



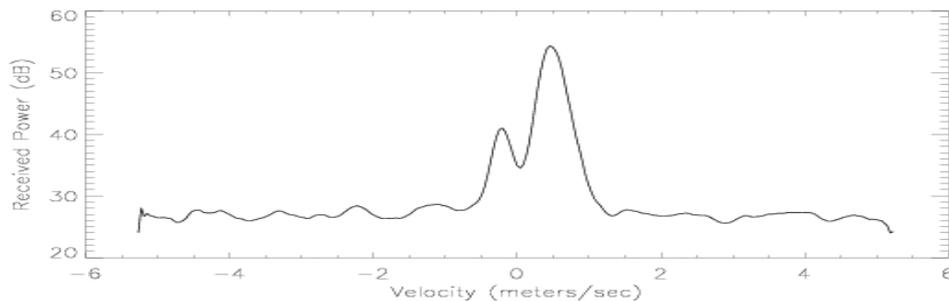
Hydrometeor Phase Classification at NSA

Edward Luke¹, Pavlos Kollias¹, Matthew Shupe²

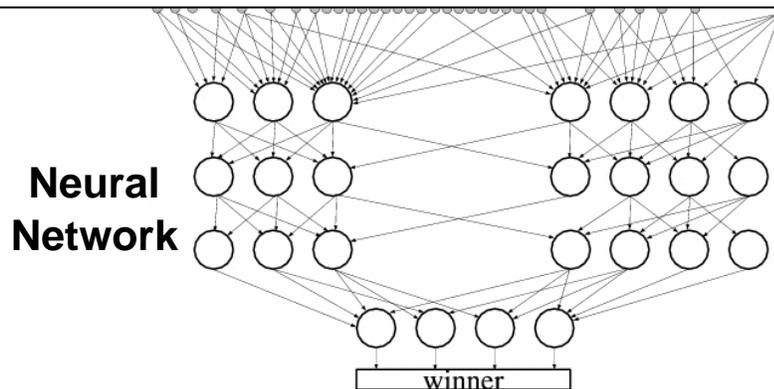
1. Brookhaven National Laboratory 2. NOAA ESRL



Functional Overview



Feature Extractor

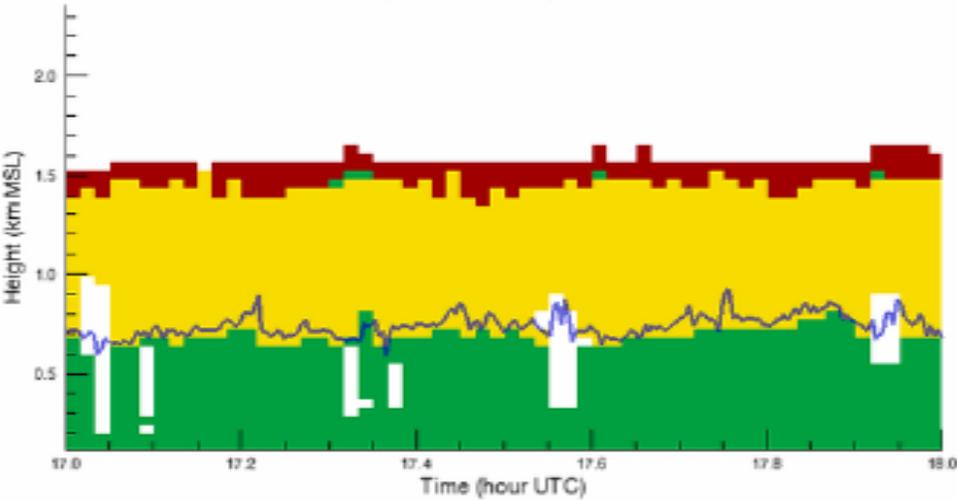


High Spectral Resolution Lidar + MMCR moments + MWR (provided by Shupe and Eloranda)

