

# OZONENEWS

**30 December 2014**

**Vol. XIV**

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



# GLOBAL

## 1. Ozone Layer Protection: The Mission Goes On



On 20 September 2014, The Economist magazine published a global comparison of carbon mitigation efforts, ranking the top 20 policies and courses of action according to how much greenhouse gases have been reduced. The Montreal Protocol on Substances that Deplete the Ozone Layer emerged as number one with cumulative emissions of 135 billion tonnes of CO<sub>2</sub> equivalent between 1989 and 2013. Its annual emission reduction of 5.6 billion tonnes of CO<sub>2</sub> equivalent is twice as much as the next highest option, which is hydropower.

This incidental but substantial climate benefit resulted from the fact that many ozone-depleting substances are also powerful greenhouse gases. As climate change impacts communities, economies and ecosystems everywhere, it is essential to mitigate the threat with the same unity of purpose as we have in facing the dangers of ozone depletion. That reasoning inspired the theme for 2014 International Day for the

Preservation of the Ozone Layer, which is “Ozone Layer Protection: The Mission Goes On”.

In many ways, it also resonates with all the work of UNEP OzonAction. At its 2nd Meeting (17-19 December 1990), the Executive Committee (ExCom) of the Interim Multilateral Fund noted that UNEP’s role was to provide specific functions, and specifically “to co-operate and assist in political promotion of the objectives of the Protocol, as well as in research, data gathering and the clearing-house functions.”

A flagship activity of UNEP OzonAction Compliance Assistance Programme (CAP) and a core mechanism of the Multilateral Fund family of institutions, Regional Networking provides a forum for experience exchange and knowledge transfer between the National Ozone Units (NOUs) of Article 5 countries, while adopting and addressing priority thematic areas. UNEP OzonAction CAP currently facilitates the operation of 10 Regional Networks involving 148 Governments from developing countries and countries with economies in transition as well as 12 developed countries and the European Commission.

During 2014, OzonAction CAP strived to respond to the needs of National Ozone Officers and Governments as they prepare for the 2015 deadlines on HCFC and Methyl Bromide. We have provided networking support and expertise on many cross cutting issues connected to the HCFC phase-out management plans (HPMPs) by partners in developing countries.

Since October 2013, UNEP has been responsible for implementing a portfolio of 389 ongoing Multilateral Fund projects, delivering 372 compliance assistance services, plus other projects and services for 148 developing countries. This was a challenging portfolio: around 120 countries were directly served by UNEP-implemented projects, with 148 countries receiving CAP services. These countries ranged from very large (China) to very small countries (Niue), and included 48 classified as Least Developed Countries (LDCs), 38 classified as Small Island Developing States (SIDS), and a significant number facing highly challenging post-conflict, post-disaster or political issues.

CAP has undertaken various initiatives to give fresh impetus to compliance assistance and cooperation. These included: convening groups of Communities of Practice, technicians and Ozone Officers; exploring new forms of technical partnerships, such as setting up ‘inter- networks for co-operation’; and Network Twinning and promoting South-South Cooperation.

CAP engagement with Article 5 countries covered a broad range:

- UNEP CAP is the lead agency for HPMPs in 71 countries and the cooperating agency in 28 countries, covering nearly 100 countries.
- In connection with institutional strengthening (IS) projects, CAP provided policy advice and capacity development of NOUs in the licensing and quota systems in 103 countries.
- CAP sought to raise awareness and promote evidence based policymaking through a number of benchmarking and monitoring publications. Recent videos and publications on HCFCs represent major efforts and successful mobilization of international, regional and national cooperation with the RAC sector stakeholders, including technicians.

In all this, we are always mindful of the unfinished business and on-going mission. We can only reiterate what UN Secretary General Ban Ki-moon said in his Ozone Day message: “Let us take inspiration from our efforts to preserve the ozone layer. The Montreal Protocol has shown that decisive action by the international community, including the private sector, can achieve transformative results for the common good. Let us learn from this example and apply its lesson to the urgent task of addressing the climate challenge.”

