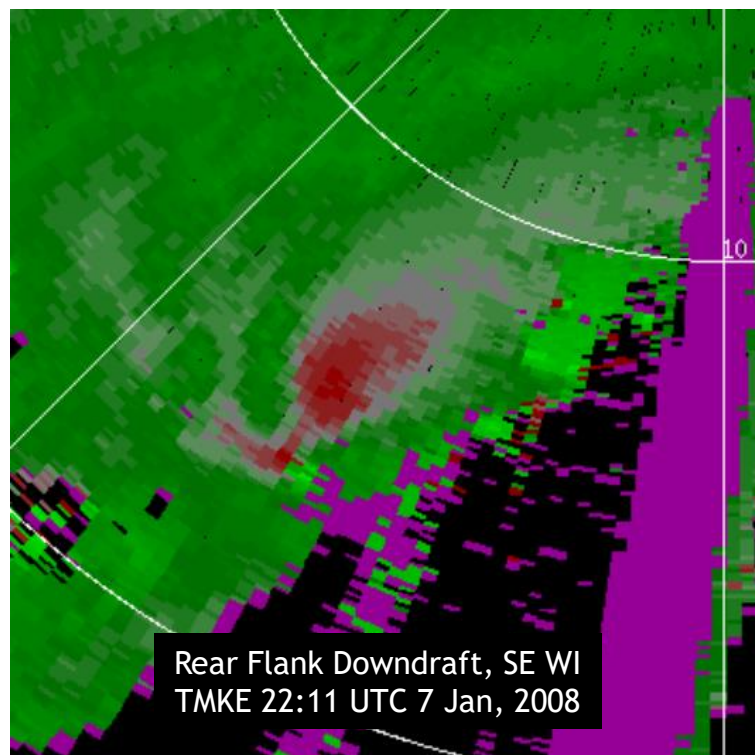


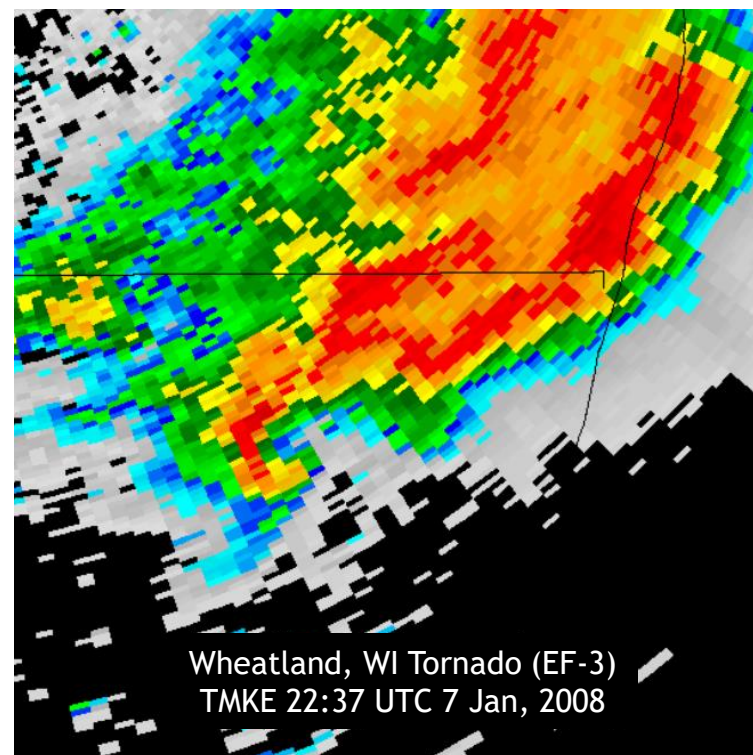
TDWR for NWS Operations Phase 3 Update



88th Annual Meeting of the American Meteorological Society



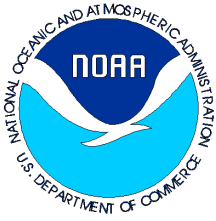
Rear Flank Downdraft, SE WI
TMKE 22:11 UTC 7 Jan, 2008



Wheatland, WI Tornado (EF-3)
TMKE 22:37 UTC 7 Jan, 2008

Mike Istok, NOAA/NWS/OS&T/SEC
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Wednesday, January 23, 2008
Session 6B – Radar Applications Part I



TDWR for NWS Operations Phase 3 Update



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Acknowledgments:

- Mark Fresch of NWS Office of Hydrologic Development and Daniel Stein III of RS Information Systems

































