On the interpretation of the layered structures detected in the lower atmosphere by FDI technique

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The dual Frequency Domain Interferometry (FDI) technique applied to pulsed radars permitted to detect apparent layers ("FDI layers") of 50-200m thick. It improves the accuracy of the radar measurements only if a single atmospheric layer mainly contributes to the radar echoes at a given range gate. Theoretical estimations of biases produced by the limited extent and tilt of the layer will be presented. An FDI layer are also interpreted as a group of many thin layers of typically 10m thick, and responsible for the VHF radar echoes in vertical incidence. It is convenient to improve the FDI technique for detecting thin layers within a range gate. For this objective, the multi-FDI technique can be developed by adapting methods used in radar imaging. Some preliminary results will be presented.