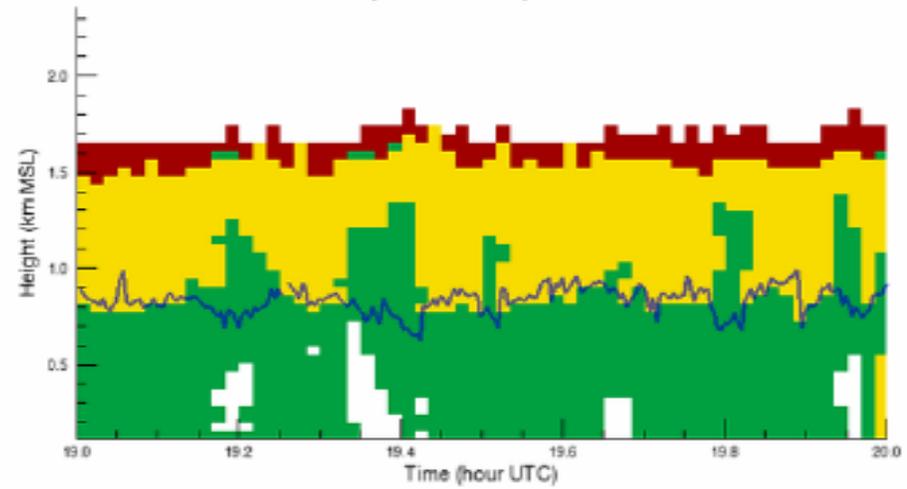
Liquid
Ice
Mixed



NSA 20041009 Shupe Solid/Liquid/Mixed Classifications

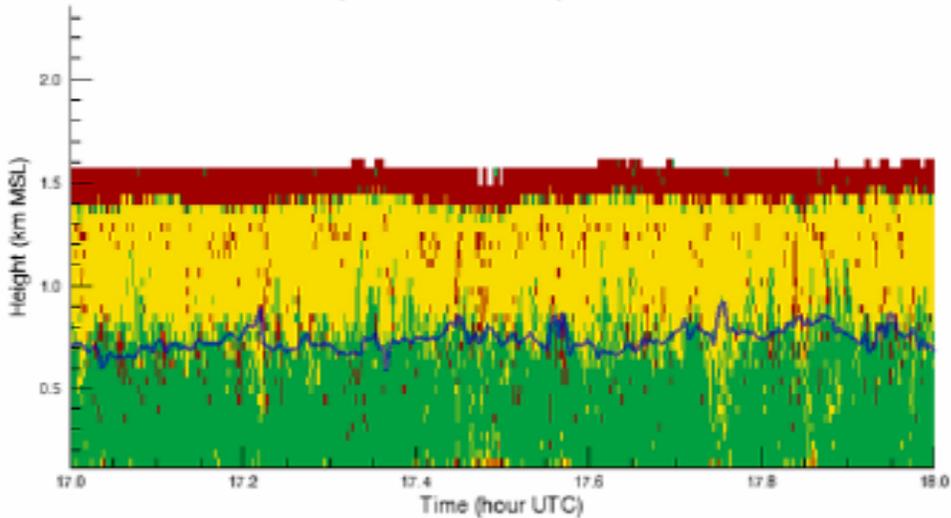


NSA 20041009 Shupe Solid/Liquid/Mixed Classifications

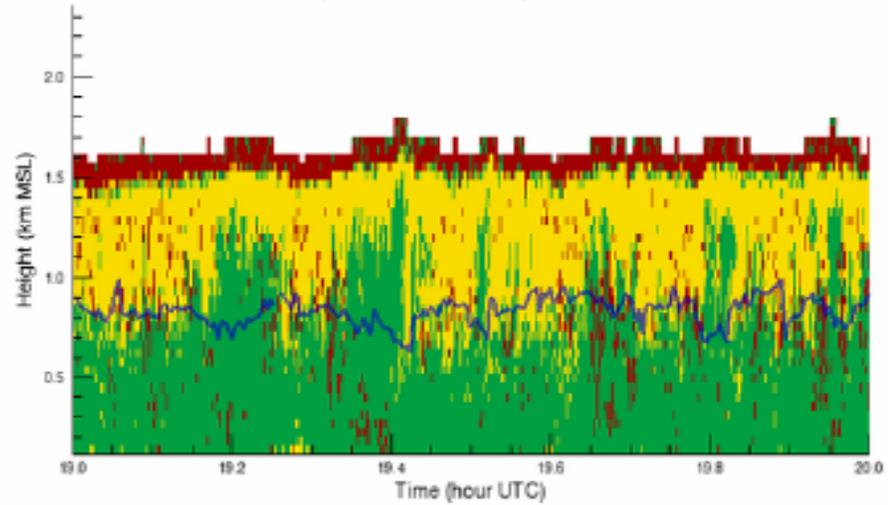


Doppler spectra-based cloud phase retrieval technique (Kollias et al., 2006)

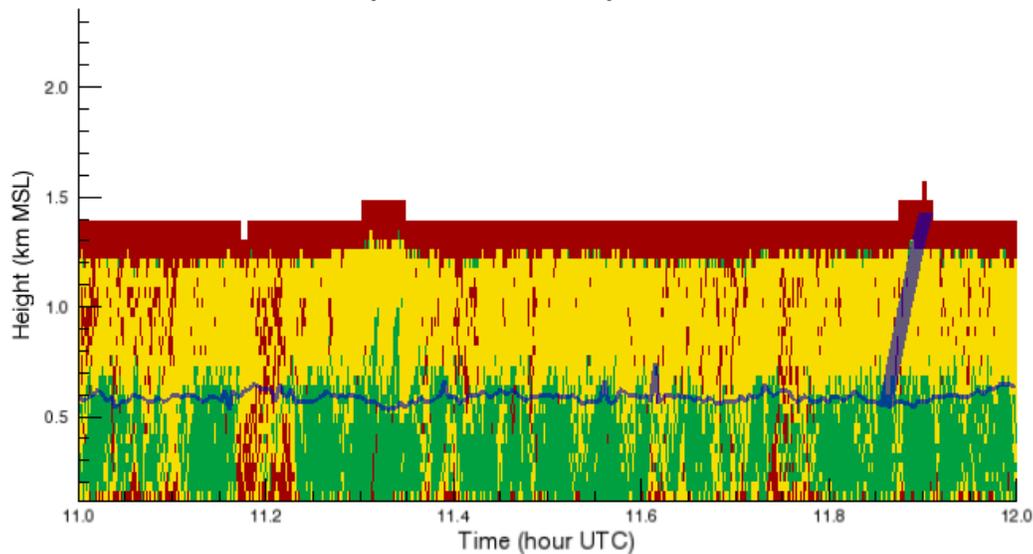
NSA 20041009 Spectra Solid/Liquid/Mixed Classifications