Overview of the TDWR SPG Program

- Use weather radar data from other federal agencies
 - Establish a MOU with the FAA to gain nationwide access to TDWR data
- Modify the base RPG to accept non-WSR-88D data
- Develop output products that are compatible with AWIPS
- Migrate existing algorithms for use with TDWR VCPs
- Deploy SPG processing systems and establish dedicated TDWR communications to WFOs

TDWR - NWS WFO Associations



Evolution of SPG Capabilities

SPG System Capabilities	Web Server	SPG Build 1	SPG Build 2	SPG Build 3
Real-Time Ingest of TDWR Data Stream				
GIF Images of Base Data (V & Z)				
31 Day Archive/Playback of GIF Images (V & Z)				
Translate TDWR to RPG Format				
Products Integrated into AWIPS				
One Time Request (OTR)				
Reduced Resolution Base Data Products (Z)				
Full Resolution Base Data Products (Z)				
User Selectable Layer Composite Reflectivity				
Velocity Azimuth Display/ VAD Wind Profile				
Immediate Product Generation from OTR				
88D Velocity Dealiasing				
Storm Analysis Products				
Derived Reflectivity Products				
Precipitation Products				

New SPG Phase 3 Products

Storm Analysis Products

- Storm Tracking Information (STI)
- Hail Index (HI)
- Mesocyclone Detection (MD)
- Digital Mesocyclone Detection (DMD)
- Tornadic Vortex Signature (TVS)

Derived Reflectivity Products

- Vertically Integrated Liquid (VIL)
- Echo Tops (ET)
- Composite Reflectivity (CR/CZ)