Give a face to Ozone Layer protection – or better - many faces, since it impacts our lives in multiple ways – from the level of ultraviolet radiation we are exposed to, through the buildings we are living in, the food we are eating, to the mattresses we are sleeping on. Ozone depleting substances are an integral part of our daily lives. Ozone layer protection is not only an environmental matter – it is a developmental, public health and sustainability issue.

▶ Shamila Nair-Bedouelle, Head of OzonAction Branch, UNEP, article in [OzonAction Special Issue 2015](#)

## 2. Implementation for Ozone Protection and Climate Benefits



The year 2015 will mark 25 years since the Multilateral Fund (MLF) was established by a decision of the Second Meeting of the Parties to the Montreal Protocol in London, 1990. The MLF began its operation a year later in 1991 at a time when there was a risk that the ozone layer would never recover. The MLF’s Executive Committee (ExCom) had to move quickly to empower beneficiary countries and provide access to the technology needed to rapidly implement the projects and national plans that would eventually allow them to achieve compliance with the 2010 control measure for CFCs, halons and carbon tetrachloride.

Due to swift action by the ExCom following the historic decision on the accelerated schedule for the phase-out of HCFCs agreed by Parties to the Montreal Protocol in 2007 the MLF is positioned to play a pivotal role in the transformation of the HCFC based industrial and servicing sectors in beneficiary countries. Only seven months after that decision, the ExCom had approved guidelines for the development of national plans to phase-out HCFCs, and by 2014 national plans were in place in the majority of the beneficiary countries to address at least the 10% HCFC reduction step required by 2015, while some countries have plans for the complete elimination of HCFCs. Taken together these approved national plans, when implemented, will address nearly 25% of HCFC consumption and 89% of the HCFC production in MLF Chief Officer, Multilateral Fund Secretariat beneficiary countries. Moreover, the ExCom has paid careful attention to alternatives to HCFCs that minimize environmental impacts, in particular impacts on climate, in accordance with the decision by the Parties.

It is imperative that MLF beneficiary countries implement their approved national plans to phase-out HCFCs as quickly and as efficiently as possible. Every delay will result in additional amounts of HCFCs in our atmosphere.

Every day lost means waiting another day for the restoration of our ozone layer and lost opportunities for climate benefits. Even more than in the CFC phase-out era, beneficiary countries face a huge challenge in that some of the alternative technologies they wish to adopt are still being developed and tested. One example of how the ExCom has assisted countries to face such challenges is by funding demonstration projects to independently assess alternatives to HCFC technologies in different industrial sectors.

We have come a long way in the global effort to protect the ozone layer. With the continued strong commitment from all donor and beneficiary countries the institution of the Multilateral Fund can continue to invest in the implementation of the Montreal Protocol with benefits for generations to come.

▶ Eduardo Ganem, Chief Officer, Multilateral Fund Secretariat, article in [OzonAction Special Issue 2015](#)

## 3. Fast-Tracking Elimination of Production of Remaining Ozone-Depleting Substances Could Speed Up Ozone Layer Recovery by 11 Years

Nairobi, 19 December 2014 - The recovery of the ozone layer - the shield that protects life on Earth from harmful levels of ultraviolet rays - would come sooner if we were to fast-track the elimination of the production of the ozone-depleting substance (ODS) hydrochlorofluorocarbons (HCFCs) and manage other ODSs that remain in equipment, building walls and chemical stockpiles, according to the full release of a report by nearly 300 scientists from 36 countries.

Additionally, earlier phase out of relatively small remaining uses of ODSs, which are currently exempted for reasons of essentiality and criticality to society, would hasten ozone recovery, the report says. Altogether, preventing those emissions can speed up the recovery of the ozone layer by about 11 years.

"Scientific Assessment of Ozone Depletion: 2014" is the quadrennial report of the Scientific Assessment Panel (SAP) of the Montreal Protocol on Substances that Deplete the Ozone Layer. A summary document of the report, the "Assessment for Decision Makers", was published in September 2014 by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO). The full report, released today, provides more details on the previously released findings.

