

Don't Forget the Soda Straw

What ARM Cloud Radar & Profilers Can Still Inform About Precipitation

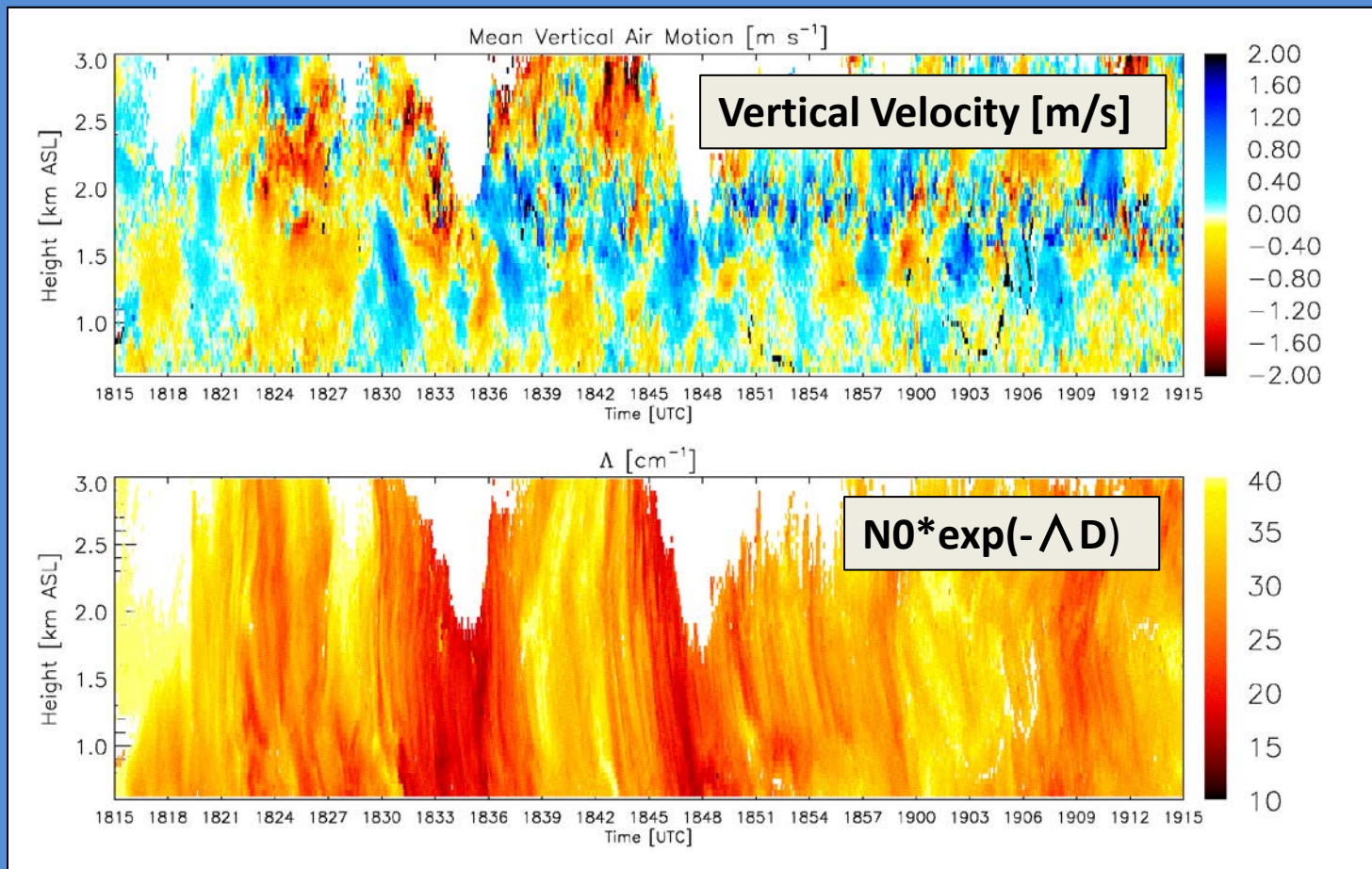
Scott Giangrande

With contributions from Tami Toto, Ed Luke, Pavlos