
High Resolution VIL Algorithm Changes

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Outline

- **High Resolution VIL (HRVIL) Product 134 Review**
- **Proposed weak weather depiction for aviation**
- **Request to reincorporate hail mitigation**



High Resolution VIL and ORPG Builds

- **Initial availability with Build 2 release (Autumn 2002)**
- **Modified to ingest data from Data Quality Assurance (DQA) algorithm with Build 3 release (Spring 2003)**
- **Maintained through subsequent Builds**
- **Most recent modification to account for ORPG platform refresh (change part of Build 8 release)**

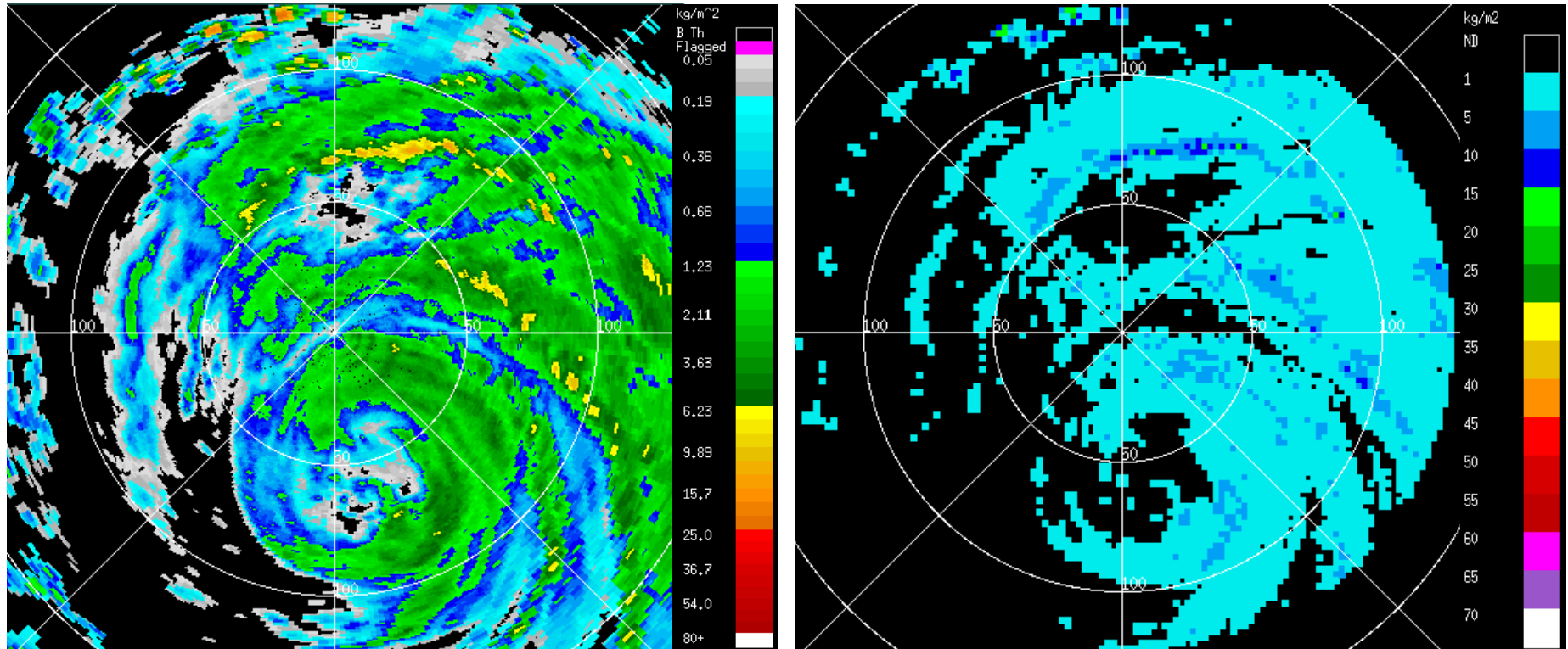


High Resolution VIL Computation

- **Same basic NEXRAD Legacy VIL conversion and integration used (NX-DR-03-006/24)**
 - **Except no lower limit of 18 dBZ**
All valid range gates contribute
 - **No upper computational cap imposed at 56 dBZ**
Inadvertent omission
- **HRVIL computed to maximize depiction of structure**
 - **256 data levels**
VIL < 1 kg m⁻² now resolved
200 data levels vs. 5 for VIL range of 0-20 kg m⁻²
54 data levels vs. 10 for VIL range of 20-80 kg m⁻²
 - **Polar output**
Mitigates Cartesian smoothing
 - **Full range calculations**
Intended to benefit 2 hour convective forecasts



