NEXRAD
Radar Operations Center

Status on the Implementation of the Hybrid Spectrum Width Estimator

Presented by

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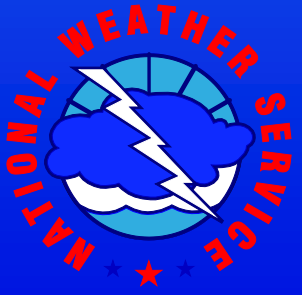


Objectives

- Provide background for the Hybrid Spectrum Width (HSW) estimator
- Provide a status of the implementation of the estimator in Build 13
- Provide some initial images produced by HSW in the Build 13 software
- Provide an overview of remaining work

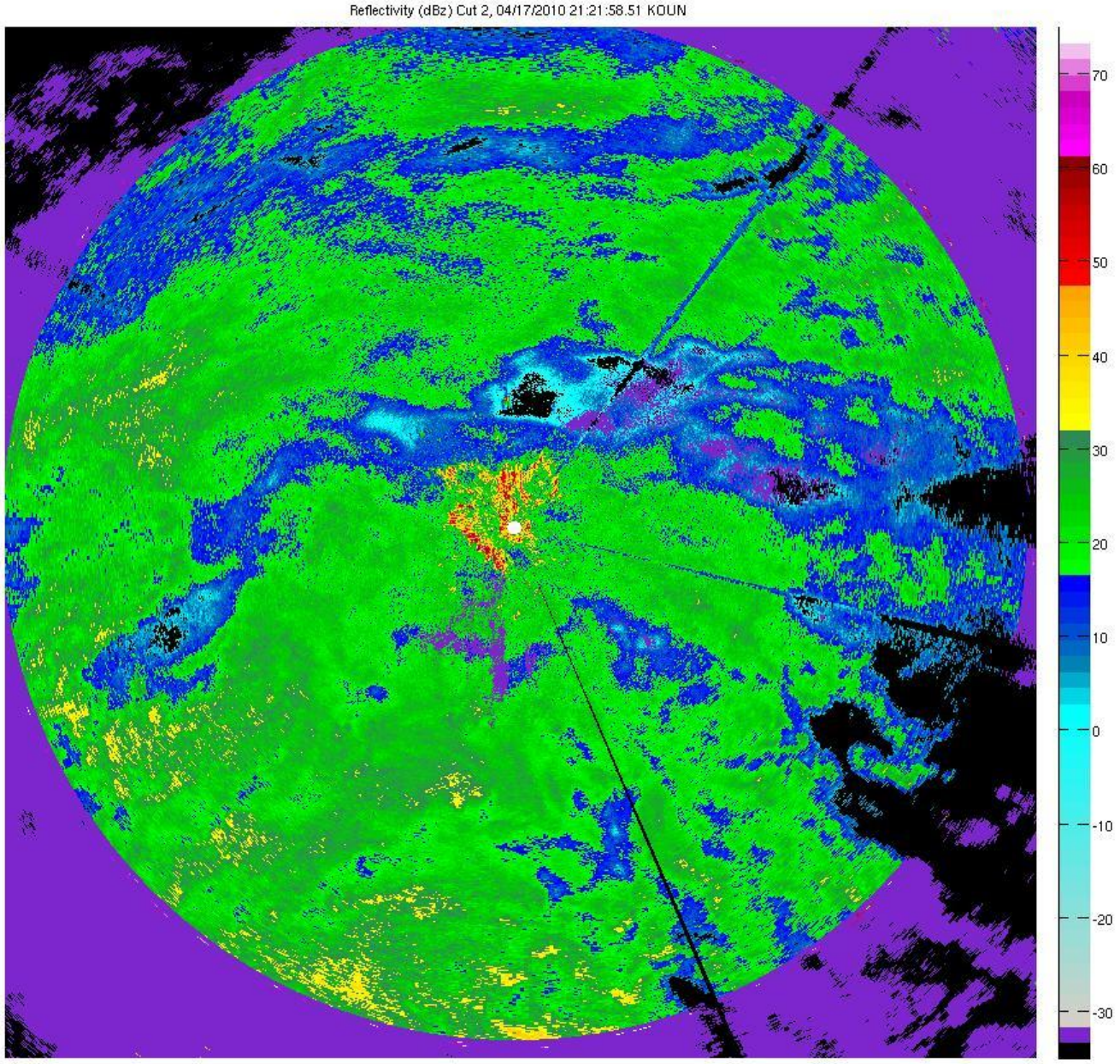
Background

- A better Spectrum Width estimator for use with the NEXRAD Turbulence Detection Algorithm (NTDA) was desired
  - Improve performance for lower signal-to-noise ratios and narrow true spectrum widths
- Greg Meymaris, John Williams, John Hubbert and Mike Dixon from NCAR developed the Hybrid Spectrum Width Estimator; work performed under the Data Quality MOU
- The TAC recommended the implementation of the Hybrid Spectrum Width estimator (HSW) at the November 2009 TAC
- Slated for deployment in Build 13

