

OZONENEWS

15 December 2014

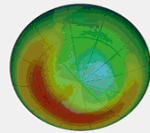
Vol. XIV

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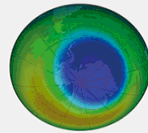
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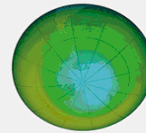
A fortnightly electronic news update on ozone and climate protection and the implementation of the Montreal Protocol



1970



2014



2060

Antarctic Total Ozone
(October monthly averages)
Total ozone (Dobson units)
100 200 300 400 500

The ozone layer is expected to heal itself by the middle of this century
 La couche d'ozone devrait se reconstituer d'ici le milieu du siècle
 Se espera que la capa de ozono se habrá recuperado para mediados de este siglo
 Ожидается, что озоновый слой самоисцелится к середине этого века
 من المتوقع أن تعالج طبقة الأوزون استنفاد طبقتها بحلول منتصف هذا القرن
 臭氧层有望于本世纪中叶“自愈”。

Season's Greetings
Meilleurs Vœux
Felices Fiestas

поздравляю
أطيب التمنيات
恭贺新禧

Achim Steiner
United Nations Under-Secretary-General
Executive Director
United Nations Environment Programme



GLOBAL



1. Together you've made it! Beijing Amendment to the Montreal Protocol Achieves Universal Ratification by 197 Parties

On 4 December 2014 the Beijing Amendment to the Montreal Protocol achieved universal ratification. This important milestone was made possible following the ratification of the Amendment by Mauritania on that day. The ratification of this Amendment by all parties to the Montreal Protocol culminates the long legal process which each has had to undertake to translate the objectives of the Montreal Protocol and its four subsequent amendments into legal binding commitments to be implemented by each country. The other three Amendments - the London Amendment (1990), the Copenhagen Amendment (1992) and Montreal Amendment (1997) had already been universally ratified by all Parties to the Montreal Protocol.

“I know how difficult this legal process has been to many countries and yet you all have done it. The Secretariat is deeply grateful to all parties for this achievement and wish to congratulate your Governments to have worked very hard to overcome any hurdles in achieving this milestone.”

Excerpt from the message by Tina Birmpili, Executive Secretary, Ozone Secretariat

► The updated ratification status of all ozone treaties is posted on the Ozone Secretariat's [website](#)

2. Ozone Depleting Chemical Resurfaces in Northern Hemisphere

Researchers discover rise in hydrogen chloride levels

A team of international researchers, including Dr. Kaley Walker, an atmospheric physicist at the University of Toronto, has reported an unexpected increase in hydrogen chloride, a chemical responsible for damaging the ozone layer in the atmosphere.



The researchers recently published their findings in the journal *Nature*, providing evidence of a trend towards a higher concentration of hydrogen chloride in the northern hemisphere since 2007.

Based on measurements and observations from independent satellite data sets, ground-based observations, and simulations from various models over the past three decades, the study reveals that hydrogen chloride levels had been declining after 1997, in line with what was predicted, but then reversed in 2007. This decline was predicted after the signing of the Montreal Protocol, an international effort to reduce the ozone hole over Antarctica, in 1987. The Protocol aimed to control the production of ozone depleting substances like chlorofluorocarbons (CFCs) that produce hydrogen chloride as a by-product of consumption. However, despite the decrease in CFC production, Walker explains that the recent increase in hydrogen chloride levels is a result of slower circulation of “old air,” which has been carrying the ozone-depleting chemical into the Northern Hemisphere’s lower stratosphere since around 2005 or 2006.

“It’s the change in how fast the air is moving in the atmosphere,” Walker says, “It’s not [that there is] more production of CFCs, because we looked at what the possible source [there is] and based on what we measure on the ground, we couldn’t see anything that could be contributing.”

While CFCs and related chlorine and bromine halogens are produced in comparably lower quantities today, when present, one atom of chlorine can destroy over 100,000 ozone molecules. According to the study, stratospheric circulation variability, as observed here could lead to an unpredictable increase or redistribution of hydrogen chloride; therefore, there is a need for careful monitoring in the path of ozone recovery.

“We are on the right track because of the Montreal protocol... we are seeing small variations in how that recovery is happening, because of the atmosphere being a very complex thing,” says Walker.

Walker adds that we should continue to monitor the atmosphere because of these smaller variations that occur at various altitudes, and to ensure that the models that are used to predict ozone layer recovery are representative of what is seen in the atmosphere.

