
2. Select "Enter as a Guest". It is important that you select the option to enter as a guest.
3. Enter your name.
4. Click "Enter Room".
5. Click "OK".

For audio:

1. Call the toll free call-in number: 1-866-299-3188 (706-758-1822 from outside the U.S.)
2. Use Conference Code: 202 343 9185#

[US EPA GreenChill, April 2019](#)

Asia Pacific

11. Practicing energy saving to protect ozone layer (Vietnam)

One of the most concerning issues today is that the ozone layer, which protects humans from most of the sun's damaging ultraviolet (UV) radiation, is being depleted by pollution. Chlorofluorocarbon (CFC) emissions are claimed to be the main cause of this phenomenon.

Vietnam made considerable efforts to phase out the use of CFCs by substituting hydrofluorocarbon (HFC). However, in 2016, the Parties to the Montreal Protocol adopted the Kigali Amendment to phase down HFCs since the chemicals are potent and fast-growing greenhouse gases. The Department of Climate Change under Vietnam's Ministry of Natural Resources and Environment (MONRE) has carried out an assessment of the socio-economic impact on Vietnam as the country ratifies the Kigali Amendment.

The department is finalising a dossier to submit to the MONRE for Government's approval.

Under the Kigali Amendment, developing countries will follow with a freeze of HFCs consumption levels in 2024, with some countries freezing consumption in 2028. By the late 2040s, all countries are expected to consume no more than 15-20% of their respective baselines. Overall, the agreement is expected to reduce HFC use by 85% by 2045.

Once the document takes effect in Vietnam, the Government will commit to comply with the phase out schedule for the HFC phase-down. Industries, sectors and businesses will take the chance to renovate their technology, improve their economic efficiency, practice sustainable production, and raise their competitiveness, thus opening up new opportunities in business, while contributing to creating more jobs and facilitating socio-economic development.

The Department of Climate Change will continue coordinating with international organisations and sponsors to support enterprises in successfully reducing the chemicals which are controlled by the Montreal Protocol, ensuring business benefits in the climate fight.

Vietnam is a country that does not produce ozone depleting substances. The substances were previously imported for fire extinguishers, refrigeration and air-conditioning applications. Currently, the MONRE has actively coordinated with functional agencies in preventing the illegal trade of ozone depleting substances into Vietnam.

Practicing energy saving to protect ozone layer



In the same effort to protect the environment, energy labelling is seen as an effective solution to drive consumers' use of high-performance equipment, gradually eliminate inefficient and obsolete products, and reduce substances which are the main cause of ozone depletion and the greenhouse effect.

The Energy Labelling Programme has been implemented in Vietnam since 2008 and energy labels have been made compulsory since July 1, 2013. The programme sets a goal to achieve a minimum cumulative saving of around VND10 trillion (US\$ 480 million) and a reduction of 34 million tonnes of CO₂ emissions by 2030. Electricity saving will be about 6,000 GWh per year, which reduces the demand for electricity generated from two coal-fired power plants with a capacity of 500 MW (equivalent to US\$ 1 billion invested in coal based power plant).

According to statistics released by the Ministry of Industry and Trade (MOIT), since the Energy Labelling Programme became compulsory on July 1, 2013, around 15,000 products and equipment in 19 categories were sealed with energy labels as of June 2018.

Since 2017, almost all air conditioners in Vietnam have been sealed with energy labels. According to the report of the Vietnam Society of Refrigeration and Air-Conditioning Engineers, it is estimated that 100 million kWh of electricity has been saved annually as consumers have shifted to air conditioning products with higher efficiency. In the past, consumers used to buy products based on their perceptions of prices and models but now they also take into account the products' technical information and energy consumption. It is forecast that energy-labelled products will help to reduce electricity consumption by 10% and 30% by 2020 and 2030, respectively.

Energy labelling is not only a way to go green but also helps consumers to choose the most energy-efficient products. In other words, it is a financial saving solution for each family.