The SAP assesses the state of the depletion of the ozone layer and relevant atmospheric science issues every four years and provides Parties to the Montreal Protocol with critical information as they undertake their ozone protection activities and address challenges under the Protocol.

The report indicates that the ozone layer is showing the first signs of an upward ozone trend. Further, the ozone layer is on track to recovery to 1980 benchmark levels-the time before significant ozone layer depletion- by the middle of this century, thanks to concerted international action to phase out ODSs.

Although over 2.2 million metric tonnes of ODSs have been phased out over time by the nations of the world under the provisions of the Montreal Protocol, 640,000 metric tonnes of HCFCs remain to be phased out.

The assessment report projects that atmospheric ODS amounts will continue to decline through the 21st century, assuming continued compliance with the Montreal Protocol. Since ODSs are also potent global warming gases, the Protocol has significantly contributed to climate change mitigation, having averted more than 135 billion tonnes of carbon dioxide equivalent emissions.

The report warns that the climate benefits of the Montreal Protocol could be significantly offset by projected increases in emissions of hydrofluorocarbons (HFCs) that are being used to replace ODSs. HFCs, which are not ozone-depleting substances but are global-warming gases, are increasing in the atmosphere and future emissions could make a large contribution to climate change. The large HFC climate effects could be avoided by replacing high-global-warming potential (GWP) HFCs with low-GWP HFCs and other alternatives, the report notes.

The SAP presented the report's findings during the Joint 10th Meeting of the Conference of the Parties to the Vienna Convention and the 26th Meeting of the Parties to the Montreal Protocol held in Paris 17 - 21 November 2014.



NOTE: The report was prepared and reviewed by 282 scientists from 36 countries (Argentina, Australia, Austria, Belgium, Botswana, Brazil, Canada, People's Republic of China, Comoros, Costa Rica, Cuba, Czech Republic, Denmark, Finland, France, Germany, Greece, India, Israel, Italy, Japan, Korea, Malaysia, New Zealand, Norway, Poland, Russia, South Africa, Spain, Sweden, Switzerland, The Netherlands, Togo, United Kingdom, United States of America, Zimbabwe.)

Co-Chairs of the ozone assessment are: Prof. Ayité Lô Nohende Ajavon, Université de Lomé, Togo; Prof. John Pyle, University of Cambridge and National Centre for Atmospheric Science, UK; Dr. Paul Newman, NASA/ Goddard Space Flight Center, USA; Prof. A.R. (Ravi) Ravishankara, Colorado State University, USA.

- ▶ The "Scientific Assessment of Ozone Depletion: 2014" [report](#)
- ▶ [Assessment for Decision-Makers](#) - Scientific Assessment of Ozone Depletion: 2014
- ▶ [UNEP Ozone Secretariat](#), December 2014

#### 4. Beautiful, Bright Polar Stratospheric Clouds Spotted in Norway

Gorgeous, polar stratospheric clouds were spotted over Norway on Monday, pointing to a possible outbreak of the ozone layer-destroying phenomenon.

"Right after sunset on Dec. 22<sup>nd</sup>, the clouds were so bright they were uncomfortable to look at directly," wrote photographer Ivar Marthinusen, who posted the above photo of the clouds to spaceweather.com.

Polar stratospheric clouds, also referred to as nacreous clouds, are beautiful, thin, rainbow-hued clouds that form in a high layer of the atmosphere called the stratosphere, which is above where Earth's day to day weather takes place.

Spaceweather.com explains how the iridescent clouds are formed:

Also known as “nacreous” or “mother of pearl” clouds, these icy structures form in the lower stratosphere when temperatures drop to around minus 85 °C [minus 122 °F]. Sunlight shining through tiny ice particles ~10 [micrometers] across produce the characteristic bright iridescent colors by diffraction and interference.



