

International Comparison of Standards and Measurements for Ground-Level Ozone in East Asia

H. Tanimoto¹, H. Mukai¹, S. Hashimoto¹, Y. Sawa², H. Matsueda², S. Yonemura³, T. Wang⁴, S. Poon⁴, G. Lee⁵, K.-R. Kim⁶, M. Lee⁷, B.-C. Choi⁸, N.-H. Lin⁹, J.-L. Wang⁹, C.-F. Wu¹⁰

¹National Institute for Environmental Studies, 16-2 Onosawa Tsukuba, Ibaraki 305-8506; Tsukuba, Japan; +81-29-850-2930; Fax: +81-29-850-2579; E-mail: Tanimoto@nies.go.jp

²Meteorological Research Institute, Tsukuba, Japan

³National Institute for Agro-Environmental Sciences, Tsukuba, Japan

⁴The Hong Kong Polytechnic University, Hong Kong, China

⁵Hankuk University of Foreign Studies, Yongin, Korea

⁶Seoul National University, Seoul, Korea

⁷Korea University, Seoul, Korea

⁸Meteorological Research Institute, ChungNam, Korea

⁹National Central University, Chung-Li, Taiwan

¹⁰Environmental Protection Administration, Taipei, Taiwan

Tropospheric ozone is one of the most important constituents of the Earth's atmosphere since it plays a central role in controlling oxidizing capacity through a generation of hydroxyl (OH) radicals. Recently NO_x emissions from East Asia have been rapidly rising, and this, consequently, may have a sizable impact on regional and hemispheric ozone levels. To detect possible changes and discuss large-scale distributions beyond ongoing monitoring networks, we have started (1) to pursue reliable reference standards, (2) to achieve international comparability, and (3) to establish a regional traceability network in Asia for surface ozone at ambient levels. These activities include an intercomparison of standards between NIES gas phase titration (GPT) and the U.S. National Institute of Standards and Technology (NIST) Standard Reference Photometer (SRP), participation in an international comparison program (CCQM-P28) organized by the Bureau International des Poids et Mesures (BIPM), and establishment of a regional traceability network in the framework of the Atmospheric Brown Cloud (ABC)-ASIA project (Figure 1).

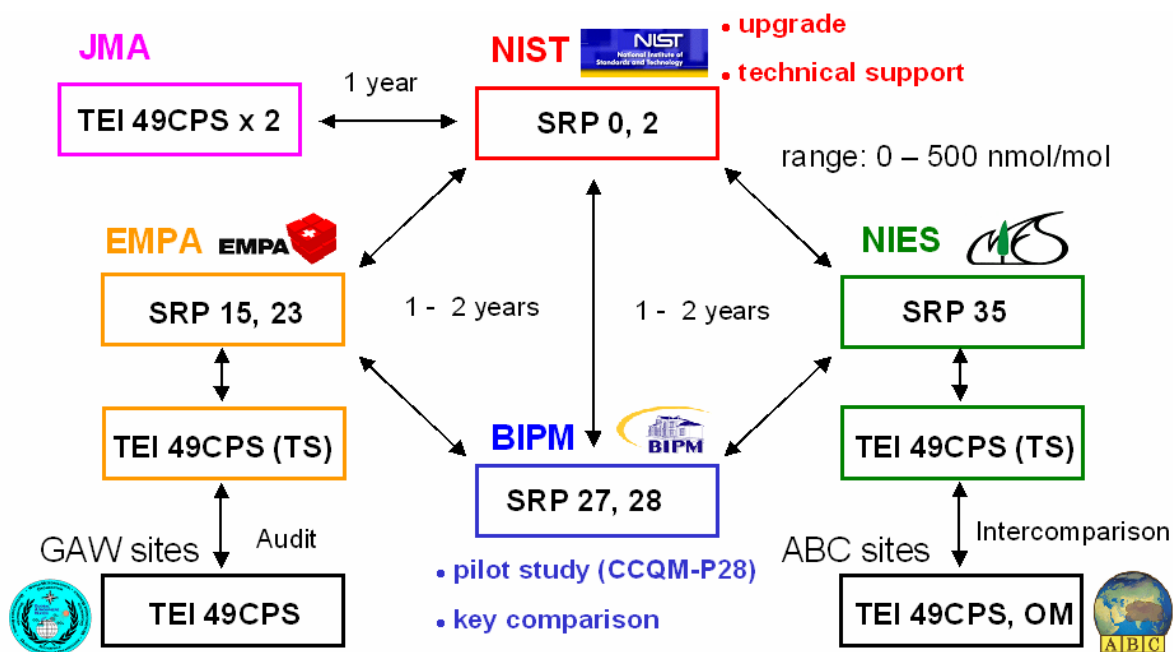


Figure 1. Traceability chain of ozone standards/measurements in East Asia based on Standard Reference Photometers (SRPs).