

## 1.158 Spatial distribution of gaseous pollutants (NO<sub>x</sub>, SO<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub> and O<sub>3</sub>) in Abidjan, Côte d'Ivoire.

Early Career Scientist

Presenting Author:

**DAGAUD JULIEN EYMARD BAHINO**, Laboratoire de Physique de l'Atmosphere et de Mécanique des Fluides , UFR SSMT, Universite Felix Houphouet Boigny, Abidjan, Cote d'Ivoire, [julienbahino@gmail.com](mailto:julienbahino@gmail.com)

Co-Authors:

**CORINNE GALY-LACAUX**, laboratoire Aerologie, UMR 5560, Université Paul Sabatier, Toulouse, France

**VERONIQUE YOBOUE**, Laboratoire de Physique de l'Atmosphere et de Mécanique des Fluides ,UFR SSMT, Universite Felix Houphouet Boigny, Abidjan, Cote d'Ivoire

**CATHY LIOUSSE**, Laboratoire d'Aerologie ,UMR 5560, Université Paul Sabatier, Toulouse , France

**ARISTIDE AKPO**, laboratoire de Physique du rayonnement, Universite d'Abomey Calavy, Benin

Abstract:

This work is part of the DACCIWA FP7 program (Dynamics-Aerosol-Chemistry-Cloud Interactions in West Africa) in the framework of the work package 2 « Pollution and health ». This study aims to characterize urban pollution levels through the measurement of NO<sub>2</sub>, SO<sub>2</sub>, NH<sub>3</sub>, HNO<sub>3</sub> and O<sub>3</sub> in Abidjan and Cotonou, the economic capitals of Côte d'Ivoire and Benin. Gases measurements are performed using passive samplers exposed in duplicate for two weeks periods. Our study allowed since December 2014 a monitoring for a two years period (2014-2016) at three sites in Abidjan and one in Cotonou; all representative of major sources of pollution (traffic, domestic fires, waste burning). In addition, we performed an intensive measurement campaign in Abidjan from December to February 2016 during the dry season. Sixteen sites in the district of Abidjan were selected to be representative of various anthropogenic and natural sources of the city. Our results document the interannual and seasonal variability of gaseous pollution at the monthly scale. Results from the intensive campaign show that the gases concentrations are strongly linked to pollution sources nearby and show a high spatial variability of gaseous pollutants concentrations on different sites of Abidjan. However three gases present higher levels of concentrations at all the sites: NH<sub>3</sub>(53%), NO<sub>2</sub>(21%) and O<sub>3</sub> (21%). NH<sub>3</sub> concentrations vary between 102,1±12,1ppb measured at the domestic fire site and 13,6±3,5ppb measured at the suburban site. NO<sub>2</sub> mean concentration vary from 19,6±1,7ppb to 5,4±0,93ppb. We measured the two most important O<sub>3</sub> concentration on the two coastal sites (19,4±2,3 and 19,1±3,8). The average concentrations of SO<sub>2</sub> never exceeding 1,3ppb at all the sites. All these results will be combined with meteorological parameters to provide a first mapping of gaseous pollutants at the scale of these two West African capital. These measurements constitute an original database because no air

quality network.