Despite their beauty, polar stratospheric clouds are not friendly to the Earth’s ozone layer. During winter around the poles, the winds blow so strong and the temperature drops so low that the clouds can form in incredibly dry conditions. Because of these harsh conditions, the surface of the clouds then become a breeding ground for ozone-destroying chemical reactions.

Bright polar stratospheric clouds over Norway on Monday. (Ivar Marthinusen via spaceweather.com)

▶ [The Washington Post](#), 23 December 2014, By Angela Fritz

## 5. Early Christmas Present for Antarctic Researchers

In a small green laboratory perched on the rocky volcanic southern peninsula of Ross Island, Antarctica, there’s a space waiting for a new shiny, hi-tech Christmas present. It’s called a Fourier Transform Spectrometer, or FTS, and right now it’s in six boxes on its way south from NIWA’s Lauder Atmospheric Research Station in Central Otago.

It weighs about 300kg, costs about \$NZ500,000 and is set to take over duties from the incumbent FTS system affectionally known as the “old beast” that has more than served its time.

The new FTS takes high precision measurements of important greenhouse gases, ozone and ozone depleting gases in the atmosphere. NIWA’s measurements began in 1992, making them the longest running time series of this type in Antarctica. It’s also the only FTS on the continent – and one of only 5 in the southern hemisphere - that feeds into the Network for the Detection of Atmospheric Composition Change (NDACC) which means it has an extremely important role in global atmospheric measurements. The measurements from the FTS are to be used in NASA and ESA satellite validation activities and also assist in climate-chemistry modelling work conducted at NIWA. [...]

▶ [NIWA](#) Press Release, 22 December 2014



NIWA's Atmospheric Research Laboratory at Arrival Heights, Antarctica. Credit: Fiona Atkinson



# ASIA PACIFIC

## 6. Refrigerant Consumption in Fishing Vessels Operating in the Waters of Pacific Island Countries

Marine Fisheries is the single largest industry and bread earner for many Pacific Island countries. Economic benefit derived from this sector is sourced through a direct involvement of Pacific Island Countries (PICs) in fishing, fish processing and through the licensing arrangement between PICs and foreign fishing nations. Many different nations operate fishing vessels in the PIC region and refrigeration is essential in all stages of the fisheries industry: from catching to processing, to the consumer. Although PICs are complying with their obligations under the Montreal Protocol on the phasing out of Hydrochlorofluorocarbons (HCFCs), this sector is still an elusive area. The demand and market supplies routes of refrigerants and refrigerant servicing in the marine fishing sector is not known for PICs and perhaps for other regions.

The management of Ozone Depleting Substances (ODS) in the fishing sector has to be intimately aligned with the nature and complex magnitude of this industry including that of clarifying the responsibility of flag states and vessels owners and in the context of sustainable development. As of June 2014 the number of vessels registered under the Pacific Islands Forum Fisheries Agency (FFA), Good Standing Register stands at a total of 1,332 vessels (FFA database 2014) including bunkers, fish carriers, long liners, mother ships, pole and liners and purse seiners. Out of this total, the vessels with cold storage capabilities that have a direct link to the consumption of refrigerants with ozone depleting properties are long liners, purse seiners, fish carriers and pole and line fishing vessels (*Figure 1*).

One may ask why there are so many vessels operating in the region vying for the same four species of tuna? The answer is that the tuna fishery in the waters of the FFA member countries is the largest in the world and the need to generate and maximise economic benefit from fishery resources for PICs, as for some, this is the only resource they have. Ten years ago income from fisheries access was around US\$ 40 million but now PICs are getting somewhere around US\$ 250 million in fishing revenue and other direct benefits. This shows an increase of over 500% which can be attributed to the management measures put into place by FFA and the Tuna Commission as well as the introduction of the Parties of the Nauru Agreement vessel day scheme in 2007. In 2013 the total catch of tuna resources from the Western and Central Pacific - Commission Area (WCP-CA) was 2.61 million tonnes and this is valued at US\$ 6.3 billion. Catch taken from waters of the FFA member countries is 1.56 million tonnes or 60% of the WCP-CA total and this is valued at US\$ 3.4 billion.

