Observation of Atmospheric CH_4 Mixing Ratios at the Three WMO/GAW Stations in China

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Atmospheric CH_4 mixing ratios were measured continuously at WLG (36°17'N, 100°54'E, 3816m asl, Waliguan in Qinghai Province), LAN (30°18'N, 119°44'E, 138.6m asl, Lin'an in Zhejiang Province) and LFS (44°44' N, 127°36'E, 330.5m asl, Longfengshan in Heilongjiang Province) by Cavity Ring Down Spectroscopy system (G1301, Picarro Inc.) from January 2009. WLG is one of the 28 WMO/GAW global stations and the observational results represent the Eurasian continent atmospheric CH_4 level. LAN and LFS are affiliates to WMO/GAW regional stations and the measurement could represent mixed air of Yangtze Delta and the northeastern China plain, respectively. An air inlet (80m above ground) was attached to the 89m sampling tower at WLG and shares with an *in-situ* gas chromatography system. At the beginning, an air inlet (10m above ground) was fixed at the top of wind tower at LAN and SDZ. In 2010, a new sampling tower was built at LAN (50m) and LFS (80m), respectively. An additional air inlet was attached to the top of the tower at LAN and LFS. A suite of three working standards (High, Low and Target) linked to the NOAA 04 CH_4 scale was used to calculate ambient CH_4 mixing ratios and to evaluate system performance. Preliminary results showed that the CH_4 mixing ratios observed from the two regional stations were obviously higher than that at WLG.

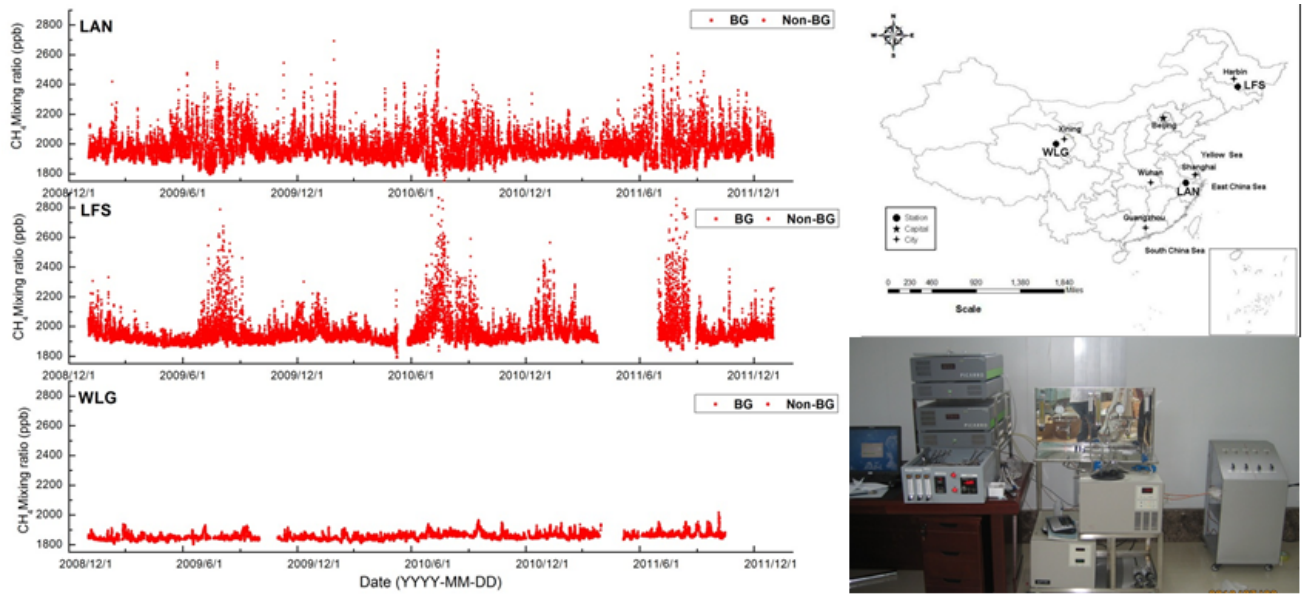

Figure 1. Left: Preliminary results of atmospheric CH_4 mixing ratios at the three stations. Right: Location of the stations and the Picarro system.