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AIR POLLUTION IN QUITO-ECUADOR

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1. INTRODUCTION

In Ecuador, the city of Quito is very vulnerable to air pollution due to its **geographic location, development model, and poor fuel quality** [3]. This increases the risk of pulmonary and cardiovascular diseases in children, the elderly, and pregnant women [5].
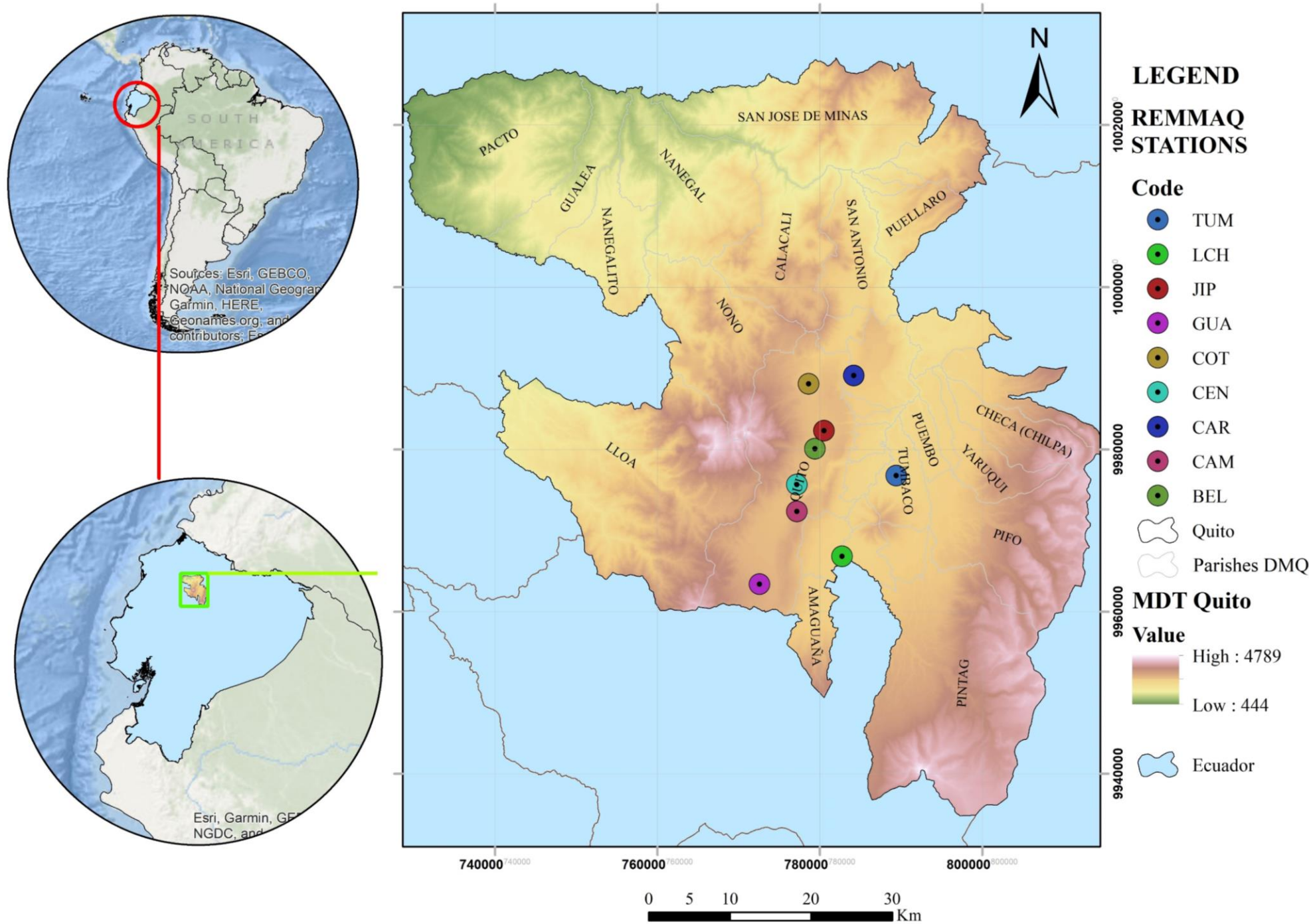
2. STUDY AREA

Figure 1. Metropolitan District of Quito (DMQ) [1]

In Quito, the air quality monitoring system is managed by **REMMAQ**, which has **9 remote stations** that perform hourly, continuous, and automatic analysis of atmospheric pollutants and meteorological parameters.