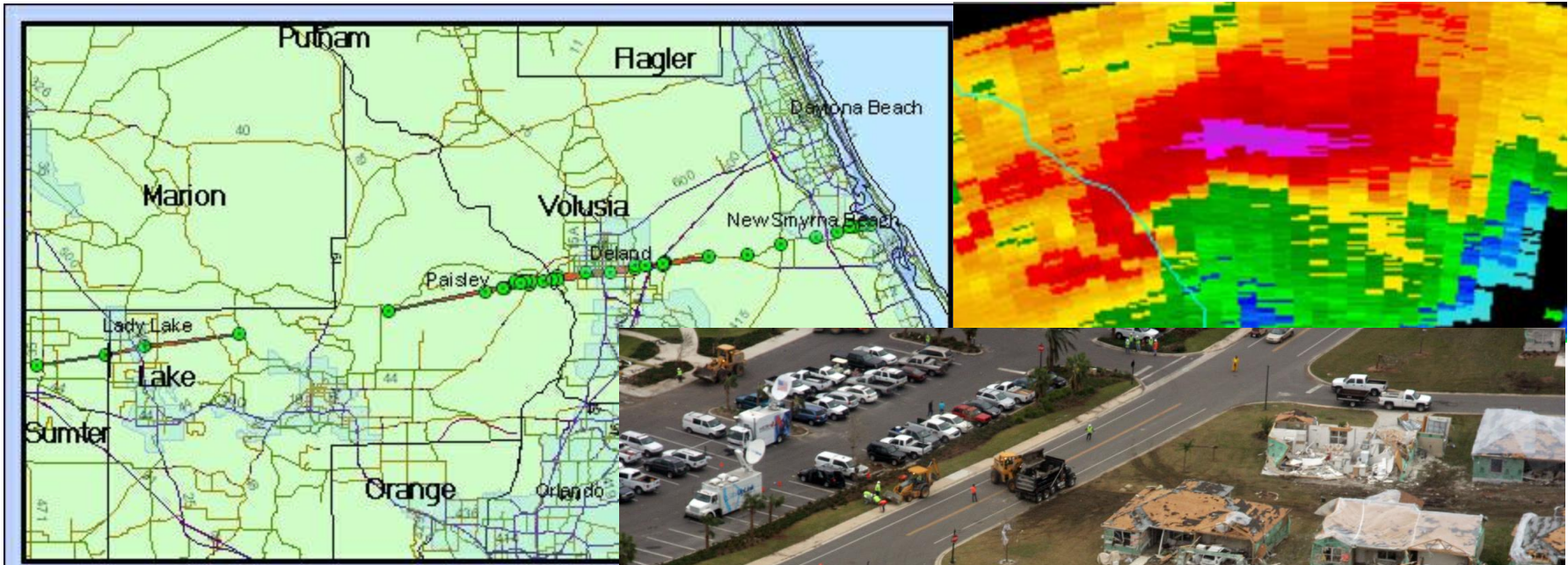


New SPG Phase 3 Products

Precipitation Products

- One-Hour Precipitation (OHP)
- Three-Hour Precipitation (THP)
- User-Selectable Precipitation (USP)
- Storm Total Precipitation (STP)
- Hourly Digital Precipitation Array (DPA)
- Digital Storm Total Precipitation (DSP)
- Supplemental Precipitation Data (SPD)
- Digital Hybrid Scan Reflectivity (DHR)
- Hybrid Scan Reflectivity (HSR)

TDWR Example: Central Florida Tornadoes



- 2 Feb 2007, 3-430AM EST
- 3 tornadoes in a 70 mi discontinuous path
- 21 fatalities, 118 injured
- Peak Intensity, EF-3
- \$270M property damage



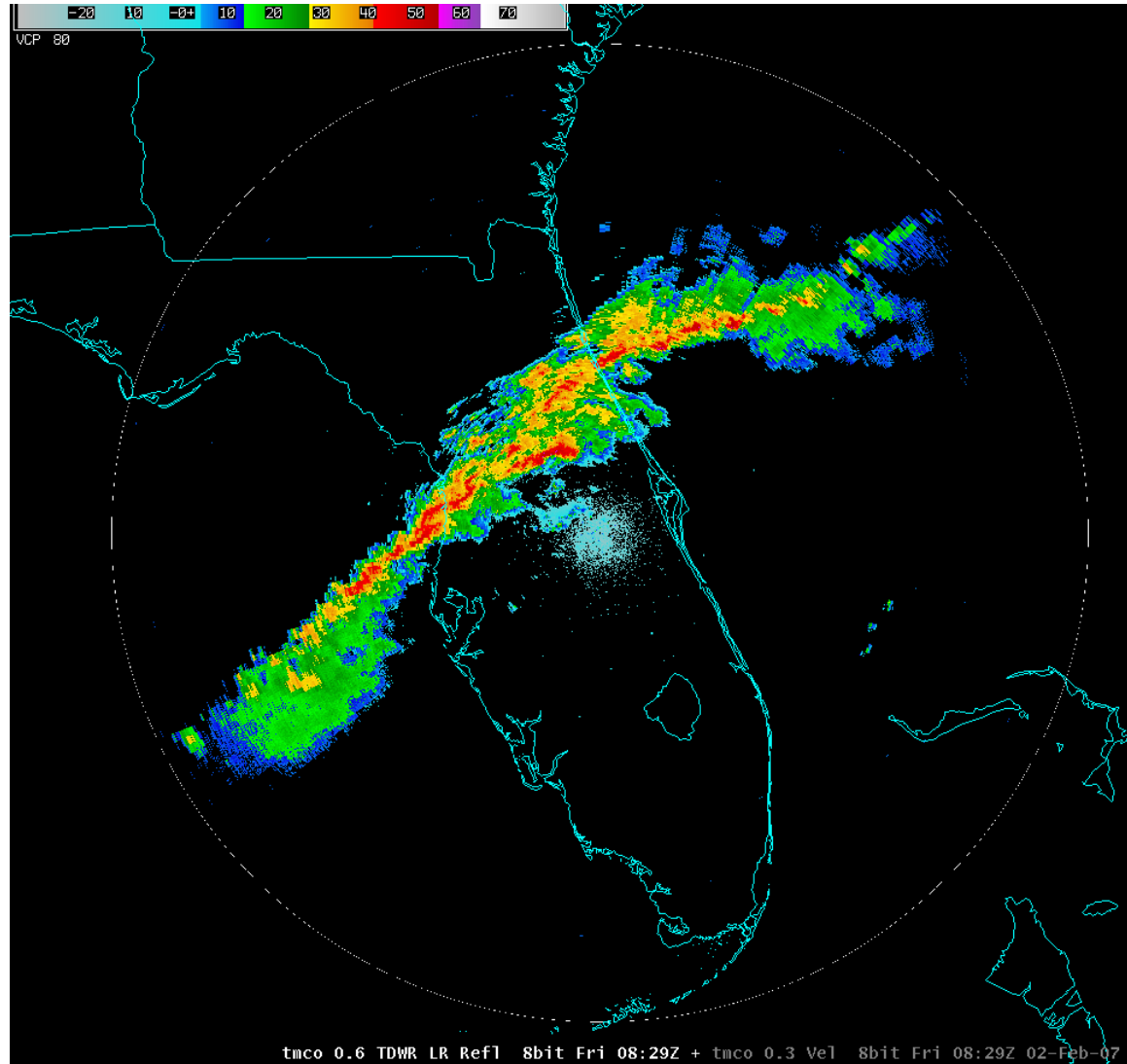
TMCO 0.6 Deg Digital Reflectivity (DR)

