

## 輪島における多環芳香族炭化水素とオゾンの特徴

### Characteristics of polycyclic aromatic hydrocarbons (PAHs) and ozone ( $O_3$ ) at Kanazawa University Wajima Air Monitoring Station (KUWAMS), a background site in Japan

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[Objective]: Air pollution is adversely associated with human health. Particulate matter composed by complex compounds has been attracting great attention, in which PAHs play important roles owing to their toxicity. Besides,  $O_3$  has also been focused on due to its significant concentration level and noticeable health risk. Atmosphere of background area is mainly impacted by air pollutants transported from heavy-polluted sites, indicating unignored air pollution. Thus, it is important to enrich air pollution profile in remote areas for further comprehensive health effect evaluation of air pollution. Air pollutants were long-term observed at Kanazawa University Wajima Air Monitoring Station (KUWAMS), a background site since 2004 until now. In this report, recent features of PAHs in total suspended particles (TSP) and  $O_3$  at KUWAMS were discussed.

[Method]: TSP was sampled by a high-volume air sampler loaded with quartz filter from 2014.6 to 2019.8. Nine PAHs in TSP were detected by a high performance liquid chromatograph with fluorescence detection. Common air pollutants were monitored by auto - sampling instruments from 2016.4 to 2019.8, in which  $O_3$  was measured based on non-dispersive ultraviolet absorption method.

[Results and discussion]: Average concentration of total PAHs was  $364 \text{ pg/m}^3$  with a declining trend in warm ( $161$  to  $115 \text{ pg/m}^3$  from 2014 to 2019) and cold ( $527$  to  $456 \text{ pg/m}^3$  from 2015 to 2019) season. Based on our previous researches, PAHs were mainly transported from Asian Continent in the cold season and domestic Japan in the warm season. Therefore, reduction in PAHs concentration in both seasons probably indicated pollution control measures were efficiently conducted in these two regions.

Daytime  $O_3$  average concentration was  $31.5 \text{ ppb}$  with small yearly fluctuation. Obvious seasonal variation was displayed as high in spring, followed by winter, autumn and summer.  $O_3$  formation was under  $NO_x$ -limited regime. Besides, there were 158 days with highest daily 1-hour value over than Japanese standard ( $60 \text{ ppb}$ ) at KUWAMS, indicating the importance to elucidate atmospheric behaviors of  $O_3$  at KUWAMS.