

**Volume XXIII | 16 September 2023**

## **Special Issue on the International Day for the Preservation of the Ozone Layer 16 September 2023**

On 19 December 1994, the United Nations General Assembly proclaimed 16 September the International Day for the Preservation of the Ozone Layer, commemorating the date, in 1987, on which the Montreal Protocol on Substances that Deplete the Ozone Layer was signed.

States are invited to devote the Day each year to promote, at the national level, activities in accordance with the objectives of the Montreal Protocol and its amendments.

Please refer to the Ozone Day webpage in the [OzonAction website](#).

We thank you for your ongoing commitment to compliance with the Montreal Protocol and your excellent work in implementing your national strategies and projects.

**OzonAction team wishes you a successful celebration!**

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## **Marking the International Day for the Preservation of the Ozone Layer, The United Nations Secretary-General Urges All Countries to Ratify Montreal Protocol's Kigali Amendment, 'Build a World' Where All Can Thrive**

Following is The United Nations Secretary-General António Guterres' message on the International Day for the Preservation of the Ozone Layer, observed 16 September:

The international treaties to protect the ozone layer have made a dramatic and measurable difference to protecting people and planet. They show the power of multilateralism. And they should inspire hope that, together, we can avert the worst of climate change and build a sustainable and resilient world.

Limiting the rise in global temperature to 1.5°Celsius is still possible if we immediately and drastically accelerate climate action. I have proposed a Climate Solidarity Pact and an Acceleration Agenda to help achieve this. I urge all leaders to work together to put them into effect, and to support these efforts by getting behind the Kigali Amendment to the Montreal Protocol and limiting planet-heating hydrofluorocarbons.

Fully ratifying and implementing the Kigali Amendment could avoid up to 0.5°C of warming by 2100. Combining the transition away from planet-heating gases with energy efficiency measures in cooling equipment could double this figure.

I call on all countries to ratify the Amendment. And I urge Governments, along with business leaders, civil society, academia, youth groups, local communities, and others to intensify efforts to bring about real change and to ensure developing countries have the support they need to do so.

Let's harness the spirit of the Vienna Convention and the Montreal Protocol to build a world where humans, nature and the planet thrive together.

[AR](#) | [CH](#) | [EN](#) | [ES](#) | [FR](#) | [DE](#) | [RU](#)

**The United Nations, September 2023**

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## Montreal Protocol: fixing the ozone layer and reducing climate change



On World Ozone Day 2023, we celebrate the achievements of the Montreal Protocol on Substances that Deplete the Ozone Layer in fixing the ozone layer and reducing climate change.

The [latest update](#) from the Scientific Assessment Panel to the Montreal Protocol confirmed that ozone layer recovery is on track and ozone levels are expected to return to 1980 levels by around 2066 over the Antarctic.

By banning ozone-depleting substances and allowing the ozone layer to slowly recover, the treaty is also protecting millions of people from skin cancer and eye cataracts, safeguarding ecosystems, and slowing down climate change – as many ozone-depleting substances were also climate warming gases.

However, the work and the benefits of the Montreal Protocol is far from over. The Kigali Amendment to the Montreal Protocol aims to phase down the production and consumption of hydrofluorocarbons (HFCs) – powerful climate-warming gases that replaced ozone-depleting substances in the cooling industry. Universal ratification of the Amendment and full implementation are crucial, for multiple reasons.

The planet is heating up, which increases the need for air-conditioning in homes, schools, and workplaces. At the same time, expanding access to sustainable cold chain – to keep food fresh and vaccines viable – is essential to meet sustainable development aspirations.

This growth in cooling must be sustainable, which means both finding safe and environmentally friendly alternatives to HFCs and increasing the energy efficiency of cooling equipment. By phasing down HFCs, the Kigali Amendment may result in avoidance of up to 0.5°C of warming by 2100. Implementing energy efficiency measures could potentially double this figure.

