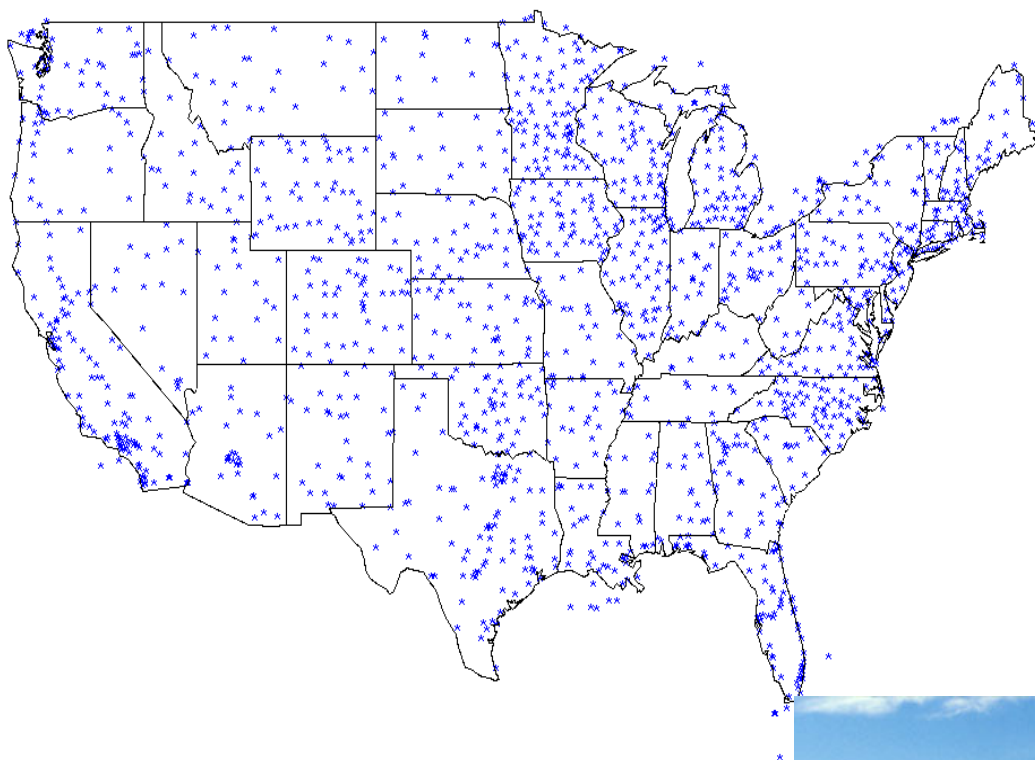


**Quality Assessment -
National Ceiling and Visibility (NCV)
Analysis (now, not forecast)**

Product

Tressa L. Fowler, Matthew J. Pocerlich, Jamie T. Braid,
Anne Holmes and Richard E. Bateman