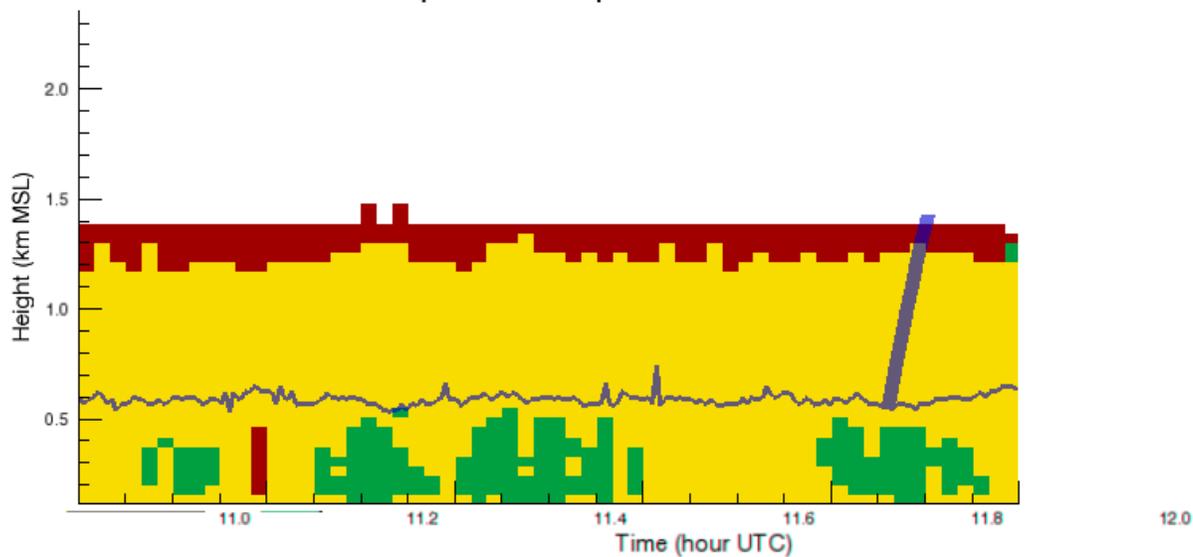
NSA 20041009 Spectra Solid/Liquid/Mixed Classifications



NSA 20041009 Spectra Solid/Liquid/Mixed Classifications

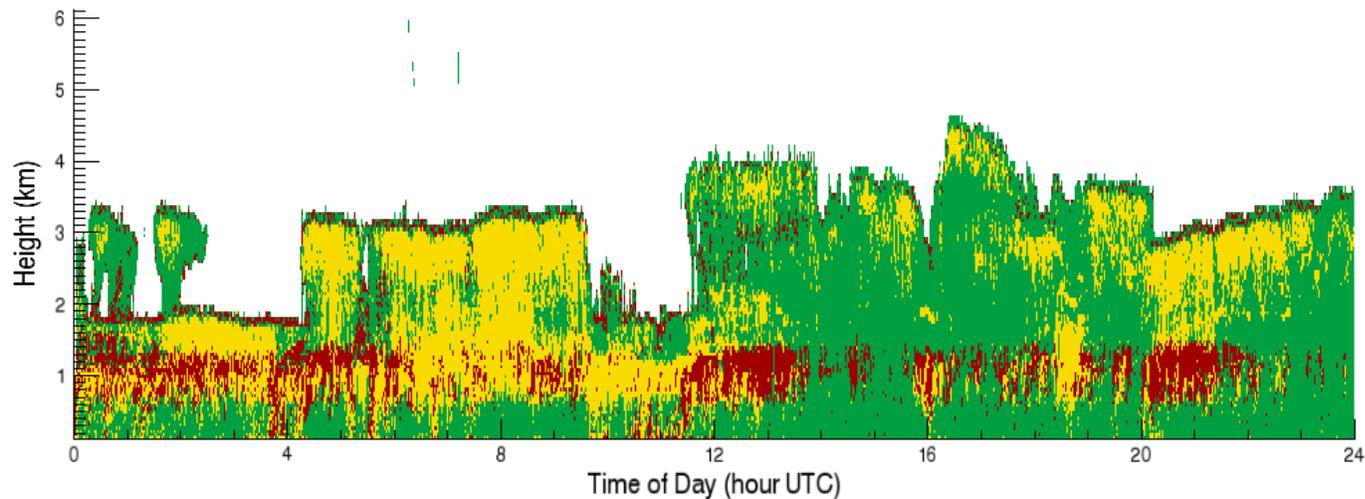


NSA 20041009 Shupe Solid/Liquid/Mixed Classifications

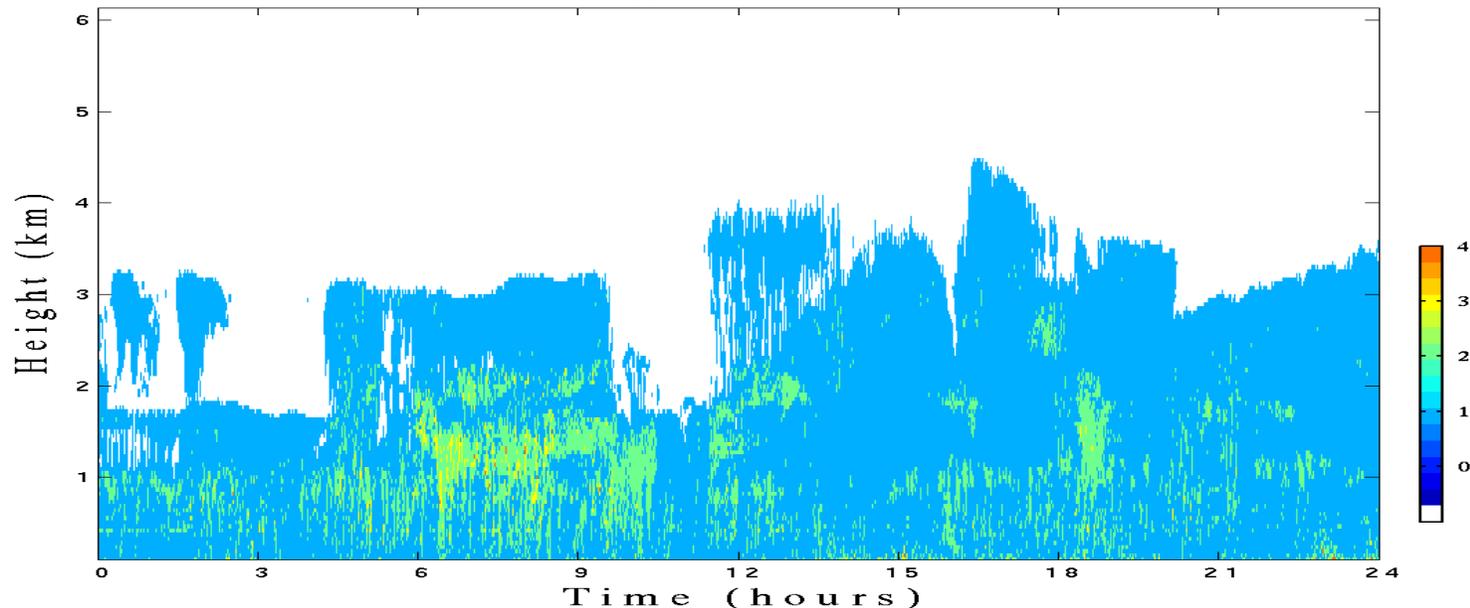


Micro-ARSCCL sub-peak count shows that some conditions classified as mixed-phase have multi-modal peaks, whereas others do not.

