



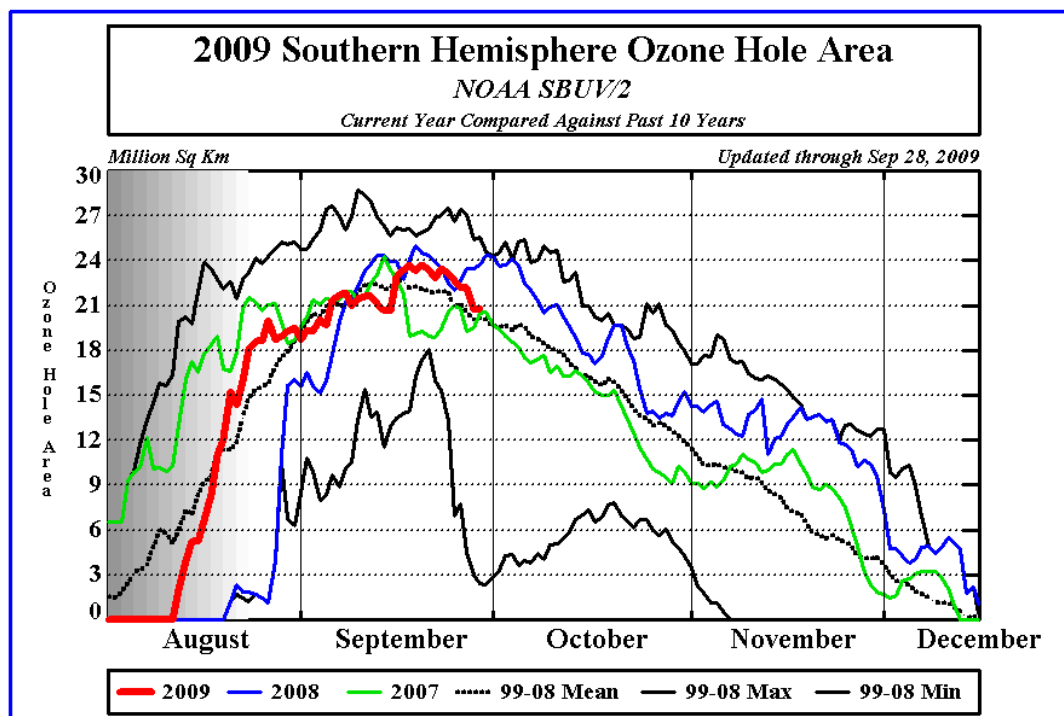
EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

ISSUE 71 – October 2009

OZONE HOLE SMALLER IN 2009 THAN IN 2008

The development of the Antarctic Ozone Hole in 2009 has been similar to that observed in recent years, but the area covered by ozone depletion has reached a maximum of 24 million km², lower than in [2006](#) and [2008](#), a profile close to the [2007](#) hole, which had been the smallest in the last 12 years.



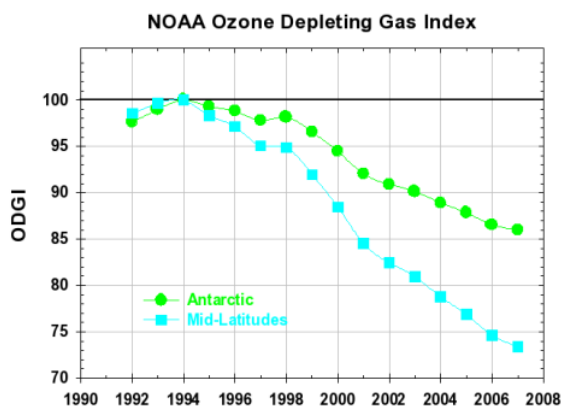
Despite the slow decrease of the stratospheric concentration of [ODS](#), as a consequence of their phase-out under the Montreal Protocol, [cold temperatures over the pole](#) are the most important factor in the fluctuation of the size of the ozone hole from year-to-year.

The depth and area of the ozone hole are governed by the amount of chlorine and bromine in the Antarctic stratosphere. Over the southern winter, polar stratospheric clouds (PSC) form in the extreme cold of the atmosphere, and following a complex chemistry on the cloud particles chlorine is released into a form that can easily destroy ozone. When the sun rises in August after months of seasonal polar darkness, the sunlight heats the clouds and catalyzes the chemical reactions that deplete the ozone layer.

An update on fluorocarbons and sulfur hexafluoride

The ozone hole begins to grow in August and typically reaches its maximum surface area during the second half of September and the maximum depth during the first half of October, and then dissipates in November.

The NOAA [Ozone Depleting Gas Index](#) (ODGI) – see a summary [here](#) - shows a peak in ozone depleting halogen abundance in 1994, and a decrease by 2007 of 13% over the Antarctic and of 27% at mid-latitudes. Indeed, NOAA calculates two different indices, to account for the nature of the Antarctic stratosphere compared to the stratosphere at mid-latitudes in both hemispheres.