► [The Varsity](#), Vol CXXXV, No. 12, 2 December 2014, By Nyima Gyalmo



ASIA PACIFIC

3. National Ozone Unit Holds Training Workshop (Pakistan)



The National Ozone Unit [Pakistan] arranged a training workshop on HCFC Phase-out Management, a press release said Tuesday. Senior government officials attended it, the press release added. National Programme Manager, Ozone Cell Zaigham Abbas, briefed about Pakistan's obligations to comply with the Montreal Protocol. Dr Waqar Ahmed gave presentation on the ozone layer and its depletion that affects the life on earth. Issues such as implementation of 2012 HS Codes for HCFCs and data feeding in Web Based One Customs (WeBOC) system in customs to automatically control the imports of HCFC were discussed. Detail discussions were held on the HCFCs control and role of customs to curb illegal trade was also discussed.

▶ [Daily Times Pakistan](#), 10 December 2014

4. Non-chemical Option for Timber Exports to Australia

Timber exporters shipping wood to Australia now have access to a non-chemical option for treating the timber for pest control.

After a successful trial last summer, a programme aimed at reducing the use of methyl bromide has been opened up to exporters. Methyl bromide is an ozone depleting gas used to fumigate logs and other timber products and is the main treatment for exports to Australia, such as sawn timber, timber mouldings, panel products and veneer sheets.



It is used to control a wood boring pest called the burnt pine longhorn beetle. Exporters will be able to use a non-chemical treatment method which involves creating a physical barrier between wood products and the beetle. It will be available during the beetle's summer flight season which runs from October through to April.

Associate Primary Industries Minister Jo Goodhew said it stemmed from a wider Primary Growth Partnership (PGP) research programme aimed at meeting New Zealand's commitment to reducing the use of methyl bromide as a fumigant in the timber and horticulture industries.

"Now we know that for example, ethyl formate can be used on fresh produce, things like kiwifruit, but for the timber, what we trailed last year and now have opened up for more usage is putting a physical barrier between the wood product and this wood boring beetle, known as the burned pine longhorn beetle, so that just gives another opportunity for products to be exported without using methyl bromide."

Ms Goodhew said the aim was to reduce methyl bromide use by 40 percent.

▶ [Radio New Zealand News](#), 1 December 2014

▶ See also: [Major concern expressed at lack of direction on methyl bromide replacement](#)



EUROPE AND CENTRAL ASIA



5. The Future of New Refrigerants with Low Global Warming Potential Starts Today

Reduction of the environmental impact results in growing interest of the owners of commercial refrigeration equipment in EU and in markets worldwide. Elimination of refrigerant leakages is a crucial factor with respect to costs and environmental safety for any owner of such equipment.

Meanwhile there are new technologies that can help users to significantly reduce the amount of carbon

emissions into the environment. The article deals with the choice of the refrigerant and the equipment design with respect to reducing their impact on the environment.

▶ [ECACool](#), November 2014. Original article in [Russian](#)

6. Be Aware of New Refrigerant Regulations (EU)



Shipowners with EU-flagged vessels who incur unnecessary operating costs need to ensure that their onboard refrigeration units are leak-tight, says WSS's Sverre Jacobsen.

The new EU Regulations on Fluorinated Greenhouse Gases (F-Gas) look to fundamentally change the use of refrigeration gases onshore and at sea, with estimated cost increases at 5-10 times their current level.

Jacobsen continues: "At the moment, testing for gas leaks is purely a maintenance issue, but the impact of leaks from land-based and ship sources has grabbed the attention of regulators. In short, owners need to start paying attention because the future costs of compliance will far outstrip what owners are paying for these gases today."

Refrigeration gas is a commodity like motor fuel but is not a consumable and therefore should not need replacing. Jacobsen says owners who are paying to recharge gas systems should recognise they have a fault and take action; "Owners need to be asking themselves, are my new ships going to be delivered with gases that are compliant over their trading life and how can we remain compliant on existing tonnage once the regulations come into force?"

Adopted by the Council of the European Union earlier this year, the regulations are specifically designed to reduce the use of F-gases, also known as fluorinated refrigerants or HFCs, within the European Union, by introducing a quota system, limiting the amount of high Global Warming Potential (GWP) refrigerants available on the market.

According to Jacobsen, the main impact of the F-gas regulation will be felt between 2018 and 2020. All vessels today have some requirement for onboard refrigeration or climate control and the regulations are weighted against high-GWP refrigerants, with R-404A amongst the hardest hit. Used in air conditioning and refrigeration systems an average ship requires 2-300kg of this gas.

With the phase-out of high GWP HFCs on the horizon, the shipping industry needs to begin thinking about the options available to replace them. Jacobsen says many chemicals manufacturers are already running their research and development departments in high gear in order to have proved and certified solutions available when the regulation is in force.

