

1.074 Ground-based measurements of gaseous air pollutants and PM_{2.5} in Taiwan during the joint campaign of EMeRGe-Asia and ProACT3.

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Abstract:

Urban air pollution is among the common issues that both the developing and developed countries are facing to. Due to the rapid industrialization in the last 20 years, the East Asia has become one of the major source regions of air pollutants in the world. The air pollutants originating in the East Asia can be transported on the general circulation to the downwind areas. Besides changing the atmospheric composition and thereby influencing regional climate, the transported air pollutants can have significant impacts to the air

quality in the downwind countries. In addition to the regional air pollution, the western Taiwan suffers also from the substantial emissions of air pollutants from local urban and industrial sources. The air pollutants from Taiwan could have also been transported to the areas of the East and/or South China Seas and, consequently, influenced the atmospheric chemistry in the marine atmosphere.

During the period from 12th March to 7th April 2018, a joint field campaign of the EMERGe-Asia and the ProACT³ has been performed. Besides the snapshots of atmospheric composition taken by the instruments on board the HALO research aircraft of the DLR, the mass concentration and chemical composition of fine particulate matters (PM_{2.5}) at ground level were also measured continuously at the CAFÉ, a background station at the northern tip of Taiwan, and also a network of 12 sampling sites in the central Taiwan. Moreover, the concentrations of criteria gaseous pollutants (CO, O₃, SO₂, NO_x) have been also reported from the official air quality monitoring stations of Taiwan-EPA. All the ground-based measurements will be investigated in this study, which will be integrated with the aircraft-based measurements later on and then contribute to a better understanding upon the variations in the air quality over Taiwan.