Kollias, Frederic Tridon



Vertical Velocity and DSD Insight in Stratiform Rain

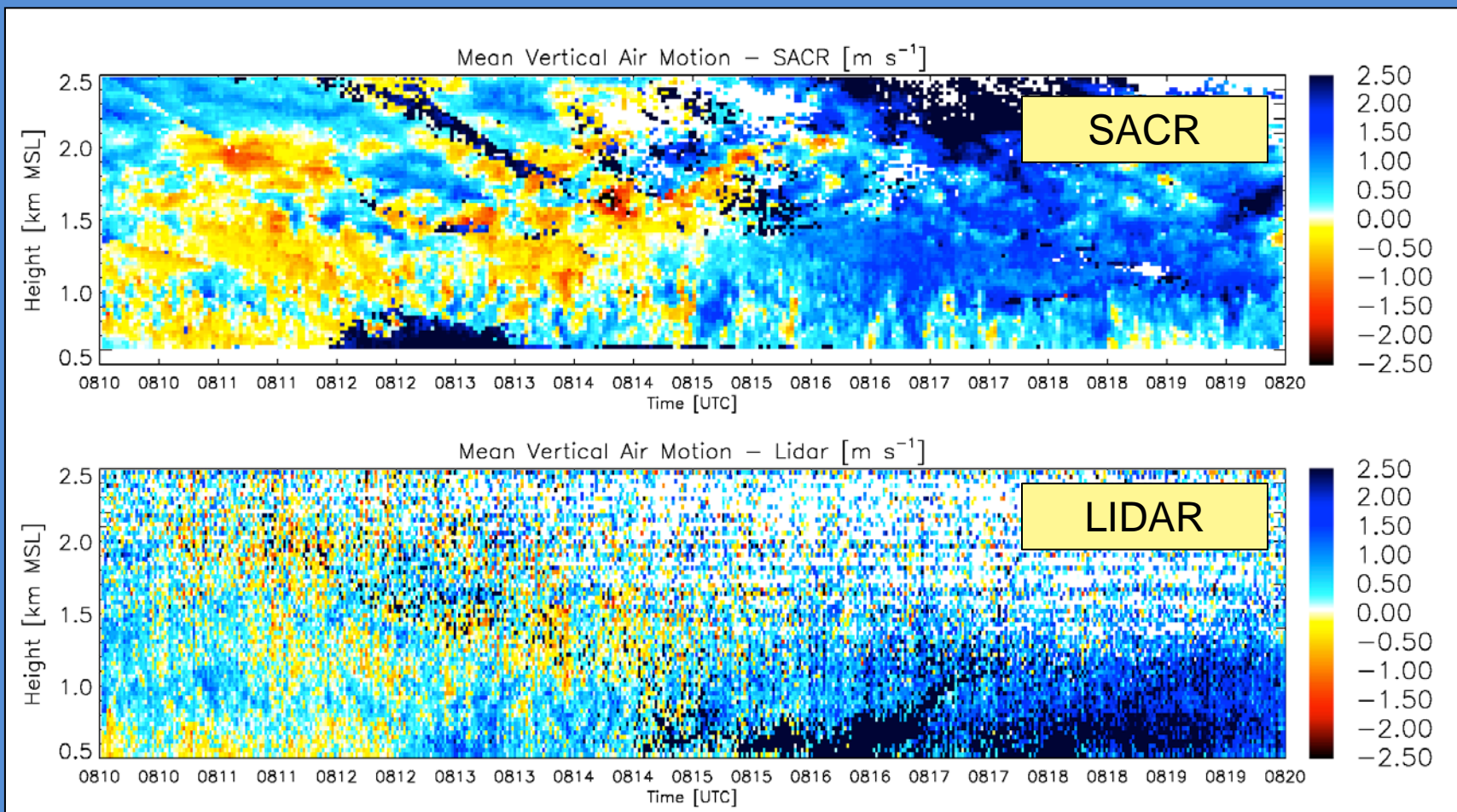
An example of how exploiting Doppler Spectra may benefit precipitation studies