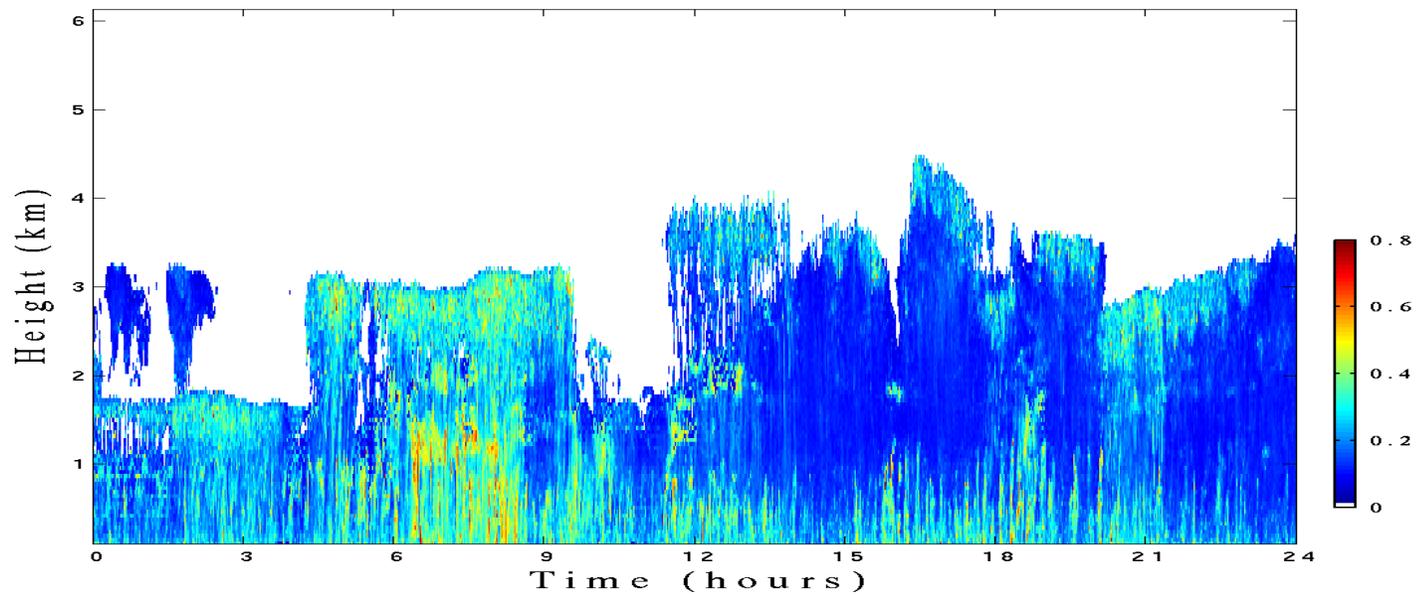
NSA 20041006 Phase



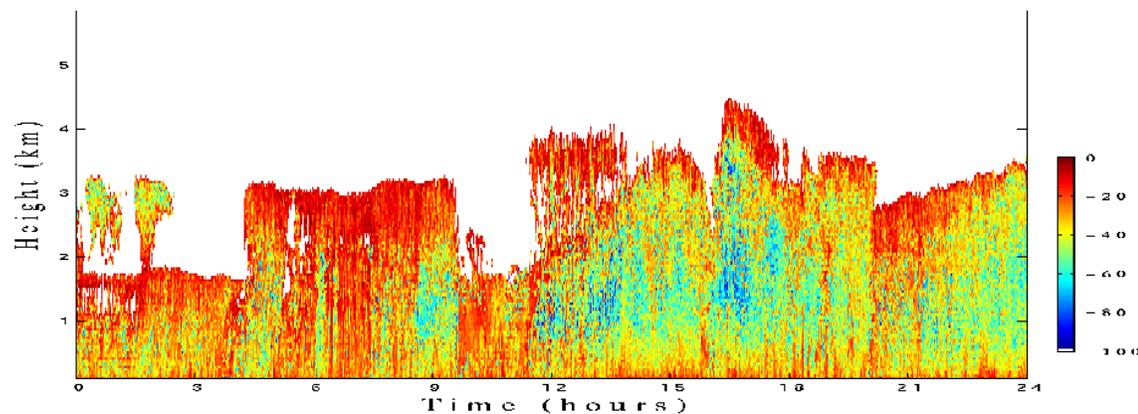
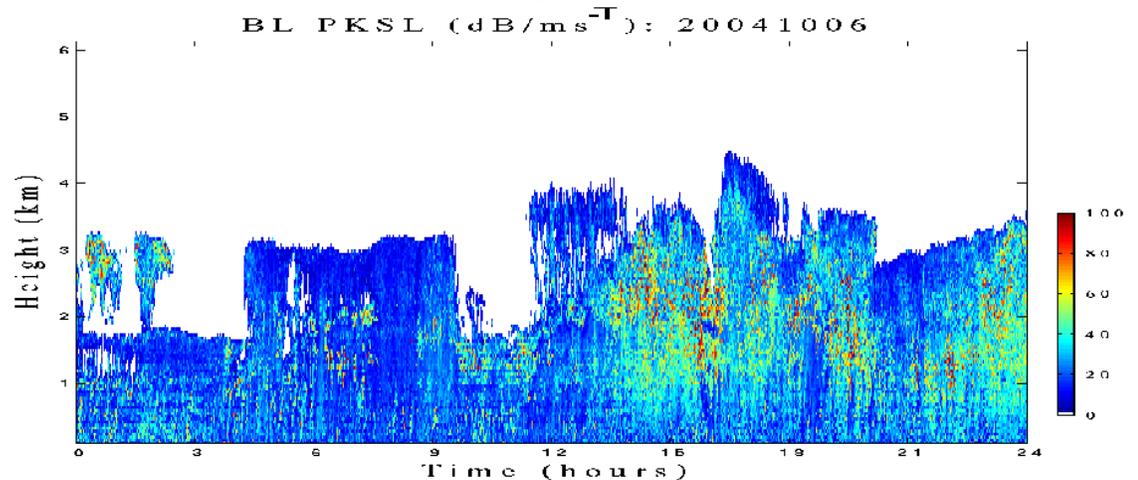
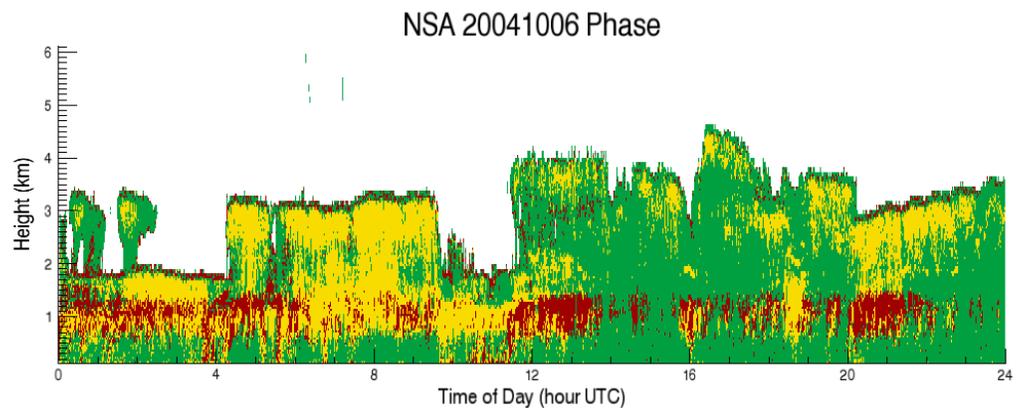
BL Peaks Significant: 20041006



