10-12 February, 2020-Kuwait

Ist International Conference on Applications of Air Quality in Science and Engineering (ICAAQSE) was organized by Kuwait Institute for Scientific Research (KISR) on 10-12 February 2020. The issues related to air quality modeling, aerosols and particles, monitoring and measurements of air pollutants, personal exposure to indoor and outdoor air pollution are shown as the main topics.

During this 3-day conference, a talk was presented from Assoc. Prof. Hakki Baltaci with title "High-PM10 concentrations and respiratory diseases in Canakkale, Turkey".

Related images and abstract of the conference can be found as follows:





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HIGH-PM10 CONCENTRATIONS AND RESPIRATORY DISEASES IN CANAKKALE, TURKEY

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Abstract:

This study investigates the impacts of high PM₁₀ concentrations on respiratory diseases in Canakkale, Turkey. Daily mean high-PM₁₀ values (>100 μ gm⁻³) and daily total numbers of respiratory diseases are selected for the period 2007-2017. For respiratory diseases, chronic obstructive pulmonary disease (COPD) and pneumonia are used for different sexes and different ages including children (0-14 yrs), adults (15-64 yrs), and elderly (>64 yrs). In terms of total 104 episodes, high-PM₁₀ cases are mostly shown in winter (70%) and followed by Spring (12%), Fall (12%), and Summer (6%) seasons, respectively. Mainly five different groups are found as a result of implementation of Ward's minimum clustering technique to HYSPLIT 72-hour backward trajectory. From 104 days, 19.2% are categorized as internal sources and are positively linked to COPD in female- adult and elderly patients at lag 2 and lag3. The other sources are exhibited as external sources and originated from Europe, Sahara, Mediterranean, and Russia regions with the 34.6%, 22.1%, 13.5%, and 10.6% percentages of all episodes, respectively. During Europe originated high-PM₁₀ days, anthropogenic pollutants mainly cause an increase in the numbers of the elderly female (r=0.55) and adult male pneumonia patients (r=0.39) at lag5. Additionally, accompanied by the interaction between Genoa cyclone and surface high over Caspian Sea, natural dust particles are transferred from Sahara to Canakkale by strong southwesterly winds. As a consequence, obvious increases are shown in hospital admissions based on adult female COPD patients at lag1 (r=0.50) and lag4 (r=0.53). While Mediterranean origin PMs trigger the numbers of COPD and pneumonia related diseases at lag2 and lag3, the region is exposed to more pneumonia diseases two days after arriving of Russia origin harmful pollutants.

Key words: High-PM₁₀, cluster analysis, synoptic composite, COPD, pneumonia, Canakkale, Turkey