

## **Mapping critical levels for ozone in relation with ecosystems protection in Romania**

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### **Summary**

The AOT40 exposure index developed within the context of UN-ECE as a critical level is a tool commonly used in Europe to assess the geographical areas where ecosystems (crops, forests and semi-natural vegetation) face a potential risk due to high ambient ozone concentrations. Using the ambient ozone data recorded in 2007-2009 within an irregular monitoring network covering Romania (32 rural, suburban and background urban stations) we calculated the AOT40 values separately for forests, crops and semi-natural vegetation. The interpolation method used was the IDW modified, with respect to the influence of altitude change on ozone concentrations and the representativity of the data registered at different kinds of stations. Ecosystems were identified in Corine LandCover 2006 dataset for Romania. For mapping AOT40 interpolated data, ArcGIS Desktop was used. About 94% of Romanian territory exceeds the critical levels for forests (AOT40 - 5 ppm.h April-September daylight hours) and about 92% of Romanian territory exceeds the critical levels for crops and semi-natural vegetation (AOT40 - 3 ppm.h May-July daylight hours). After processing the data we noticed that there are large uncovered areas of national territory. Finally, we suggest adding 6 new ozone rural monitoring stations in order to complete the Romanian monitoring network.

**Key words:** ozone, AOT40, ecosystems, monitoring network