NOAA projects the recovery of the ozone layer to occur around 2080 in the Antarctic and earlier in mid-latitudes around 2050.

Sources: http://www.wmo.int/pages/mediacentre/press_releases/pr_863_en.html
and

http://www.cpc.ncep.noaa.gov/products/stratosphere/polar/gif_files/ozone_hole_plot.png

LONDON EYE CAPSULES AIR CONDITIONING USING A PERFORMING HFC EQUIPMENT





EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

One of the tallest observation wheel in the world, the London Eye, carries 32 10-tonnes glass capsules using a [HFC](#) blend for their [air conditioning](#) system. Each capsule contains a packaged purpose built air conditioning unit that provides cooling, de-humidification and heating. Dedicated computers automatically control the climate inside, adjusting parameters when outside conditions change.

Each unit provides a total cooling duty of 9kW (total) summer, 4.5kW winter and 7.1kW when it's raining.

Developing equipment to cool, heat and prevent condensation inside the capsules was an unusual design challenge. The combination of the glass environment and the variability of British weather produced an extreme micro-climate, so that the technical performance of the units in both cooling and de-humidifying modes was a primary objective.

The high performance system fits into a small space, uses as little power as possible and dynamically controls temperature and humidity in an environment where the doors are opened every 30 minutes.

Besides controlling the temperature within the capsules, the system was designed to limit the humidity in cold weather, to prevent condensation build-up.



The London Eye's wheel measures 135 metres in diameter, weighs 1,900 tonnes and revolves at a speed of 0.26m/s. At 135 metres high the observation wheel – one of the tallest in the world – provides amazing views across London. It reveals parts of the city which are simply not visible from the ground.

Source: Equipment Manufacturer



EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

AT A LEADER LCD SCREENS PRODUCER THE HFC-134A HEAT PUMPS RECOVER LARGE AMOUNTS OF HEAT AND SAVE 65% ENERGY COSTS

At a leading LCD screens factory, six [heat pumps](#) working with [HFC-134a](#) are recovering heat from existing chillers, delivering simultaneously 13 C water and 50 C hot water, with a heating capacity of 21,000 kW and a cooling capacity of 17,000 kW.

The installed heat recovery machines can recover heat that would otherwise be rejected from the building and then use it for either building heat or domestic hot water heating.

The leader in LCD manufacturing, producing 8 million LCD panels per year, wanted to contain energy usage for its next capacity extension. The installed system saves 65% energy cost compared to the previous system.

Source: Product Manufacturer

HEAT PUMPS, AN IMPORTANT PART TO CONTRIBUTE TO THE EU TARGET OF 20% RENEWABLE ENERGY

The recently published EU Directive on the promotion of the use of [energy from renewable sources](#) recognizes for the first time under EU law the potential of [heat pumps](#) using aerothermal energy (taken from the air), geothermal energy (stored in the ground) or hydrothermal energy (extracted from water) in [reducing the energy consumption](#), especially in the building sector.

The aim of the legislation, part of the so-called Climate Change Package, is to increase the share of renewable energy in final energy demand in all Member states in order to boost the EU's total share to 20% by 2020.

[EPEE](#) has put online a [presentation](#) explaining that heat pumps have an important role to play in reaching the 2020 targets for renewable energies in the EU, since they significantly contribute to reduce primary energy and CO₂ emissions.

Heat pumps can be used virtually everywhere: in the industry, in district heating and cooling, in individual and collective housing, in office buildings. They can also be used for waste heat recovery.

The new Directive will therefore be beneficial to consumers, as the use of heat pumps will drastically reduce heating costs and helping them to reduce their carbon footprint, to industry by increasing the demand for state of the art technologies, and to national governments by the opportunity to reach their target in a cost-efficient way.



EFCTC NEWSLETTER

An update on fluorocarbons and sulfur hexafluoride

Source : [Refripro](#)

NEW ON WWW.FLUOROCARBONS.ORG

The [Factsheet Nr 5](#) "POTENTIAL EFFECT OF CLIMATE CHANGE ON STRATOSPHERIC OZONE DEPLETION" has been updated.

NEW ON WWW.FIGAROO.ORG



- FOLLOWING FIGAROO IN ENGLISH, FRENCH, GERMAN, ITALIAN AND SPANISH, THE FIGAROO WEBSITE IN POLISH IS [ONLINE](#)
- [Figaroo Logbook](#)

Download statistics since the creation of Figaroo:

- 410 downloads from 17 different countries
- 59 contacts from refrigeration companies
- 125 contacts from the air-conditioning sector
- Others: universities, consultants, producers of medical devices, etc.