São Paulo, May 19, 2014

Dear Editor,

With regard to the paper “Reduction in local ozone levels in urban São Paulo due to a shift from ethanol to gasoline use” by Alberto Salvo and Franz M. Geiger, published online on 28 April 2014), after following the indicated procedures and getting an insufficient answer from the authors, we consider this matter with Dr. Salvo and Dr. Geiger unresolved.

Their response is clearly unsatisfactory. The use of elaborated algorithms and sophisticated statistical tools may be academically interesting but when it does not consider all the necessary parameters it draws oversimplified conclusions.

Despite justifying scientific robustness through a bulky supplement, the article is a data-fitting exercise. Missing a number of relevant variables and assumption introduces fundamental errors in the work. It considers just a very short time span. It disregards the contribution of all diesel vehicles and motorcycles. It does not take into account fleet obsolescence and deterioration over time, including a majority of dedicated gasoline fuelled vehicles. It disregards fuel quality changes, notably diesel oil but also gasoline. It overlooks the implementation of restrictive regulations to the trucks circulating in the city during this period. It uses limited emission data from stationary sources. It bases its traffic congestion analysis on data measured in a subjective way.

They also do not compare, as good science recommends, their results with the real world data in order to show limitations or benefits of their methodology in assessing air quality trends. The most recent report from CETESB, the São Paulo State Environmental Control Agency shows that ozone concentrations have worsened rather than improved, both in the city of São Paulo and in the metropolitan region. The authors downplayed the shortcomings of certain variables of the database and neglected key evidences from vehicle emissions and scientific data on photochemical reactivity. In some cases their analysis cherry pick variables, such as ethanol/gasoline fuel sales and prices, ignoring the time-delay of consumers' response and downplaying the importance of climate variables. There is statistical evidence, when analyzing long time series, that the NOx and particles have presented a decrease in their atmospheric concentrations (considering all the air quality stations that measured these compounds). Meanwhile the same cannot be stated to the ozone concentrations, that have different behaviors from one to other air quality station.

In their response they claim their paper makes no recommendation, explicit or implicit, regarding the use of fossil fuels and that they cautioned against over interpretation. However, due to the fact that Nature is a highly reputed publication unfortunately the misleading conclusions of the article are being replicated by the media and writings are seen amplified also by other reputed publications such as *Scientific American* ("Ethanol

Fuels Ozone Pollution"). In summary the conclusions of the article wrongly indicate that ethanol, a fuel which has helped to reduce air pollution in the city of São Paulo and elsewhere (e.g. where gasoline contains lead), might be a threat, which is certainly not the case. Sugarcane bioethanol is considered an advanced biofuel and one of the most important strategies to address climate change mitigation in the transport sector.

Taking all these relevant factors, we believe Nature should take this misleading information case very seriously and offer its readers the necessary clarifications.

Yours Sincerely,

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