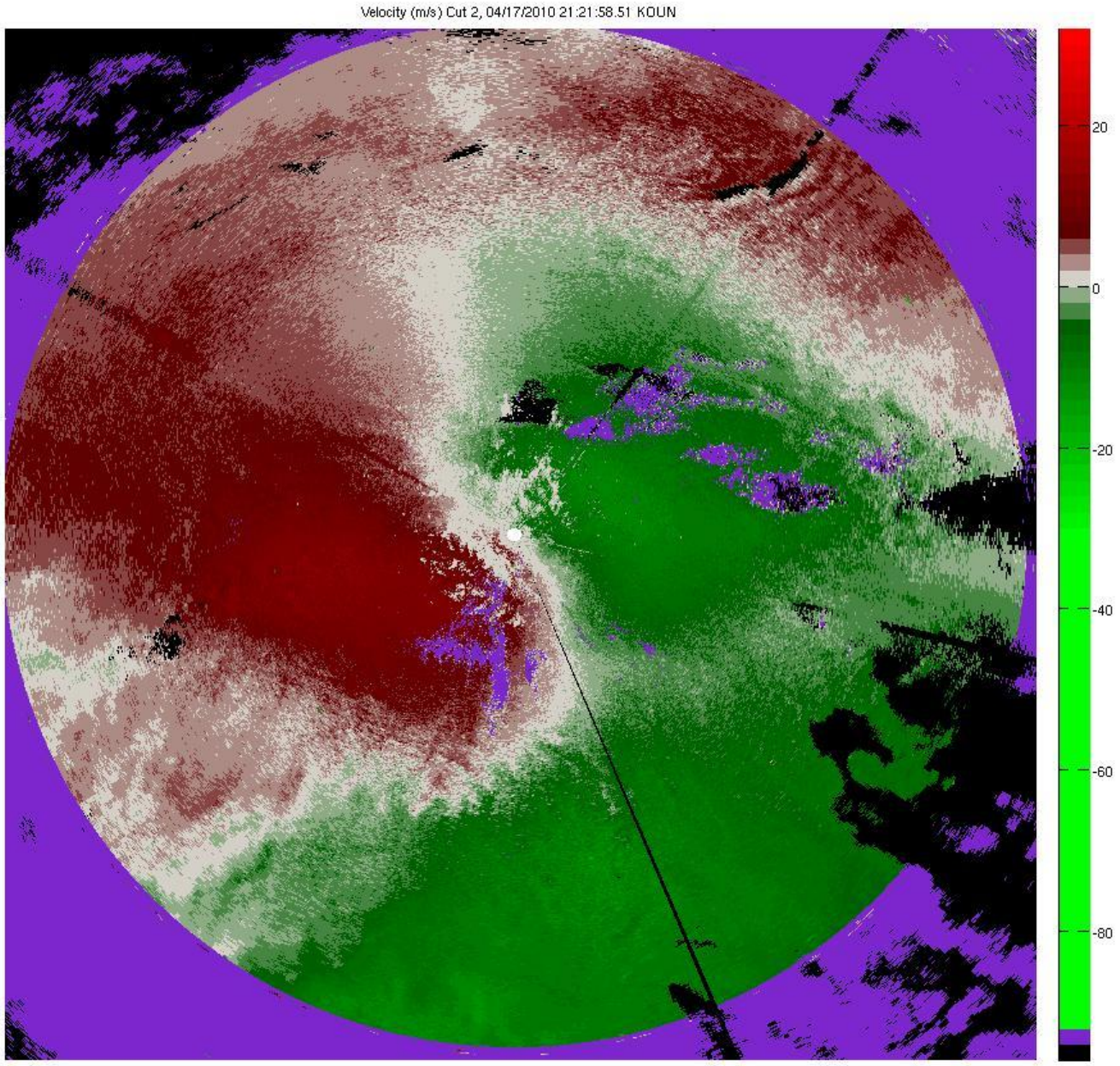
Status of Implementation

- HSW prototype software (both MATLAB and C code) was delivered to the ROC
- HSW has been incorporated into the Build 13 Software
- Development of data playback system for testing completed on January 18
- Debugging and verification is still ongoing