With more than 1,000 vessels roaming the Pacific Ocean from various nationalities fishing for tuna, there is an urgent need to have mechanisms to monitor and control the consumption of all refrigerants used on fishing vessels to ensure that PICs meet their obligations under the Montreal Protocol and the International Maritime Organization's (IMO) agreement on the prevention of air pollution from ships which is covered under MARPOL 73/78 Annex VI. FFA Members do not have this capacity, nor do they have the financial, human or institutional resources. Of concern is to control the supply of refrigerants and refrigerant finger printing as possible regulatory tools in the control of illegal, unreported and unregulated (IUU) fishing.

Previously published IUU loss estimates for the Western and Central Pacific region are somewhere in the region of US\$ 750 million to US\$ 1.5 billion a year. Where IUU involves vessels not already licensed in the fishery, it can be assumed that for IUU there will also be a high demand for refrigerants and that they may be traded illegally to meet the demand of illegal fishers.

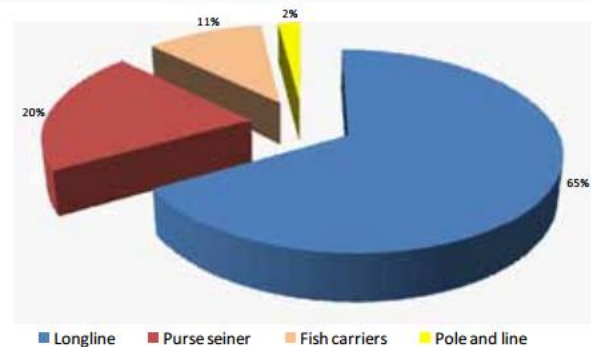


Figure 1. List of good standing vessels as of June 2014 in the FFA Good Standing Register (Source: FFA 2014)



Figure 2. Offloading of tuna from a purse seiner to a fish carrier (Source: FFA 2014)

The phasing out of ODS use as refrigerants in the fishing sector nationally, regionally and internationally needs to be urgently addressed. The sustainability of the marine eco-systems depends on a healthy ozone layer.

- ▶ Article in [OzonAction Special Issue 2015](#), By: Ribanataake Awira - Fisheries Development Adviser, Fisheries Development Division, FFA 20 Co-authors: Artie Dubrie - Regional Network Coordinator (PICs), UNEP ROAP and Leonard Rodwell - Fisheries Development Adviser, Fisheries Development Division, FFA



## EUROPE AND CENTRAL ASIA

### 7. KGH Congress in Belgrade, Serbia, 3-5 December 2014

In cooperation with the Serbian Society for Heating, Refrigerating and Air Conditioning (SMEITS), the Serbian Ministry of Agriculture and Environmental Protection, UNEP's



Regional Ozone Network for Europe & Central Asia (ECA network) organized an exhibition booth and technology forum on ozone- and climate-friendly technologies during the 45<sup>th</sup> International Congress and Exhibition on Heating, Refrigerating and Air Conditioning in Belgrade, Serbia, 3-5 December 2014. The activity was part of the regional awareness activities of the ECA network and Serbia's HCFC phase-out management plan.

The technology forum took place on 4 December 2014 in the main conference room with English-Serbian interpretation and was attended by more than 80 participants. The presentations focused on energy saving technologies for cold stores, high temperature ammonia heat pumps, ammonia / carbon dioxide cascade system for cold stores and freezers, integrated heating and cooling, European Union F-gas regulation, HCFC phase-out in Serbia, ODS / F-gas certification in Croatia, HCFC retrofit / replacement in Croatia, solar absorption refrigeration among others.

At the exhibition booth, relevant documents of UNEP and its partner organizations (UNDP, UNIDO, GIZ, AREA, IIR, Centro Studi Galileo, Shecco, EIA, KGH, USEPA, Danish EPA, UBA, EC, WHO) were displayed and also included in the USB sticks which were disseminated to interested visitors. At the booth, a slide show was shown with key messages related to the Montreal Protocol, the HCFC phase-out and related publications.

