

Chang, Y., Q. Ma, L. Guo, J. Duan, J. Li, X. Zhang, X. Guo, X. Lou, and B. Chen, 2022: Characteristics of raindrop size distributions during Meiyu season in Mount Lushan, eastern China. *J. Meteor. Soc. Japan*, **100**, 57-76.

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Plain Language Summary: Using long-term laser disdrometer data, we investigated the raindrop size distribution (RSD) characteristics of Meiyu precipitation in Mount Lushan, eastern China. Statistical properties for RSD parameters in mountainous site of different rain rates and rain types are presented. Parameterization schemes for RSD description and precipitation estimation for Meiyu precipitation are derived. The results show that the mountainous topography plays an important role in reshaping the characteristics of RSD and the physical processes of precipitation.

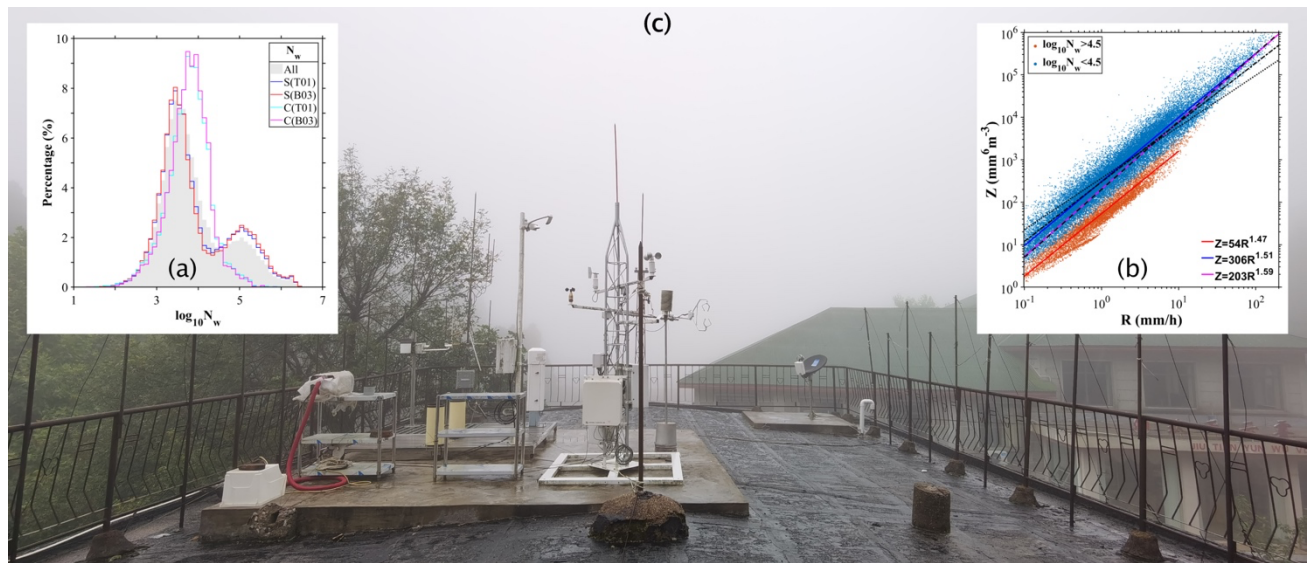


Figure 1. (a) Histograms of frequency for $\log_{10}N_w$, Gray shades, blue/red lines, and cyan/magenta lines represent the entire dataset, stratiform rains classified by the T01 and B03 scheme, and convective rains classified by the T01 and B03 scheme, respectively. (b) Z-R scatterplots and fitting results for the Meiyu season at Mount Lushan, the blue and orange scatterplots represent the samples with $\log_{10}N_w < 4.5$ and $\log_{10}N_w > 4.5$ in the entire dataset and the power fitting results of samples with $\log_{10}N_w < 4.5$, $\log_{10}N_w > 4.5$, and the entire dataset are presented by red, blue, and magenta lines. (c) An example of in-cloud precipitation (taken on August 12, 2020), which corresponds to the $\log_{10}N_w > 4.5$ subset.

- Long-term laser disdrometer observed RSD data are used to investigate Meiyu precipitation in a mountainous site.
- The relations between gamma distribution parameters (μ - A), and for quantitative precipitation estimation (Z-R) are derived.
- A specific RSD subset with high N_w ($\log_{10}N_w > 4.5$) is assessed, which is caused by mountainous topography induced continuous in-cloud precipitation.
- The mountainous topography plays an important role in reshaping the characteristics of RSD and

the physical processes of precipitation.