# MEASUREMENT OF ATMOSPHERIC METHANE BETWEEN TOKYO AND SYOWA STATION (ABSTRACT)

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Methane ($CH_4$) is an important trace gas in the atmosphere, because it contributes significantly to the atmospheric greenhouse effect, and to the chemistry of both the troposphere and the stratosphere.

In order to obtain the global distribution of atmospheric $CH_4$, air samples were collected on board at intervals of about 5° in latitude between Tokyo and Syowa Station late in 1987 and 1988, and $CH_4$ was measured by a GC-FID method.

Latitudinal variations of atmospheric $CH_4$, including the observations late in 1984 (M. HIROTA *et al.*: Proc. NIPR Symp. Polar Meteorol. Glaciol., **1**, 69, 1987), are summarized as follows:

1. Mixing ratios decreased gradually from 30°N to ITCZ, and steeply at the ITCZ by 3–5%.
2. Locations of the ITCZ from the cloud images of the GMS agreed with the places where mixing ratios of methane decreased steeply from north to south.
3. South of the ITCZ, mixing ratios were almost constant to Syowa Station. Their mean values and standard deviations were 1.578 and 0.008 ppm in 1984, 1.611 and 0.012 ppm in 1987, and 1.627 and 0.008 ppm in 1988. The average increase rate of these mean values was 12 ppb/year from 1984 to 1988.
4. Small latitudinal variations (±10–15 ppb) were observed late in 1987 and 1988 in the Southern Hemisphere.
   4-1. Small minimum south of the ITCZ.
   4-2. Broad maximum around 30–40°S.

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