3. METHODS

Quality control [3]:
- Pollution temporal classification.
- Outliers' detection and normality transformation.
- Missing data imputation and new series definition.

Comparative analysis with WHO [4] and NCAA [2].

Defined the Quito Air Quality Index (IQCA) [2].

Figure 2. Quito air pollution [6]

> **WORLD HEALTH ORGANIZATION**
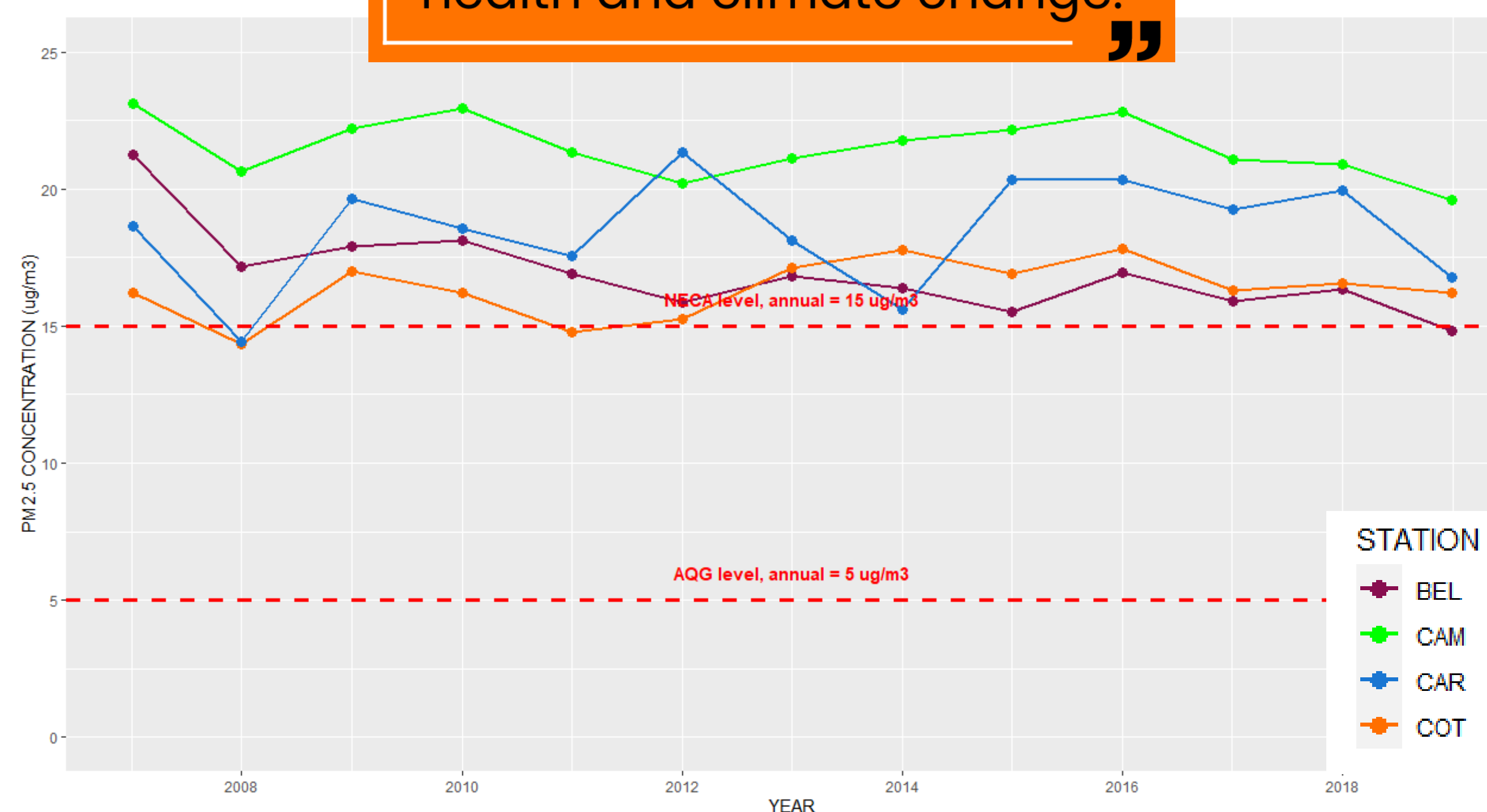> Air pollution is the largest environmental risk for public health and climate change.

