

Scientific Issues and Findings Concerning Atmospheric Mercury in Wisconsin

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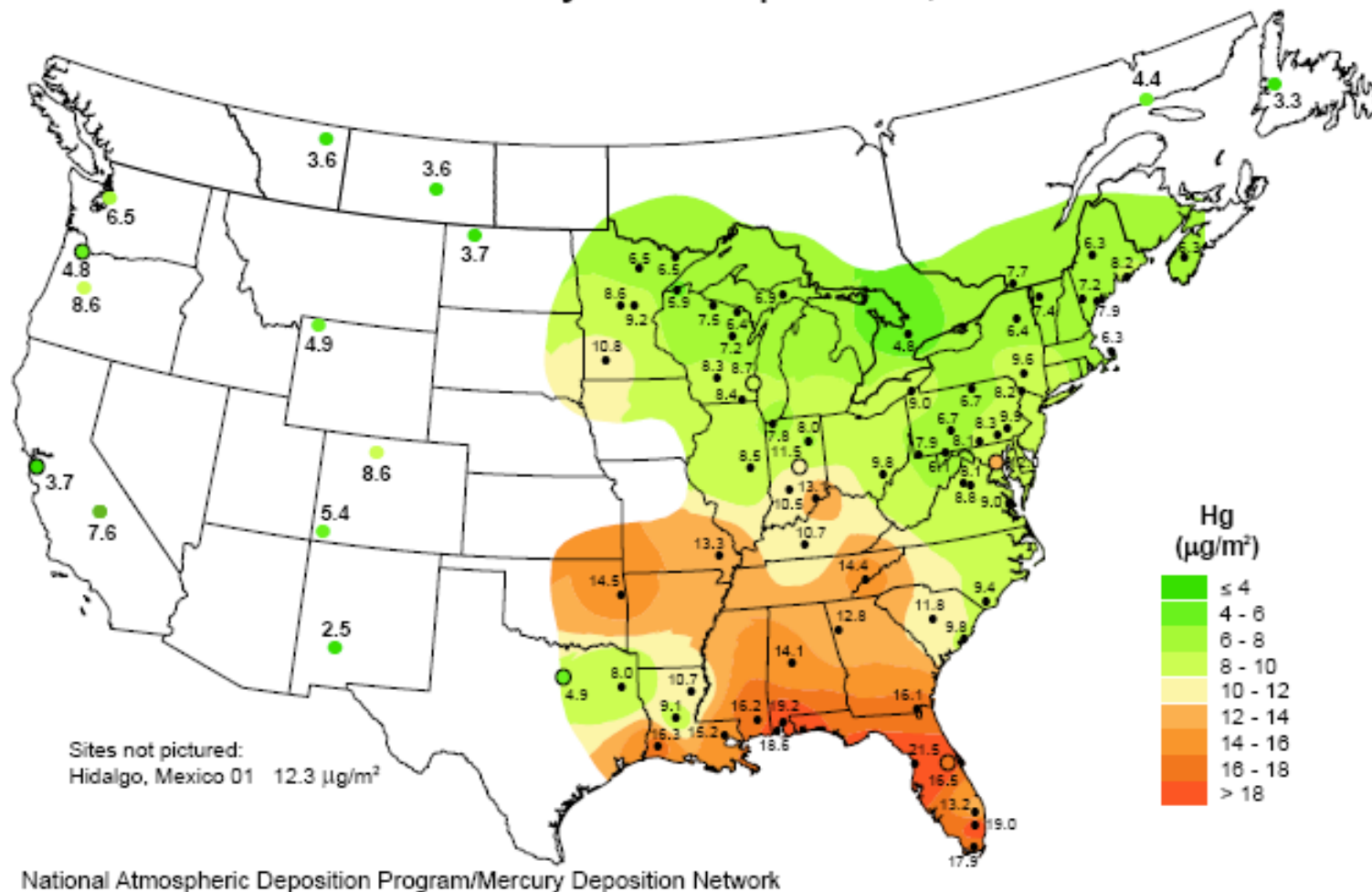