"One thing is for sure; these new refrigerants will be expensive. The days of easy availability, simple products and cheap prices will soon be history. In order to maintain the same expenditure for refrigerants in the future, present leak rates will need to be reduced by 50-90%."

Achieving these levels of reduction will mean that much will have been done to protect the environment, with focus in the short and long term on encouraging owners to increase their testing for leaks. He says:

"Owners could be spending a fraction of the costs they already incur by simply keeping their systems leak-tight. Even though R-404A will be illegal on EU flag ships from 2020, a ship launched today will trade for 25 years so owners need to act now."

Jacobsen continues: "Ask 10 shipyards what they recommend and you will find that very few have any idea," says Jacobsen. "Not all of them have done their homework. Many will recommend R-404A, which will lead to a costly retrofit before the ship is due for recycling."

One immediate priority will be to improve maintenance routines and save money whilst increasing environmental protection. Better maintenance means fewer leaks and the technology is readily available: WSS for example already sells fixed leak detector systems which offer around-the-clock monitoring.

But Jacobsen's advice is neither to panic, nor to ignore the changes.

"The truth is that some refrigerants are more environmentally unfriendly than others but none has an impact until they leak out. The simplest way to keep a control on environmental performance and operational costs is to keep refrigeration systems leak-tight."

▶ [Wilhelmsen Ships Service](#), 9 December 2014

▶ See also: "[Keeping cool on new refrigerant regulations.](#)"

7. Une plaquette d'information sur la F-Gas (France)



Avec le concours du ministère de l'Ecologie, l'AFCE a édité un document de vulgarisation du règlement F-Gas à l'attention des opérateurs et des détenteurs d'équipements de froid et climatisation. Ce dépliant de 4 pages au format A5 a été distribué par les membres de l'AFCE dans leurs différents réseaux de commercialisation à plusieurs dizaines de milliers d'exemplaires. Il peut être téléchargé au format PDF sur le site de l'association pour être reproduit sans aucun droit et largement diffusé. Ce document reprend les principales impositions du règlement F-Gaz dans sa nouvelle version. Il est précisé qu'il ne revient pas sur les règles du Code de l'environnement français (articles R453-75 à -123) qui continuent de s'appliquer. À la parution des nouveaux textes qui modifieront ce Code de l'environnement l'AFCE précise qu'elle envisagera alors une éventuelle nouvelle édition de ce dépliant.

► [Clima+Confort](#), 10 décembre 2014, Par : François Sagot



LATIN AMERICA & CARIBBEAN

8. LAC ODS-Officers Meet on New ODS Alternative Technologies



Representatives from 33 countries of Latin America and the Caribbean (LAC) region attended the Joint Meeting of Latin America and the Caribbean Networks of Ozone Officers organised by UNEP OzonAction, 2 – 5 December 2014 in Punta Cana, Dominican Republic.

The meeting helped to gather information about new alternative technologies to phase out ozone depleting substances (ODS) and assist with the implementation of standards, legislation and policies that will allow countries to comply with the Montreal Protocol.

► [UNEP OzonAction Compliance Assistance Programme](#), December 2014

► See also: [Reconvierten refrigerantes para proteger la capa de ozono](#). El Salvador este año capacitó a más de 200 técnicos de empresas en áreas de refrigeración y reconversión tecnológica para eliminar las sustancias que dañan la capa de ozono...



Escuchar ►



NORTH AMERICA

9. New Measures Planned to Control Manufacture, Import and Certain Uses of Hydrofluorocarbons (Canada)



Environment Minister Leona Aglukkaq announced today the Government of Canada is taking action to reduce emissions from the world's most potent and fastest-growing greenhouse gases (GHGs). Environment Canada is moving forward with the development of regulatory measures to limit the growth of hydrofluorocarbons (HFCs), which are expected to increase substantially in the next 10 to 15 years, if left unchecked. This announcement follows Minister Aglukkaq's commitment earlier this year at the United Nations Climate Summit that Canada would address HFC emissions.

The Government will publish a Notice of Intent to Regulate Hydrofluorocarbons in the Canada Gazette on December 6, outlining the scope of the proposed regulatory measures for these potent GHGs that are thousands of times more potent than carbon dioxide. Under the Canadian Environmental Protection Act, 1999 (CEPA, 1999), the Government of Canada proposes to regulate the manufacture and import of commercial refrigeration systems, foam-blowing agents, vehicle air-conditioning units and consumer aerosols that contain specific HFCs.

