

NSSL – ROC Technology Transfer MOU Data Quality Related Work

NEXRAD TAC - Information Brief

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NSSL – ROC Tech Xfer 2004 MOU, Data Quality Related Work

- Topics
 - General MOU information
 - Data quality related tasks
 - Other MOU tasks

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- MOU Managers are Don Burgess (NSSL) and Mark Fresch (ROC).
- Total funding is \$728K
 - Funding of data quality related tasks is \$114K in FY04.
 - \$153K in FY03 and \$0 in FY02
- Data quality related tasks are:
 - Cross-radar correlation program and
 - ORDA high resolution data evaluation.

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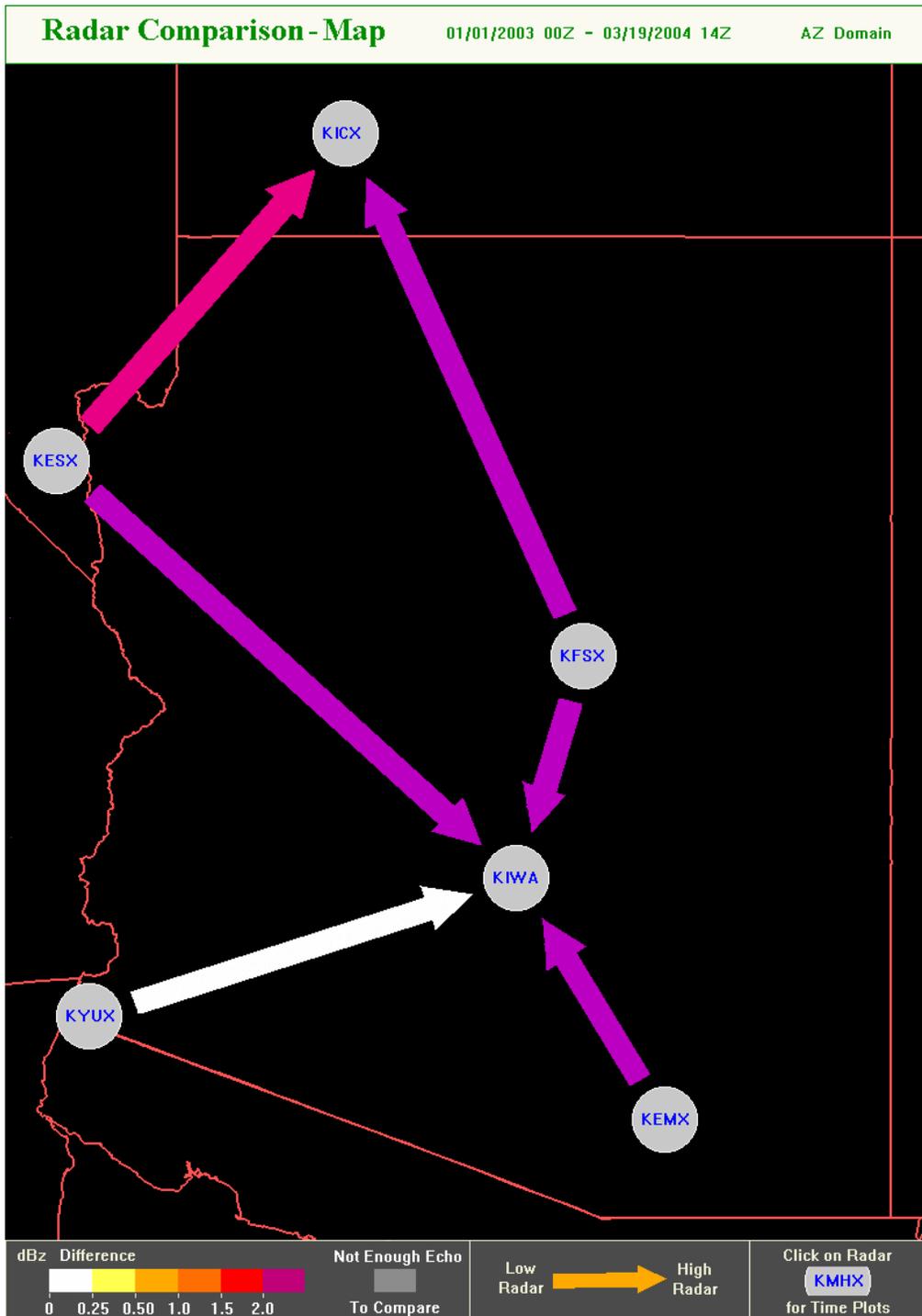
Task #	Task Title	Labor Resources (staff months)			Task Cost (\$K)
		Scientist	Admin/Tek	Student	
1	Management	4.5	3.5	0	114.8
2	Database	1.0	0	12.0	33.1*
3	MDA Neural Network	12.5	0	6.0	170.8
4	New VCPs	7.1	0	6.0	115.0
5	Cross-radar correlation	5.5	0	0	39.9
6	TDWR	1.0	0	0	20.0*
7	ORDA High Resolution Data	4.0	0	3	74.1
8	OPUP Maintenance	12.0	0	0	160.0
Total		47.6	3.5	24.0	728.1