The conclusion is clear: for nearly 4 decades, the Montreal Protocol has been instrumental – and will continue to be instrumental – in protecting human health, nature, and the climate.

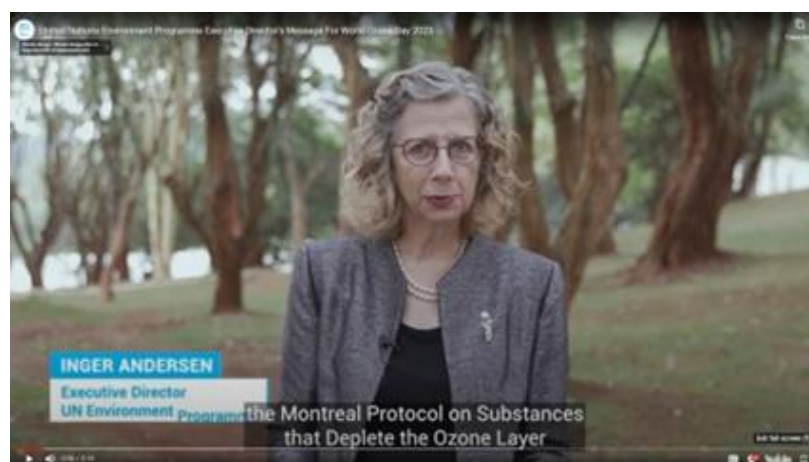
### **Theme in the six UN official languages**

The theme for the 2023 International Day for the Preservation of the Ozone Layer, to be marked on 16 September, is **Montreal Protocol: fixing the ozone layer and reducing climate change**.

This reiterates the recent finding by the Scientific Assessment Panel of the positive impact the Montreal Protocol has on climate change, that ozone recovery is on track and how climate challenges can be supported through the Kigali Amendment.

[Learn more](#) and access all the World Ozone Day 2023 materials from the Ozone Secretariat website, in the six UN languages.

## **Message from the UNEP Executive director for World Ozone Day 2023**



*Transcript of*

**Inger Andersen message for World Ozone Day 2023**

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Now in its 36<sup>th</sup> year, the Montreal Protocol on Substances that Deplete the Ozone Layer has been fundamental to protecting human health and nature. This hugely successful agreement phased out 99 per cent of ozone-depleting substances. The ozone layer is now healing. Millions of people and countless ecosystems have been spared the ravages of UV radiation. Less known, however, is how important this agreement has been, and will be, to climate action.

Many ozone-depleting substances were also climate warming gases, so phasing them out has slowed global warming. In fact, a 2023 study showed that the Montreal Protocol has postponed the first ice-free Arctic summer by up to 15 years, buying time for the onset of changes to our climate system including positive consequences for ecosystems and communities depending on ice.

Now, with its Kigali Amendment, the Montreal Protocol has an even bigger role to play in climate action and sustainable development. As we have seen this year, heatwaves are growing more intense and more common. In this searing heat, over one billion urban and rural poor lack cooling access. Their lives are in danger.

To achieve the Sustainable Development Goals on everything from health to education to energy access, we must bring cooling to these people, without intensifying climate change. This is a challenge the Montreal Protocol is facing head-on through its Kigali Amendment.

The Amendment aims at phasing down hydrofluorocarbons (HFCs) – powerful climate-warming gases widely used in the cooling industry. If HFC phasedown is achieved, up to 0.5°C of warming could be avoided by the end of this century. This, however, is only the beginning.

Cooling equipment must be redesigned to become more sustainable both in their use of climate friendly refrigerants and energy efficiency features. By doing so more people could access life-saving cooling without further warming the climate, potentially doubling the warming avoidance gains.

Sustainable, energy efficient cooling is on the agenda of the next climate summit, COP28, later this year. However, as new climate records are set, we cannot afford to wait another day before acting.

As we mark World Ozone Day, I call on governments and industry to work ever harder under the Kigali Amendment to phase down HFCs and make cooling equipment more energy efficient. Climate change is warming our world. The Montreal Protocol can help keep it cool – but only if we back it 100 per cent.