Canada is also taking a leadership role to reduce HFCs internationally, and intends to encourage other countries to follow its lead while in Lima for COP20. Further, in November, Parties to the Montreal Protocol considered a proposal put forward by Canada, the United States and Mexico to phase down HFCs. The Parties of the Montreal Protocol will hold an additional meeting in 2015, where Canada intends to take a leadership role in encouraging countries to engage constructively in discussions on issues related to HFC management, including further consideration of phase-down options. Canada believes it is important for countries to take domestic action now on HFCs in advance of a comprehensive, global phase down agreement.

The introduction of domestic regulatory measures for HFCs is the latest step in the Government of Canada's sector-by-sector approach to reducing GHG emissions.

For more information on Canada's action on climate change, visit www.climatechange.gc.ca

Quick Facts

- HFCs are manufactured chemicals introduced into the global market to replace ozone depleting substances being phased-out under the Montreal Protocol. HFCs are not ozone depleting, but are powerful GHGs.
- HFCs are not manufactured in Canada, but are imported in bulk and in manufactured products.
- Some HFCs are thousands of times more potent than carbon dioxide.
- HFCs currently account for less than 2 per cent of GHG global emissions, but are the fastest growing GHGs in the world, increasing at a rate of 10 to 15 per cent per year. If no immediate action is taken, HFC emissions could account for as much as 9 to 19 per cent of global GHG emissions by 2050.
- Earlier this year, the Government of Canada also announced final GHG regulations for cars and light trucks of model year 2017 and beyond, and to further regulate emissions from heavy-duty vehicles.

Quotes

“Our Government has once again demonstrated its commitment to international efforts focused on reducing emissions by following through on a promise to limit the most potent and fastest-growing greenhouse gases in the world. The introduction of new measures to phase down the use of hydrofluorocarbons is just the latest step in our Government's sector-by-sector regulatory approach and builds on the successful action we have already taken to address two of Canada's largest sources of emissions: the transportation and electricity sectors.”

– The Honourable Leona Aglukkaq, Minister of the Environment, Minister of the Canadian Northern Economic Development Agency and Minister for the Arctic Council

▶ “The Notice of Intent” is available at Canada Gazette website

▶ Environment Canada, 5 December 2014

10. New Rules Next Year on Fridge Handling [Bermuda]



[...] The Environmental Engineering section of the Department of Environmental Protection (DEP) within the Ministry of Health, Seniors & Environment [Bermuda] manages the importation of certain Controlled Chemicals into Bermuda through the Clean Air Regulations 1993.

The Department is also working with Bermuda College to introduce a Refrigerant Permitting System to ensure that installers and service personnel of HVAC and refrigeration systems in Bermuda are adequately trained to minimise releases to the air and to manage the waste gases appropriately. From March 1, 2015, all installers and service personnel of residential or commercial HVAC systems and personnel who fill gases into refrigeration, chiller or freezer units will be expected to have been assessed at Bermuda College and also permitted by the Department of Environmental Protection. Full details are available at www.dep.gov.bm and by selecting "Environmental Engineering" and "Permitted Refrigerant Handlers" or by e-mail to EnvironmentalEngineering@gov.bm [...]

► [The Royal Gazette](#) - Bermuda, 4 December 2014



WEST ASIA

11. Seminar Discussed National Roadmap for Air Conditioning in the New Residential Buildings (Kuwait)

'التقدم العلمي' ناقش 'التكييف' بالمباني السكنية

نظمت مؤسسة الكويت للتقدم العلمي حلقة نقاشية بعنوان 'خارطة الطريق الوطنية لتكييف الهواء في المباني السكنية الجديدة في الكويت' وذلك يومي 24 و25 من نوفمبر 2014. هدفت هذه الحلقة إلى استعراض الحلول التقنية المتوفرة أو التي يمكن توفيرها للسوق المحلي في دولة الكويت والمتعلقة ببدايات غاز التبريد 22. وقد افتتح الدكتور عدنان شهاب الدين مدير عام مؤسسة الكويت للتقدم العلمي هذه الحلقة النقاشية، حيث شدد على أهمية هذه اللقاءات والأنشطة التي تنظمها إدارة البحوث بالمؤسسة من خلال برنامجي المياه والطاقة/ والبيئة للمساهمة في تطبيق حلول علمية معالجة القضايا ذات الأولوية بما يعود بالمصلحة على البلد بالتعاون مع الجهات البحثية والأكاديمية والهيئات ذات العلاقة بالإضافة إلى القطاع الخاص. وقد أدار الحلقة النقاشية كل من أ. د. أجاروال وهو خبير دولي في مجال التبريد وتكييف الهواء. كما شارك كل من أ. د. عبد اللطيف بن نخي من كلية الدراسات التكنولوجية، أ. د. رضا الحسن ود. خالد الخالدي من جامعة الكويت، د. فتوح الرقم من معهد الكويت للأبحاث العلمية وم. يعقوب المعنوق من وحدة الأوزون الوطنية كأعضاء في لجنة علمية متعددة التخصصات. بالإضافة إلى ذلك، مثلت الهيئات الحكومية ذات الصلة في الحلقة النقاشية، حيث مثل كل من م. مايك وود وزارة الكهرباء والماء، م. شريف الخياط الهيئة العامة للبيئة وم. فيصل الجاسم الهيئة العامة للرعاية السكنية. وشارك أيضا في الحلقة ما يقارب خمسة عشر من المهندسين المحليين والدوليين من قطاع صناعة تبريد وتكييف الهواء.