TDWR: TMCO

Loop: 02/02/07
08:29Z – 08:59Z

Maximum Range
225mi/416km

Overlays:
None



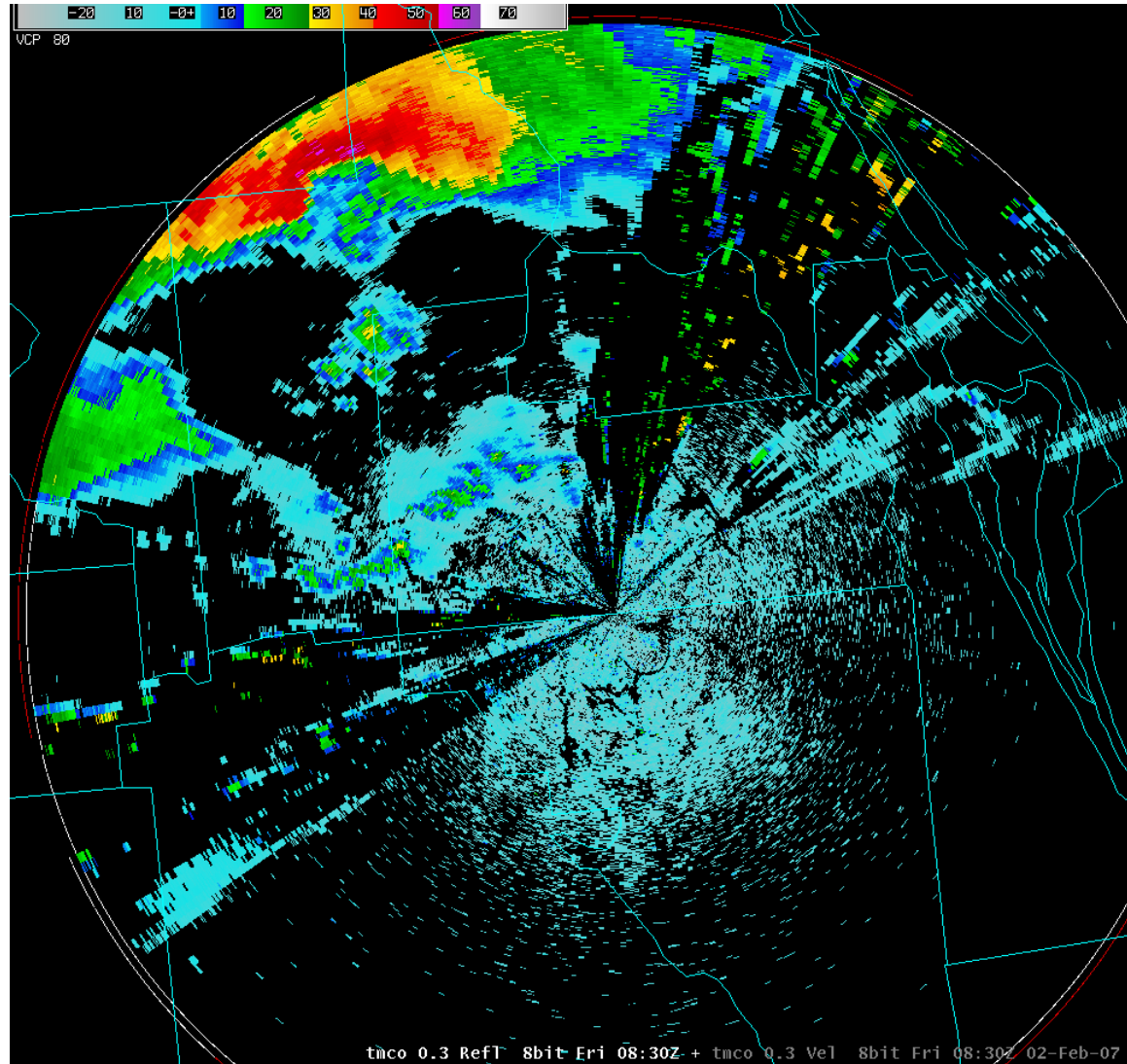
TMCO 0.3 Deg Digital Reflectivity (DR)