- ▶ [Read/Download](#) the technology roundtable presentations
- ▶ [Learn more](#) KGH website

### 8. Videotel Programmes Help Ship Owners Prepare for Jan 1 Marpol Annex VI Deadline

Videotel™, a KVH company, has recently produced two new programmes designed to help ship owners meet progressively tighter fuel and emission controls including a limit that will go into effect from 1 January 2015.

Ship owners and ship managers need to be aware that the MARPOL Annex VI limits applicable in Emission Control Areas (ECAs) for sulphur oxides (SO<sub>x</sub>) and particulate matter, having already been reduced to 1.00% in 2010, are being further reduced to just 0.10 %, effective from 1 January 2015.

Videotel's "MARPOL Annex VI Prevention of Air Pollution from Ships, Edition 2" focuses on ways that ship owners can reduce the main air pollutants contained in exhaust gas through engine design, tuning, and maintenance. Procedural guidelines for incinerator use are also described and the need for training is emphasised.

The programme also covers new MARPOL Annex VI regulations concerning the management of ozone-depleting substances (ODS) which prohibit deliberate venting of ODS often found in air conditioning, refrigeration, and firefighting systems. [...]

- ▶ [Hellenic Shipping News Worldwide](#), 18 December 2014
- ▶ See also: [Effective Refrigerant Control on Board Reefers](#), Videotel

## 9. R22 Refrigerant Found Amongst Dumped Gas Cylinders (UK)



Environmental officers from South Staffordshire Council [UK] are appealing for information following the discovery of three full cylinders of R22 refrigerant, found amongst 56 cylinders dumped along a pathway off the Bridgnorth Road in Wombourne.

All three were reported to have damaged valves prompting fears they could leak the gas into the atmosphere. The three cylinders containing the refrigerant were subsequently removed from the scene of the crime to a safe storage area.

Councillor Roger Lees, cabinet member for public health protection said: "As a rural district, some think that they can fly tip here without being caught. "This is not the case; we will not tolerate criminals destroying our beautiful area. "We are sure that many local people feel the same, which is why we are asking for their help in finding out who dumped these cylinders. [...]"

- ▶ [FridgeHub](#), 5 December 2014



## 10. Newlyn Harbour's New Ice Plant (UK)

The flake ice plant at Newlyn - The new 100 ton ice plant at Newlyn Harbour in Cornwall, England, has been delivering hundreds of tons of dry and sub-cooled flake ice to the fishing fleet every week since it was completed in mid-2014.

Commissioned by KTI-Plersch GmbH and installed by ProjectLink, the project received funding from the European Fisheries Fund. With 90 tons automated ice storage and ice delivery to fishing vessels on 24/7 basis, the plant is made up of four independent Flake Ice Plants (FLIP) with a capacity of 25 tons of flake ice each.



The cooling fluid is Freon R404A, a modern, *environment-friendly* refrigerant which does not deplete the ozone layer, requires less maintenance than ammonia, and would not be harmful to people in the case of a leak. The four air-cooled FLIPs include modern screw compressors and flooded ice makers. Ice falls below the FLIPs into a 90 ton insulated and refrigerated bin below, with automated ice delivery.

By means of a plastic card reader, authorised fishermen can take ice at any hour of the day or night on a self-service basis. The pneumatic ice delivery system enables them to fill the boats quickly (15 tons/hour), effortlessly and cleanly, while the system keeps track of the quantity delivered for each account.

- ▶ [World Fishing](#), 16 December 2014



## WEST ASIA

## 11. Counterfeit Refrigerants 'Potentially Dangerous' (Saudi Arabia)

Residents in Saudi Arabia are concerned about potentially dangerous counterfeit refrigerants, which are increasingly found in the Middle East, a new survey released by Honeywell revealed.

Counterfeit refrigerants are a dangerous, persistent problem around the world.

