

Analysis of Radiosonde Temperature and Relative Humidity Measurement from Laoag Upper-Air Station

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ABSTRACT

Key environmental parameters (temperature, humidity, wind, precipitation and pressure) are necessary for determining and analyzing weather conditions and categorizing climatic types in an area. Vertical profiles of these parameters are collected by releasing the radiosondes in select upper-air stations. Numerical weather predictions are used for operational weather forecasting and it is reliant on these profiles. Therefore, we must ensure that the radiosonde data are free from systematic errors. Variability in radiosonde temperature and humidity may arise from the materials used in the radiosonde sensors by different manufacturers. Thus, corrections are made to reduce the errors.

An intercomparison experiment was conducted in Laoag Upper-air station in August 2018. This study aims to determine the key difference of the radiosonde instruments being used by PAGASA (GRAW™ or Lockheed Martin™) and the radiosonde used by JAMSTEC (Vaisala™). The data from simultaneous radiosonde release during the experiment will be used, focusing on temperature and relative humidity. Corrections in the data used in Laoag will then be applied from other upper-air stations to create a standardized radiosonde dataset.

Keywords: radiosonde, systematic errors, temperature, relative humidity