HRVIL vs. Legacy VIL



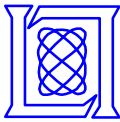
KMLB – NEXRAD

September 5, 2004 0821 UTC

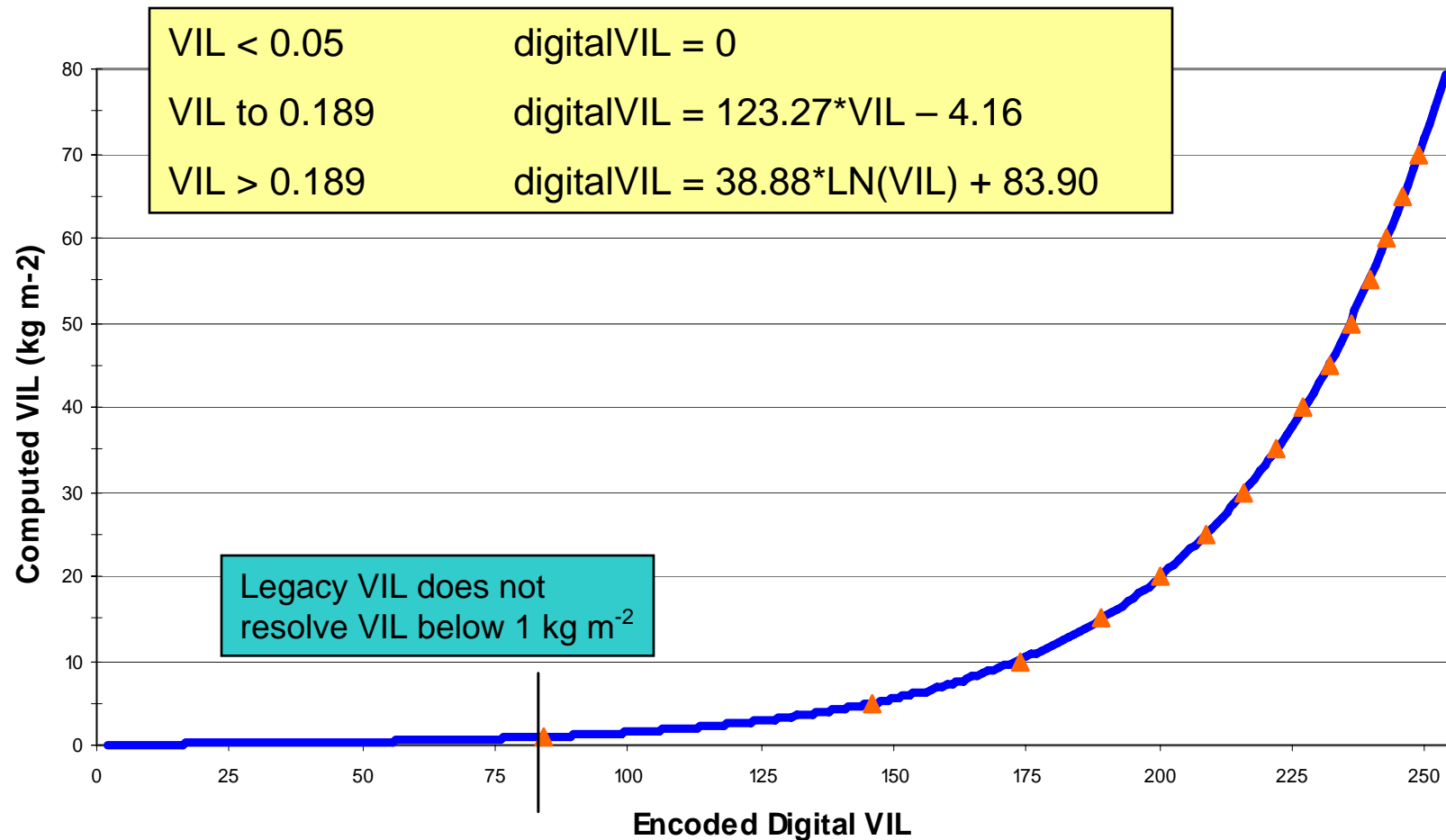
Hurricane Frances

Center about 65 n mi @ 170 degrees