**Video link >>>**

**[The United Nations Environment Programme \(UNEP\), September 2023](#)**

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## Letter from the Head of UNEP OzonAction to National Ozone Officers for World Ozone Day 2023

Dear National Ozone Officers,

On 16 September each year, we all celebrate the commitments made by Parties in 1987 to protect human life and the environment by implementing the [Montreal Protocol on Substances that Deplete the Ozone Layer](#).

This year's World Ozone Day (WOD) theme – Montreal Protocol: fixing the ozone layer and reducing climate change – reminds us of our responsibility to continue building on the considerable ozone and climate benefits already achieved under the Montreal Protocol through the phase-out of ozone depleting substances, by

enthusiastically pursuing the objectives of the Kigali Amendment to phase down HFC production and consumption. World Ozone Day provides an excellent opportunity to outreach the successes and new developments of the Montreal Protocol and to increase support for your national compliance strategy among the public and key stakeholder groups.

With the COVID-19 pandemic now officially over, this year countries can now celebrate WOD more fully and raise awareness about the Montreal Protocol achievements with a wider audience. OzonAction is pleased to provide you with the [information resources](#) that can be used as part of your national celebrations (all items can be downloaded). Please also refer to the [Ozone Secretariat's WOD website](#) for other related resources.

We would appreciate receiving information or reports about your country's WOD activities for posting on our website. Please send this information to your Montreal Protocol Regional Coordinator or directly to Ms. Jo Chona at [jo.chona@un.org](mailto:jo.chona@un.org)

It is our sincere hope that the Network and thematic meetings, information and awareness resources, compliance assistance, and project support that OzonAction's Compliance Assistance Programme (CAP) teams provide are helping you and the members of your National Ozone Unit to deliver your country's Montreal Protocol compliance strategy and programme more effectively.

Once again, we thank you for your ongoing commitment to maintaining compliance with the Montreal Protocol and your excellent work in implementing your national strategies and projects. On behalf of the entire OzonAction CAP team, I wish you great success in this year's WOD celebrations!

Yours sincerely,

James S. Curlin  
Head, OzonAction Branch  
UNEP Law Division

Download this letter in [AR](#) | [EN](#) | [ES](#) | [FR](#) | [RU](#)

Visit the [OzonAction, WOD 2023 special webpage](#), to access [resources for use in your World Ozone Day celebrations](#).



## **The International Ozone Commission, on the 36<sup>th</sup> anniversary of the Montreal Protocol, reports successes and new milestones for progressing toward ozone layer recovery**

**September 16<sup>th</sup> is the International Day for the Preservation of the Ozone Layer**, celebrating the anniversary of the 1987 signing of the Montreal Protocol on Substances that Deplete the Ozone Layer. The Montreal Protocol is the globally ratified treaty that controls the production and consumption of ozone depleting substances (ODSs) and many replacements for these substances.

**The theme of the International Day for the Preservation of the Ozone Layer is: "Montreal Protocol: fixing the ozone layer and mitigating climate change"**. It highlights the projected impact of the Protocol on climate change through its Kigali Amendment in phasing down HFCs - potent greenhouse gasses - and the adoption of green cooling technologies. Since 1985, the international ozone and climate communities have strongly collaborated under the Vienna Convention for the Protection of the Ozone Layer. The Convention mandates a worldwide ozone research effort to evaluate and measure the Earth's critically important ozone layer.

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**The Antarctic ozone hole has reappeared in 2023.** The ozone hole is caused by the still high levels of the human-produced and long-lived ODS in our atmosphere. The ozone hole has occurred every year since the early 1980s. The ozone hole severity stopped increasing in the 1990-2010 period and has shown a slight improvement over the last decade, consistent with theory and model simulations with the declining ODS levels.