[Nhân Dân, 26 March 2019](#)

West Asia

12. Bahrain discuss with Japan the development of a center for the studies of the HVAC sector



البحرين تبحث مع اليابان إعداد مركز دراسات لقطاع التكييف للأجواء مرتفعة الحرارة

اجتمع سعادة الدكتور محمد مبارك بن دينه الرئيس التنفيذي للمجلس الأعلى للبيئة في العاصمة اليابانية طوكيو مع وفد من وزارة الاقتصاد والتجارة والصناعة اليابانية وذلك لبحث التكنولوجيا المستقبلية لقطاع التكييف وقد استعرض الدكتور محمد بن دينه خلال الاجتماع الوضع الحالي والمستقبلي لتكنولوجيا التكييف في مملكة البحرين وتدابيرها خلال العقد القادم بسبب الالتزامات الدولية ذات العلاقة بحماية طبقة الأوزون من خلال متطلبات بروتوكول مونتريال بشأن المواد المستنفدة لطبقة الأوزون، والتي تقضي بضرورة التخلص التدريجي عن مجموعة مهمة من وسائط التبريد المعتمدة في صناعة وصيانة أجهزة التكييف حتى عام 2030، وكذلك تأثير وسائط التبريد البديلة على ظاهرة الاحتباس الحراري، والتي من المزمع بدء التخفيض التدريجي لها عالمياً خلال العقد القادم، مما يضع صناعة التكييف على المحك بالنسبة للبلدان ذات درجات الحرارة المرتفعة وأشار سعادة الرئيس التنفيذي للمجلس الأعلى للبيئة الى اهتمام المملكة وحرصها على تبادل المعلومات والخبرات مع اليابان ممثلة في وزارة الاقتصاد والتجارة والصناعة، لما لها من خبرة طويلة وواسعة في مجال صناعة تكنولوجيا التكييف منخفضة التأثير على الاحتباس الحراري، وليس لها استنفاد على طبقة الأوزون، وذات كفاءة طاقة عالية، ومردودها الهام في خفض استهلاك الطاقة الكهربائية في المملكة، والناتجة عن الاستهلاك العالي للتكييف في فصل الصيف

[...]

[Alayam, 30 March 2019](#)

Europe & Central Asia

13. EFCTC introduces illegal refrigerant reporting “hotline”

Illegal refrigerant imports and sales activity in Europe can now be easily reported, and in confidence, through a new website established by the refrigerant producers group EFCTC.

The European HFC phase down, which led to huge price increases and some product scarcity last year, has encouraged a considerable black market in refrigerants. Much of this product is being imported outside of the quota system with a large proportion of it in illegal disposable cylinders. Current estimates are that around 20% of sales in the EU are suspected of being outside the phase down quota mechanism.

The illegal sales are having a disruptive effect on the market and a serious environmental impact, but many concerned individuals are unclear who to report such activity to. Few, if any, member states operate a “hotline”, making reporting difficult, and many potential whistleblowers have confidentiality concerns.

The new Integrity Line, operated on EFCTC’s behalf by the EQS Group, promises that anyone will now be able to report suspicious activities easily, in confidence, and anonymously, if desired.

The EQS Integrity Line digital whistleblowing system was established in 2009 and is currently being used by more than 150 companies.

Speaking during a live webinar today, Tim Vink, Honeywell’s director of regulatory affairs, said that several authorities in member states were already aware of the new Integrity Line and were listening. “One of the challenges they face if they want to prosecute is they need to have conclusive evidence and that is always very difficult to get,” he said.

Through the EQS Integrity Line, the EFCTC intends to provide the authorities in the particular member state with the evidence they need.

Information

The Integrity Line is seeking information regarding incidents relating to smuggling, mislabelling, counterfeiting of F-gas products, the use of illegal disposable cylinders or other breaches of the F-gas quota system.

