

1.254 Satellite Observed Variability of Aerosols and Carbon Monoxide in Southern Cities of South America.

Early Career Scientist

Presenting Author:

Sebastián Diez, Instituto Gulich, CONAE-UNC, Falda del Cañete, Córdoba, Argentina, sebastian_diez@hotmail.com

Co-Authors:

Anabella Ferral, Instituto Gulich, CONAE-UNC, Falda del Cañete, Córdoba, Argentina

Abstract:

Natural, but primarily anthropogenic atmospheric emissions, pose a threat to public health in two interconnected ways: the direct risk of air pollution and the indirect but merciless action of climate change. Natural fires and photosynthetic activity are important contributors to the quality of the air we breathe. However, levels of human activity such as transport, industry, agriculture, etc. are the main cause of air quality deterioration and of the indubitable climate disruption. In terms of air pollution, nearly 7 million people die each year, primarily of developing countries. Conversely, air quality monitoring in South America is still scarce, even in big cities in which there is a tendency to concentrate the economic resources of a country. For example, (i) Buenos Aires (Argentina) has 13 million inh. but only 3 air quality monitoring stations, (ii) Asunción (Paraguay) and Montevideo have more than 2 million inh. but no air quality monitoring and (iii) Córdoba (Argentina), with almost 2 million inh. since 2003 air pollution levels have not been monitored. In this work, we characterize the temporal and spatial variability, using satellites sensor information, of two contaminants relevant to public health: atmospheric aerosols and carbon monoxide (CO). We employed information from 2000 to 2017 covering the southern area of South America acquired by the EOS-TERRA satellite. The highest values of CO and Aerosol Optical Depth occurred in the period from August to October. The correlation between CO and active fires (AF) product was very high (0.89, $p < 0.05$), associated to biomass burning and the dominance of the dry season. However, it was not the case of AOD and AF, indicating the incidence of urban emission. Although it is necessary to have continuous measurements of air quality, the use of satellite data could be useful to establish causality when analyzing the degradation of air quality.