Key Issues and Conclusions

- Within state (i.e. local sources) of mercury are important contributors to atmospheric mercury species in Wisconsin
 - Relative contributions vary by location
 - Relative contributions vary by mercury species
- Source-receptor relationships for atmospheric mercury in Wisconsin have not been well quantified
 - Wet and dry deposition are both important
 - The Mercury Deposition Network (MDN) is specifically designed to monitor mercury wet deposition in remote locations away from major sources
 - Conclusions about emissions inventory of elemental mercury emissions (i.e. emissions inventory) or atmospheric concentrations is not sufficient to quantify key sources of deposition
 - Very difficult to accurately quantify the sources of wet deposition of mercury (i.e. MDN network)



Total Mercury Wet Deposition, 2005

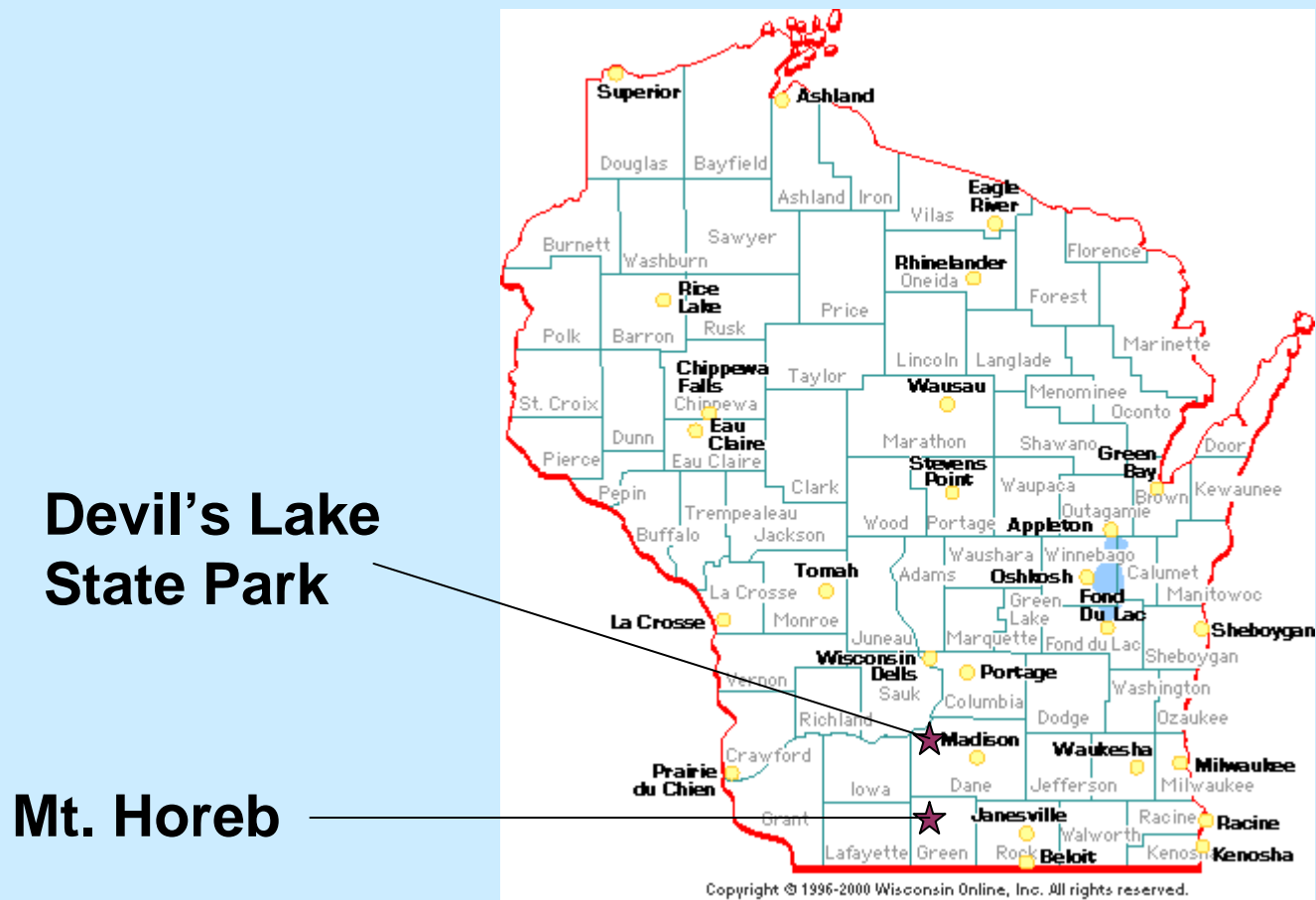


<http://nadp.sws.uiuc.edu/mdn/>

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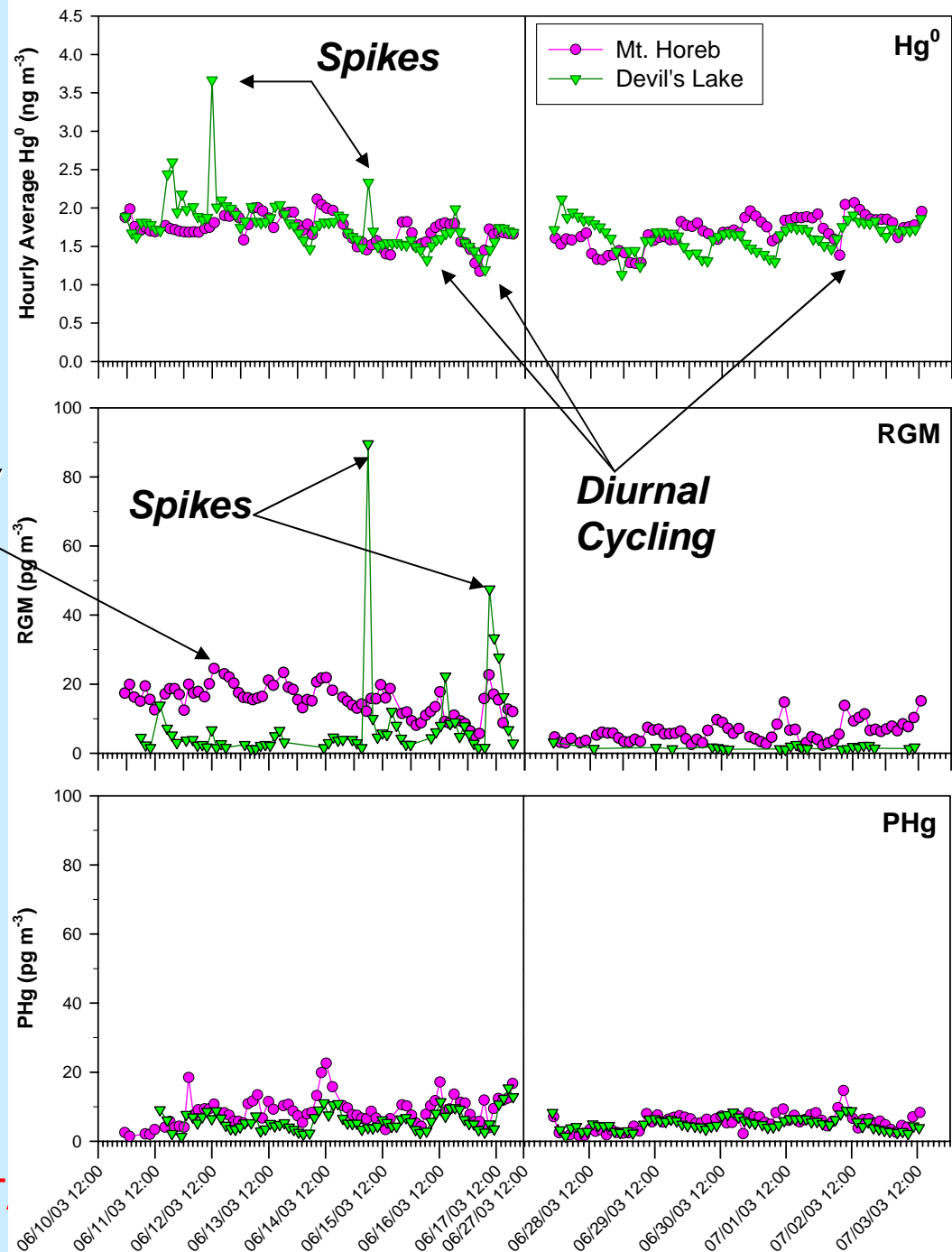


Mercury at two remote sites: Devil's Lake State Park and Mt. Horeb (Manolopoulos et al., 2007, JEES, 6, 491-501)