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- Cross-radar correlation program
 - Purpose: ROC tool for identifying potential DQ/calibration issues.
 - Since Spring 03, the program has been in use at 24 radars in three small regions.
 - Hotline helped evaluate and provided positive feedback.
 - NSSL QPESUMs also uses the program's output.
 - FY04 work
 - Expand the scope and maps to the CONUS from three small regions.
 - Update to use NWS level II distribution.
 - Document the prototype software.

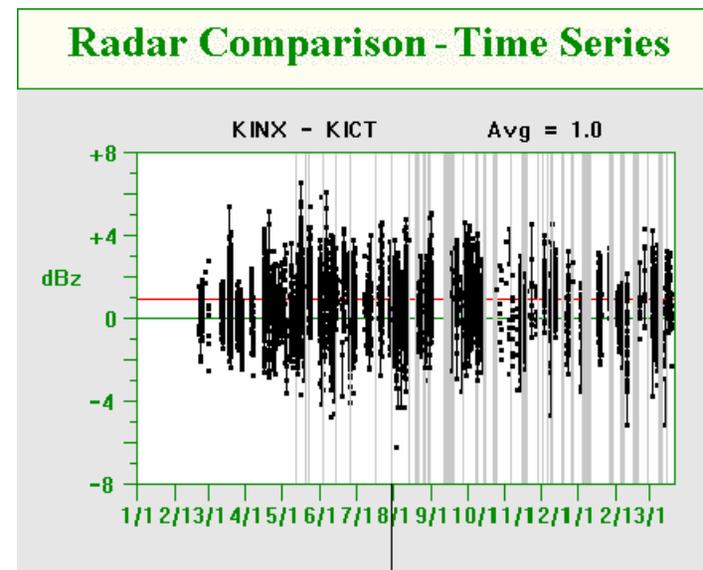
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- Cross-radar correlation program, cont'd
 - How it works:
 - Compares reflectivities of at least 15 dBZ from neighboring radars that are co-located in space and time and similar in sample volume size.
 - For each pair of neighboring radars, the reflectivity differences are averaged for the volume scan.
 - For a user determined time period of days, at each pair of neighboring radars, the average reflectivity difference is then plotted as a color coded arrow pointing to the 'hotter' radar Display (see examples on next slide)
 - Display is a map with arrows between all neighboring radars.
 - Display is web-based and restricted.
 - Display includes a GUI for selecting the time span and locations.
 - Users can also select a radar from the map and bring up time plots of the average radar differences between that radar its neighbors.