Much can be extracted from spectra, even in unexpected places

Vertical Velocity, Doppler Lidar and WACR

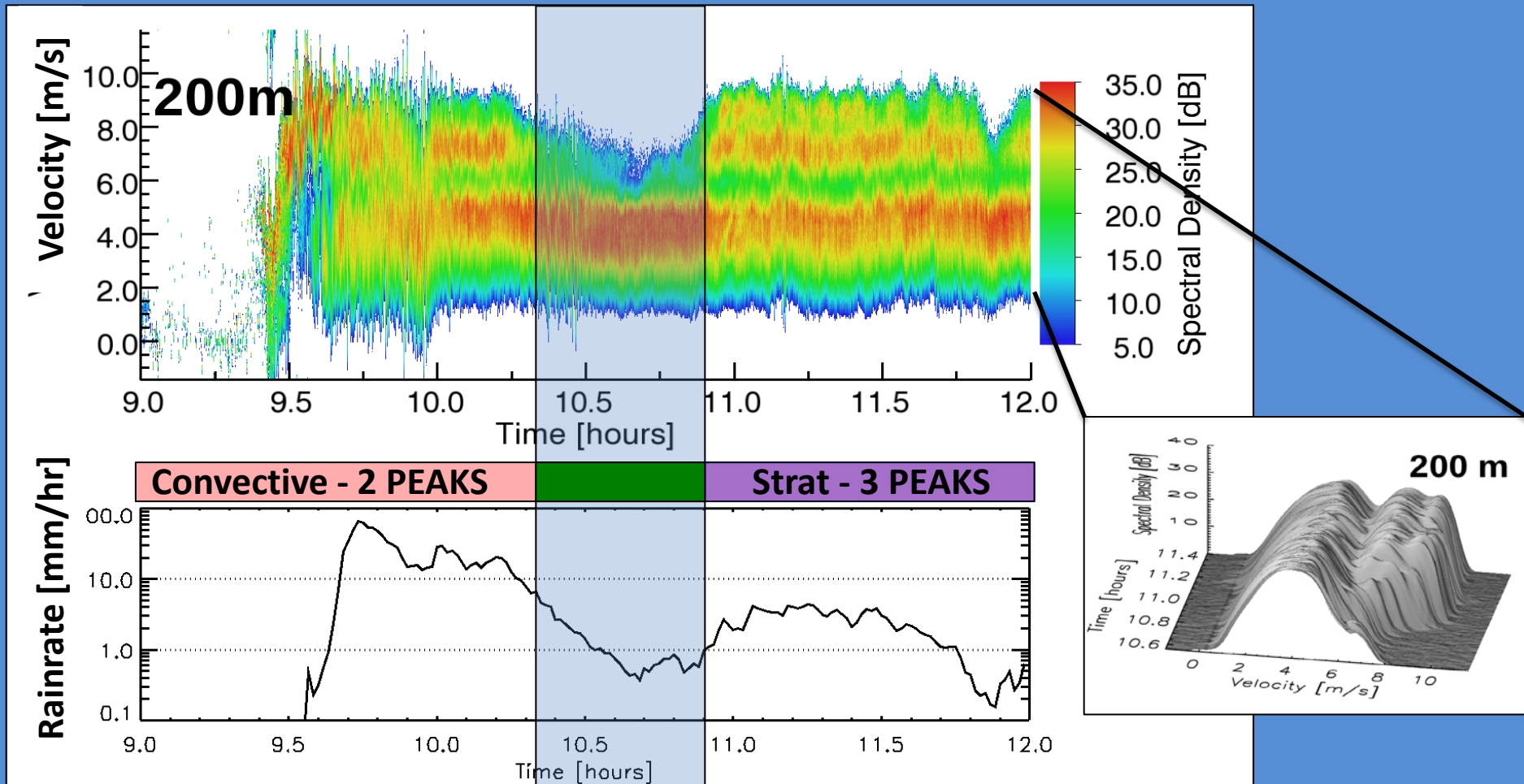
Situational Opportunities for Precipitation Insights and Quality Control



