

Lulin Atmospheric Background Station (LABS) in Taiwan

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A newly established Lulin Atmospheric Background Station (LABS) has began operations on 13 April 2006. It is located at Mt. Lulin (2,862 m MSL; 23°28'07"N, 120°52'25"E) in central Taiwan. The LABS is unique because its location and altitude can enhance the global network of GAW in the Southeast Asian region where no high-elevation baseline station is available. Our site is located between the GAW Waliguan station (3,810 m) on the Tibetan plateau and Mauna Loa Observatory (3,397m) in Hawaii. Trajectory studies indicate that this site provides a great chance to observe a variety of air masses originating from contaminated or clean source regions, giving a distinctive contrast of atmospheric changes. Continuous operation includes precipitation chemistry, aerosol chemistry, trace gases (CO/CO₂, O₃, CFCs, VOCs), mercury, atmospheric radiation, and meteorological variables. International collaborations are intensively extended with NOAA, NASA and USEPA, and the Japan Mt. Fuji project. In order to assess the background air chemistry of the LABS, a pilot study on precipitation chemistry, aerosol chemistry, mercury chemistry and CO flask sampling has been conducted since the spring of 2003. In this presentation, we will report the results of the pilot study and recent measurements at LABS. Case studies to show the impact of various air masses on air chemistry of LABS will be also presented.



Figure 1. Lulin Atmospheric Background Station showing the building (left), site (top right) and rooftop (bottom right) instrumentation.