GPM Airborne Assets in MC3E

NASA ER-2:
GMI/DPR Proxy

UND Citation
Microphysics

Base: Holloman
AFB, NM

Base: Ponca City,
OK

| Instrument	Characteristics
AMPR (Radiometer, H +V)	10.7, 19.35, 37.1, 85.5 GHz
Resolution @ 20 km range	0.6 km (85.5 GHz), 1.5 km (37.1 GHz), 2.8 km (10.7-19.35 GHz)
CoSMIR (Radiometer, H+V)	37, 89, 165.5, 183.3+/-1, 183.3+/-3, 183.3+/-8 GHz
Resolution @ 20 km range	1.4 km footprint at nadir
HIWRAP Ka-Ku band Radar	13.91/13.35 GHz, 35.56/33.72 GHz
Transmit peak power	30 W (Ku), 10 W (Ka)
3 dB beamwidth	2.9º Ku, 1.2º Ka
MDS (dBZ_e, 60 m res., 3.3 µs chirp pulse, 10 km range)	0.0, -5.0 dBZ_e
CRS W-band (Active)	94.15 GHz (dual-polarized)
Transmit peak power	1700 W
3 dB beamwidth	0.6º x 0.8º
MDS (dBZ_e, 0.5 µs pulse; 1 km range)	-35 dBZ_e

| Instrument	Measurement
FSSP/King	Cloud liquid water
PMS or DMT (TBD: 2D-C/P, CIP/PIP etc.)	Cloud and precipitation particle spectra
SPEC Inc. HVPS	Large hydrometeor spectra
SPEC Inc. 2D-S	Cloud particle spectra
CDP and/or SID	Cloud particle spectra
CVI	Total water content
Rosemount icing probe	Supercooled liquid water
CN/CNN/IN	??

Example Sampling
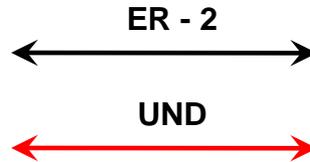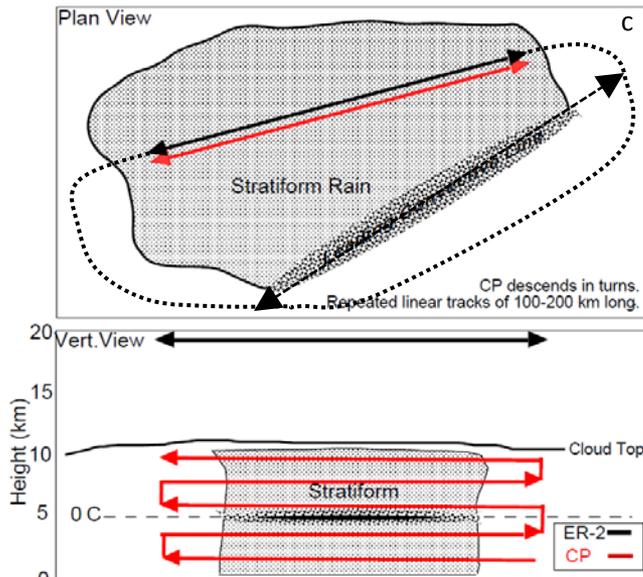
Alternate patterns are likely dependent on platform and mission (e.g., spirals, bowties etc.)
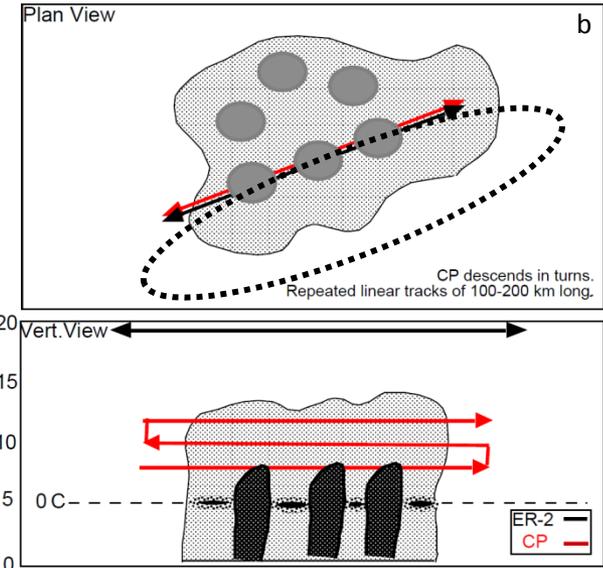
Targets:

- ER2 and UND combined: Ice/mixed phase in *weak* convection, stratiform, melting layer
- UND Only: Updraft thermo/microphysics/aerosol
- ER-2 Only: Land surface, deep convection
- Patterns implemented in vicinity and over CF instrumentation. (especially important for deep convection w/o in situ- polarimetric support necessary).
- Deviation to alternate targets not within range of CF also possible (e.g., S. Central OK).
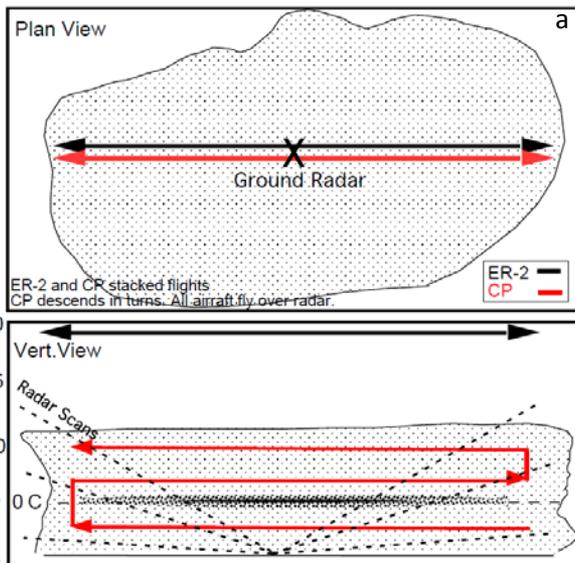
GPM Airborne questions and/or "To do list"……

- Identify final domain and scope of operations (e.g., what is the farthest range we would consider operating from CF? What can and cannot be sampled?).

- Final flight hour determination (nominal 80 hrs ER-2; 60 hrs UND)

- Instrument prep and testing.

- FAA/DoD coordination

- Verify/determine flight communications for coordination between two aircraft and the ground ops center (CF ?).

- Do we need instrument ops status and data transfer to ground?

- More……….?