

Overview of ARM LWC retrievals from MWRP

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Overview

- ❖ The MWRP has 2 channels sensitive to cloud liquid water
- ❖ LWC profiles are retrieved by statistical linear regression

Retrieval overview

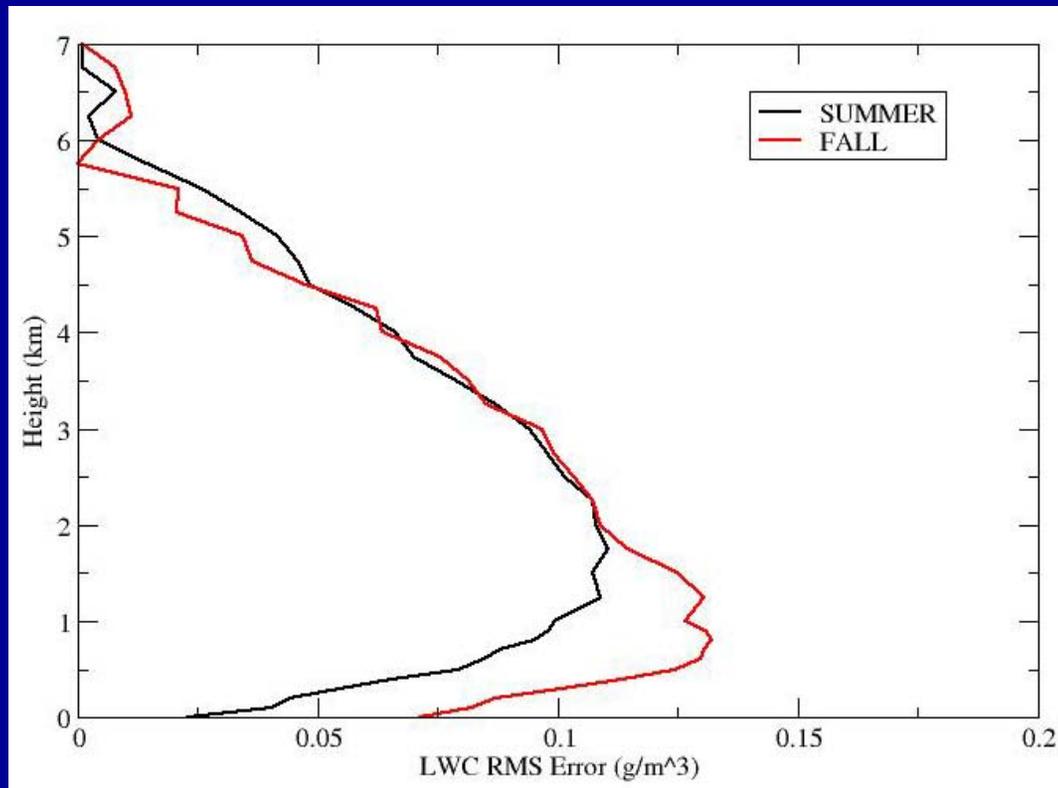
The fundamental limitation of LWC retrieval from the MWRP is the limited information of the observations.