Figure 3. Comparison between annual PM2.5 values and WHO and NCAA standards [1]

4. RESULTS

The variables **CO, NO2, SO2, O3, and PM2.5** were analyzed for the stations Belisario (BEL), Carapungo (CAR), Cotocollao (COT), and El Camal (CAM) for **2007-2019.**
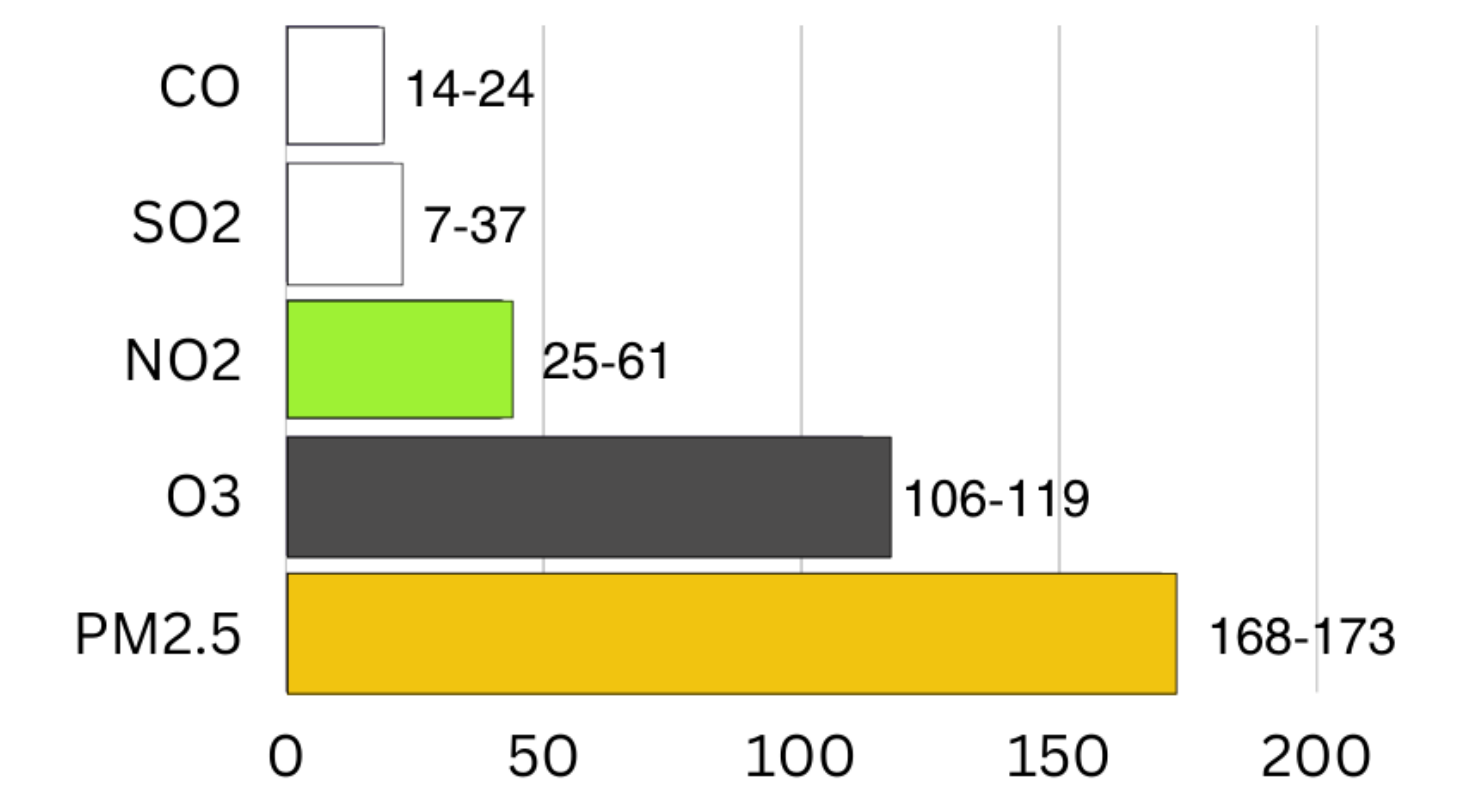

Figure 4. Air Quality Index (IQCA) [1]

PM2.5 is the main air quality pollutant due to vehicle traffic, the traditional puppets, and the use of gunpowder in new year. Annual averages exceed the NCAA by 85% and the WHO by 100%. **Pollution peaks are in El Camal**, where there is a high density of population, socioeconomic activities, educational institutions, and recreational areas [1]

5. CONCLUSIONS

The health of many people is at high risk in the Camal sector due to high levels of PM2.5 air pollution. For this reason, authorities should demand greater control of compliance with national regulations and create a permanent atmospheric monitoring network.

6. ACKNOWLEDGEMENTS

7. REFERENCES

8. CONTACT

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