TDWR: TMCO

Loop: 02/02/07
08:30Z – 09:05Z

Maximum Range
48mi/90km

Overlays:
None



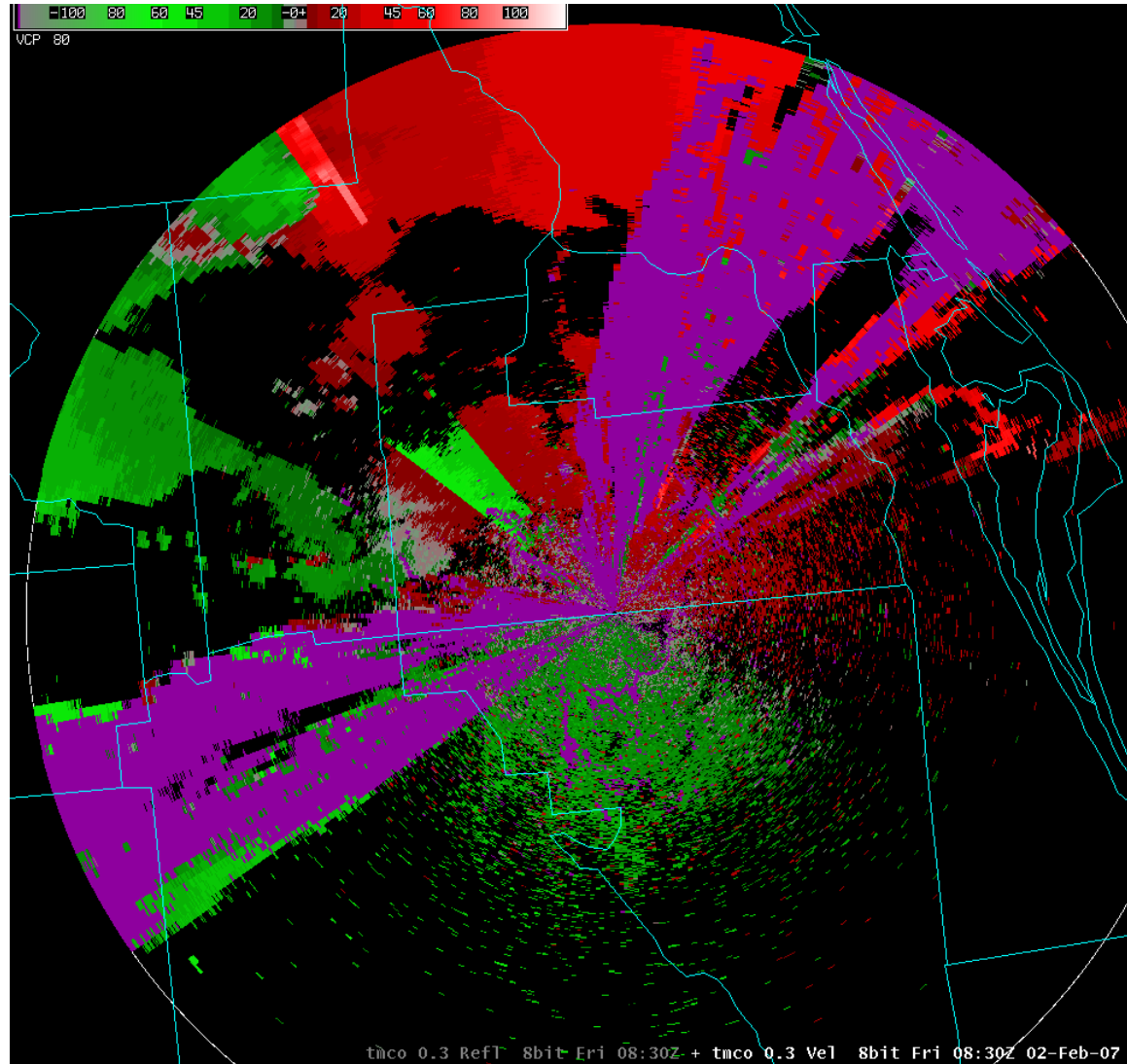
TMCO 0.3 Deg Digital Velocity (DV)