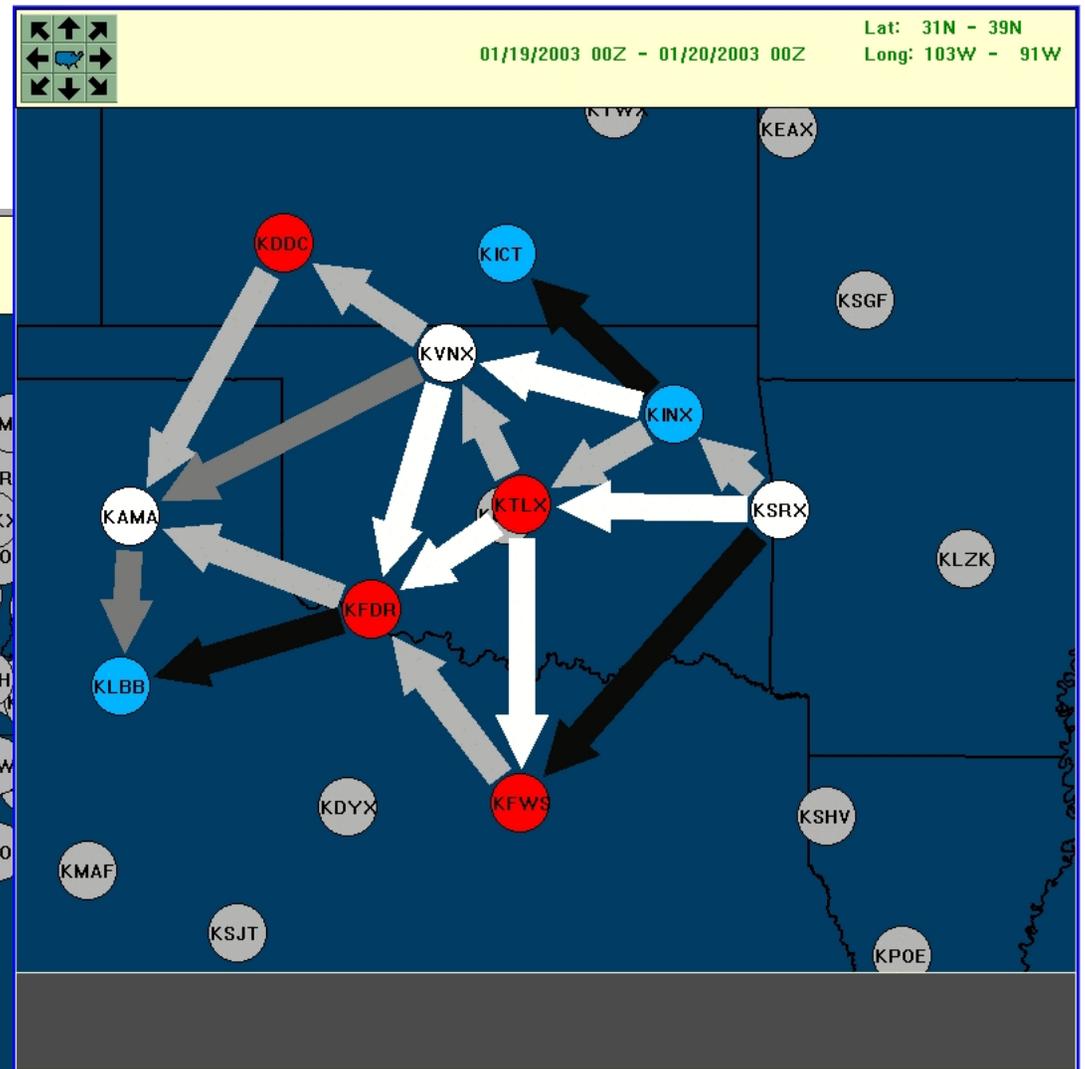
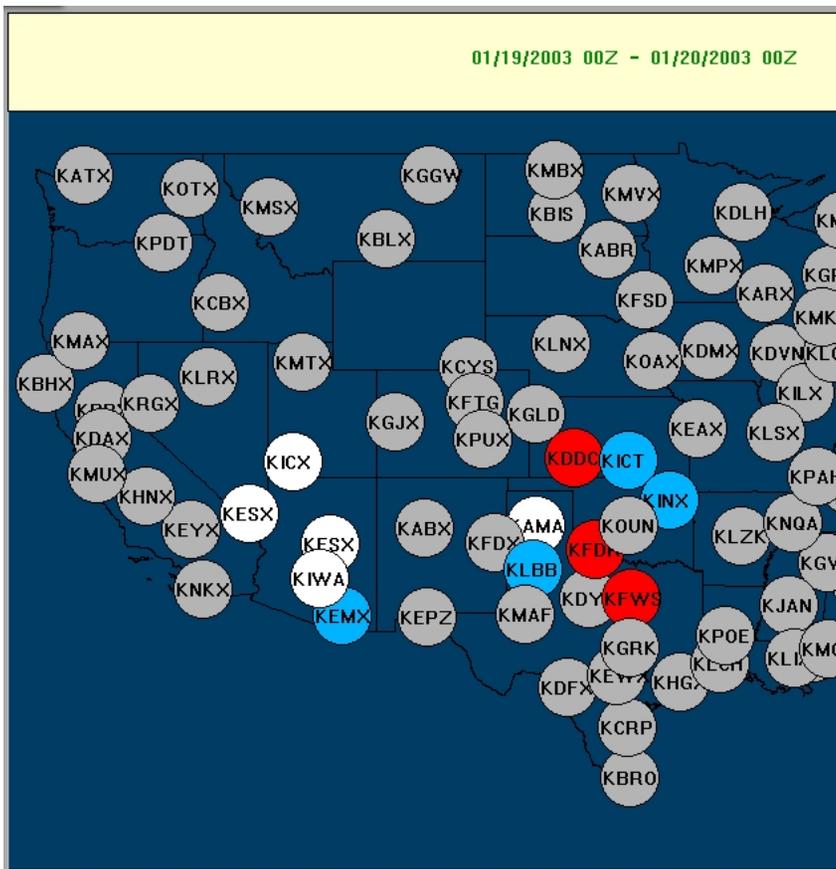
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Display examples from FY03.