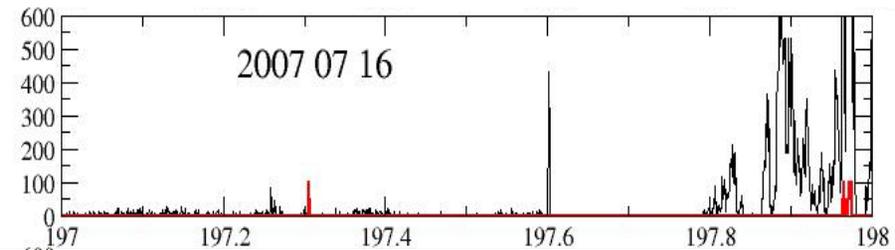
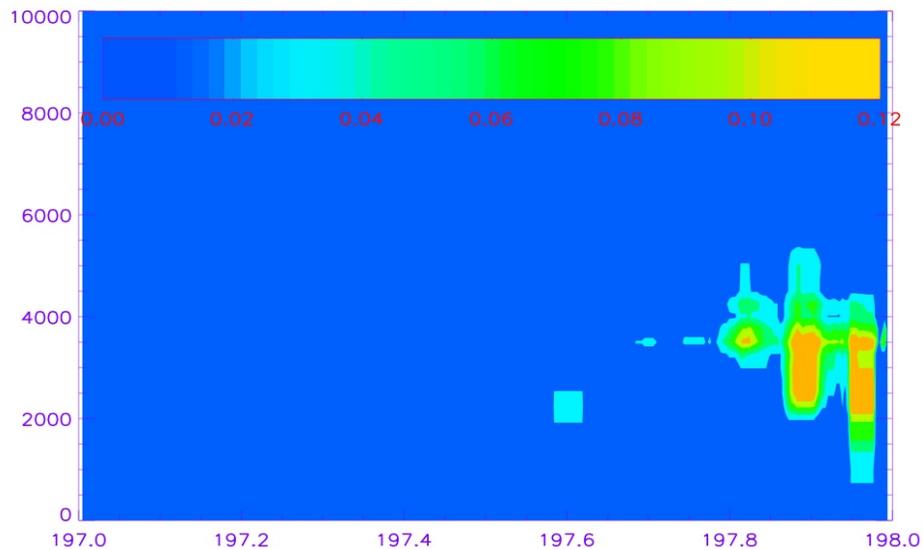
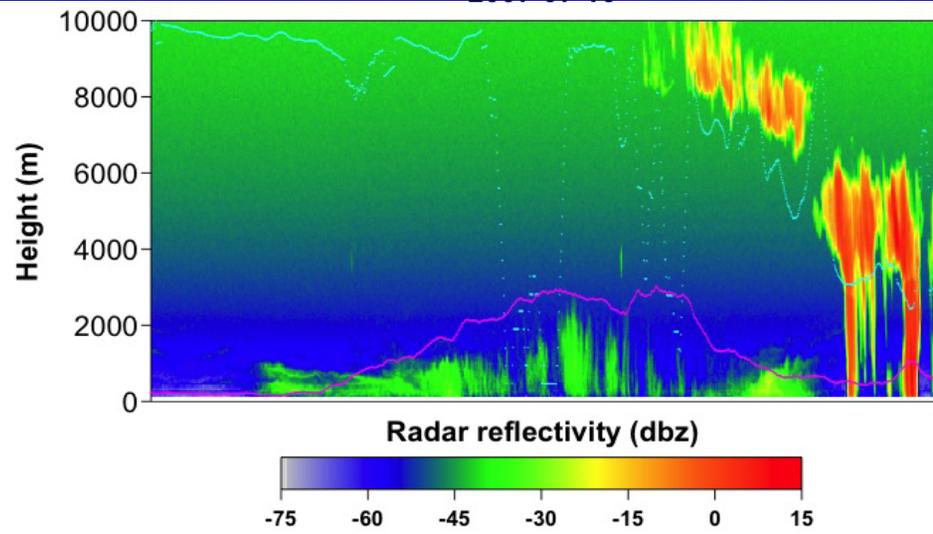
Essentially 2 channels can't provide accurate profiles