TDWR: TMCO

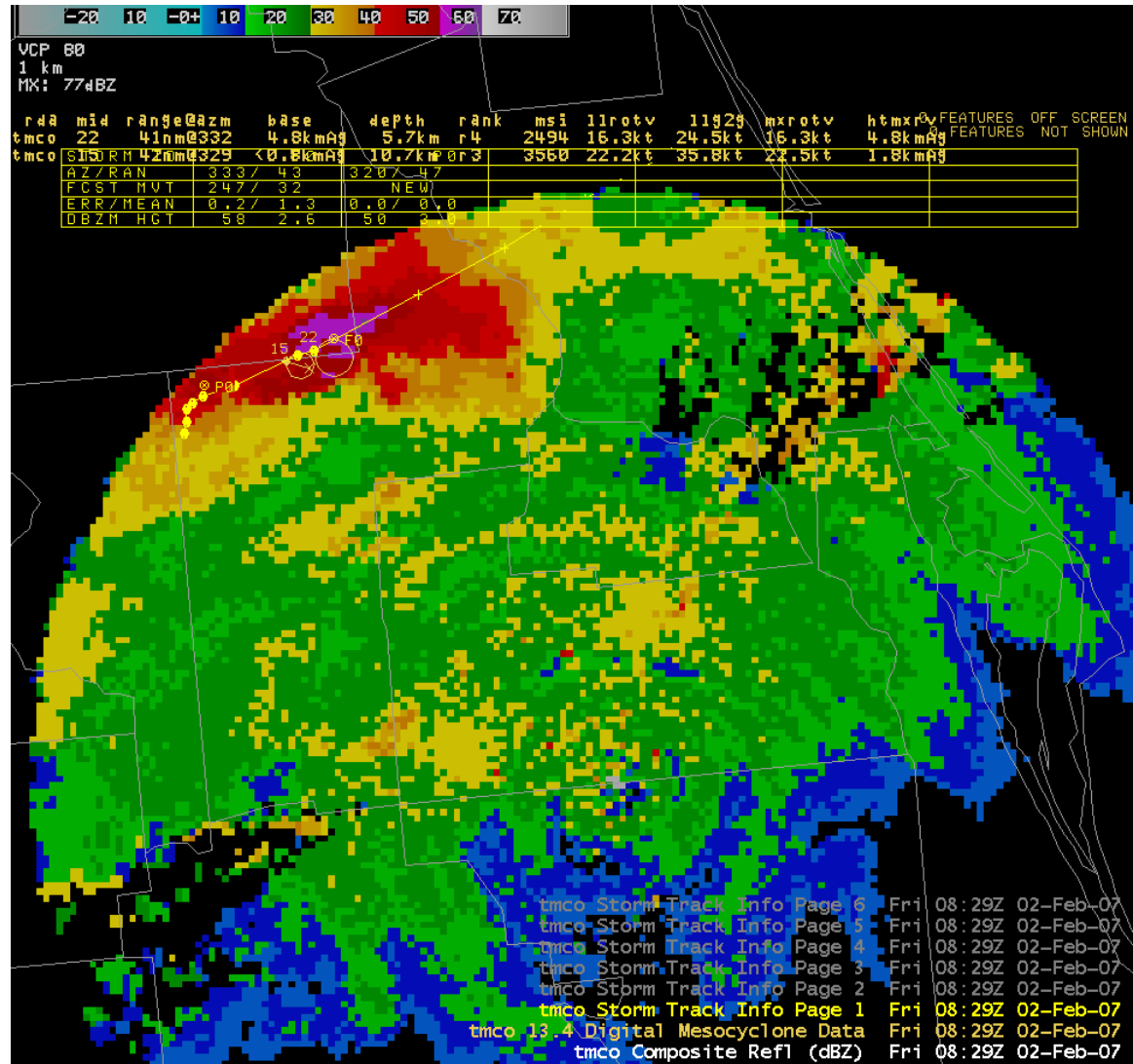
Loop: 02/02/07
08:30Z – 09:05Z

Maximum Range
48mi/90km

Overlays:
None



TMCO Composite Reflectivity (CR)