After several containers carrying counterfeit refrigerants exploded in 2012, the United Nations Environment



Program said that counterfeit refrigerants “appear to be a global issue of concern and a wider range of stakeholders are possibly at risk.”

Honeywell conducted the survey as part of its ongoing campaign to fight counterfeiting, and found that 9 in 10 respondents believe there are counterfeit refrigerants fraudulently labelled as brand-name, authentic refrigerants sold in Saudi Arabia.

In addition, 98% of respondents said they would prefer brand-name refrigerants sold by authorized dealers if it would limit the risks posed by counterfeits, which can often be flammable, toxic and damaging to air conditioning and refrigeration systems.

Incidents around the world point to a significant danger from counterfeit refrigerants. In 2011, three refrigerated containers containing a counterfeit refrigerant exploded, killing three people. In 2012, an air conditioning unit in Brazil exploded due to a counterfeit refrigerant. Similar incidents in Greece, Germany, and Australia have also been reported.

Honeywell has fought the use of counterfeits for more than 10 years, helping local governments identify and seize counterfeit products all over the world. During the last two years, local governments working with Honeywell have seized more than 200,000 counterfeit products.

“We would like to applaud the local law enforcement and other government authorities in Saudi Arabia for taking the issue of counterfeiting seriously and cooperating with the industry to protect safety of citizens,” said Norm Gilsdorf, president, Honeywell Middle East, Russia and Central Asia. “Their efforts have resulted in seizures of counterfeit refrigerants in Saudi Arabia and elsewhere around the world. We continue to introduce technology solutions to help combat this problem.”

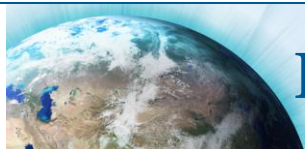
Honeywell Fluorine Products is a world leader in the development and manufacture of refrigerants that are sold worldwide under the Genetron and Solstice brand names for a range of applications, including building and mobile air conditioning as well as refrigeration applications.

Ipsos, a survey specialist company, working on behalf of Honeywell, surveyed 400 people by telephone in Riyadh, Jeddah and Dammam who own and operate one or more refrigerators or air conditioners for their home, office or vehicle. The survey found that:

- 90% of those surveyed in Saudi Arabia believe counterfeit refrigerants fraudulently labelled as brand-name, authentic refrigerants are sold in their country
- 98% indicate they would prefer a brand-name refrigerant for their home, office, car or refrigerator if it would limit the risks posed by counterfeit refrigerants

88% believe that counterfeit refrigerants can cause equipment failure more serious and costly than genuine brand name products\* 64% believe that counterfeit refrigerants can be toxic, and 75% believe they can be flammable. In 2013, Honeywell announced that local law enforcement in Saudi Arabia seized nearly 3,500 containers of counterfeit refrigerant being fraudulently sold under the Honeywell Genetron brand name. The counterfeit product actually contained dangerous toxic and flammable substances. According to local authorities, the counterfeit refrigerant was marked as Honeywell’s Genetron 134a, a common refrigerant for automobile air conditioning, and shipped to Dammam Port, Saudi Arabia, from China. Honeywell continues its efforts to build awareness among end customers on the risks of using counterfeit products. These include holding training seminars for contractors, distributors and customs officers to provide them with information about the dangers of non-genuine products to share with end customers. [...]

▶ [Saudi Gazette](#), 14 December 2014



## FEATURED

### OZONE SECRETARIAT

**What’s New Highlights:** [http://ozone.unep.org/en/in\\_focus.php?year=2014](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 10<sup>th</sup> meeting of the Conference of the Parties to the Vienna Convention for the Protection of the Ozone Layer and the report of the 26<sup>th</sup> MOP](#) - Advance copy

Upcoming [Montreal Protocol Meetings](#) Dates and Venues

- Workshop on Hydrofluorocarbon Management, Bangkok, Thailand, 20 - 21 April 2015
- [35<sup>th</sup> Meeting of the Open-Ended Working Group](#) of the Parties to the Montreal Protocol, Bangkok, Thailand, 22 - 24 April 2015

#### 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 Executive Committee of the Multilateral Fund 74<sup>th</sup> meeting is scheduled to take place in Montreal, Canada, 18 - 22 May 2015.
- The 73<sup>rd</sup> meeting of the Executive Committee of the Multilateral Fund took place 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](#) 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.