يعتبر غاز التبريد 22 من الغازات التي تم تجميد استهلاكها في الأول من يناير عام 2013 حيث تشرف اللجنة الوطنية لحماية طبقة الأوزون والتابعة للهيئة العامة للبيئة على تطبيق إجراءات التجميد التزاما بتطبيق بروتوكول مونتريال وتم مخاطبة جميع الشركات المحلية والمختصة بتصنيع وتوزيع أجهزة التكييف إضافة إلى المكاتب الهندسية وتم دعوتهم للمشاركة في هذه الحلقة واستجابت عدة شركات منها شركة البابطين للتكييف، وشركة صناعات التبريد والتخزين وشركة دايكن. واستعرضت الشركات في اليوم الأول من الحلقة النقاشية حلولاً مختلفة منها استخدام غاز التبريد 134-أ و410-أ و32 كما تم استعراض برنامج التحكم في خفض استهلاك غازات التبريد والبدائل لغازات التبريد في القطاع السكني إضافة إلى الأساليب المتبعة عالمياً وفي الدول المجاورة لاستخدام غازات التبريد في المناطق الحارة.

وفي اليوم الثاني اجتمعت اللجنة العلمية المشرفة على الحلقة النقاشية مع ممثلي وزارة الكهرباء والماء والهيئة العامة للبيئة والهيئة العامة للرعاية السكنية لإبداء الرأي والنقاش وتمت صياغة مسودة ورقة بيضاء تتناول البدائل المقترحة من مبردات وتقنيات لتكييف الهواء في المباني السكنية الجديدة في الكويت. ومن المتوقع أن تعتمد الورقة البيضاء من قبل صانعي السياسات المعنية والهيئات لتمهد الطريق لتوفير مستقبل مستدام وصديق للبيئة.

► [الآن](#) , 25 تشرين الثاني 2014



FEATURED

OZONE SECRETARIAT

What's New Highlights: http://ozone.unep.org/en/in_focus.php?year=2014

- [Decisions adopted by the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer at its tenth meeting and the Twenty-Sixth Meeting of the Parties to the Montreal Protocol on Substances that Deplete the Ozone Layer](#) (Paris, 17–21 November 2014)
- [Report of the 10th meeting of the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer and the report of the 26th MOP](#) - Advance copy

Montreal Protocol Meetings Dates and Venues

TEAP May 2014 Reports:

- [TEAP: Decision XXV/5 Task Force Report: Additional Information to Alternatives on ODS \(Final Report\) - Advance](#)
- [TEAP: Final Evaluation of 2014 Critical Use Nominations for Methyl Bromide and Related Matters](#)
- [TEAP: Supplement to the May 2014 TEAP XXV/8 Task Force \(Replenishment\) Report - Advance](#)
- [TEAP May 2014 - Progress Report \(vol.1\)](#)
- [TEAP May 2014 - Essential Use Nominations Report \(vol. 2\)](#) and
- [Critical Use Nominations Report \(vol. 3\)](#)

THE MULTILATERAL FUND FOR THE IMPLEMENTATION OF THE MONTREAL PROTOCOL



The 73rd meeting of the Executive Committee of the Multilateral Fund 7 - 13 November 2014, Paris, France. The final report of the meeting containing the 75 decisions taken by the Committee is available as document [UNEP/OzL.Pro/ExCom/73/62](http://www.unep.org/OzL/Pro/ExCom/73/62) on the Multilateral Fund's web site.

The Executive Committee approved a total of US \$68,784,379 including support costs for agencies for phase-out projects and activities in 62 Article 5 countries.

OZONACTION

OzonAction events during the 26th Meeting of the Parties to the Montreal Protocol, Paris, France, 17-21 November 2014



One Day Meeting of the Portuguese Speaking Countries and OzonAction Branch – Paris, France, [22 November 2014](#)



How the Montreal Protocol Protects Health, [20 November 2014](#). The Montreal Protocol is widely heralded as a success story both in terms of achieving its direct aims in ODS phase-out targets and the resultant curbs in ozone depletion, and consequent environmental and health benefits. Overexposure to UV radiation has a range of serious health effects, including skin cancers (contributing to an increase in melanoma), eye

damage (including cataracts) and immune system suppression. The Montreal Protocol is estimated to have generated major health benefits in terms of avoided mortality and morbidity. Therefore the Montreal Protocol has reduced huge public health costs.

