



## **VALIDATION OF THE PHOTOSTATIONARY-STATE OF NO<sub>x</sub> IN THE URBAN ATMOSPHERE IN JAPAN**

**J. Matsumoto** (1,2), N. Kosugi (2), Y. Sadanaga (1,2), S. Kato (1,2), Y. Kajii (2)

(1) Japan Science and Technology Corp., (2) Faculty of Engineering, Tokyo Metropolitan University (mjun@atmchem.apchem.metro-u.ac.jp)

Photostationary-state (PSS) of NO-NO<sub>2</sub> exchange is a critical factor of the photochemistry in the troposphere. In this study, measurements were conducted in the urban atmosphere in summer to investigate the PSS of NO<sub>x</sub> in the source area. NO, NO<sub>2</sub>, O<sub>3</sub>, JNO<sub>2</sub> and RO<sub>2</sub>s (total peroxy radicals) were measured simultaneously with 1-s temporal resolution. Such fast measurements realized the validation of the PSS of fast exchange reactions. PSS of NO<sub>x</sub> was examined with a new PSS coefficient including observed RO<sub>2</sub>s. As a result, the NO<sub>x</sub>-PSS including RO<sub>2</sub>s was confirmed reasonable except for a few inactive photochemical conditions. In this study, systematic deviation of the PSS coefficient from unity was not observed. Thus, only O<sub>3</sub> and RO<sub>2</sub>s reaction could explain the NO oxidation. The combination of NO<sub>x</sub> and RO<sub>2</sub>s measurements with the PSS method should be utilized to explore NO<sub>x</sub> chemistry further in various environments.