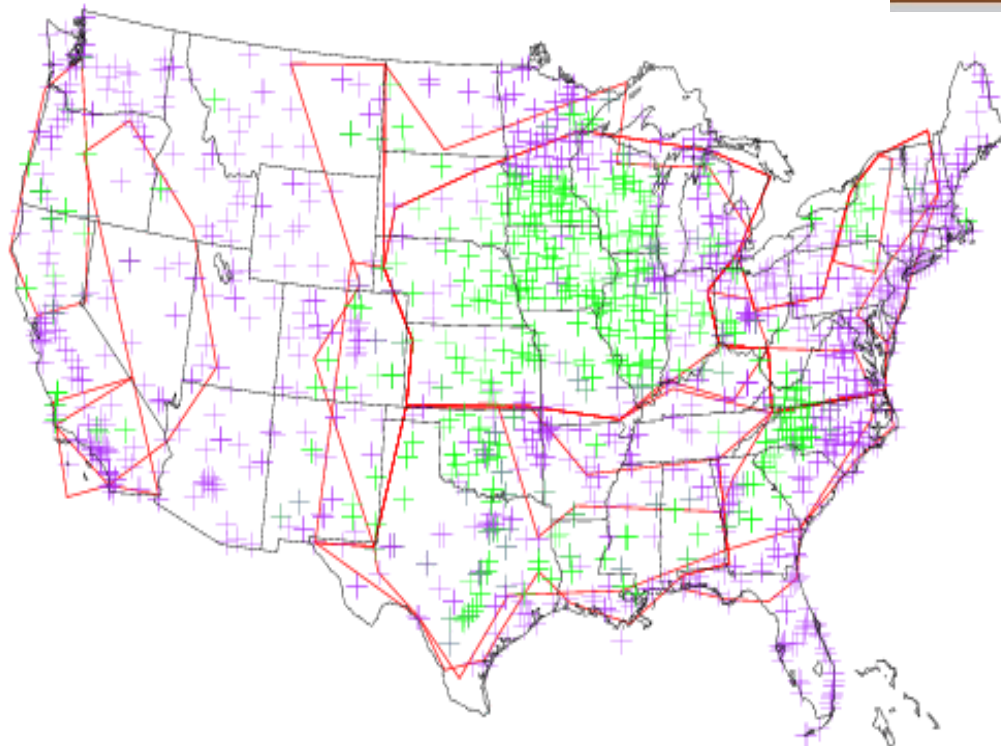
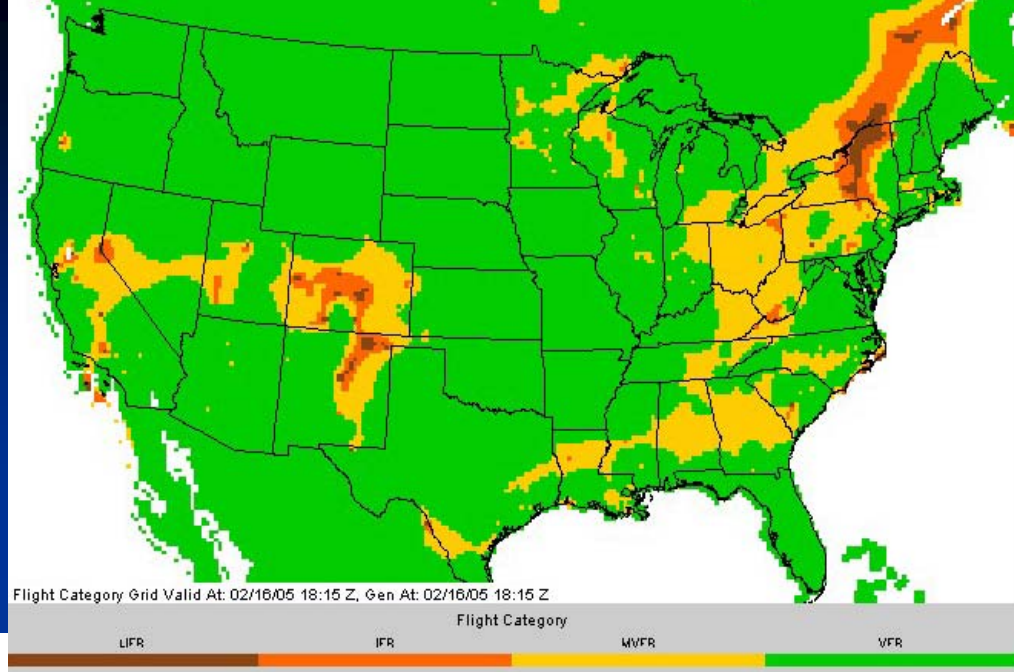


← Surface observing stations

Illustration of →
limitations of surface
observing stations



NCV Analysis →



← AIRMETs plus
surface observations

- 25 October 2004 through 18 January 2005
- NCV analyses - Hourly
- Gridded
- C and V AIRMETs - 6 hourly
- Polygon

What is going on between stations?

We don't know, so we fake it!

■ Cross-validation:

