Performance of the NAQFC in Philadelphia during Summer 2014

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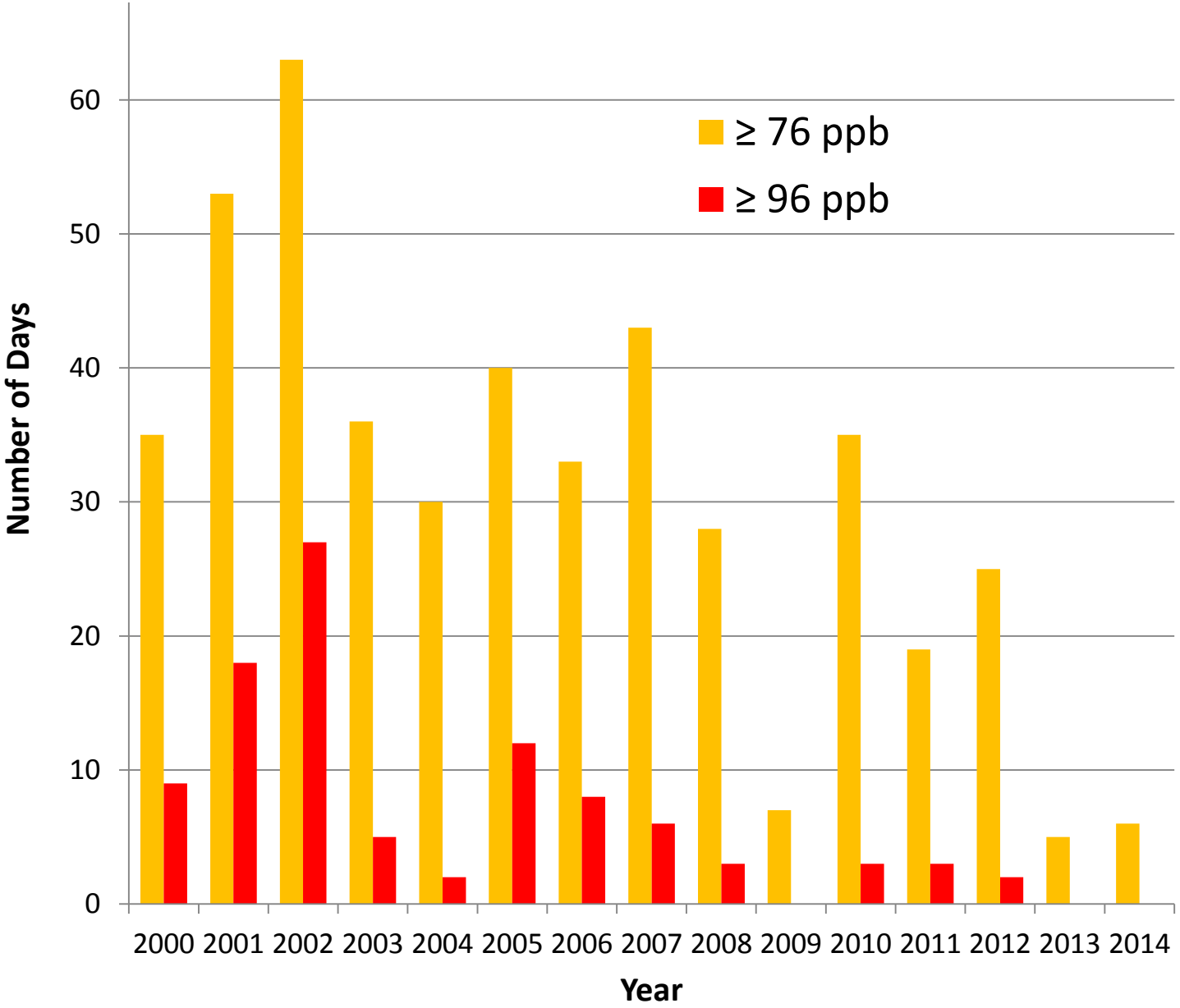
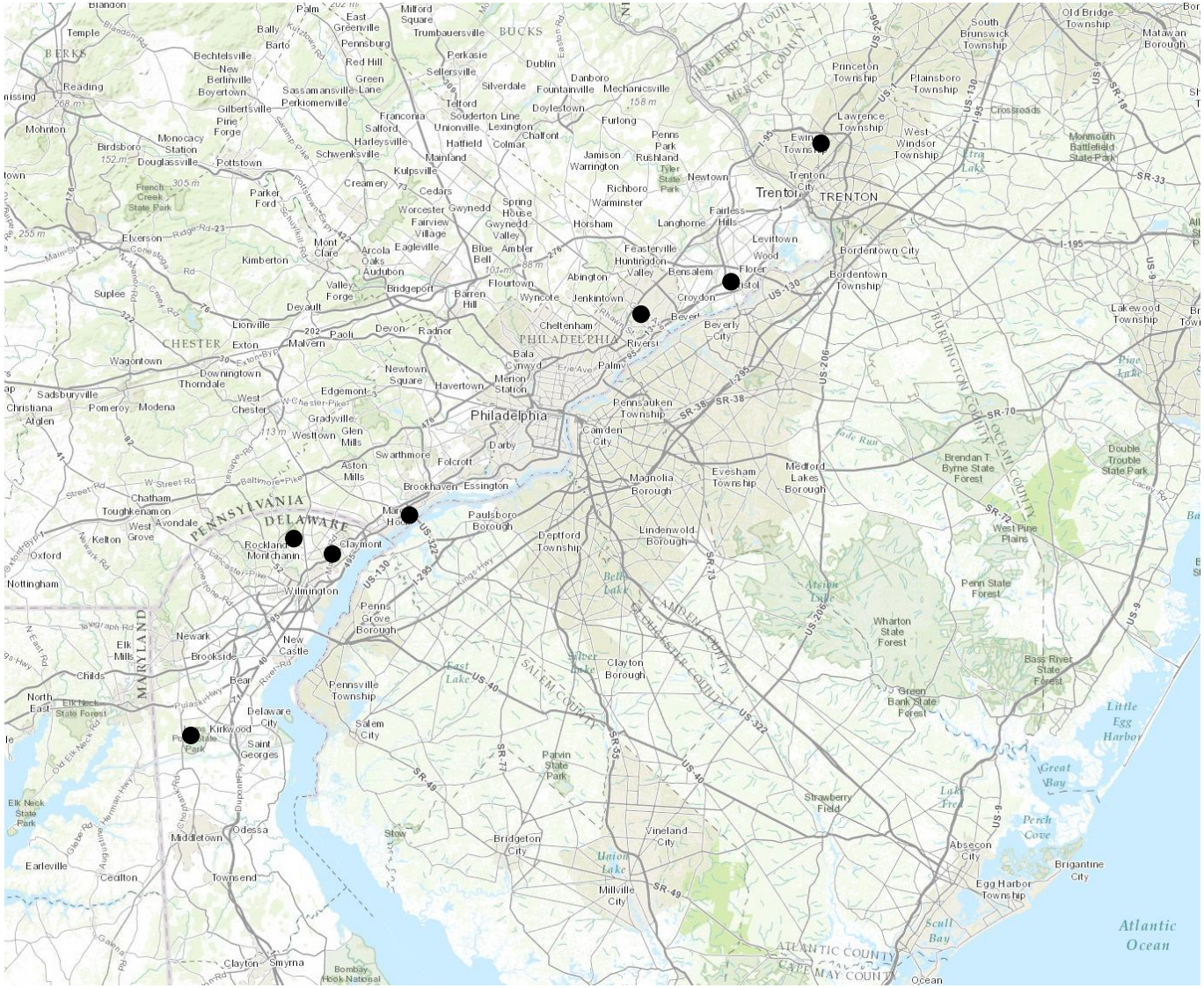
2nd Atypically Low Ozone Season in a Row in PHL