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Prototype display
examples for FY04.



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- ORDA High Resolution Data Evaluations
 - 1) Complete comparison of human-determined severe weather signatures from legacy resolution versus high resolution (0.5 degree, 0.25 km) base data.
 - Purpose: Validate that high resolution data is as good as or better for identifying severe weather.
 - Status: Completed - In Dec. 03, a report on the evaluation was delivered by NSSL and sent to SREC agency representatives. The report is still available on the ROC FTP site at [/Pub/NSSL Tech Xfer Reports/2004/NSSL FY04 ORDA High Res Data Eval D7-1.pdf](#)
 - Conclusion: “At all ranges, high-resolution data did a much better job in depicting severe storm characteristics.” Mesocyclone and TVS strengths were 15-20% stronger on average.
 - Positive consideration for high resolution data implementation.

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- ORDA High Resolution Data Evaluations
 - 2) Compare the strengths and sizes of human-determined severe weather circulations in legacy versus recombined base data.
 - Purpose: Determine if there is a data quality problem with recombined data by quantifying differences in severe weather circulations from legacy versus recombined data.
 - Status: Final report on the evaluation is due from NSSL in early July 04. The report will be sent to SREC agency representatives and will be available on the ROC FTP site.
 - Positive consideration for recombination implementation.

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- Other Tasks

- Management

- Purpose: Management and administration, including monthly time accounting, MOU writing, budgeting, technical meetings and review of work

- Database

- Purpose: Maintain local sets of data types not archived elsewhere (such as level I data) in support of technology transfer activities

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- Other Tasks
 - MDA Neural Network
 - Purpose: Evaluate whether the Mesocyclone Detection Algorithm performs better with a Neural Network incorporating environmental data
 - Project deliverable: Report and TAC/SREC recommendation, Sep. '04
 - New VCPs
 - Purposes:
 - Determine effective ways to automatically select VCPs
 - Evaluate and compare algorithm performance using the fast (2.3 minute) VCP versus VCP 11 and/or 21
 - Project deliverables:
 - Report on automated VCP selection, July '04
 - Report on fast VCP evaluation, Oct. '04

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- Other Tasks

- TDWR

- Purpose: Complete evaluation (started in 2003) of 2D algorithm performance from TDWR versus WSR-88D.
 - Project deliverable: Report delivered Feb. '04

- OPUP Maintenance

- Purpose: Provide OPUP software maintenance support
 - Project deliverables: Software maintenance and task summaries through CY04.

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Questions and comments