To guarantee a whistleblower’s anonymity, the encrypted data is transmitted via a secure and independent EQS server. All reports via the Integrity Line website will remain anonymous unless the whistleblower wishes to disclose their identity.

Those reporting illegal activity will be contacted if additional information is needed. If it is eventually found that no violation has occurred there will be no consequences for the whistleblower.

The website is currently only in English but there are plans to roll out additional languages over the coming weeks, as well as a voice message service.

The Integrity Line can be accessed [here](#).

[CoolingPost, 19 March 2019](#)



Featured



OZONE SECRETARIAT

- [62nd Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol](#), 29 June 2019, Bangkok, Thailand
- [41st Meeting of the Open-Ended Working Group of the Parties to the Montreal Protocol](#), 1 - 5 July 2019, Bangkok, Thailand
- [63rd Meeting of the Implementation Committee under the Non-Compliance Procedure of the Montreal Protocol](#), 2 November 2019, Rome, Italy
- [Bureau Meeting of the 30th Meeting of the Parties to the Montreal Protocol](#), 3 November 2019, Rome, Italy
- [31st Meeting of the Parties to the Montreal Protocol](#), 4 - 8 November 2019, Rome, Italy

Click [here](#) for Montreal Protocol upcoming Meetings Dates and Venues

Kigali Amendment to the Montreal Protocol on Substances that Deplete the Ozone Layer, Status of Ratification 15 October 2016 to [date](#)

[The UN Environment Assessment Panels](#)

The Assessment Panels have been vital components of ozone protection since the Montreal Protocol was first established. They support parties with scientific, technological and financial information in order to reach decisions about ozone layer protection and they play a critical role in ensuring the Protocol achieves its mandate.

The Assessment Panels were first agreed in 1988 to assess various direct and indirect impacts on the ozone layer. The original three panels are:

[The Technology and Economic Assessment Panel](#)

[The Scientific Assessment Panel](#)

[The Environmental Effects Assessment Panel](#)

In the past there were 4 main panels. The Panels for Technology and Economic Assessments were merged in 1990 into one Panel, now called the Technology and Economic Assessment Panel.

Why are the three current panels important to ozone layer protection? Each carries out assessment in its respective field. Every four years, the key findings of all panels are consolidated in a synthesis report.



[THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL](#)

- [83rd meeting of the Executive Committee](#)
- [82nd meeting of the Executive Committee](#)

[Learn more](#)

