

## Atmospheric halocarbon trends in East Asia and investigation of VOC emissions from China

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Halocarbons, particularly long-lived fluorocarbons(F-gases), are powerful greenhouse gases, and some are known to destroy stratospheric ozone. Recent reports suggest that emissions of many F-gases have greatly declined in Europe [Derwent et al., 2007; Reimann et al., 2008]. On the other hand, the production and consumption of F-gases in Asia have increased rapidly, and China's HCFC consumption in 2006 has been estimated to account for 45% of the total global consumption (UNEP, 2008). Large emissions of halocarbons from East Asia will greatly affect the global burden of these gases, and future trends in their abundance and fluctuations in this area are key to understanding the global halocarbon budget. Since 2004, we have made continuous measurements of atmospheric halocarbons at Hateruma Island, which is a background site for East Asia that is typically influenced by continental air masses from the Asian continent in winter.

In this study, we compare the baseline variation of selected halocarbons (HFC-134a, HFC-152a, HCFC-22, HCFC-142b, HCFC-141b, and tetrachloroethylene) measured at Hateruma with the hemispheric baseline data at Mace Head(Ireland) and Cape Grim(Tasmania) obtained from AGAGE, and discuss how the halocarbon baseline concentrations in East Asia are related to the background data of both hemispheres. Emission rates of some F-gases and other VOCs from China are discussed by examining concentration enhancements above the baseline during pollution events.