

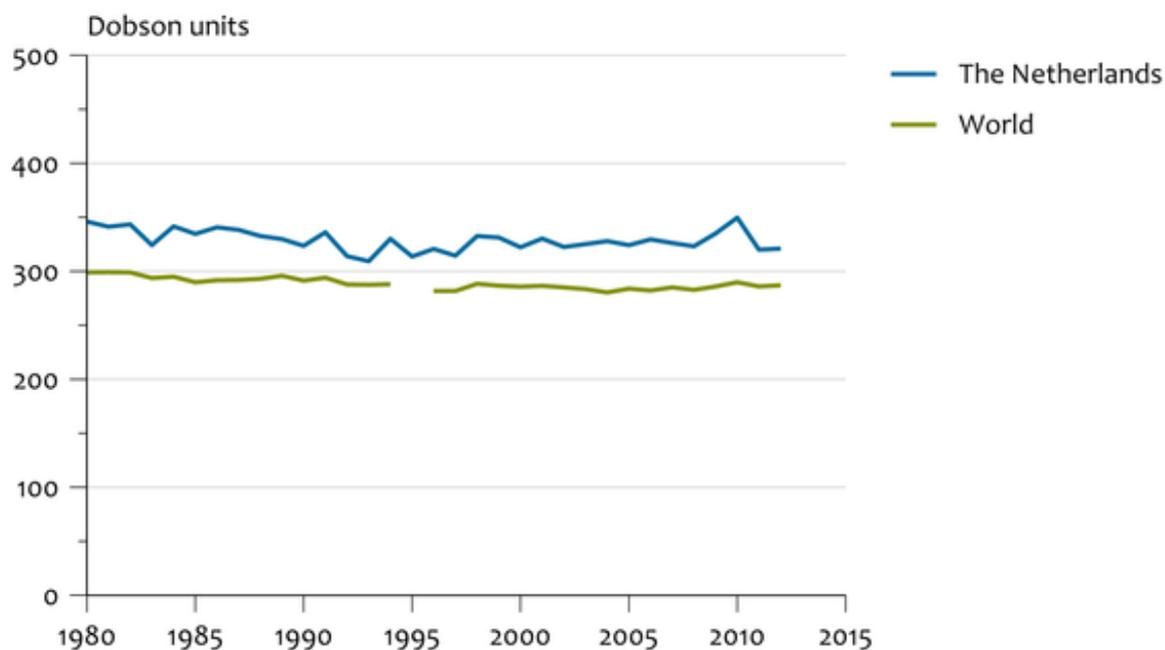
## Ozone layer, 1980-2012

Indicator | 27 juni 2014

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The thickness of the ozone layer has decreased by 5% worldwide during the last 25 years, with most depletion taking place between 1980 and 1990. Since the early 1990s, it has remained stable at this lower level.

### Ozone layer thickness



Source: KMI and KNMI; McPeters et al.

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## Thickness of ozone layer worldwide and above the Netherlands

Measurements show that the thickness of the ozone layer has decreased both worldwide and above the Netherlands since 1980. This is due to increasing concentrations of ozone-depleting substances in the atmosphere. The layer thinned in particular between 1980 and 1990. Since the early 1990s, the thickness has remained stable at this lower level. In the period 2000-2004, the ozone layer was about 5% thinner than prior to 1980, both worldwide and at temperate latitudes such as the Netherlands. Ozone layer depletion is a seasonal phenomenon: depletion is greater in the winter and spring than in the summer and autumn.

## Thickness of ozone layer above the poles

Since 1980, the ozone layer has become especially thinner above the poles, although no further depletion has taken place above the South Pole since the early 1990s. In the month of October, when the ozone hole is largest above the South Pole, the ozone layer is 40% thinner than in October months prior to 1980. In several recent years, in which there have been cold winters in the North Pole area, the ozone layer above the North Pole has also been up to about 25% thinner in the spring. The temperature in the stratosphere above the North Pole was unusually low in the spring of 2011, with the result that the ozone layer was thinner than ever previously observed (Manney et al., 2011). However, the ozone layer above the North Pole remains thicker than above the South Pole, as temperatures in the stratosphere above the North Pole drop less than temperatures above the South Pole.

## Recovery of ozone layer

It is likely that the concentration of ozone-depleting substances in the stratosphere has now passed its maximum level. This will allow recovery of the ozone layer to take place. However, natural variability makes it difficult to detect the start of such recovery, and complete recovery will take more than 50 years. In addition, the increase in greenhouse gases in the atmosphere causes cooling of the stratosphere and could affect recovery of the ozone layer. The expectation, therefore, is that ozone will be broken down less rapidly in the higher stratosphere. However, uncertainties about the effect of cooling on ozone in the lower stratosphere mean that the effect on the ozone layer as a whole is as yet unknown. The effect could be positive, or it could be negative.

## Referenties

- KMI en KNMI. Metingen vanaf de grond in De Bilt (KNMI) en in Ukkel (KMI, België).
- Manney, G.L., Santee, M.L., Rex, M., Livesey, N.J., Pitts, M.C., Veefkind, P., Nash, E.R., Wohltmann, I., Lehmann, R., Froidevaux, L., Poole, L.R., Schoeberl, M.R., Haffner, D.P., Davies, J., Dorokhov, V. Gernandt, H., Johnson, B., Kivi, R., Kyrö, E., Larsen, N., Levelt, P.L., Makshtas, A., McElroy, C.T., Nakajima, H., Parrondo, M.C., Tarasick, D.W., Von der Gathen, P., Walker, K.A. & Zinoviev, N.S. (2011) [Unprecedented Arctic ozone loss in 2011](#) [4], Nature [only available online].

## Referentie van deze webpagina

CBS, PBL, RIVM, WUR (2014). [Ozone layer, 1980-2012](#) [5] (indicator 0218, versie 15 , 27 June 2014 ). [www.clo.nl](http://www.clo.nl). Centraal Bureau voor de Statistiek (CBS), Den Haag; PBL Planbureau voor de Leefomgeving, Den Haag; RIVM Rijksinstituut voor Volksgezondheid en Milieu, Bilthoven; en Wageningen University and Research, Wageningen.

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- [2] [https://www.clo.nl/sites/default/files/infographics/0218\\_001g\\_clo\\_15\\_en.png](https://www.clo.nl/sites/default/files/infographics/0218_001g_clo_15_en.png)
- [3] <https://www.clo.nl/sites/default/files/datasets/c-0218-001g-clo-15-en.xls>
- [4] <http://www.nature.com/nature/journal/vaop/ncurrent/full/nature10556.html>



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