Only 6 Ozone Exceedance Days in PHL in 2014

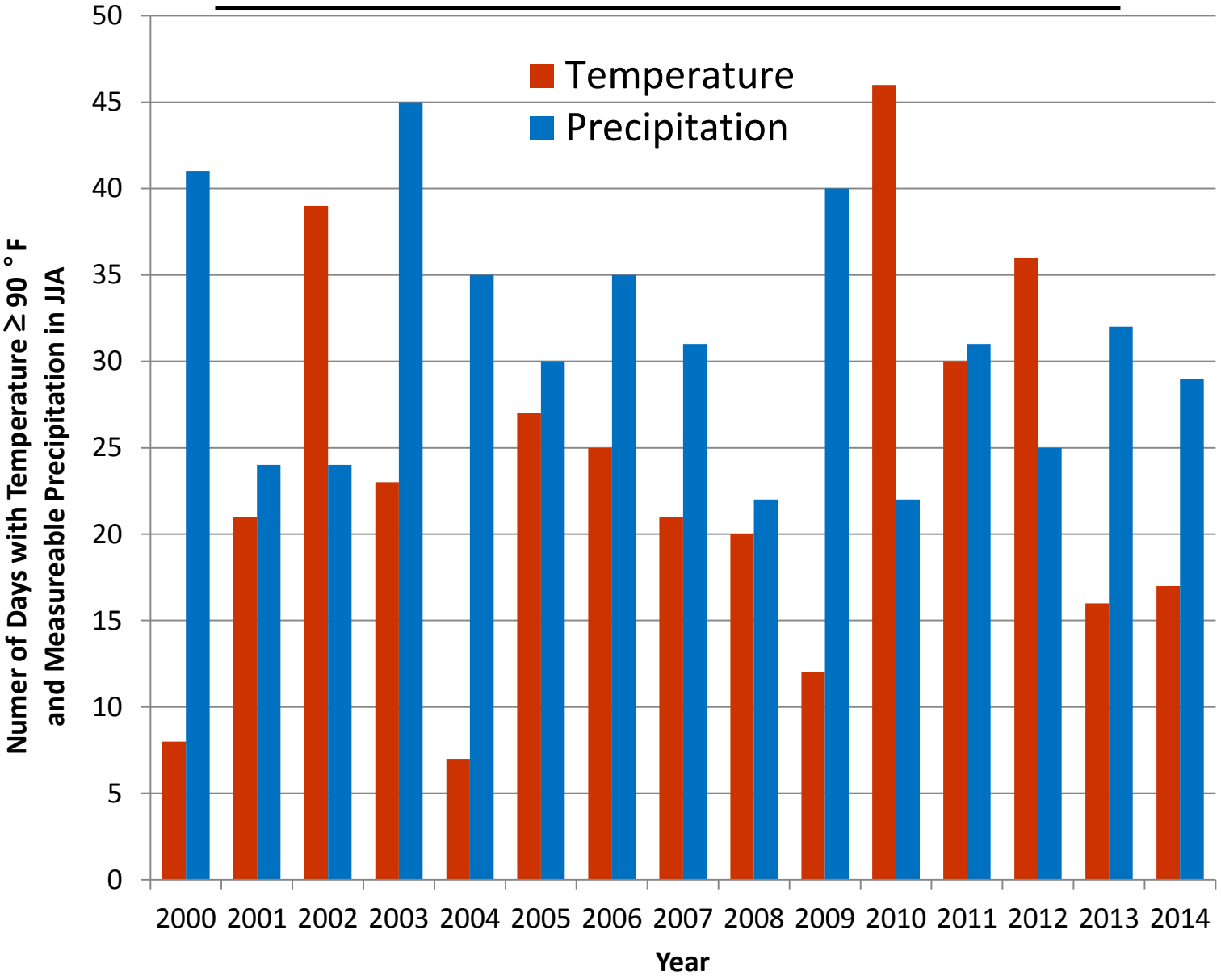
Date	Max 8-Hr Average O_3 (ppb)	Monitor w/ Max 8-Hr Average O_3	Number of Exceeding Monitors
6/16	84	Philadelphia Northeast Airport (KPNE)	3
6/28	77	Chester, PA	1
7/7	76	Rider University, NJ	1
7/8	78	Brandywine, DE	1
7/11	83	Chester, PA and Bellefonte, DE	4
8/27	94	Bristol, PA	11

Locations of Monitors w/ Highest Maximum 8-Hr Average O_3 on Exceedance Days in 2014

