



## **NO<sub>2</sub> possible effects on human health in French Guiana**

Marie-Line Gobinddass (1), Beatrice Dendele (2), Jack Molinie (3), Kathy panechou-pulcherie (4), and Alexandre Gatineau (4)

(1) University of French Guiana, Cayenne, France (ml.gobinddass@gmail.com), (2) IRCM, Institut de Recherche en Cancérologie de Montpellier, Inserm, U1194, Montpellier 34298, France (beatrice.dendele@hotmail.fr), (3) University of West Indies, Guadeloupe, France (jack.molinie@univ-ag.fr), (4) Observatoire Régional de l'Air de Guyane, Remire-Montjoly, Guyane, France (kpp@ora-guyane.org)

The International Agency for Research on Cancer (IARC) recently declared air pollution carcinogenic to humans. Humans are continuously exposed to nitrogen dioxide (NO<sub>2</sub>) emissions, a strong oxidizing pollutant commonly found in urban air and homes with unvented combustion appliances. Children and Individuals with asthma have been reported to be more sensitive to NO<sub>2</sub> exposure.

Long-term exposure to NO<sub>2</sub> pollution has been reported to induce defective pulmonary function, inflammation, irritations, respiratory infections like bronchitis, lung fibrosis, asthma exacerbation and an increase in inhalational allergies. Pollution peaks are responsible for older people premature death in city.

According to W H O guideline values for NO<sub>2</sub> emissions, a 1-hour level of 200 µg/m<sup>3</sup> (0.1 ppm) and daily annual average of 40 µg/m<sup>3</sup> (0.02 ppm) can be a real danger to human health. In general, current exposures in Europe are below this range. However, climate warming changes NO<sub>2</sub> emissions and can become a real public health problem in few years.

We will study here the temporal series of NO<sub>2</sub> variation from data measurement campaigns of 2010 and 2014 in Cayenne city, the French Guiana capital. In this urban zone, NO<sub>2</sub> is mainly created by cars traffic. Only 40% comes from combustion in thermal electric plan. A statistical approach will be used to compare NO<sub>2</sub> Cayenne level to the daily and the annual threshold. Finally the NO<sub>2</sub> evolution related to the climate warming and the growth of road traffic in French Guiana for the next year will be discussed.