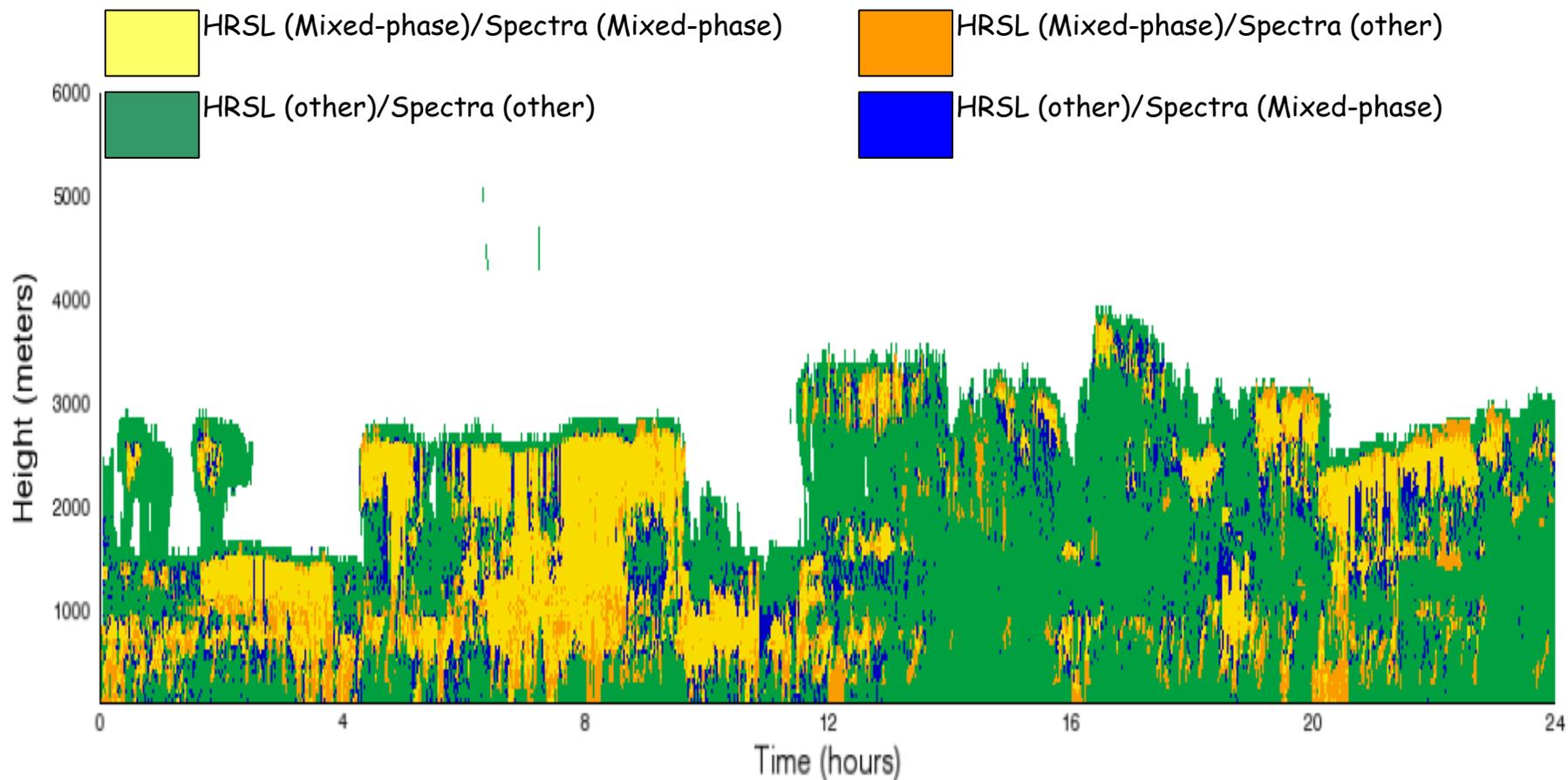
Spectral Width



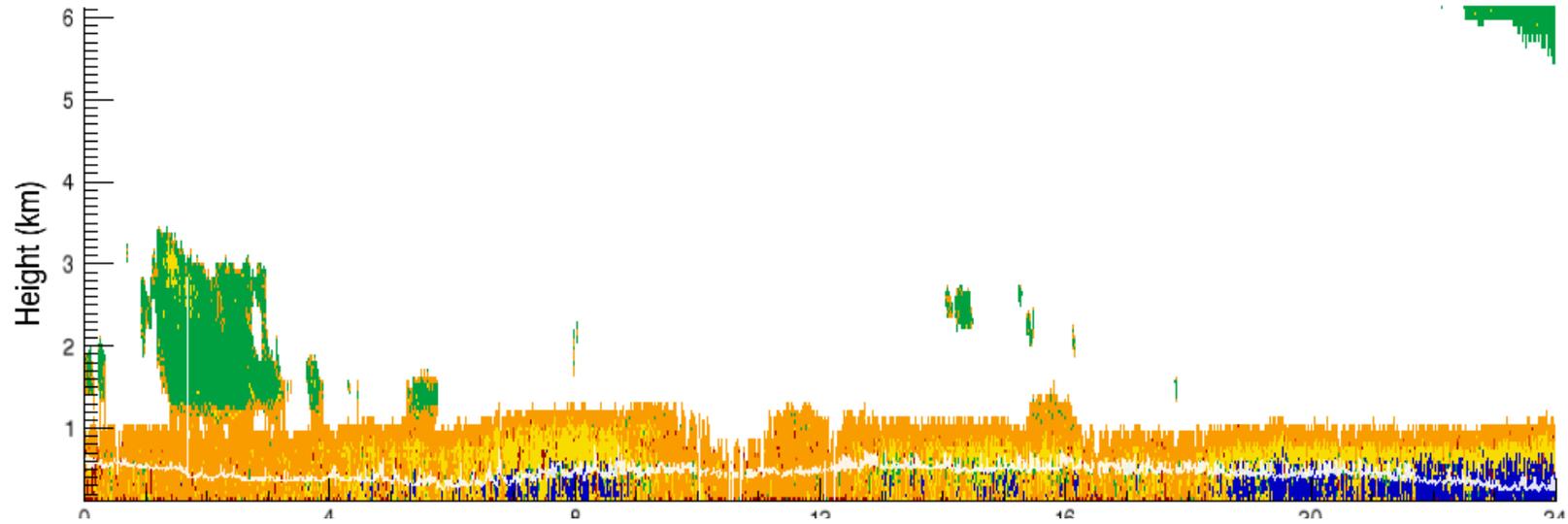
Primary peak left and right slopes provided by the new Micro-ARSCCL VAP, can be compared with areas classified as mixed-phase.