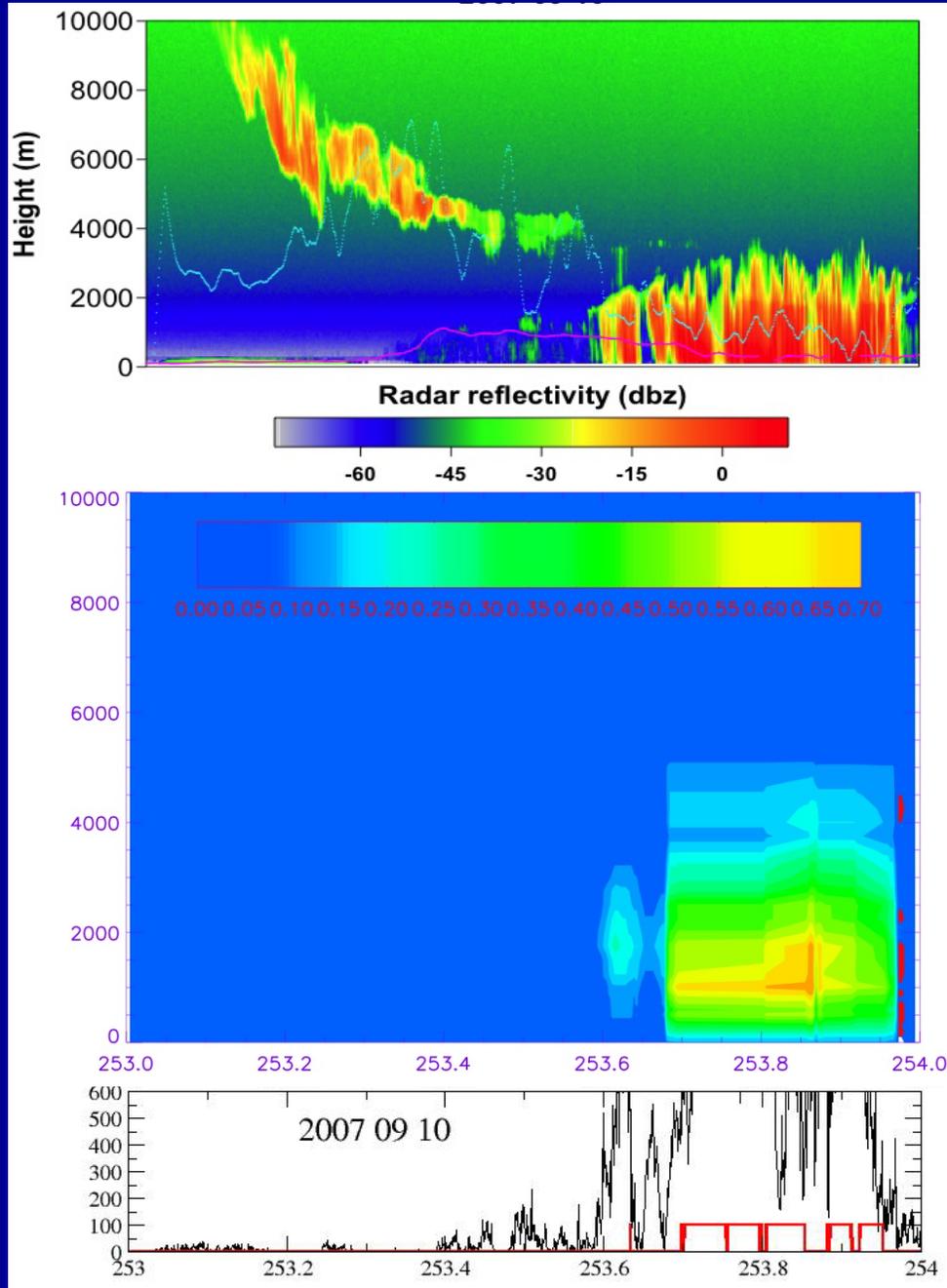
Elevated RMS retrieval error and low sensitivity to thin clouds

