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Narrowing the Blind Zone of GPM DPR to Improve Precipitation estimation over Ocean

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GPM DPR cannot observe near surface region contaminated by the surface clutter (blind zone). GPM DPR estimates clutter free bottom (CFB) which is the lowest altitude without the surface clutter. Because blind zone depends mainly on the terrain and the angle bin, the CFB is almost constant for the same angle bin over ocean where the terrain effect is negligible.

In this study, CFB estimation algorithm is improved. CFB LUTs were created for each $1^\circ \times 1^\circ$ grid and CFB is estimated constantly for the same angle bin.

By using the CFB LUTs, at high latitudes, the underestimation of precipitation accumulation is improved by capturing low-level enhanced precipitation. Over the tropical ocean, precipitation frequency increased by about 50 % because shallow precipitation detection is improved.