High quality velocity implies → High quality DSD retrievals

Niamey: Convective to Stratiform

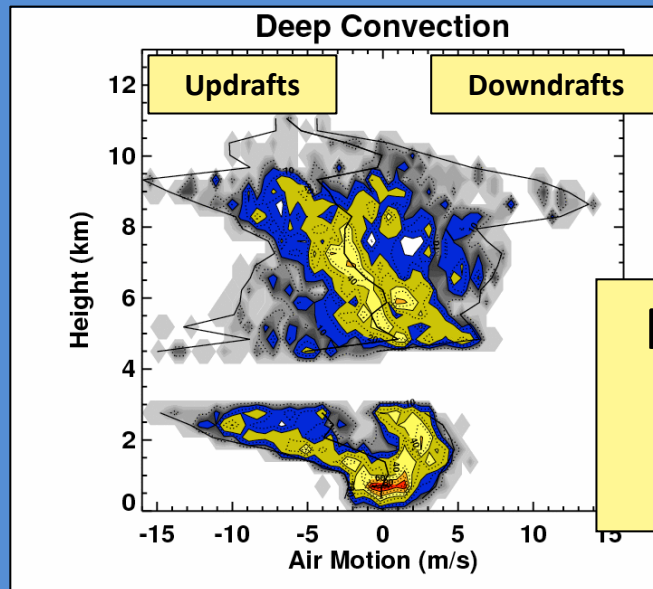
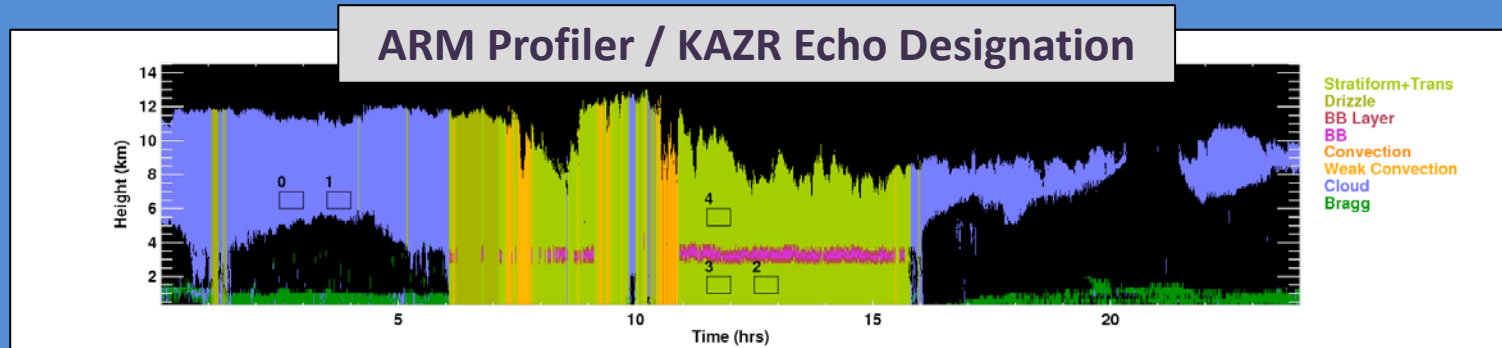
WACR Doppler spectral observations relate storm dynamics and microphysics



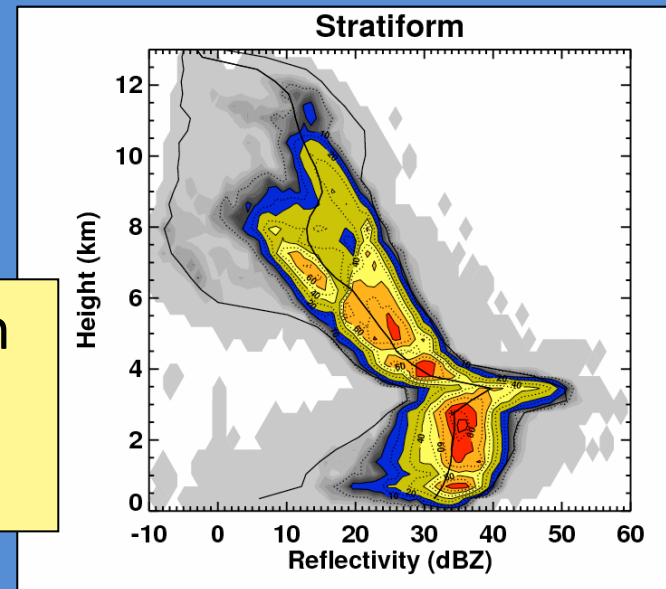
Unique Observations From Various AMF Campaigns

Vertical Velocity within Deep Convection

What can be achieved with the merging of ARM 915 MHz Profilers, KAZR and Spectral Processing



Poster 90 on
Tuesday –
Tami Toto



Joint Retrievals of Type, Microphysics and Velocity

Triple Wavelength Radar Retrievals: DSD Profile at SGP

Frederic Tridon et al.

- Simultaneous observations of rain at three wavelength
 - WSACR pointing vertically
 - KAZR or KASACR
 - Reconfigured UHF RWP in precipitation mode
- Rain drops contribute to the dual wavelength ratios (DWR) via:
 - Non-Rayleigh effects
 - Attenuation in Rain
- Retrieval of gamma Drop Size Distribution (DSD) in two steps:
 - Retrieval of non-Rayleigh effects from differential velocities and differential spectrum widths
 - Retrieval of the N_0^* from reflectivity profiles

Poster 167 on Tuesday
F. Tridon