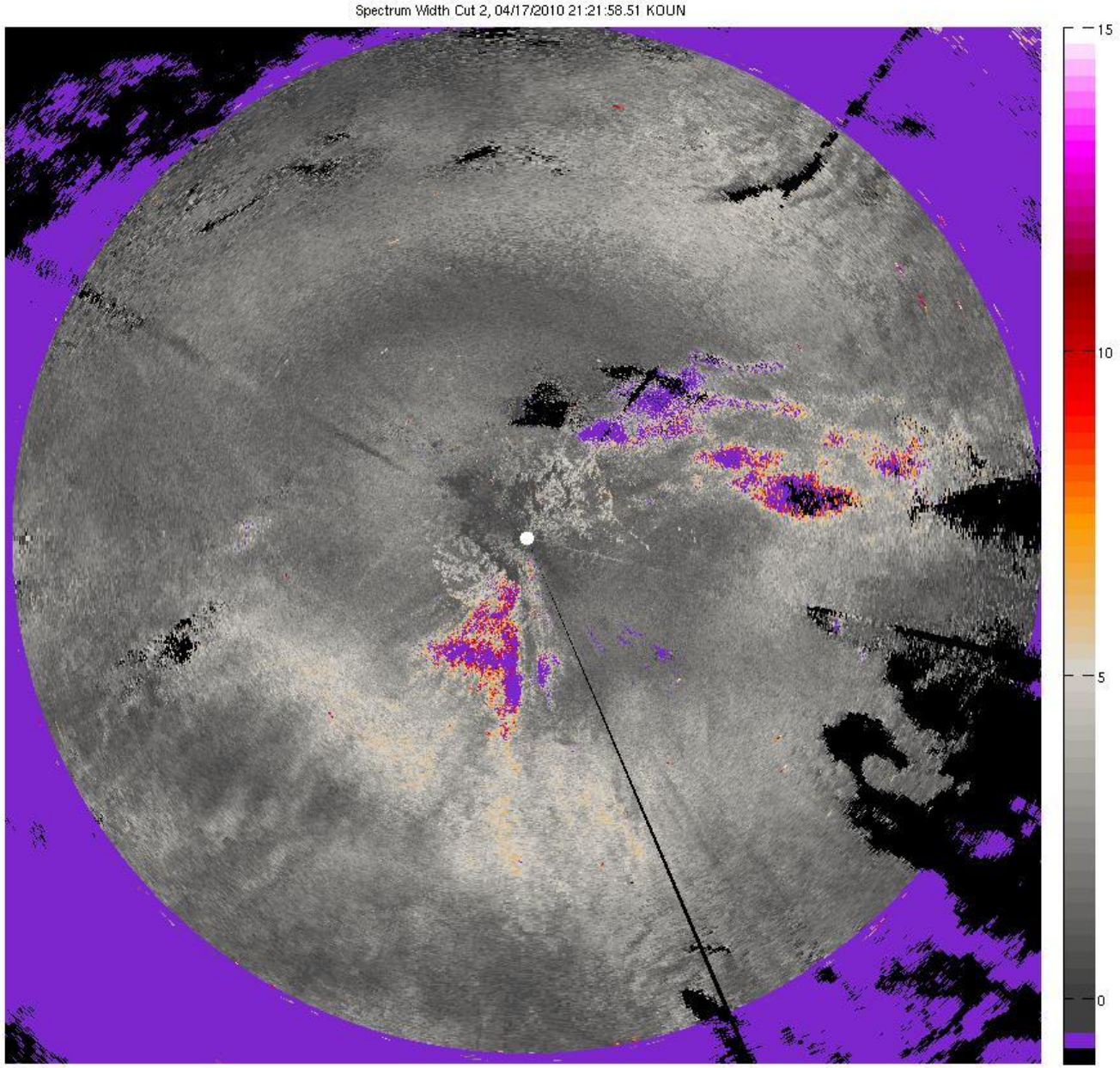
Brief Look at a Data Case
KOUN - April 4, 2010 - VCP 21
No clutter filtering