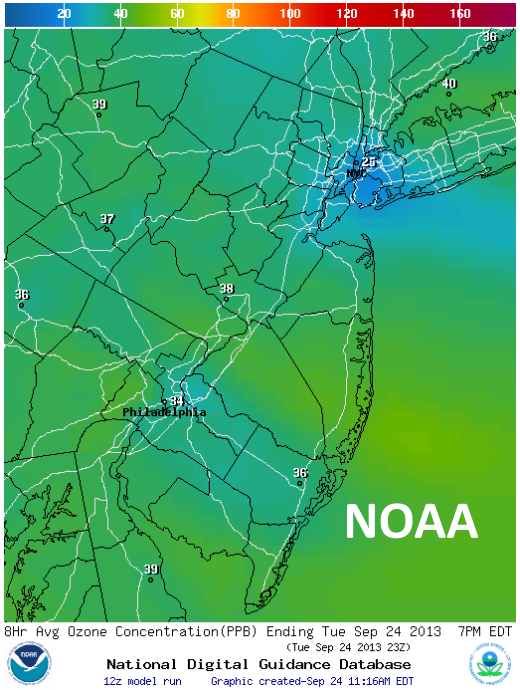


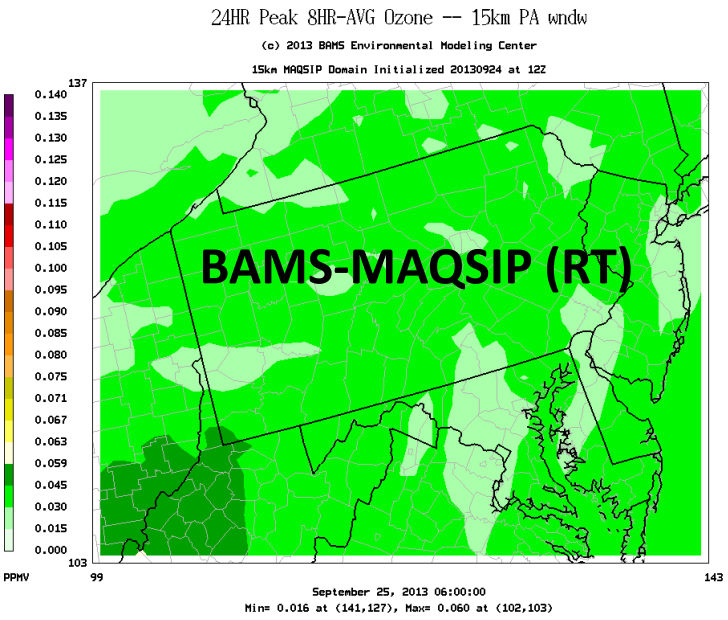
- Very localized O_3 production along/near I-95
- Occurred on hot days (T_{max} > 85 °F) with calm winds and full sun
- Transport aloft and persistence not key factors

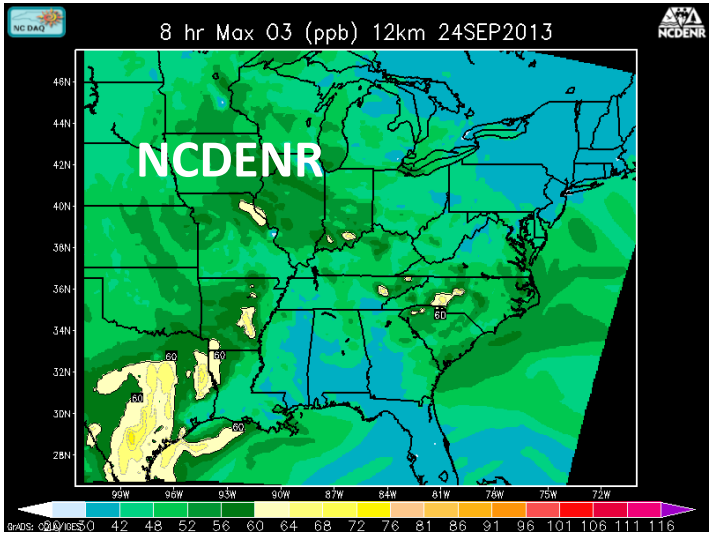
Summer (JJA) Temperature and Precipitation Were Similar to Last Year in PHL