The main objective of this side-event is to raise awareness of health benefits of Montreal Protocol which can be used nationally and locally for wider dissemination. A new fact sheet was distributed to the audience.

As a result of Montreal Protocol and Health side-event, it was suggested that UNEP OzonAction will work closely together with UNEP Environmental Effects Assessment Panel co-chair to develop booklet on Montreal Protocol and Health. The booklet will be translated into all UN languages. INSERM (French Health and Medical Research Institute) and WHO will be partners with this project. The outcome will be jointly launched on 16 September 2015 on the occasion of International Ozone Day.



Challenges, Successes and Impacts of HCFC Demonstration Projects under the Multilateral Fund, 18 November 2014. As part of UNEP's Information Clearinghouse mandate under the Montreal Protocol, the Compliance Assistance Programme (CAP) organised this event in cooperation with the Implementing and Bilateral agencies to further share results of demonstration projects with the participants of the Meeting of the Parties. This side event highlighted the outcome and lessons learned from select HCFC demonstration projects, with the objective of increasing participant's awareness about the pros and cons of technologies to replace HCFCs. Ultimately aiming at encouraging participants from Article 5 countries to consider adopting similar technologies in their countries. Speakers from the Implementing Agencies (UNDP, UNIDO and WB) and bilateral agencies (Japan) and Ozone Officers were invited to provide an overview of the projects they implemented. The individual presentations included the following elements: overview, challenges, successes and impact of these demonstration projects. A set of new fact sheets was distributed to the audience.

This event was preceded by the launch of two new publications:

- [Les bonnes pratiques en matière de climatisation individuelle](#) and
- [International Special Issue \(2014-2015\) of Refrigeration and Air-conditioning – 2015 The Year of Green Cooling](#), launched by Marco Buoni, AREA and Didier Coulomb, IIR



OzonAction Breakfast "**Get-together**" with National Ozone Officers, Multilateral Fund Chief Officer, Mr. Eduardo Ganem and Head of OzonAction, Ms. Shamila Nair-Bedouelle meeting NOOs, [18 November 2014](#) | [See Photos](#)

NEW Publications/ Factsheets Launched by OzonAction During MOP-26:



[OzonAction Special Issue 2014: New Responsibilities under the HCFC Phase-out](#)



[Les bonnes pratiques en matière de climatisation individuelle](#)



[International Special Issue \(2014-2015\) of Refrigeration and Air-conditioning – 2015 The Year of Green Cooling](#)



[Financing the Climate Co-benefits of the HCFC Phase-out](#)



[UNEP OzonAction CAP Achievements 2014](#)

A series of fact sheets were also launched during Side-events organized by OzonAction:



[How the Montreal Protocol Protects Health](#)



[Promoting low-GWP Refrigerants for Air-Conditioning Sectors in High-Ambient Temperature Countries \(PRAHA\)](#)



[Adoption of a sustainable green technology approach in shoe sole production in Guanajuato, Mexico](#)



[Demonstrating the feasibility of R-290 based AC manufacturing: China's Midea and Meizhi case](#)



[Low-GWP Alternative for Small Rigid PU Foam Enterprises](#)

[Learn more](#) about OzonAction publications and events throughout the MOP-26



EVENTS

2014

3rd National HVAC&R Conference in Cuba - The use of natural refrigerants in the Cuban biotechnology industry will be one of the main topics to discuss at the 3rd National HVAC&R Conference, which will take place 17th December 2014 in Habana, Cuba. | Read in [Spanish](#)

2015



ASHRAE Announces Call for Papers for 2015 Winter Conference, 24-28 January 2015, Chicago, Atlanta



The Mobile Air Conditioning Society (MACS) Worldwide will hold its 2015 Training Event and Trade Show, 5-7 February 2015, Orlando, FL.



The 2nd edition of **ATMOsphere Asia – Solutions for Asia**, 3-5 February 2015, aims to exhibit the latest natural refrigerant (CO₂, ammonia, hydrocarbons, air and water) technologies and projects applicable to the Asian market.