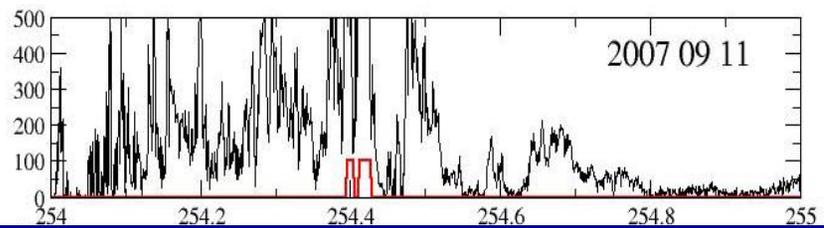
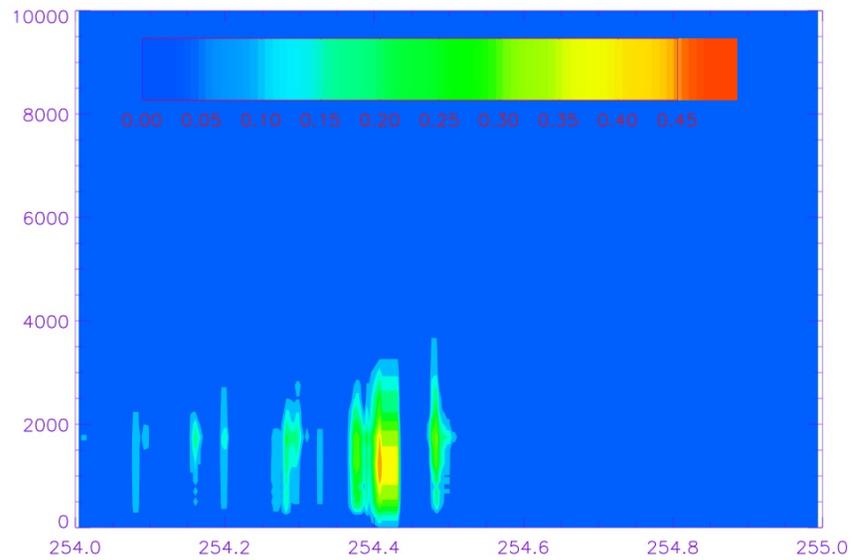
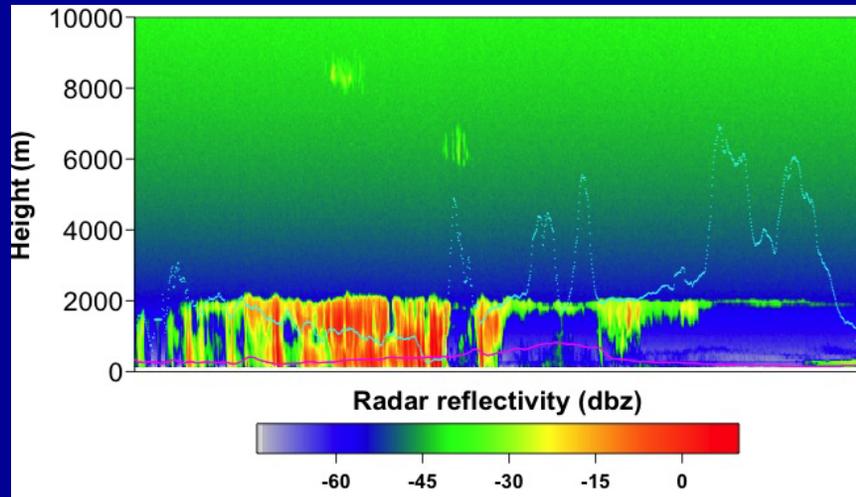
Dependence on prior information used to derive retrieval coefficients