[▶ Learn more](#)

## OZONACTION

OzonAction [Schedule of Upcoming Events](#)

OzonAction events during the 26<sup>th</sup> 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

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



**CLIMATIZACION** 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 CO<sub>2</sub> - Refrigeration Technologies**, 16-18 April 2015, Ohrid, Republic of Macedonia. See more events from the [IIR website](#)



**4<sup>th</sup> 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.



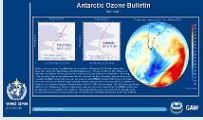
**16<sup>th</sup> European Conference** The Latest Technology in Air Conditioning and Refrigeration Industry with Particular Reference to F-Gas Regulation Revision, New Refrigerants, New Regulations, New Plants. 12-13 June 2015, Milano, Italy.



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



## 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, CO<sub>2</sub> 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 N<sub>2</sub>O to protect climate and the ozone layer** A UNEP synthesis report addressing the benefits of drawing down nitrous oxide (N<sub>2</sub>o) emissions. N<sub>2</sub>o is now the most significant ozone-depleting substance emission and the third most important greenhouse gas released into the atmosphere...



**“2015: l’anno del “green cooling” Gli aggiornamenti normativi mondiali che ci attendono”**, Editoriale: Marco BUONI, Vice-Presidente Air Conditioning and Refrigeration European Association - AREA, Segretario Generale Associazione dei Tecnici italiani del Freddo – ATFC, Industria & Formazione magazine (n. 9/14).



**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
R410A	HFC	Zero	2088	Evil
R417A	HFC	Zero	1433	Evil
R448A	HFC	Zero	1250	Evil
R449A	HFC	Zero	1200	Evil
R600a	HC	Zero	3.3	Low
R450a	HC	Zero	3.8	Low
R454B	HFC	Zero	4.8	Low
R452B	HFC	Zero	6.2	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 CO<sub>2</sub>-eq emissions by 2050, and avoid up to 0.5°C of warming by 2100. IGSD, January 2014, Lead authors Durwood Zaelke and Nathan Borgford-Parnell. Contributing authors Stephen O. Andersen, Xiaopu Sun, Dennis Clare, Claire Phillips, Stela Herschmann, Yuzhe Peng Ling, and Alex Milgroom.

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



GreenChill Webinar: [Experiences with Hybrid CO<sub>2</sub> Systems in the U.S.](#), Tuesday, January 13 at 2pm Eastern. Dan O'Brien from Zero Zone will be discussing the benefits of hybrid CO<sub>2</sub> 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/](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#



**REAL Alternatives e-learning course on track for 2015** launch following successful pilot testing - The piloting and testing of the REAL Alternatives e-learning course has been a critical stage in the development of this new multilingual blended learning approach designed to improve knowledge of alternatives to high GWP refrigerants. 63 individuals from 12 European countries took part in a pilot exercise in October representing a wide range of stakeholders - from technicians to manufacturers and trainers (see note 1). The general conclusion was that the e-learning will provide a much needed solution to skills shortages - particularly in view of the introduction of the new F Gas Regulation in 2015 and future restrictions on HFCs. [Click here to 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

[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.

[Climate-Change Christmas Carols](#), The New Yorker, 22 December 2014, By Ethan Kuperberg - [...] I'm dreaming of an ozone layer, Just like the one I used to know, Which kept out UV rays, Before aerosol sprays, And allowed for actual snow. [...] [Listen](#)



MONTREAL PROTOCOL  
WHO'S WHO

## The Montreal Protocol Who's Who

Learn more and nominate Ozone Layer Protection  
Champion from your Country /Region >>

<http://www.unep.fr/ozonaction/montrealprotocolwhoswho>

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