TDWR: TMCO

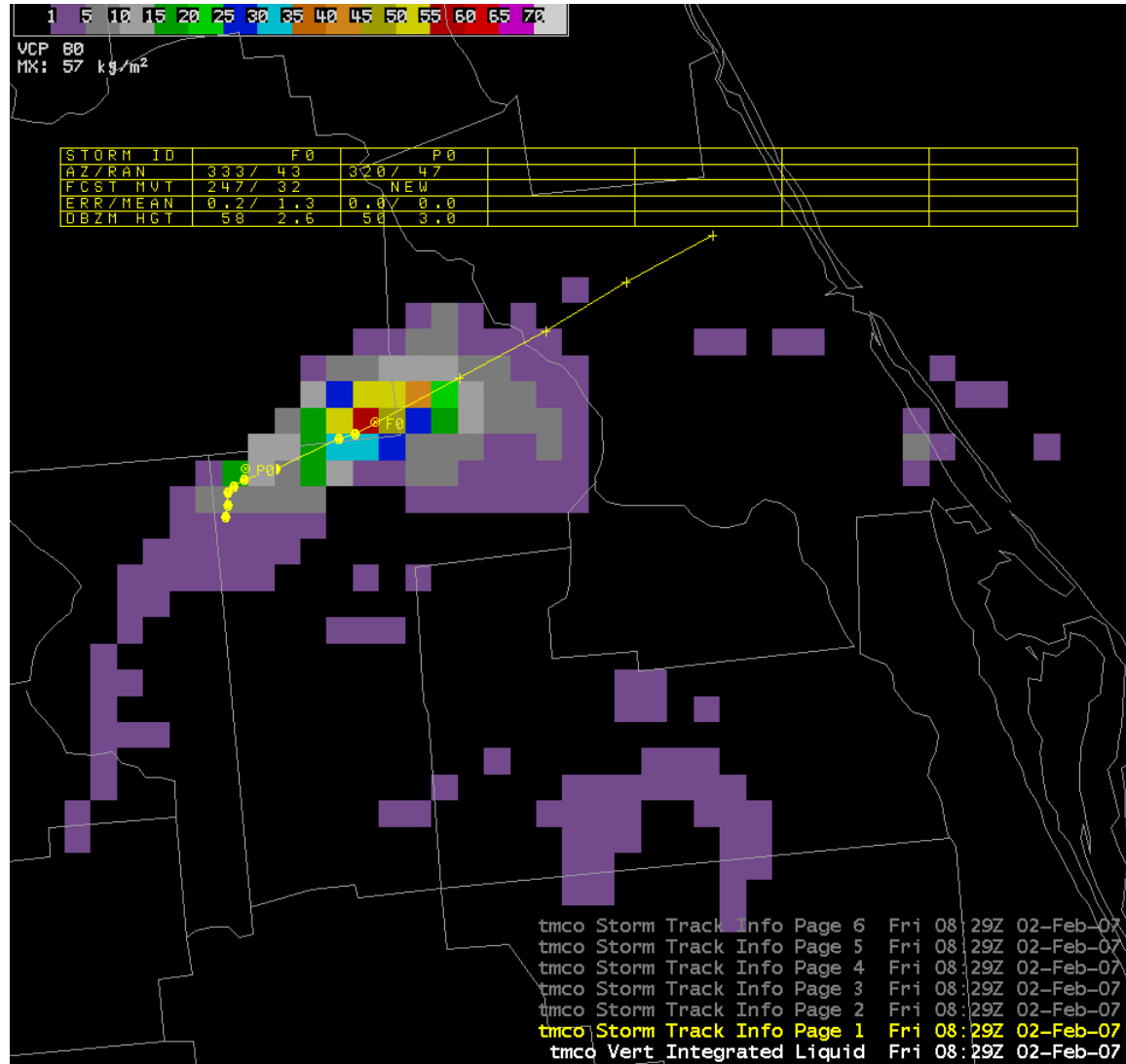
Loop: 02/02/07
08:29Z – 09:02Z

Maximum Range
48mi/90km

Overlays:
Storm Track
Mesocyclone



TMCO Vertically Integrated Liquid (VIL)



