1. No.
   2019G035

2. Title
   Creation of “active smoke separation” concept based on simultaneous online monitoring of air quality and human behavior

3. Period
   2019-2021

4. Summary
   A human health risk assessment is the necessary process to estimate the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media, now or in the future. Exposure assessment is the crucial part of measuring or estimating the magnitude, frequency, and duration of human exposure to an agent. Because exposure assessment includes some discussion of the size, nature, and types of human populations exposed to the agent, quantification of human behavior and the agent concentration distribution in the focusing environment is essential.

   To assess the environmental risk based on the dynamically varying total impact where the environmental condition and human behavior change independently, we need a new concept on the “dynamic” environmental risk assessment based on the monitoring of the factors. In this study, we developed a useful tool to specify the human behavior (number) approaching target areas to operate in conjunction with environment monitors. Human number counting technology based on an inexpensive and portable Wi-Fi packet (MAC address) sensing has been examined based on correlation with the visual observation data at various Wi-Fi environments such as outdoor smoking booths, lecture rooms, and car interiors. From the results, found that all the Wi-Fi connection signals originate from human dynamics and that the different movement between number of signals and persons should be coming from the Wi-Fi connection signal transmission characteristics from the network terminals. After optimizing the estimating function, taking into account the surrounding Wi-Fi signals effects, the present method will be available for human behavior monitoring to assess the dynamic environmental risk.