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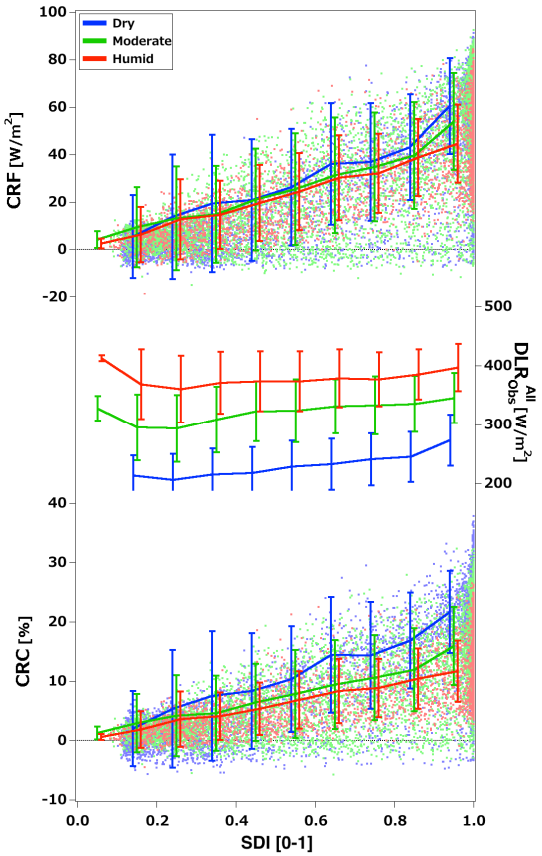
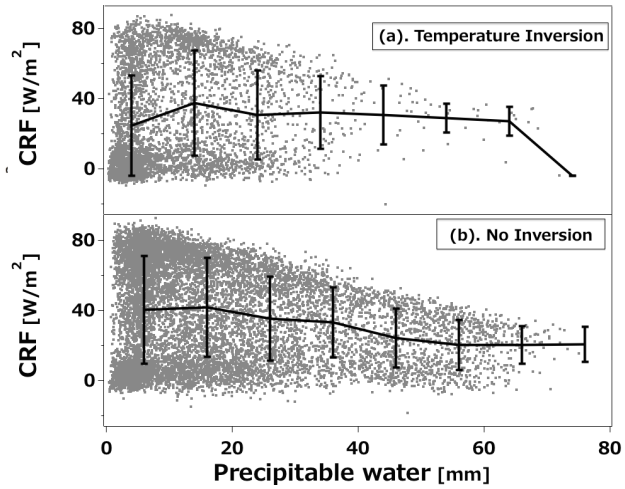


↓ Fig. 2. Relationship between precipitable water and CRF. The upper portion shows the mean CRF with error bars (1 standard deviation) when temperature inversion exists below 3000 m. The lower portion indicates with no temperature inversion.



↑Fig. 1 Relationships between shortwave diffusivity index (SDI) and cloud radiative forcing (CRF; top), average of observed downward longwave radiation (DLR_{Obs}; center), and cloud radiative contribution (CRC; bottom). Red, green, and blue curves show means for humid (annual mean precipitable water at least 25 mm), moderate (annual mean precipitable water less than 25 mm and more than 10 mm), and dry conditions (annual mean precipitable water less than 10 mm), respectively.

- The cloud radiative forcing (CRF) increases with increasing of cloud fraction and decreasing of precipitable water and cloud base height (Fig. 1). This study evaluated CRF using with 1-dimentional radiative transfer model (mstrnX) and in-situ observation data at eight sites, which belong to the Baseline Surface Radiation Network (BSRN).
- At Antarctic station, cloud shows negative effect, which appears frequently with a strong temperature inversion layer. Under the presence of temperature inversion, the dry region in which precipitable water is smaller than 10 mm shows smaller cloud effect than no temperature inversion (Fig. 2).
- At Japanese station located on the Pacific Ocean side, cloud effect shows increasing with increasing of cloud base height of low cloud. This correlation is caused of the difference of cloud base height during the summer and winter season.