MIT Lincoln Laboratory

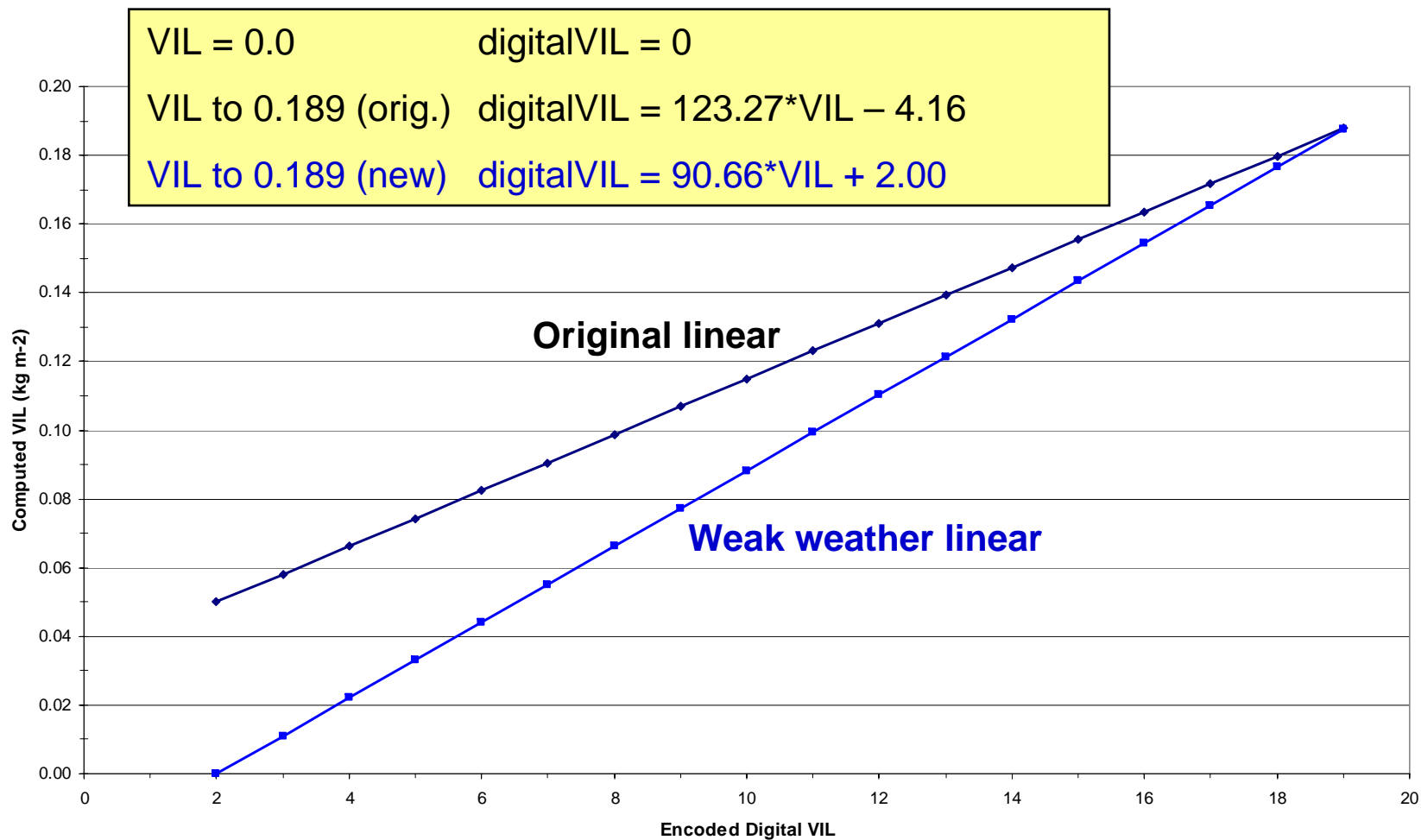


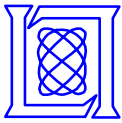
HRVIL Curve with Legacy VIL Levels



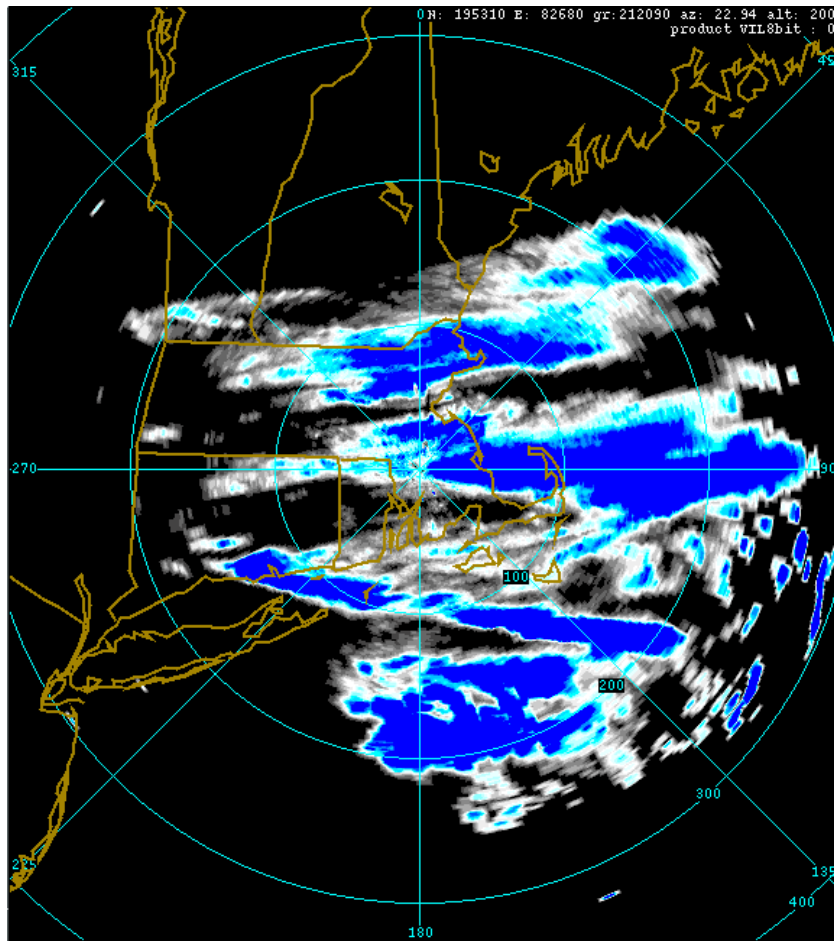


Comparison of Linear Scales

