Dangerously High Ozone Levels in European Summer

A recent report by the European Environment Agency concludes that the ground ozone levels continue to exceed EU safe levels, thus threatening human health across Europe. Although not as high as in the record year 2003, ozone pollution rose again in summer 2005, specially in southern countries such as Portugal, Greece, and Spain.

Given the proven adverse effects of ground ozone pollution on human health, the Council of the European Union adopted in 1992 the Directive 92/72/EEC on air pollution by ozone, succeeded by Directive 2002/3/EC on ozone in ambient air. This latest directive sets primary long-term objectives, target values, an alert threshold (240 µg/m³) and information threshold (180 µg/m³) to avoid, prevent and reduce the harmful effects of ozone on the human health and the environment. It also requires the EC member states to report the exceedances of the information and alert thresholds values to the Commission and the European Environment Agency. Ozone levels become higher in regions close to high ozone precursors emissions (road transport, power and heat generation plants, industry, etc...) and during summer due to the higher solar insolation and temperatures (sunlight is involved in the chemical reactions that generate ozone in the atmosphere).

A recent report by the European Environment Agency has evaluated ground-level ozone pollution in Europe for April –September 2005 based on the information submitted by the Member States to the European Commission.

The results indicate that in summer 2005, the long-term objective for the protection of human health (maximum ozone concentration of 120 µg/m³ over 8 hours) was observed to be exceeded in almost every country, in almost every summer month and at most of the stations. In 16 EU Members States, the target value to protect human health was also exceeded.

The alert threshold of 240 µg/m³ was exceeded on 127 occasions, compared with 99 during the previous year, and in the case of the information threshold, ozone concentration values above the established limit (180 µg/m³) were also observed in most countries, at 42% of all monitoring sites against 35% for the previous year.

The worst situation was reported in Southern Europe. Portugal experienced the highest one-hour ozone concentration and dangerous levels were also recorded in Greece, Italy, France, Romania, and Spain. The lowest ozone levels were recorded in the Baltic States and Scandinavia.

The occurrences of exceedances were slightly higher in summer 2005 compared to summer 2004 in north-western and southern Europe. However, the number of times the ozone level went to dangerous levels in the summer of 2005 was significantly lower than in the years 1999 to 2003.

Despite the decrease in ozone precursors’ emissions (nitrogen oxides and volatile organic compounds) across Europe due to the numerous efforts to improve air quality, ground ozone levels continue to be one of the major environmental problems in Europe. In the light of these new results, the EEA will be launching ‘Ozoneweb’ on its webpage next summer. This new tool will allow Europeans to get up-to-date information on air quality and ozone levels in their neighbourhood. Levels will be updated on an hourly basis and background information about ozone and its health impact will also be provided.


Theme(s): Air pollution, Environment and health

Additional Information: The EU LIFE programme has co-financed a number of projects which have developed measures and tools to detect ozone levels in cities. For more information, see: LIFE99 ENV/IT/000131 as an example of the development and use of a periodical and continuous tool for pollution monitoring campaigns, LIFE99 ENV/D/000453 as an example of the use of bio-indicator plants to assess air pollution and LIFE00 ENV/H/000936 as an example of establishing a bio-monitoring network that not only informs the national and local decision makers, but which also raises the amount of ozone present in the cities. For more information on air pollution in general please refer to the LIFE brochure: *The air we breathe: LIFE and the European Union clean air policy*

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