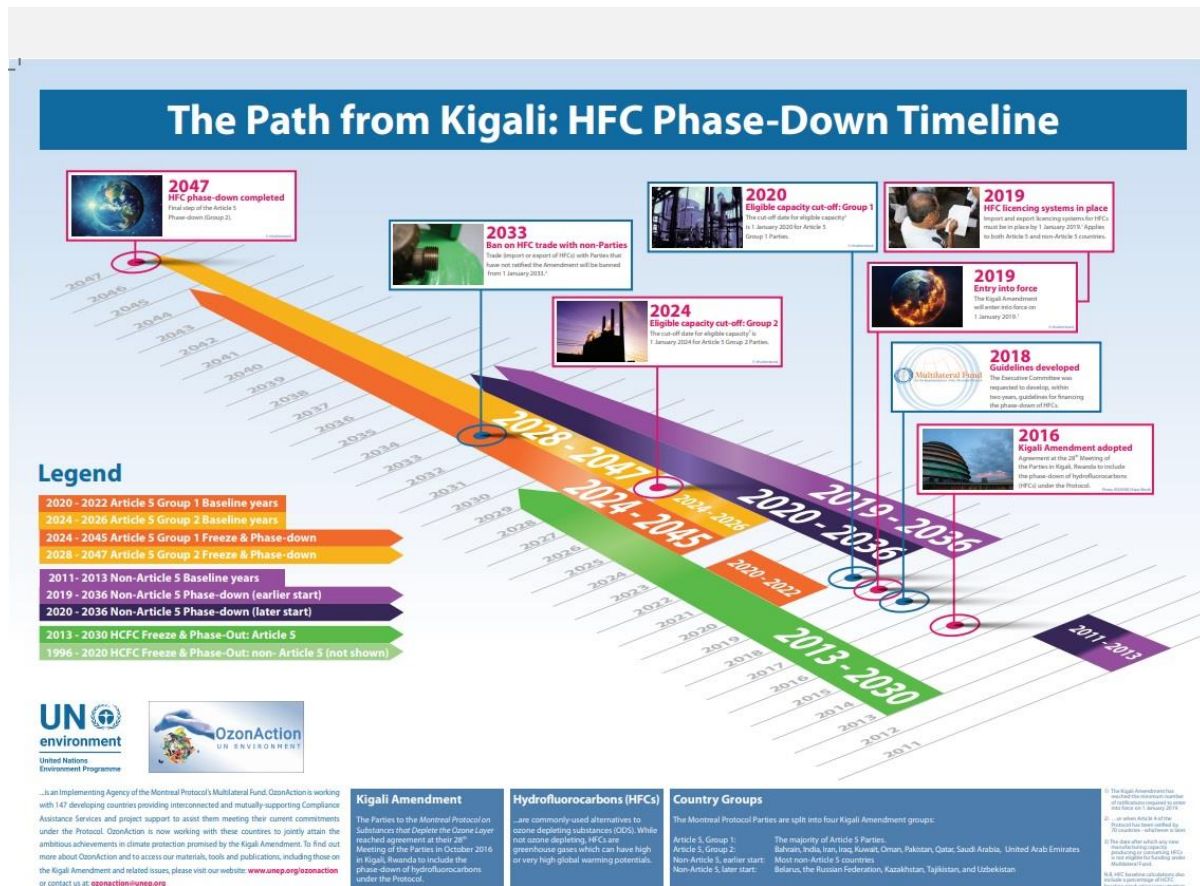


[OZONACTION](#)

Post-Meeting Feedback Survey - OzonAction Second Global Inter-Regional and Parallel Network Meetings for National Ozone Officers, 17-20 February 2019.

Read/Download: [Meeting report](#) | [Full survey report](#)

Question	Response	Percentage
1. How satisfied are you with the quality of the information provided in the meeting?	Very satisfied	85%
2. How satisfied are you with the quality of the information provided in the meeting?	Satisfied	10%
3. How satisfied are you with the quality of the information provided in the meeting?	Not satisfied	5%
4. How satisfied are you with the quality of the information provided in the meeting?	Very dissatisfied	0%
5. How satisfied are you with the quality of the information provided in the meeting?	Dissatisfied	0%
6. How satisfied are you with the quality of the information provided in the meeting?	Very satisfied	85%
7. How satisfied are you with the quality of the information provided in the meeting?	Satisfied	10%
8. How satisfied are you with the quality of the information provided in the meeting?	Not satisfied	5%
9. How satisfied are you with the quality of the information provided in the meeting?	Very dissatisfied	0%
10. How satisfied are you with the quality of the information provided in the meeting?	Dissatisfied	0%



The Path from Kigali: HFC Phase-Down Timeline

This timeline, produced by OzonAction, highlights key hydrofluorocarbons (HFCs) phase-down dates.

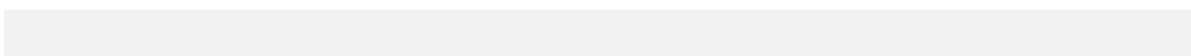
Click [here](#) to download the timeline

New videos available on the OzonAction RAC video application

A series of new videos has just been released on the Refrigeration and Air-conditioning Technician Video Series application, with a focus on working with flammable refrigerants ...

50,000 downloads and counting!

To install, search for "RAC Video" in the Google Playstore or Apple IOS store, or scan the QR code.