TDWR: TMCO

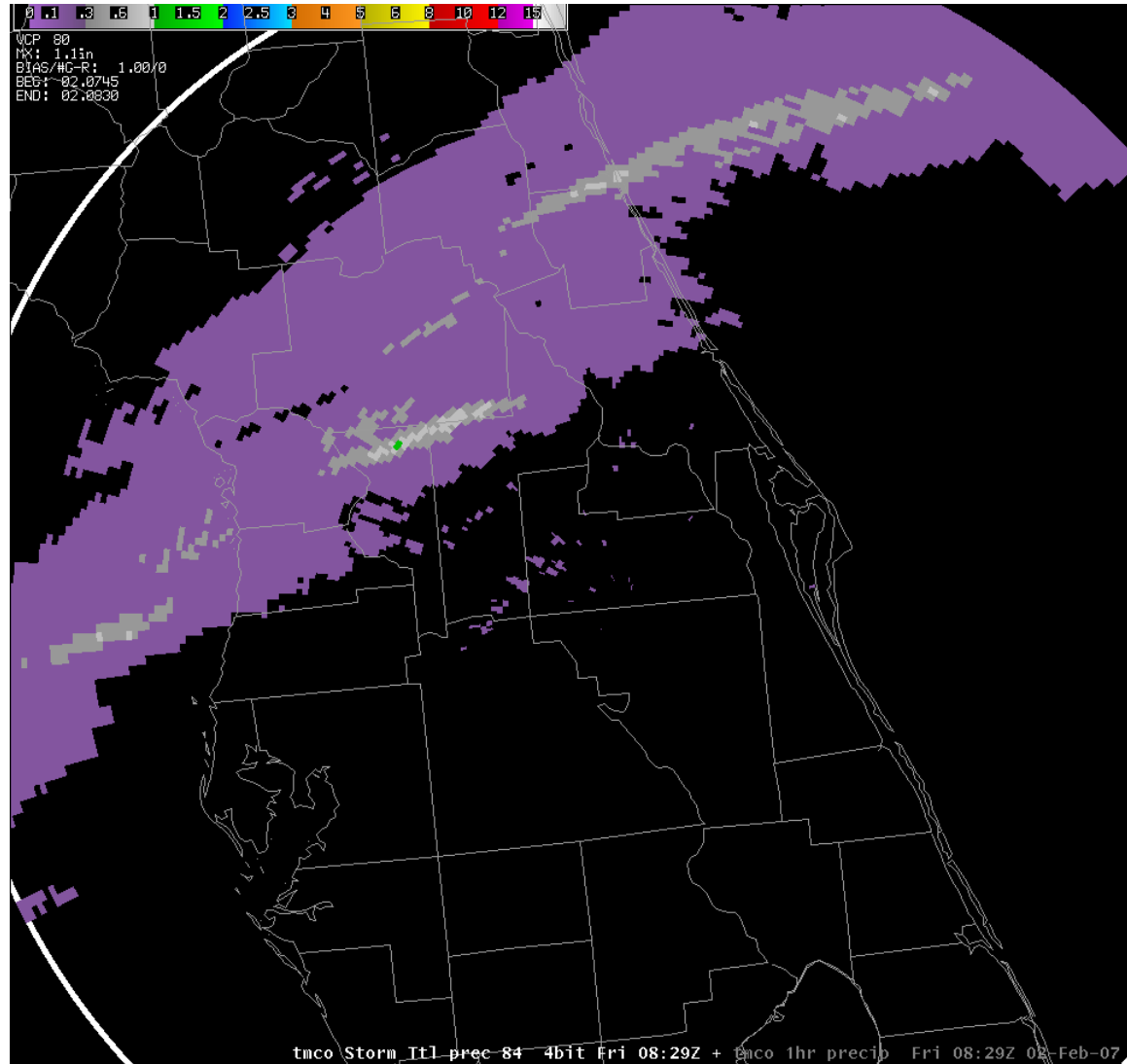
Loop: 02/02/07
08:29Z – 08:59Z

Maximum Range
48mi/90km

Overlays:
Storm Track



TMCO Storm Total (STP) & One Hour Precipitation (OHP)



TDWR: TMCO

Loop: 02/02/07
08:29Z – 08:59Z

Maximum Range
48mi/90km

Overlays:
None



Upcoming Changes to the TDWR

- Rehost TDWR RDAs
 - Improve supportability & add new signal processor
- New PRI Methodology
 - New multi-PRI mode vs. dual-PRI phase-coded mode
 - Probable scanning strategy revision
 - Drop duplicate velocity dealiasing scan
 - In Hazardous Mode, add second pass at 1 deg elevation
 - Fine tune antenna rates and elevation angles
- New Dealiased Velocity Fields
 - No longer provide unconditioned velocity data
- Data Compression Algorithms
 - For use in establishing reliable communications at lower cost

Future Plans

- Complete deployment of SPGs to WFOs by end of FY 2008
- Level 3 product availability via AWIPS central collection
- Planning for Level 2 availability
- SPG adaptation for other FAA radars (ARSR-4, ASR-9/11)
- SPG adaptation for non-FAA radars

For Additional Information

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