

***THE NEW ARSCL-MICRO VAP***

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**ABSTRACT**

The changes in the MMCR operational modes have a substantial impact in the design and merge strategy of the Active Remote Sensing of Clouds (ARSCL) Value Added Product (VAP). A micro-scale ARSCL VAP product based on the new superior temporal resolution of the ARM MMCRs is presented here. The new proposed ARSCL-micro VAP ("micro", is derived from microphysics) will contain the original mode data with flags and uncertainty estimates on the Doppler moments that characterize the quality of the data from each MMCR mode. This ARSCL-micro product will be produced after post-processing of the recorded Doppler spectra from each mode. There will be an ARSCL-micro VAP file for each mode (no merging). Thus, the ARSCL-micro will have the temporal resolution of each mode's data (3-3.5 s for the BL mode, 6-7 s for the GE mode, 12-14 sec for the CI mode, and 12-14 s for the PR and PO modes). The Doppler spectra post-processing will go far beyond the conventional estimation of the three Doppler moments (reflectivity  $Z_e$ , mean Doppler velocity  $V_D$  and Doppler spectrum width  $\sigma_D$ ). The ARSCL-micro VAP will include uncertainty estimates for all the Doppler moments, multi-modal Doppler spectra flags (e.g., mixed-phase clouds, cloud and drizzle size distributions), insect/bug mask, Doppler spectra asymmetry information (e.g., Doppler spectrum skewness) and correction of Doppler spectra moments for aliasing, I/Q imbalance and other spurious Doppler spectra artifacts. The new information derived from the Doppler spectra post-processing is included in the new ARSCL-micro, in combination with the high temporal resolution of these files, will make this new VAP suitable for the study of cloud microphysics and turbulence.

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