8.10 NEW C-BAND, 1-DEGREE, DUAL-FREQUENCY, DUAL-POLARIZATION, FAST-SCANNING 2X 1MW, MOBILE RADAR

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We are constructing a new quickly-deployable self-assembling dual-polarization, dual-frequency C-band Radar On Wheels (COW) which uses innovative design to achieve quick targetability and good penetration ability into intense precipitation, combined uniquely with fine spatial-and-temporal resolution, narrow-beamwidth , and fast volumetric scanning.

The COW mobile radar employs an innovative design enabling compromises inherent to existing mobile/deployable radars to be circumvented, with an only minor loss in "nimbleness".

Key aspects of the COW are:

- C-band for moderate precipitation penetation
- 1-degree beamwidth, similar to DOWs, for fine-spatial scale observations, using 3.8 m antenna
- Dual-frequency fast-scanning (2x independent samples) of rapidly evolving severe weather
- Dual-polarization with dual-frequency (45 and H/V modes configurable)
- 2x 1 megawatt transmitters for clear-air sensitivity to great range

The COW achieves 1-degree beamwith, transportabilility and fast deployment capability, through an innovate design including a integrated crane used to quickly self-assemble its 3.8 m diameter antenna.

The COW will be completed in Summer 2018. We hope/plan to deploy the COW in a variety of projects including RELAMPAGO (maybe), and future proposed projects such as PRECIP (typhoons), RadFire (wildfires). COWs unique capabilities can be used in future tornado, QLCS, MCS, and winter studies.