

## 1.185 Air Quality in Puerto Rico in the Aftermath of Hurricane Maria.

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Abstract:

On September 20<sup>th</sup>, the category four Hurricane Maria made landfall on Puerto Rico, making it the most powerful hurricane to hit the island in almost 90 years. With catastrophic winds of  $250 \text{ km h}^{-1}$ , Maria devastated the island causing severe damages to homes, buildings, agriculture, and infrastructure. The electric grid was devastated leaving over 90% of the island without electricity. Six months after, there remained municipalities where up to 45% of residents did not have power. While the electric grid was repaired, backup generators started to be widely used as the main source of electricity and a waiver from ultra-low sulfur diesel (ULSD, <15 ppm-sulfur) requirements was granted to Puerto Ricans by the United States Environmental Protection Agency. The

hurricane also damaged the island's existing air monitoring network and our University of Puerto Rico's observing facilities. Therefore, we partnered with several institutions in order to monitor air quality in the aftermath of Maria. We deployed four, low-cost, Real-time Affordable Multi-Pollutant monitors (RAMPs) for SO<sub>2</sub>, NO<sub>2</sub>, CO, NO, O<sub>3</sub>, and optical PM<sub>2.5</sub>, a black carbon (BC) monitor, a microaethalometer, an optical particle counter, and a condensation particle counter (CPC) at different locations in the San Juan Metro Area. Results from the first month of sampling (November-December 2017) showed SO<sub>2</sub> concentrations often exceeding the EPA's daily maximum 1-h standard for SO<sub>2</sub>. Very good correlations between SO<sub>2</sub>, CO, and BC (CO and SO<sub>2</sub>  $r^2 > 0.9$ , CO and BC  $r^2 \sim 0.8$ ) suggest a single source type, likely the widespread use of backup generators. The use of low-sulfur diesel (<500 ppm-S) is expected to increase particle number that should be observed with the CPC. At the conference, we will present results from about a year of collected data where we hope to be able to show how air quality improves as power is restored.