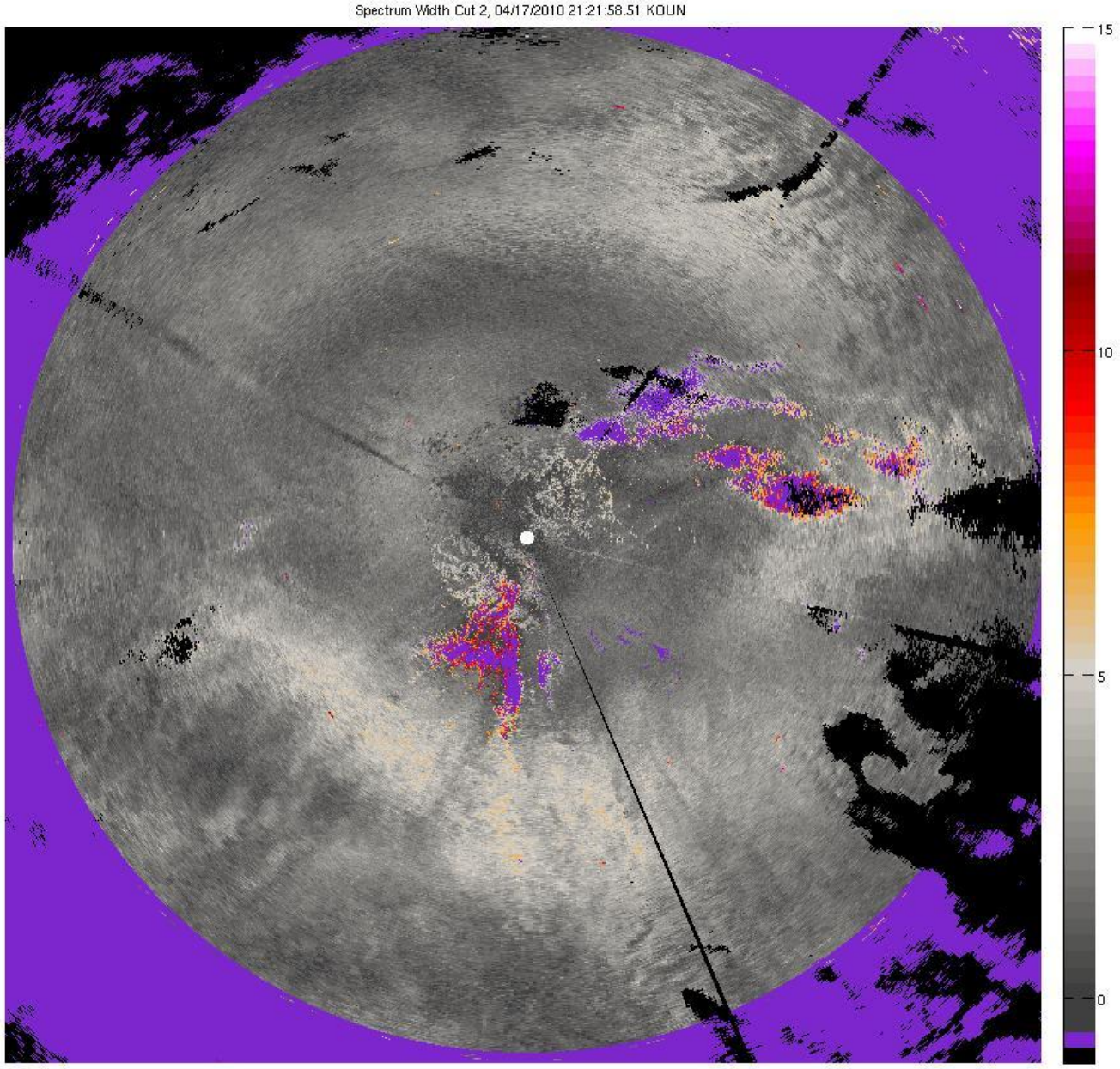
Reflectivity



Velocity



Spectrum Width



Hybrid Spectrum Width

Testing

- Software has the capability to turn HSW on and off
  - Visually examine the results
  - Use playback data to confirm that performance matches algorithmic expectations and meets the System Specification
- Unit Testing
  - Compare output from NCAR MATLAB software to output from ORDA software
    - Performance without clutter filtering yields expected results
    - MATLAB software lacks GMAP capability, so clutter filtered processing cannot be directly compared
      - Clutter filtered data process is independently tested

Testing (cont'd)

- Data Quality Group
  - Results from testing will be presented to the Data Quality Group for evaluation and approval
- NCAR requests
  - Send ORDA processed data to NCAR to confirm the performance
    - Greg Meymaris to complete under Data Quality MOU funding

Remaining Steps for Deployment

- Completion of Build 13 software development cycle
- Complete analysis to verify HSW performance
- Approval from the Data Quality Team
- Routine software build tests (Schedule TBD)
  - Integration tests
  - System tests
  - Ops tests
  - Beta tests