CLIMATIZACIÓN International Air-Conditioning, Heating, Ventilation and Refrigeration Exhibition, 24-27 February 2015, Madrid – Spain



Salon Energies Froid, 4-6 March 2015, Lyon – France



ATMOsphere Europe 2015 "Natural Refrigerants - Solutions for Europe", 16-17 March at the Crowne Plaza Le Palace Hotel, Brussels, Belgium



International Conference IIR Commission B2 with B1 and D1 / Ammonia and CO₂ - Refrigeration Technologies, 16-18 April 2015, Ohrid, Republic of Macedonia. See more events from the [IIR website](#)



4th Annual ATMOsphere America 2015 – The Business Case for Natural Refrigerants in North America will take place on 25-26 June 2015, Atlanta, Georgia, USA



REHVA Annual Meeting and Conference 2015, 6-9 May 2015, Riga, Latvia, This event will bring together leading experts from the international heating, ventilation and air condition community.



FRIGAIR Africa 2015 is a go! 3-5 June 2015, Gallagher Estate, Midrand. South Africa. FRIGAIR 2015 Showcasing the crucial role played by the HEVAC&R industry and the rapidly developing technology in eco-friendly efficiency.



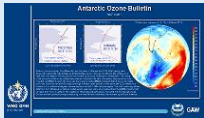
Congress of Refrigeration, 16-22 August 2015, Yokohama, Japan



Salon Energies Froid, 2-3 December 2015, Nantes - France



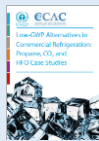
READING



WMO Antarctic Ozone 2014 Bulletins - The World Meteorological Organization Secretariat issues bulletins containing information on the state of the ozone layer in the Antarctic at roughly two week intervals from August to November. The bulletins are based on data provided by WMO Members which operate ozone monitoring stations in the southern hemisphere and satellites to observe ozone globally. [▶ WMO Antarctic Ozone Bulletins: 2014](#)



“[The Antarctic Ozone Hole, An Update](#)”, article in Physics Today, July 2014, Authors: Anne R. Douglas, Paul A. Newman, Susan Solomon. [see pages 42-48]



[Low-GWP Alternatives in Commercial Refrigeration: Propane, CO₂ and HFO Case Studies](#) The CCAC has launched a transformative initiative (entitled ‘The HFC Initiative, Promoting HFC Alternative Technology and Standards’) for rapid implementation aimed at promoting HFC alternative technologies and standards to significantly reduce the projected growth in the use and emissions of high-global warming potential (GWP) HFCs in coming decades relative to business-as-usual scenarios. The objectives of the initiative are to mobilise efforts of the private sector, civil society, international organisations, and governments...



[Drawing down N₂O to protect climate and the ozone layer](#) A UNEP synthesis report addressing the benefits of drawing down nitrous oxide (N₂O) emissions. N₂O is now the most significant ozone-depleting substance emission and the third most important greenhouse gas released into the atmosphere...



[AREA Guidance on minimum requirements for contractors' training & certification on low GWP Refrigerants](#) - AREA has updated its Guidance on minimum requirements for contractors' training & certification on low GWP Refrigerants. The revision includes an Annex II, which lists training facilities in AREA countries. The list provides website addresses and information on the type of training (theoretical and/or practical) by type of low GWP refrigerant.



[Free guide to F-gas changes](#) The European contractors association AREA has produced a timely guide to the F-gas regulations which clarifies the new rules, their impact and their practical application... [Read more](#)

Refrigerant	Type	ODP	GWP	Local
R600a	HFC	Zero	675	Exempt
R410a	HFC	Zero	2088	Exempt
R404A	HFC	Zero	2100	Exempt
R407C	HFC	Zero	2060	Exempt
R629	HC	Zero	3.0	Low
R450a	HC	Zero	3.0	Low
R452B	HFC	Zero	4.0	Low
R452B	HFC	Zero	6.0	Low



The Professor’s Lesson on HFO, HC Refrigerants, Next-gen Fluids Each Offer Unique Traits, Characteristics, By: John Tomczyk

Loopholes & ODS illegal trade threaten ozone layer recovery. EIA’s latest briefing **New Trends in ODS Smuggling** highlights the growing threat of illegal trade in ozone depleting substances (ODS).

Primer on Hydrofluorocarbons, Fast action under the Montreal Protocol can limit growth of HFCs, prevent up to 100 billion tonnes of CO₂-eq emissions by 2050, and avoid up to 0.5°C of warming by 2100. IGSD, January 2014, Lead authors: Durwood Zaelke, Nathan Borgford-Parnell, and Danielle Fest Grabel. Contributing authors: Stephen O. Andersen, Xiaopu Sun, Dennis Clare, Yuzhe Peng Ling, and Alex Milgrom.