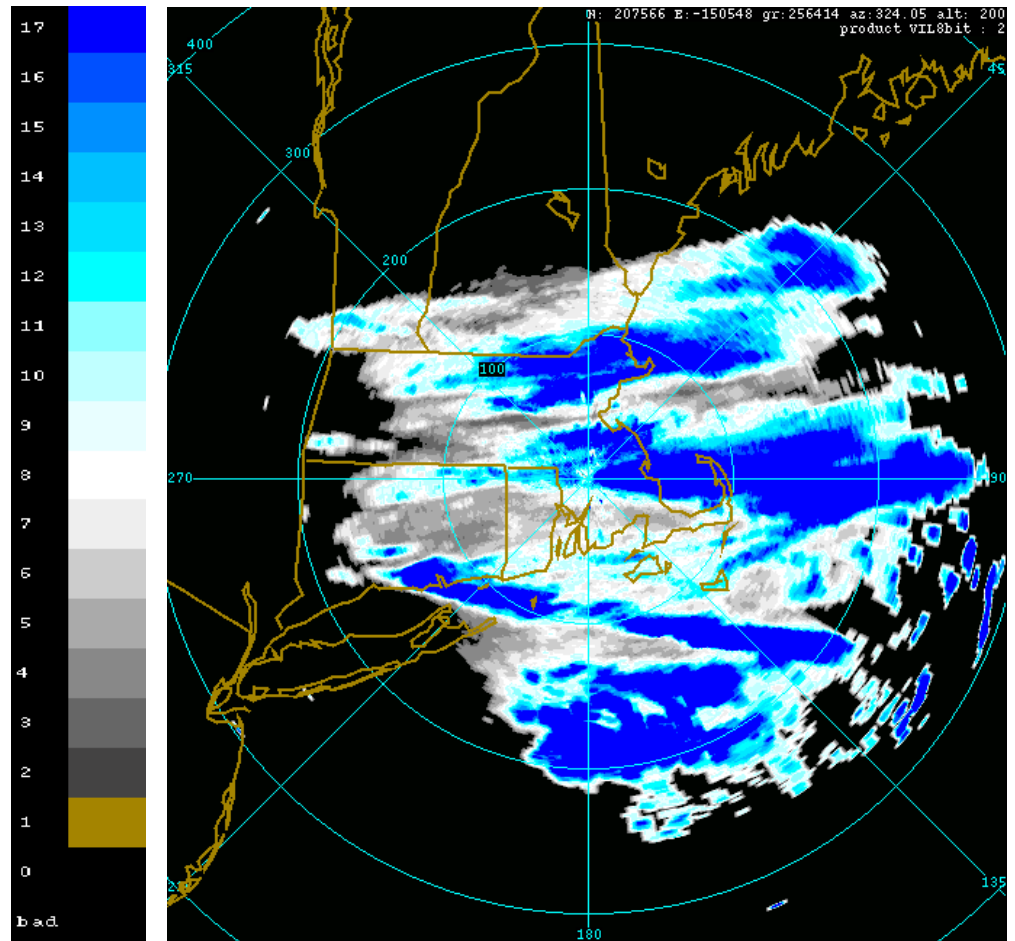




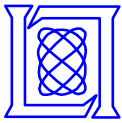
Weak Weather Depiction with HRVIL



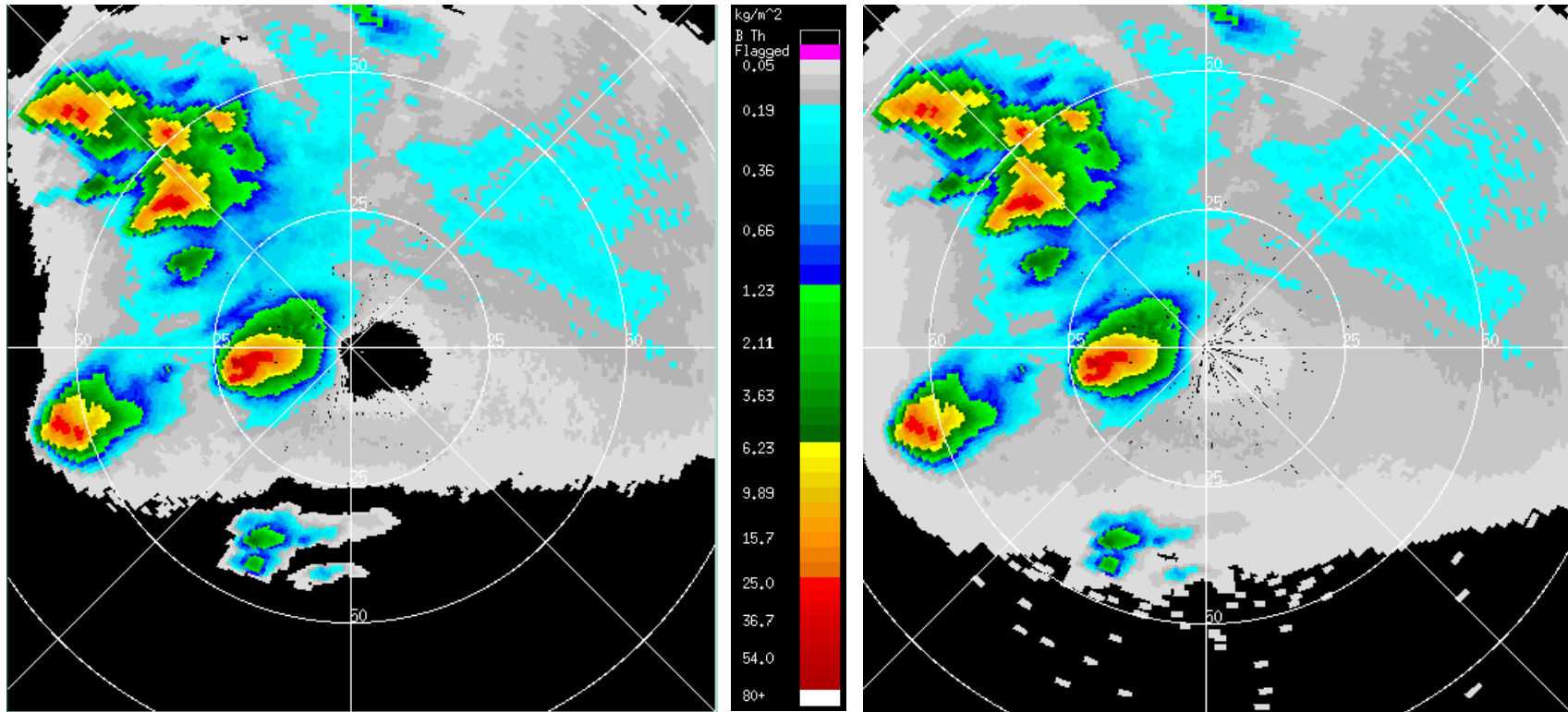
Current HRVIL



Proposed HRVIL