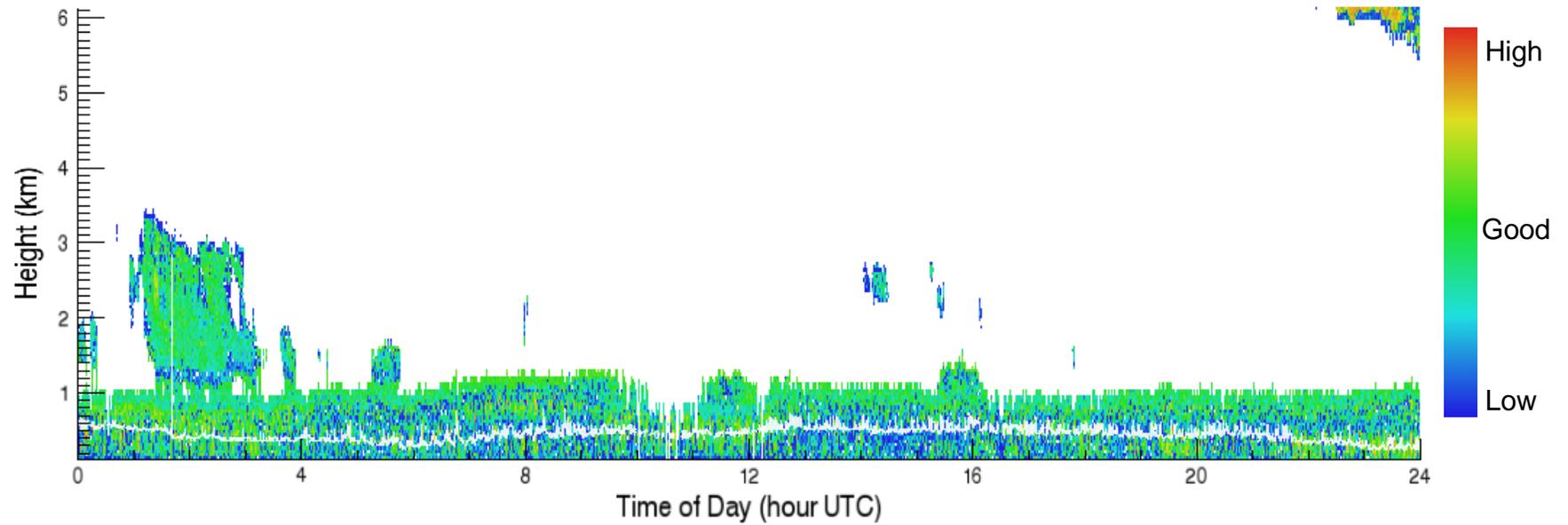
NSA 20041006 Mixed-Phase Agreement



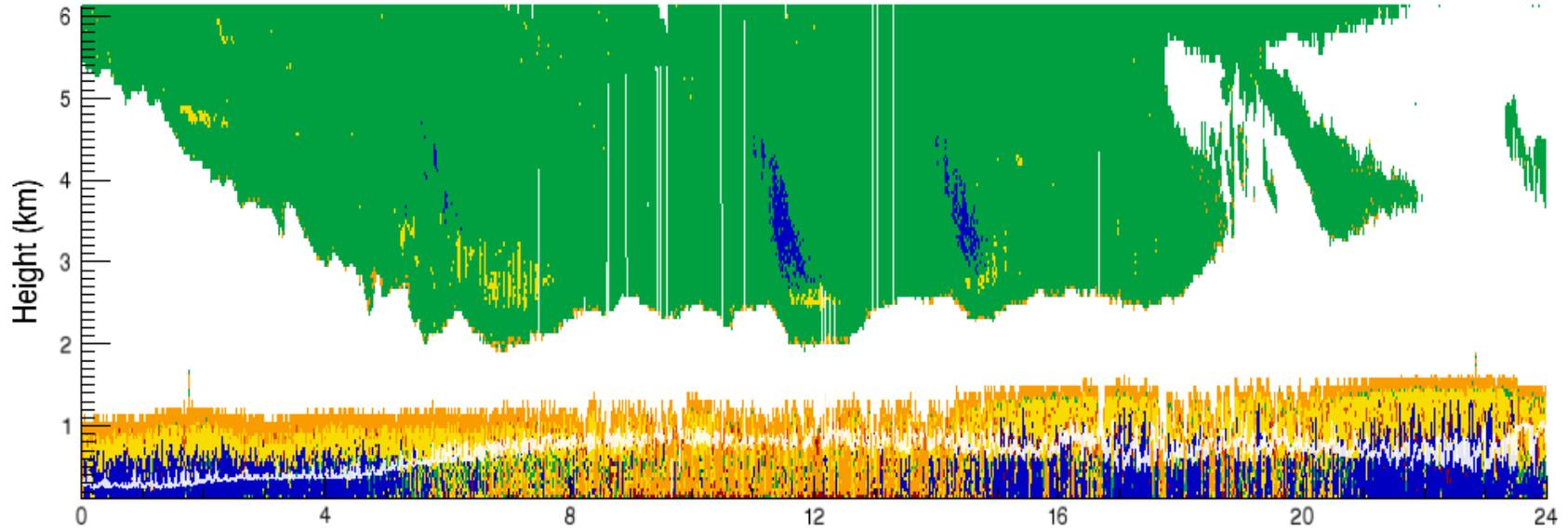
NSA 20041026 Phase



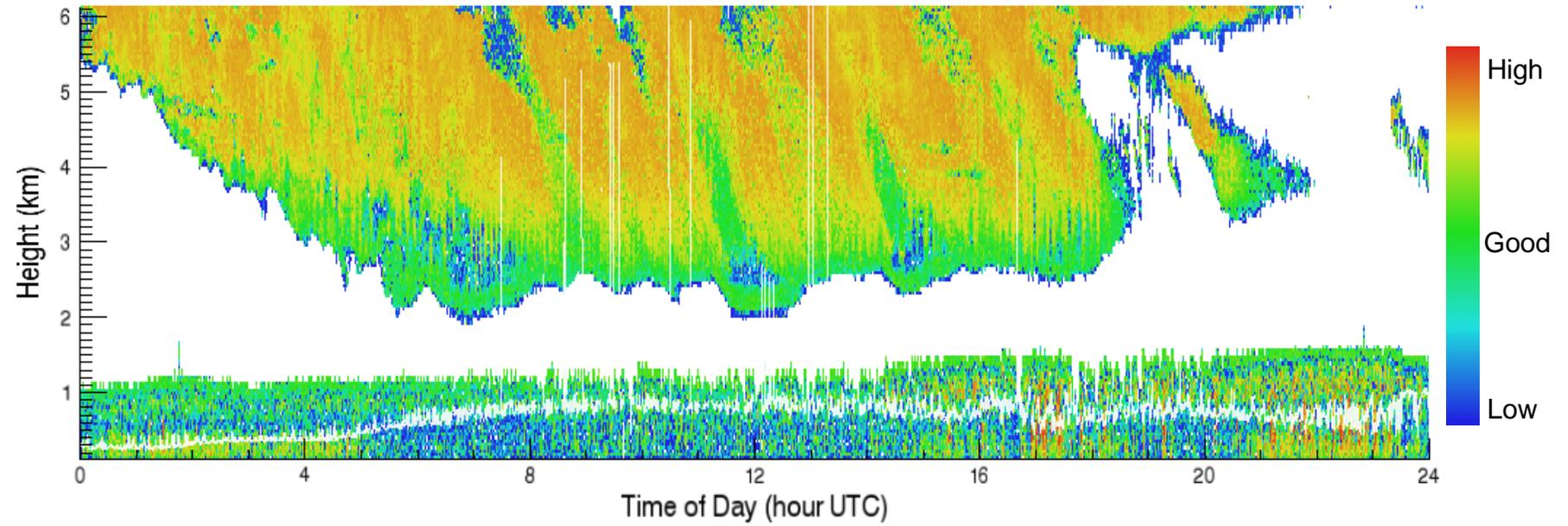