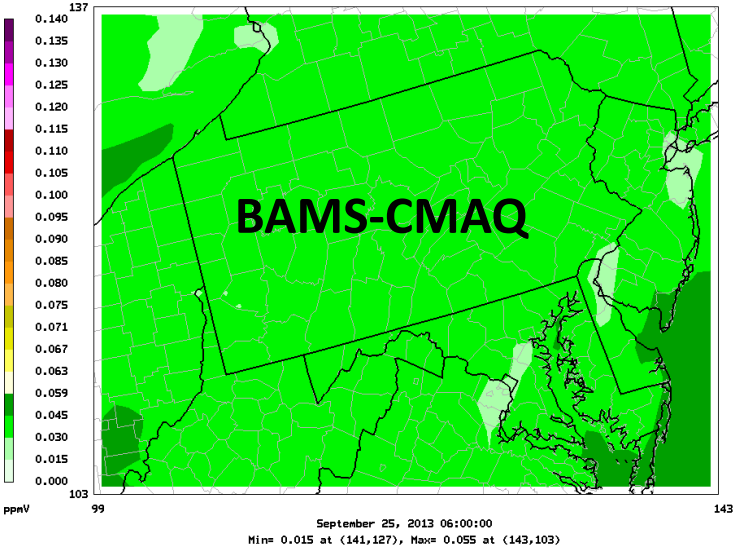


2014 AQ Model Ensemble for PHL (Same as 2013)

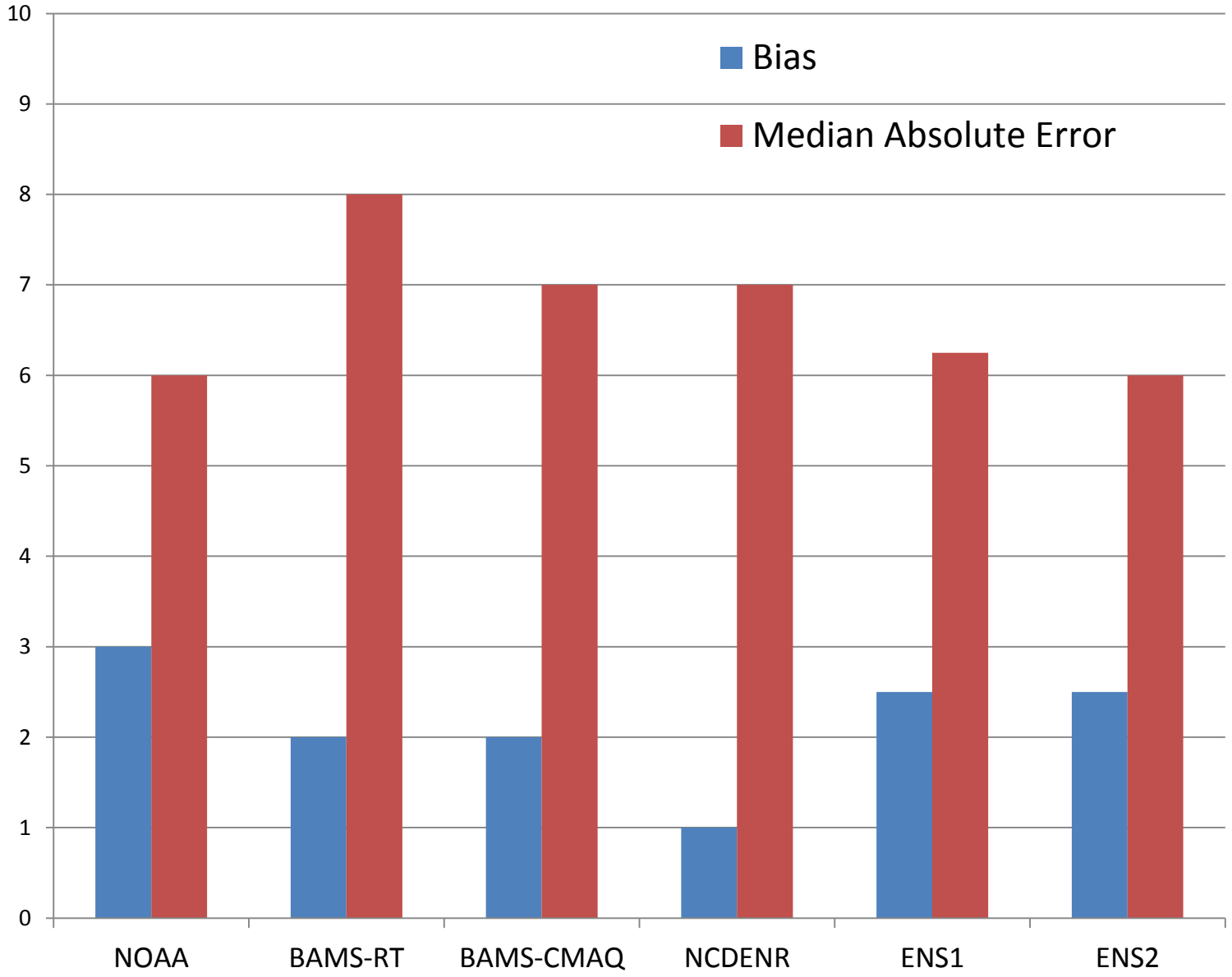




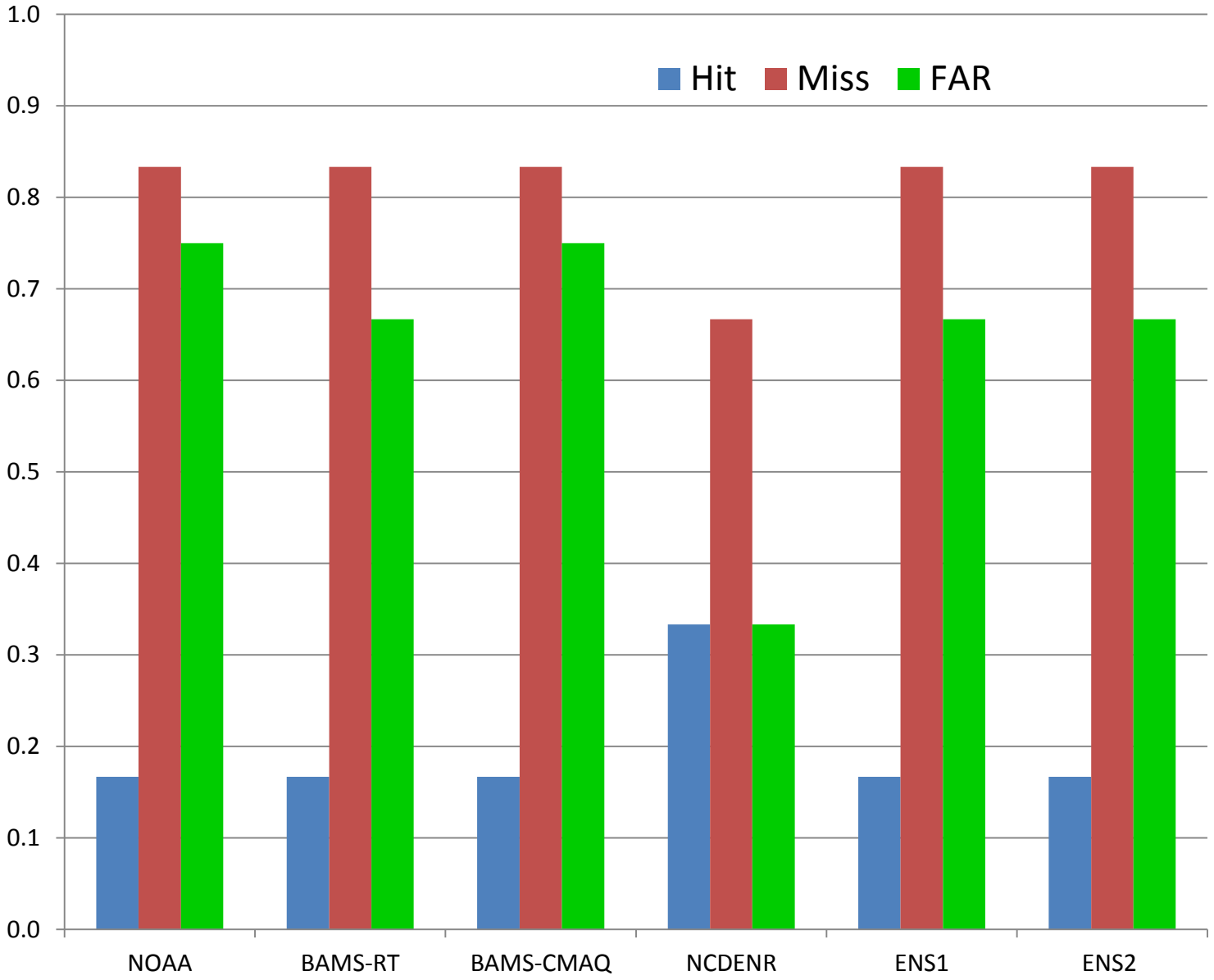




Air Quality Model Ensemble Results for Entire O_3 Season



Standard Skill Score Measures for O_3 Exceedance Days



Conclusions

- Summer 2014 was not conducive for O_3 formation
  - Progressive pattern
  - No extended, multi-day heat waves with ridge of high pressure aloft and westerly transport from Ohio River Valley
  - O_3 exceedance days occurred when surface high pressure overhead: hot (T_{max} > 85 °F), calm winds, full sun
  - Transport and persistence not major factors (3 of 6 exceedances occurred immediately after Code Green day)
  - Very difficult to forecast!
- All AQ models over-predicted peak O_3
  - High temperature only one of several factors that contributed to high O_3 in 2014
- Use of AQ model ensemble didn't really help much this summer

Acknowledgements

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AIR QUALITY PARTNERSHIP