GWP-ODP Calculator Smartphone Application

The application allow you to easily convert ODP, CO₂-eq and metric quantities of refrigerants and other chemicals.

- Helps in understanding and reporting under the Montreal Protocol (and future commitments under the Kigali Amendment)
- The calculator will automatically perform the conversion between metric

tonnes, ODP tonnes and/or CO₂-equivalent tonnes (or kg) and display the corresponding converted values

- The app includes both single component substances and refrigerant blends
- The components of a mixture and their relative proportions (metric, ODP, CO₂-eq) are also displayed.

Available for [free](#) from the Apple IOS store and Google PlayStore. Search for "GWP ODP CALC" in the Playstore to install!

Download it Now!



OzonAction Smartphone Application WhatGas? Quickly search for the information you need

- Chemical name
- Chemical formula
- Chemical type
- ASHRAE designation
- Trade names
- HS code
- CAS number
- UN number
- Montreal Protocol Annex and Control measures
- Ozone depleting potential (ODP)
- Global warming potential (GWP)
- Blend components
- Toxicity and flammability class
- Main uses

OzonAction Smartphone Application WhatGas?

Available for [free](#) in the Google Play and Apple IOS Store

Scan the QR code or search for “UNEP”, “OzonAction” or “WhatGas?”



The Kigali Amendment to the Montreal Protocol - Opportunities and Next Steps - OzonAction Video

The Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer reached agreement at their 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase down hydrofluorocarbons (HFCs). The UN Environment, OzonAction developed a video to find out from renowned international scientific, health, technical, financial and national experts about background and significance of this Kigali amendment.

The amendment presents many opportunities: improving the environment, refrigeration and air-conditioning systems and especially energy efficiency. It also presents new challenges. It is absolutely critical now for industry, governmental bodies and civil society to work together to adopt greener technologies in each country of the world and fight global warming.

[OzonAction YouTube](#) | See also: [United Nations Treaty Collection](#)

OzonAction Factsheets



UN Environment-ASHRAE Factsheet Update on New Refrigerants Designations and Safety Classifications

OzonAction Series of [19 Fact Sheets](#) related to the Kigali Amendment.

[HS codes for HCFCs and certain other Ozone Depleting Substances ODS](#) (post Kigali update).

The Kigali Amendment to the Montreal Protocol: HFC Phase-down - The phase-down of HFCs under the Montreal Protocol on Substances that Deplete the Ozone Layer has been under negotiation by the Parties since 2009 and the successful agreement on the Kigali Amendment at the 28th Meeting of the Parties on 15 October 2016 in Kigali, Rwanda to phase-down hydrofluorocarbons (HFCs) continues the historic legacy of the Montreal Protocol. This factsheet summarises and highlights the main elements of the Amendment of particular interest to countries operating under Article 5 of the Protocol (Article 5 Parties).

[Refrigerant Blends: Calculating Global Warming Potentials](#) (post-Kigali update).
[Global Warming Potential \(GWP\) of Refrigerants: Why are Particular Values Used?](#) (post-Kigali update).
[Tools Commonly used by Refrigeration and Air-Conditioning Technicians.](#)



OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series - Over 50,000 downloads to date -

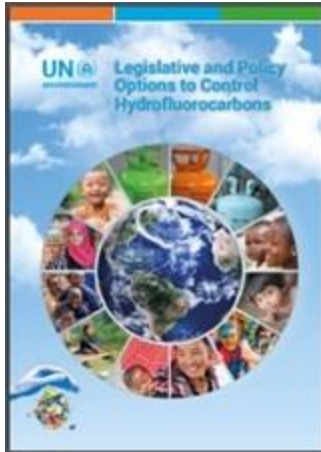
OzonAction has launched an exciting new application which hosts series of short instructional videos on techniques, safety and best practice for refrigeration and air-conditioning technicians. This application, consisting of short instructional videos on techniques, safety and best practice, serves as a complementary training tool for refrigeration and air-conditioning (RAC) sector servicing technicians to help them revise and retain the skills they have acquired during hands-on training.