Regional Comparison of Atmospheric Hg Species

Persistently Higher



ENVIRONMENT

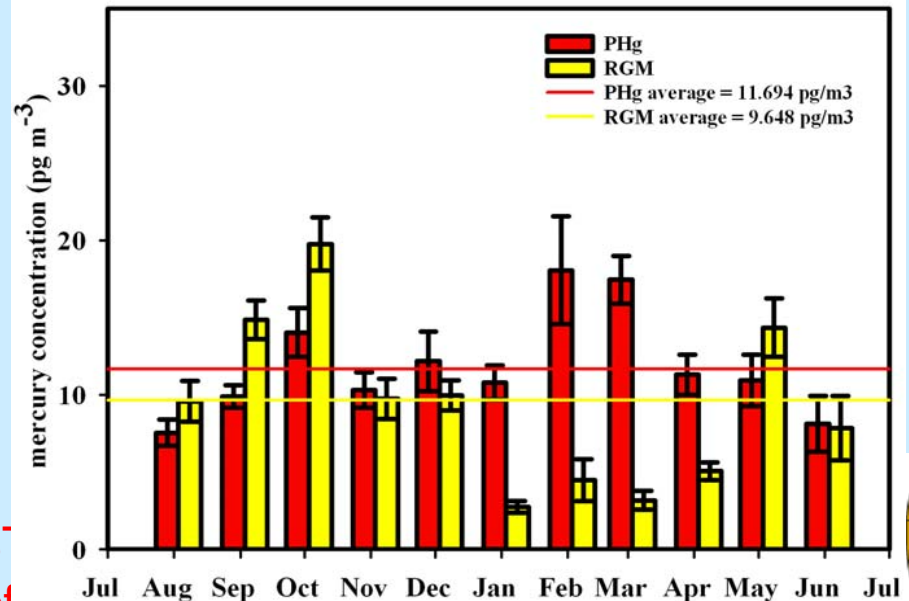
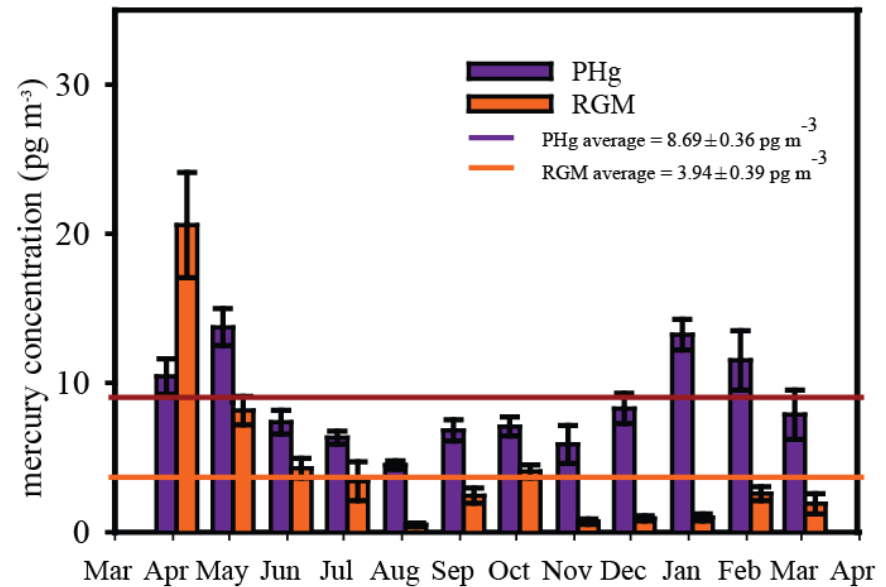


A comparison of speciated atmospheric mercury at an urban center and an upwind rural location†

Rural and Urban Receptors

- Devil's Lake
 - Measurements compare well with results presented by Lynam and Keeler, 2005 for a rural Michigan site
- Milwaukee
 - Reactive mercury statistically elevated compared Devil's Lake
- Local Source Impacts
 - Devils' Lake
 - Elemental: 2%
 - Reactive: 48%
 - Milwaukee
 - Elemental: 33%
 - Reactive: 64%

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Sources of Speciated Atmospheric Mercury at a Residential Neighborhood Impacted by Industrial Sources