NSA 20041026 Confidence



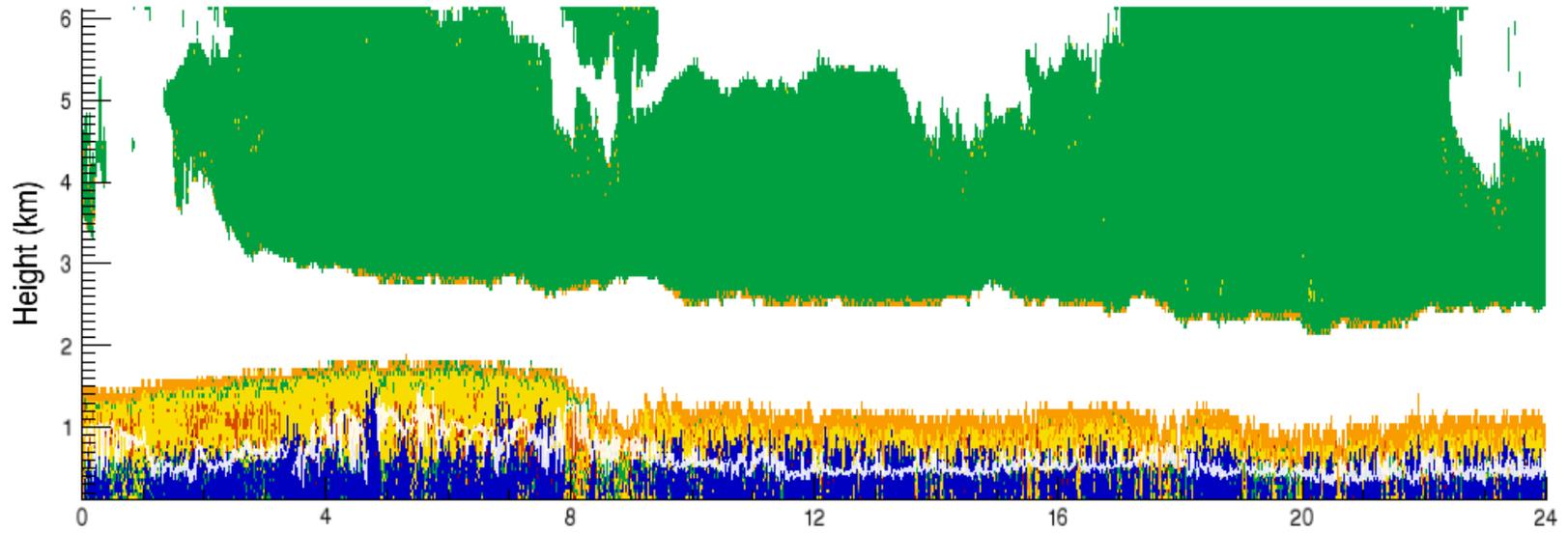
NSA 20041027 Phase



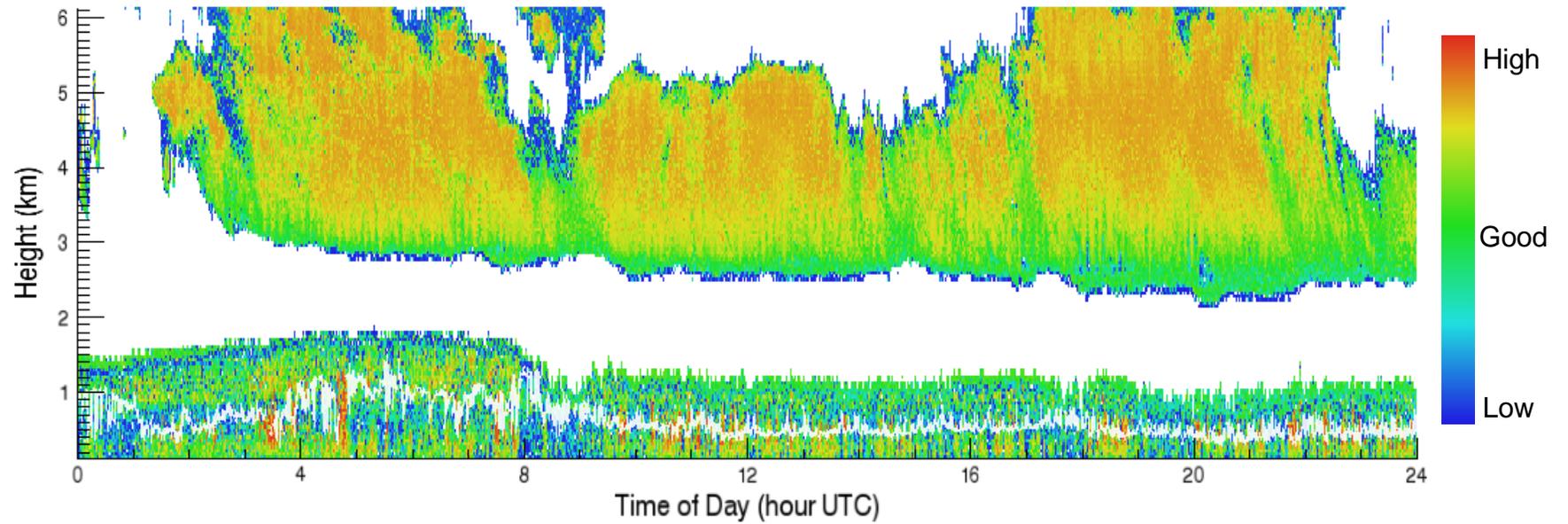
NSA 20041027 Confidence



NSA 20041028 Phase



NSA 20041028 Confidence



Doppler spectrum-based hydrometeor phase classification data for the full M-PACE period is available by anonymous FTP for evaluation at:

<ftp://ftp.gim.bnl.gov/FTP/eluke/PhaseClass/>