Quality-Controlled Upper-Air Sounding Dataset for DYNAMO/CINDY/AMIE: Development and Corrections

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The DYNAMO/CINDY/AMIE upper-air sounding dataset includes over 24,000 sondes collected from 73 sites covering the period 1 October 2011 to 31 March 2012. Of this number over 13,000 sondes were collected at high vertical resolution (hi-res, ~1 hPa) with the remainder at GTS-resolution (15-25 hPa). While gross limit checks and visual inspection are used to quality-control (QC) the GTS-resolution data, this presentation focuses on the rigorous QC checks and corrections that are being applied to the hi-res data to develop a research-quality dataset that is able to meet the scientific objectives of the experiments.

Since the hi-res sonde data came from 5 different sonde types (i.e, Vaisala, Meisei, Graw, Modem and Sippican) and 12 unique data formats, the first step is to convert these various formats into a single easily read format. These hi-res sondes are then processed with automated software to remove unreliable data as determined by a series of QC checks. Next, biases in the data are identified and corrected, if possible. Since one of primary goals of the experiment is to investigate the moistening processes during the initiation phase of the MJO, a special effort is being made to correct sonde humidity errors. A few examples of these corrections will be presented. Finally, a user-friendly dataset (uniform vertical resolution with QC flags) is created, where QC flags are generated through application of additional QC checks then adjusted by visual inspection of each sonde.