**Atmospheric ODS concentrations are decreasing,** but are still at the levels that can cause significant polar spring-time ozone destruction. Thanks to the Montreal Protocol, this ODS decrease is causing the Antarctic ozone hole and ozone depletion at global scale to slowly decrease. The ozone hole is projected to return to 1980 levels in the 2060-2070 period.

**The January 2022 Hunga Tonga-Hunga Ha'apai (HTHH) eruption injected an unprecedented amount of water vapour into the stratosphere, on top of volcanic aerosols.** This water vapor plume was carried into the Antarctic vortex in early spring 2023 (as seen by the NASA Aura satellite's Microwave Limb Sounder), and this may have an impact on the 2023 ozone hole. The HTHH volcanic eruption illustrates that the ozone hole's year-to-year variability can be enhanced by unexpected events. Large variability of Antarctic and Arctic ozone depletion in recent years demonstrates the need for continuous monitoring of the ozone layer and ozone depleting substances (ODS) to assess global compliance to the Montreal Protocol.

**Arctic ozone depletion is generally much weaker than its Antarctic counterpart, and it was again moderate in the spring of 2023.** Arctic depletion is typically caused by a combination of factors that require strong polar vortices especially through the March period accompanied by unusually weak dynamical processes over the winter period. Typically, these processes drive movements of ozone-rich air through the polar vortex.

**Our ability to monitor and understand ozone and the stratosphere is crucially dependent on satellite, balloon, and ground-based ozone observing systems.** The coming demise of long-term satellites (e.g., NASA's Aura, Aqua, and Terra) will limit scientific monitoring of both ozone layer health and levels of anthropogenically produced ODSs. As noted above, the HTHH eruption is having a significant impact on climate, ozone, and the stratosphere. Without continuous global monitoring, it would be difficult to monitor and understand this event. The recent findings of unexpected CFC-11 emissions further remind the science community of the Vienna Convention's Article 3 that requests "systematic observation of the state of the ozone layer and other relevant parameters." Similarly, the associated path to recovery for the UV-B exposure levels has additional uncertainties from changes in cloudiness and aerosols related to manmade climate change. This is why it is recommended that the usual precautionary measures to protect from excess exposure of humans to solar UV-B radiation should continue to apply in the decades to come.

**The Montreal Protocol is a binding, pioneering agreement that solved a global atmospheric pollution problem.** The science challenges of ozone depletion have led to a substantial increase of our understanding since the signing of the Montreal Protocol, and this increase has enabled policies that control ODS consumption and production. The Protocol provides a successful blueprint for development of global science-policy dialogue on environmental issues.

After a fully remote QOS in 2021 due to Covid restrictions, the next 2024 Quadrennial Ozone Symposium will be held in Boulder, USA on 15-19 July 2024.

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This text was last reviewed by the IO3C members on September 14<sup>th</sup>, 2023.

**For more information, contact: [Dr. Irina Petropavlovskikh](#), Secretary of the International Ozone Commission**

- IO3C: <http://www.io3c.org>
- United Nations Environment Program's Ozone Secretariat World Ozone Day 2020: <https://ozone.unep.org/ozone-day/ozone-life-35-years-ozone-layer-protection>
- WMO Northern Hemisphere Ozone Mapping Center: <http://lap.physics.auth.gr/ozonemaps>
- World Ozone and Ultraviolet Data Center: <http://www.woudc.org>
- O3 Global: <http://www.temis.nl/protocols/O3global.html>
- TEMIS Ozone and UV forecast: <http://www.temis.nl/protocols/o3hole/>
- Ozone Hole Watch: <http://ozonewatch.gsfc.nasa.gov/>
- World Meteorological Organization (WMO), Scientific Assessment of Ozone Depletion: 2022, GAW Report No. 278, 509 pp., WMO: Geneva, Switzerland, 2022.  
<http://ozone.unep.org/science/assessment/sap>  
<https://www.esrl.noaa.gov/csd/assessments/ozone/2022/>

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#### Disclaimer:

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