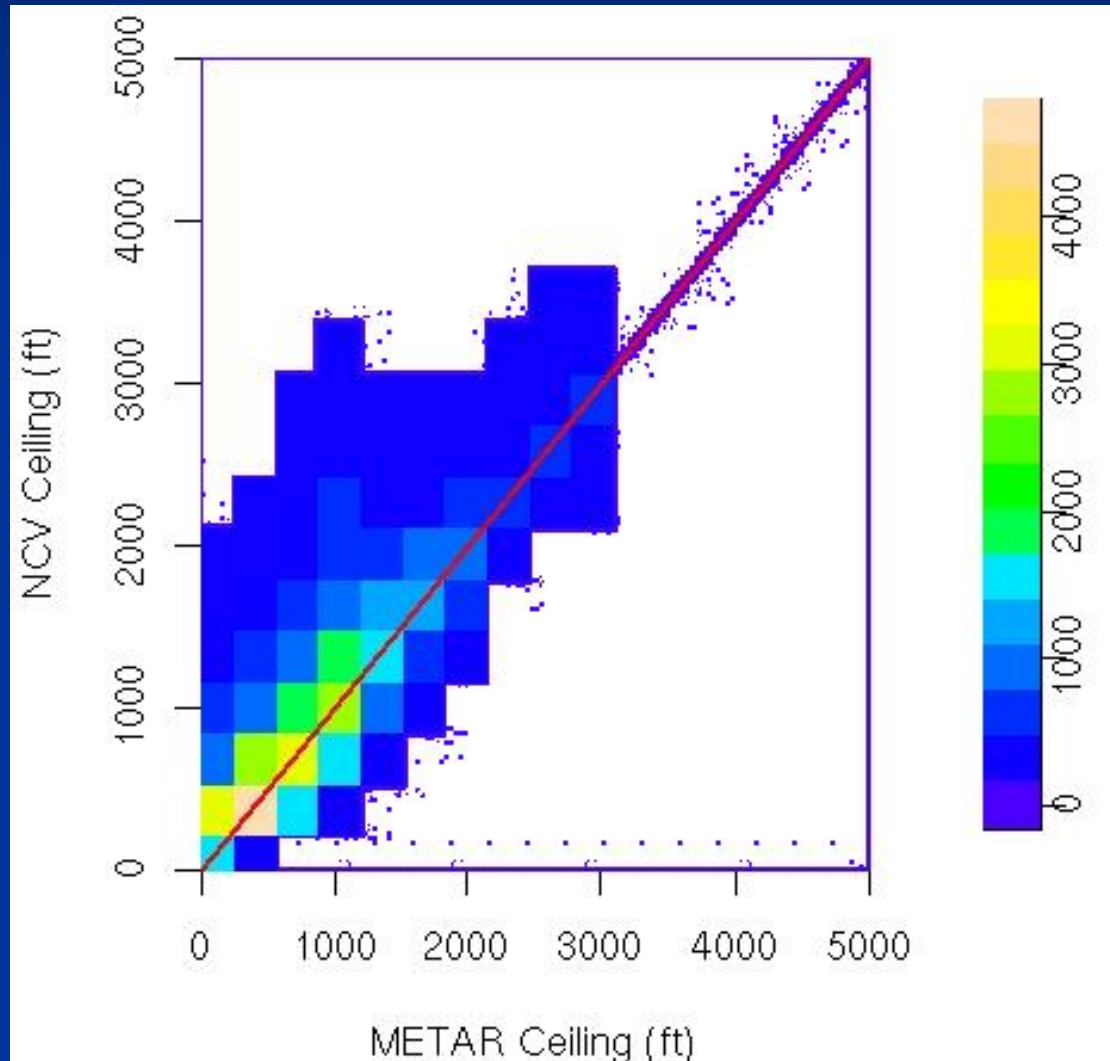
- “Hide” some stations.
- Create product using remaining stations.
- Did product identify conditions correctly at hidden stations?

