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## **EFFECT OF A THERMAL INVERSION ON ATMOSPHERIC PARTICULATE MATTER IN NORTHWESTERN SPAIN**

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*Thermal inversions are usually related to serious atmospheric pollution events. This is caused by the weather stagnating conditions consequence of a reversal of the normal temperature vertical gradient in the troposphere that produces the smallest aerosol particles to be trapped under the atmospheric mixed layer. Thus, the presence of thermal inversions in urban/industrial areas directly impacts on human health, economic activity and daily life of the population (e.g. traffic restrictions) (Viard and Fu, 2015).*

*The aim of this study is to examine the relationship between thermal inversions and the concentration of aerosol particles and black carbon (BC) in León (Spain). For this goal, a monitoring campaign was carried out at the university Campus of León (42° 36' 50" N, 5° 33' 38" W, 846 m asl), located in Northwestern Iberia, during an event of thermal inversion between 25th December 2016 and 4th January 2017.*

*Several instruments were used: i) an optical particle counter (PCASP-X); ii) a high resolution nanoparticle sizer (TSI-SMPS Model 3938); iii) an AE31 Aethalometer of Magee Scientific Company to measure BC concentration; iv) a Davis Weather Station, used for continuously registering the meteorological variables. In order to identify the thermal inversion, we have used the radiosounding data from La Coruña, Santander and Madrid.*

*The first results show an increase in the number of aerosols during the thermal inversion (about 44%), mainly for Aitken and accumulation modes with an increase of 51% and 41%, respectively. Furthermore, BC concentration increased during the inversion by 33%.*

*Viard, V.B. and Fu, S. (2015) The effect of Beijing's driving restrictions on pollution and economic activity. J. Public Econ. 125, 98-115. doi:10.1016/j.jpubeco.2015.02.003*