New videos on flammable refrigerants just added!

Please share with your RAC associations, technicians and other interested stakeholders...

OzonAction Multimedia Video Application: Refrigeration and Air-conditioning Technician Video Series
Available in the [Android Play Store](#) and [Apple Store/iTunes](#).
(Just search for "OzonAction", or scan this QR code)

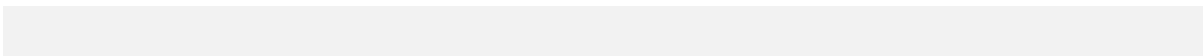
Publications



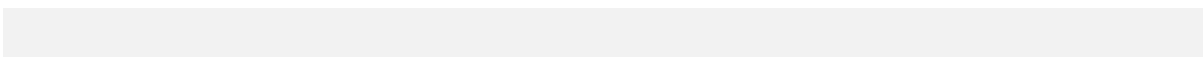
[Legislative and Policy Options to Control Hydrofluorocarbons](#)

In order to follow and facilitate the HFC phase-down schedules contained in the Kigali Amendment, the Parties, including both developed and developing countries, will have to implement certain measures.

This booklet contains a recommended set of legislative and policy options which the developing (Article 5) countries may wish to consider for implementation. It is intended to be a guide/tool for countries.



Latest issue of the Centro Studi Galileo - [Industria & Formazione](#). La rivista per il tecnico della refrigerazione e della climatizzazione, N. 2, 2019



Events

2019

- [15th Cryogenics 2019 Conference](#), 7-11 April 2019, Prague, Czech Republic

- [China Refrigeration 2019](#), 9-11 April 2019, Shanghai New International Expo Center, China
- [8th Conference on Ammonia and CO₂ Refrigeration Technologies](#), 11-13 April 2019, Ohrid, Macedonia (FYROM)
- [25th IIR International Congress of Refrigeration](#) - 24-30 August 2019, Montreal, Canada

Click [here](#) for more information / [International Institute of Refrigeration](#)

Please feel free to [share](#) relevant events.

Reading



[Twenty Questions and Answers About the Ozone Layer](#), presents complex science in a straightforward manner. It complements the [2014 Scientific Assessment Report of Ozone Depletion](#) by WMO and the U.N. Environment Programme.

Lead Author:

Michaela I. Hegglin

Coauthors:

David W. Fahey, Mack McFarland, Stephen A. Montzka, Eric R. Nash



[Primer on Hydrofluorocarbons \(HFCs\)](#) - IGSD -11 January 2018

Summary:

Fast action under the Montreal Protocol can limit growth of hydrofluorocarbons (HFCs), prevent 100 to 200 billion tonnes of CO₂-eq by 2050, and avoid up to 0.5°C of warming by 2100.

Lead authors:

Durwood Zaelke, Nathan Borgford-Parnell, and Stephen O. Andersen.

Contributing authors:

Kristin Campbell, Xiaopu Sun, Dennis Clare, Claire Phillips, Stela Herschmann, Yuzhe Peng Ling, Alex Milgroom, and Nancy J. Sherman.



The [IIR International Dictionary of Refrigeration](#) Available in 11 languages, the complete version of the International Institute of Refrigeration (IIR) International Dictionary of Refrigeration is now freely accessible online. The IIR International Dictionary of Refrigeration offers researchers, industrialist or

administrations the practical resources required to produce content related to refrigeration technologies in multiple languages.

This online tool allows you to find definitions, in English and French, of scientific and technical terms, as well as identify terms in the language of your choice and find corresponding translations in the 10 other languages.

The dictionary provides term searches in Arabic, Chinese, Dutch, English, French, German, Italian, Japanese, Norwegian, Russian and Spanish.