Non-weak weather HRVIL Impact

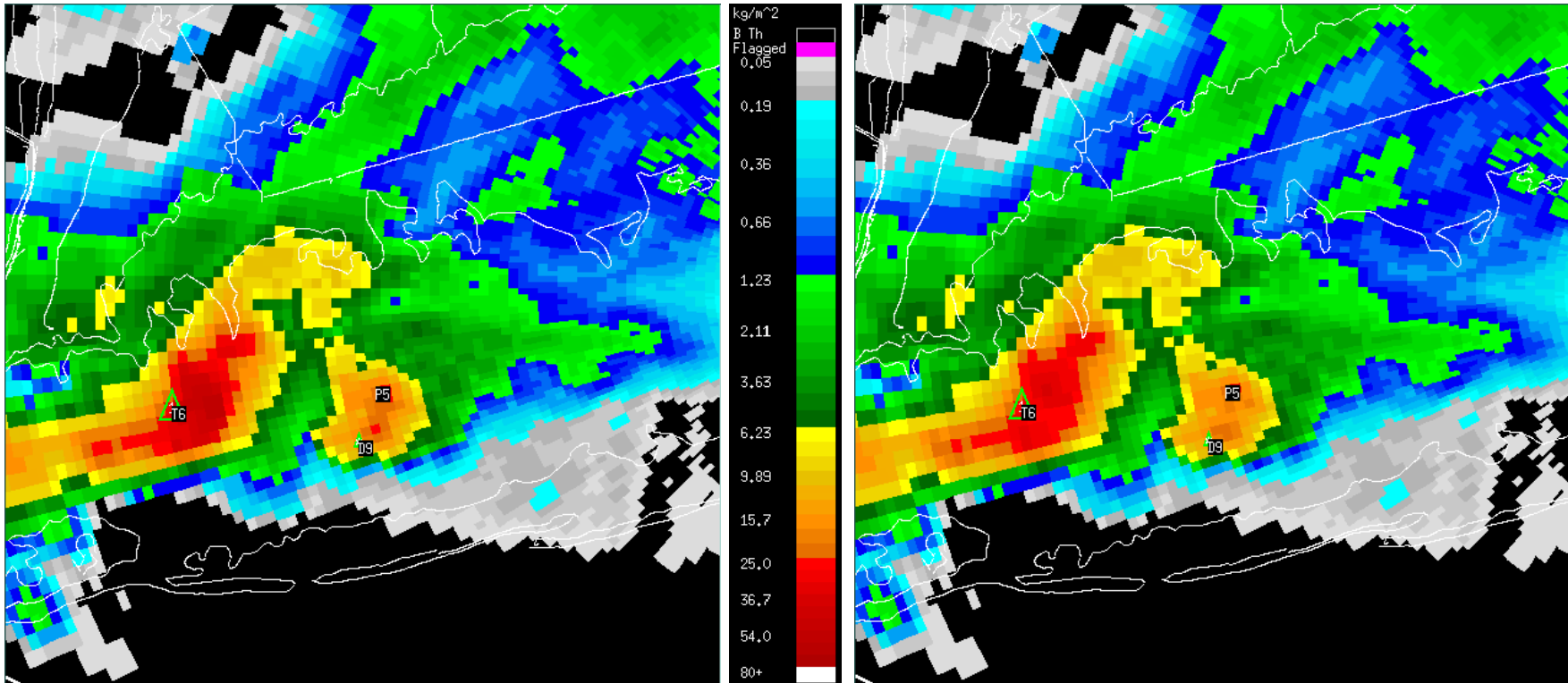


Current HRVIL

Proposed HRVIL



Reincorporate 56 dBZ Computational Cap



Current HRVIL

Proposed HRVIL



Summary

- **Request modification to linear scale of HRVIL to support FAA CIWS use in weak weather season**
- **Request opinion about reincorporating hail mitigation computational cap**
- **Readiness will be reported to SREC in June**