A technical handbook by GIZ Proklima on **Nationally Appropriate Mitigation Action (NAMAs) in the refrigeration, air conditioning and foam sectors** (RAC&F) a comprehensive guideline for the preparation and implementation of cost-effective mitigation actions on that particular sector. Produced as part of a global project on NAMAs on RAC&F, financed by the International Climate Initiative of the German Environment Ministry.

Flammable Refrigerants Safety Guide, AIRAH - Many of the refrigerants traditionally used in refrigeration and air conditioning systems in Australia have been non-flammable, non-toxic, synthetic greenhouse gases (SGGs) that have a high global warming potential (GWP). These were typically synthetic refrigerants including CFCs, HCFCs and HFCs. Due to the growing national and international concern regarding the resulting atmospheric effects of SGGs, the use of alternative low GWP refrigerants is increasing. ...

How the ozone hole affects weather patterns, The World Economic Forum Blog, 18 Nov. 2014, By Sharon Robinson

Extensive Distribution Network in Place to Support **Accelerating Adoption of HFO-1234yf Refrigerant**, which is Expected to be in 7 Million Cars by End of 2015

Hydrocarbon Room Air Conditioners: Energy-Efficient, Commercially Viable and Safe - Guest blog by Bhaskar Deol, Natural Resources Defense Council (NRDC) India Representative based in New Delhi.

(This is the third and final post in a series of blogs on environmentally friendly refrigerant alternatives for India’s room air conditioner (AC) sector. The first two posts are available [here](#) and [here](#).)



MISCELLANEOUS

[Lima Call for Climate Action Lays Foundation for 2015 Agreement in Paris](#) – 14 December 2014: The Lima Climate Change Conference concluded with the Lima Call for Climate Action, which lays the groundwork for a 2015 climate agreement in Paris... [Read more](#)



GreenChill Webinar: **[Experiences with Hybrid CO2 Systems in the U.S.](#)**, Tuesday, January 13 at 2pm Eastern. Dan O'Brien from Zero Zone will be discussing the benefits of hybrid CO2 systems. In particular, he will be describing Zero Zone's experience designing a hybrid CO2 secondary loop and cascade system for a recently opened Whole Foods store. Tristram Coffin from Whole Foods will provide thoughts on the project from a supermarket perspective. To join the webinar:

1. Go to https://epa.connectsolutions.com/hybrid_co2/ | 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#



[OECD Calls for Cooperative Approach to Regulating Pesticides](#) - The Organization on Economic Co-operation and Development (OECD) Programme on Pesticides and Sustainable Pest Management has published a 'Vision for the Future,' which advocates for a cooperative global approach to regulating agricultural pesticides and sustainable pest management. The vision includes: enhancing the protection of humans, animals and the environment; integrating green growth strategies; fostering public confidence; and facilitating cooperation between countries and international organizations... [Read more](#)



AIRAH **[“Calculating Cool Online HVAC Tool”](#)** Imagine if there was a way of ranking different HVAC systems during design, installation and operation. And what if this method was freely available online and able to be used to drive improvement? Following the official launch of the Calculating Cool online benchmarking tool it's now possible for building owners and operators, HVAC industry professionals, facility managers and other stakeholders to measure the efficiency of a variety of HVAC systems.



Buildings' Future Heating and Cooling Needs are Predicted with New Method, **[European Commission, Science for Environment Policy](#)**, 27 November 2014, Issue 395

[Free on-line course on Climate Change](#) - Five weeks free on-line course, which starts on 10 November. Our changing climate: past, present and future. The University of Reading's Walker Institute for Climate System Research has created a free online climate change course. Join the experts for a fascinating journey through time where we will explore how climate shapes the way we live, the food we eat and the water we drink. Looking into the past we will show you examples of inspiring innovation and ask: can our ingenuity see us through the future challenges that climate change will bring? Join the course [here](#)

[AIRAH's Graduate Training Program on Track for 2015 Launch](#) – The training program will cover essential HVAC&R knowledge for engineering graduates – professionals who are employed in consulting or contracting firms, but who have had little or no exposure to the HVAC&R industry before employment. The pilot subject was “Introduction to HVAC&R – System Types and Applicability”, from the Fundamentals subject group. The program will run for nine months, separated into two semesters. The content will be delivered online, with 100 hours' worth of topics divided into four key areas: Fundamentals; Equipment and Components; Systems; and Practice and Performance...

[E-learning module for law enforcement officers on hazardous chemicals and wastes under the Basel, Rotterdam and Stockholm Conventions](#), jointly developed by the Secretariat and Interpol, in Arabic, English, French and Spanish.



MONTREAL PROTOCOL
WHO'S WHO

The Montreal Protocol Who's Who

*Learn more and nominate Ozone Layer Protection
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<http://www.unep.fr/ozonaction/montrealprotocolwhoswho>

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