Access the International Dictionary of Refrigeration on the [IIR website](#)



[Impact of Standards on Hydrocarbon Refrigerants in Europe – Market research report](#). The market research report was realised for the EU-funded [LIFE FRONT](#) project. Amongst the main result of the market research:

- Current charge limits set in standards both restrict and obstruct the development of hydrocarbon technology
- Over 50% survey respondents already work with hydrocarbons to some extent
- Most of those planning to start working with hydrocarbons in the future will do that in 2019-2020 timeframe - revision of standards could have a major impact on the scale of this shift
- Large proportion of respondents indicated they manufacture equipment using multiple refrigeration circuits - allowing higher hydrocarbon charge limits per single refrigeration circuit would have a profound impact on cost and availability of larger units.



[Tip of the Iceberg: Implications of Illegal CFC Production and Use.](#) The Environmental Investigation Agency (EIA) recently released report urges Parties to the Montreal Protocol to address a number of remaining unanswered questions, in particular the absence of comprehensive data regarding the size of current banks of CFC-11 in PU foam and other products or equipment.



phased down from January 2018.

Miscellaneous



I am in the Montreal Protocol Who's Who... Why Aren't You?

The United Nations Environment, OzonAction, in collaboration with Marco Gonzalez and Stephen O. Andersen are updating and expanding the "Montreal Protocol Who's Who".

We are pleased to invite you to submit your nomination*, and/or nominate Ozone Layer Champion(s). **The short profile should reflect the nominee's**

valuable work related to the Montreal Protocol and ozone layer protection.

Please notify and nominate worthy candidates through the [on-line form](#)

We look forward to receiving your nomination(s), and please feel free to contact our team for any further assistance concerning your nomination.

Take this opportunity to raise the profile of women and men who made an important contribution to the Montreal Protocol success and ozone layer protection.

- View the «Montreal Protocol Who's Who» [Introductory video](#)
- Contact : [Samira Korban-de Gobert](#), UN Environment, OzonAction

* If you are already nominated, no need to resubmit your profile



[The International Institute of Refrigeration supports World Refrigeration Day](#) -

As the only independent intergovernmental organisation in the field of refrigeration, the International Institute of Refrigeration (IIR) joins associations and companies worldwide to support the initiative of an official

World Refrigeration Day on 26 June every year. The annual World Refrigeration Day, to be launched on 26 June 2019, aims to raise awareness among the wider public about the importance of refrigeration technologies in everyday life.

Refrigeration is essentially a question of temperature and, as such, it only seems natural to celebrate the field on the birthday of the pioneer at the origin of the international unit of temperature, Lord Kelvin (Sir William Thomson) – born 26 June 1824.

With increasing global stakes at hand, over the past years refrigeration has come to take a leading role at the heart of international affairs.

The inauguration of a World Refrigeration Day would not only be an ideal way to recognise the many historical achievements of the industry, but also a means to anticipate and overcome together the challenges we face. ... Click [here](#) for more information.



New International Journal of Refrigeration service for IIR members -

Access the complete archives of the International Journal of Refrigeration (IJR) online. Designed with IIR members in mind, this new and practical electronic subscription gives members substantial advantages:

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- See which papers, published in Elsevier or elsewhere, have cited any selected article.
- Consult the research highlights overview of articles in volumes from 2012 onwards.

To access this new service, click "[activate my e-IJR subscription now](#)" and follow the instructions.



[International Observers - New AREA membership category](#) - Due to the significant worldwide interest in European legislative developments and the increase in competence of personnel who handle new refrigerants, AREA is pleased to introduce its brand new "International Observer" membership category. This provides a fantastic opportunity for non-European RACHP installer bodies the world, to benefit from the expertise and discussions

within Europe through access to AREA. Contact: info@area-eur.be



OZONE HOLE: HOW WE SAVED THE PLANET
Courtesy of Windfall Films/NASA

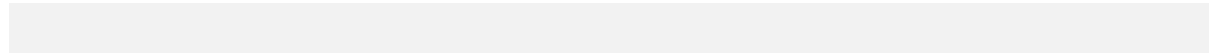
Premieres Wednesday, April 10, 2019
10:00-11:00 p.m. ET on PBS

New Documentary Tells the Remarkable Story of How Scientists Discovered the Deadly Hole in the Ozone – and the Even More Remarkable Story of How the World's Leaders Came Together to Fix It.

