



One year observations of atmospheric reactive gases (O_3 , CO, NO_x , SO_2) at Jang Bogo base in Terra Nova Bay, Antarctica

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Antarctica is a remote area surrounded by the Southern Ocean and far from the influence of human activities, giving us unique opportunity to investigate the background variation of trace gases which are sensitive to the human activities. Korean Antarctic base, Jang Bogo, was established as a unique permanent overwintering base in Terra Nova Bay in February, 2014. One year later, we installed a package of instruments to monitor atmospheric trace gases at the base, which includes long-lived greenhouse gases, CO_2 , CH_4 , and N_2O , and reactive gases, O_3 , CO, NO_x , and SO_2 . The atmospheric chemistry observatory, where these scientific instruments were installed, is located ca. 1 km far from the main building and power plant, minimizing the influence of pollution that may come from the operation of the base. Here we focus on the reactive gases measured in-situ at the base; O_3 displays a typical seasonal variation with high in winter and low in summer with seasonal amplitude of ~ 18 ppb, CO was high in September at ~ 56 ppb, probably implying the invasion of lower latitude air mass with biomass burning, and low in late summer due to photochemical oxidation. NO did not show clear seasonal variation, but SO_2 reveals larger values in summer than in winter. We will discuss potential atmospheric processes behind these first observations of reactive gases in Terra Nova Bay, Antarctica.