Flight Rules with Associated Ceiling Levels and Visibility Limits

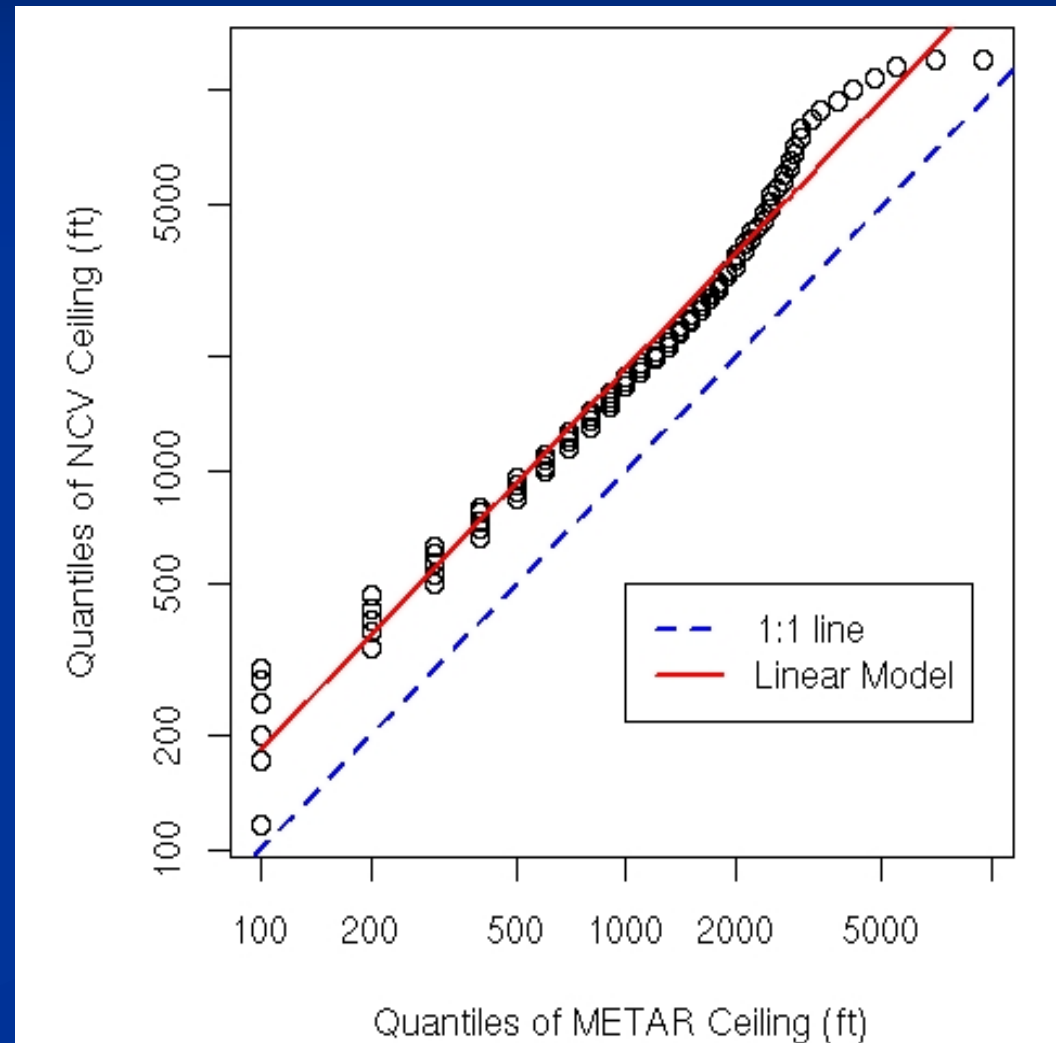
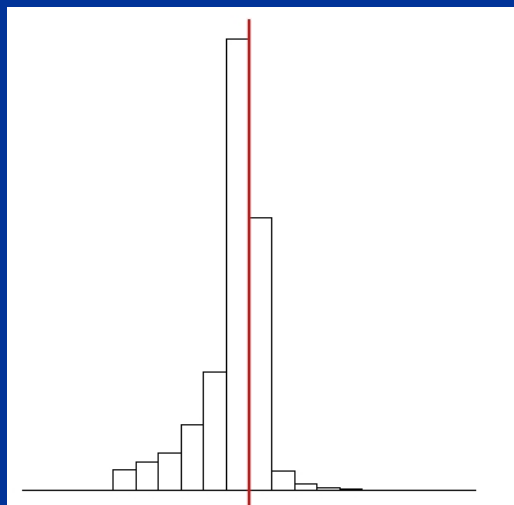
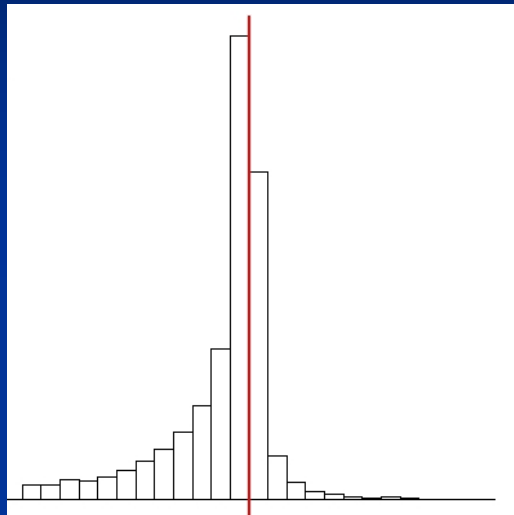
Flight Rules (FR)	Ceiling (ft)	Visibility (mi)
Visual (VFR)	> 3000	> 5
Modified Visual (MVFR)	1000 - 3000	3 - 5
Instrument (IFR)	500 - 1000	1 - 3
Low Instrument (LIFR)	≤ 500	≤ 1