OZONE HOLE: HOW WE SAVED THE PLANET - New Documentary Tells the Remarkable Story of How Scientists Discovered the Deadly Hole in the Ozone – and the **Even More Remarkable Story of How the World's Leaders Came Together to Fix It.**

In the 1980s, the planet was in grave danger, not from global warming but from a giant hole in the ozone layer, an atmospheric layer that absorbs most of the sun's harmful ultraviolet light. The cause? Scientists concluded it

was seemingly benign industrial chemicals called CFCs that were used in everyday products from hairspray to deodorant. If continued unchecked, the world faced a perilous future — one in which humans would be forced to hide from daylight due to the harmful unfiltered UV radiation, and one where agriculture and entire ecosystems would collapse. **OZONE HOLE: HOW WE SAVED THE PLANET** tells the incredible true story of how scientists, world leaders and two of the most unlikely eco-warriors — Ronald Reagan and Margaret Thatcher — successfully worked together to prevent an environmental catastrophe. The result was a history-changing treaty that just may have saved the world. **OZONE HOLE** premieres on Wednesday, April 10, 2019, 10:00-11:00 p.m. ET (check local listings) on PBS, PBS.org and the PBS Video App. [...]



[Million Cool Roofs Challenge](#) - The Million Cool Roofs Challenge is a \$2 million global competition to rapidly scale up the deployment of highly solar-reflective “cool” roofs in developing countries suffering heat stress and lacking widespread access to cooling services.



The Challenge will award \$100,000 grants to up to ten teams this year to deploy solar reflective coating and/or materials in an eligible country between August 2019 and December 2020. From there, \$1 million will be awarded in 2021 to the team that has demonstrated the best sustainable and transferable model for rapid deployment of cool roofs in an eligible country and best meets the judging criteria. Materials should also meet minimum performance standards and be applied to roofs of buildings regularly occupied by people.

The application window for \$100,000 grants is now open. Applicants must submit their completed entry forms by 20 May 2019. Before applying to the Challenge, applicants must carefully review all of the information on the [Apply](#) page.

The Million Cool Roofs Challenge is a project of the Kigali Cooling Efficiency Program (K-CEP) in collaboration with the Global Cool Cities Alliance, Sustainable Energy for All and Nesta’s Challenge Prize Centre.

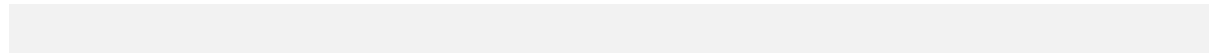
The recent paper by SEforAll and K-CEP, Chilling Prospects: Providing Sustainable Cooling For All, directly linked strategies to deploy more highly reflective “cool” roofs and walls with achieving the goals of the Paris climate agreement, the Sustainable Development Goals, and the Kigali Amendment to the Montreal Protocol.

By minimizing the amount of heat generated by solar energy absorbed by buildings, reflective building surfaces reduce the demand for cooling energy for those that can afford it while also providing a sustainable passive cooling solution for the billions of people who do not have the economic means to access mechanical cooling options, in poor rural areas, urban slums and homeless shelters.

Reflective roof surfaces not only have an impact on individual buildings, but deploying them across a whole community can have a net effect on reducing local ambient temperatures. Further, the deployment of reflective materials creates sustainable job and skills opportunities for low skilled workers in both rural and urban contexts.

Learn more, see a full list of eligible countries, and apply to the Challenge please visit www.coolroofschallenge.org

Contact: team@coolroofschallenge.org



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Prepared by: Samira Korban-de Gobert, OzonAction

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