

1.198 Atmospheric greenhouse gas concentrations and carbon isotopic ratio in 2004-2017 at southwestern China.

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Abstract:

China Meteorological Administration established the station for GHGs observation at Waliguan (WLG) in 1990s and Shangdianzi (SDZ), Lin'an (LAN), Longfengshan (LFS), Jinsha, Akedala and Shangri-La in 2000s in China. It found that GHGs concentrations of WLG in central China showed the data as the regional background site. While the concentrations of coast sites (SDZ, LAN and LFS) were influenced strongly by human activities but those concentrations were quite different by the region. The density of network for measuring GHGs concentration in China is low and they don't have the station in Southern China. To clarify the behavior of GHGs in Southern China we carried out weekly flask sampling at Guiyang (26.34N, 106.43E, 1598m) in southwest China which is blank area for GHGs observation from 2004 and analysed the concentrations of CO₂, CH₄, CO, H₂, N₂O and SF₆ and carbon isotopic ratio ($\delta^{13}\text{C-CO}_2$ and $\delta^{18}\text{O-CO}_2$).

In this report, we showed the characteristics of the concentrations and carbon isotopes in Guiyang (GUI) in comparison with the data of GAW stations in China (WLG, SDZ, LAN and LFS), Hateruma (HAT) on the southern end of the Japanese Archipelago.

The concentrations of all species of GUI in summer showed the similar levels with WLG as the regional background site, while the concentrations of GUI in winter higher than those of WLG and similar levels with other Chinese sites (SDZ, LAN and LFS) which are affected by the human activities. Because the concentrations of GUI in winter were influenced mainly from the emissions of India, Bangladesh. Annual amplitude for concentrations of CO and H₂ of GUI decreased 5-10% every years due to decrease of incomplete combustion of fossil fuel and change of the type for primary energy.