	NCV	AIRMETS
POD	0.57	0.83
POD No	0.97	0.81
FAR	0.19	0.43
Bias	0.70	1.45

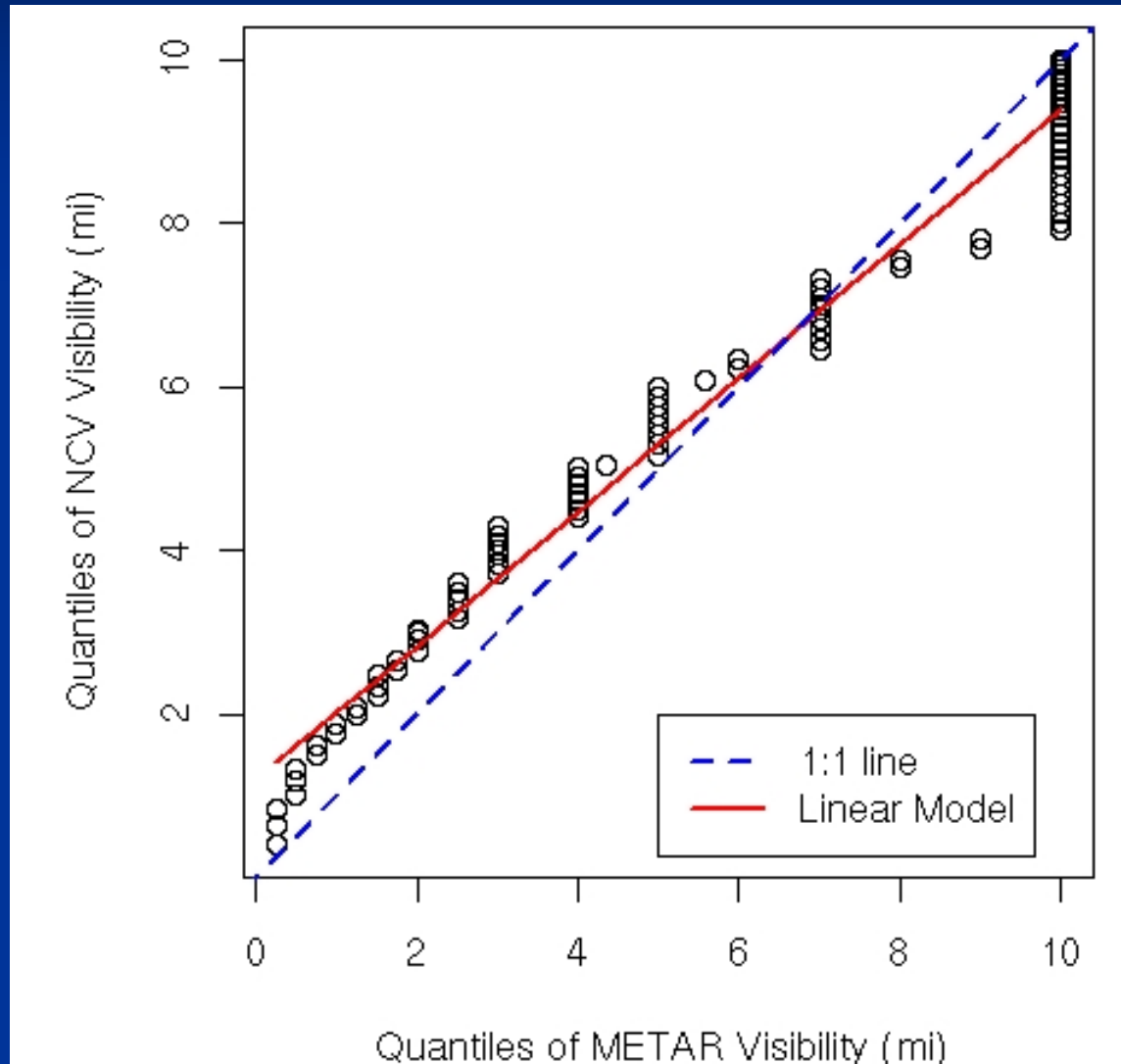
Density Plot of NCV ceiling values vs. METAR ceiling values



Comparison of NCV ceiling values with METAR ceiling values



Comparison of NCV visibility values with METAR visibility values



Sensitivity Analysis

NCV Product Stations	Verification Stations	Accumulated Verification Stations	Resulting Data Set
1300	300	300	Set 1
1450	150	300	Set 2
1450	150		
1525	75	300	Set 3
1525	75		
1525	75		
1525	75		

Cross Validation Results



	POD	POD No	FAR
Set 1	0.765	0.910	0.291
Set 2	0.770	0.908	0.294
Set 3	0.773	0.907	0.294

Conclusions

- This assessment gives an idea of how well the NCV product performs between METAR sites.
- Flight categories under-identify IFR somewhat, but low FAR.
- NCV Visibility matched well with the observed METAR visibility at all levels.
- NCV Ceiling matched well with the observed METAR ceiling below 10K feet and “unlimited”, but overestimated in between.
- Cross-validation results insensitive to “holdout” proportions between 5% - 20%.