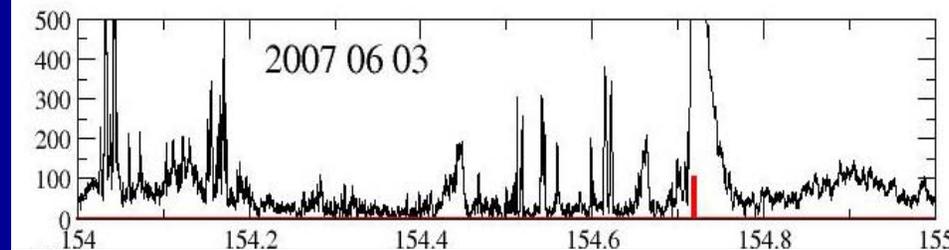
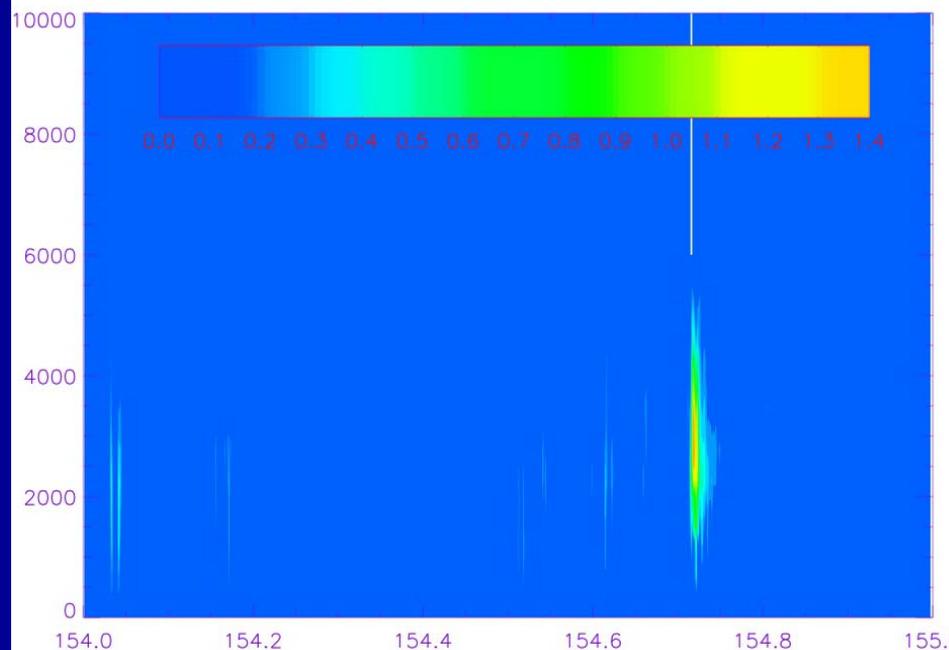
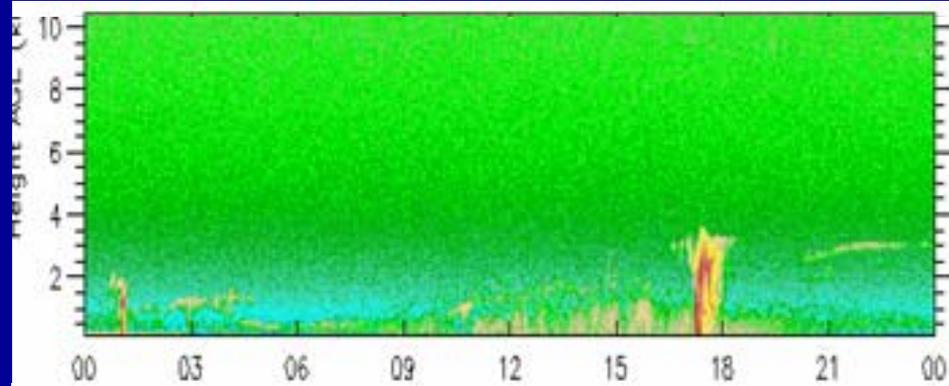
RMS retrieval error FKB site











CONCLUSIONS

Radiometer can retrieve LWC only if the signal is strong enough (LWP $> \sim 300 \text{ g/m}^2$)

RMS error of retrieval $\sim 0.08 - 0.1 \text{ g/m}^3$

Location of cloud base is determined by the accuracy of temperature profile

Additional measurements are needed to improve RMS error and accuracy