



**NOAA's Atmospheric Mercury Monitoring  
in the Gulf of Mexico Region**  
**[April 2007 summary]**

This summary is updated periodically, and the current version is posted (in PowerPoint and PDF formats) at:

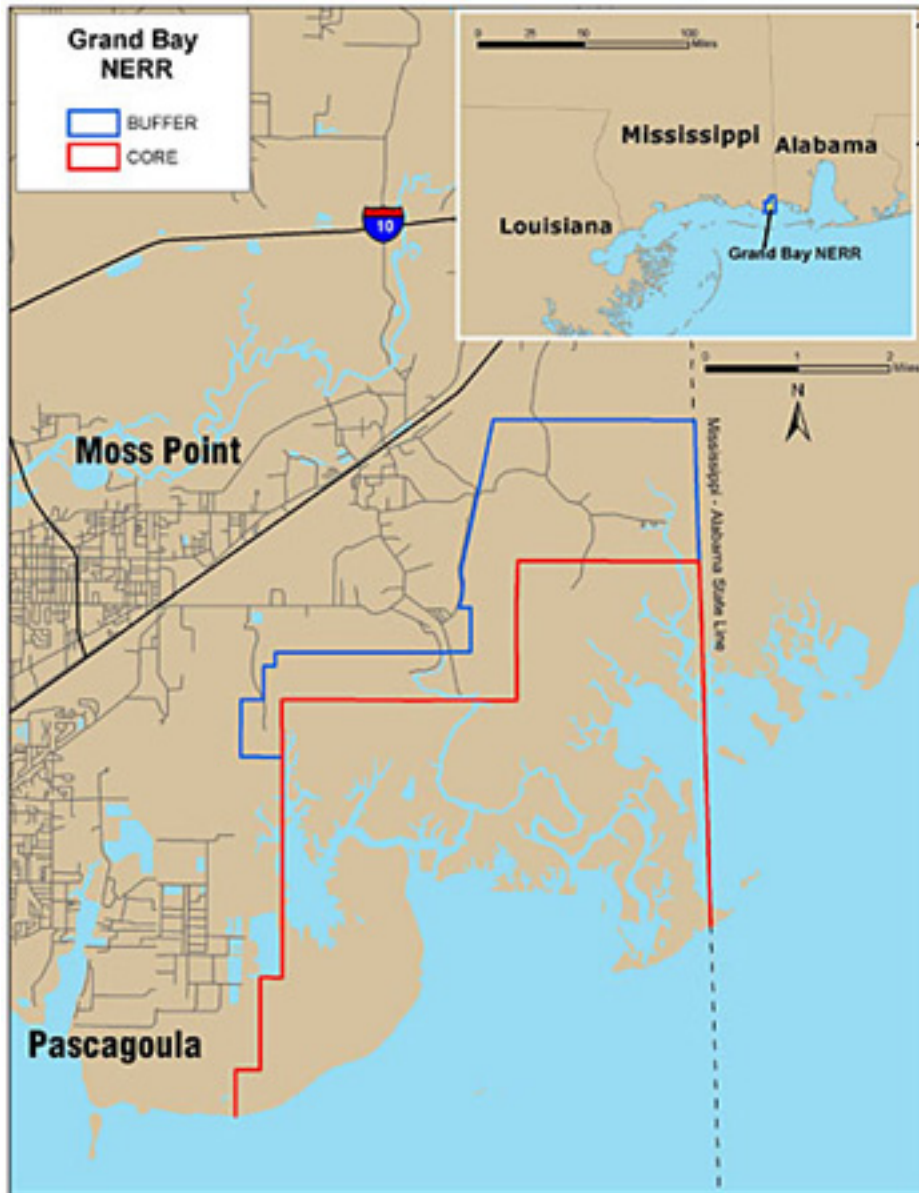
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In September 2006, the National Oceanic and Atmospheric Administration (NOAA) Air Resources Laboratory (ARL) and the Grand Bay NERR established a long-term atmospheric monitoring station for the measurement of speciated mercury compounds and ancillary trace species at the Grand Bay (Mississippi) National Estuarine Research Reserve (NERR) in Moss Point, MS.

The measurements are designed to:

- Assemble a long-term, publicly available data record**
- Discern trends in atmospheric mercury concentrations**
- Derive dry deposition estimates**
- Elucidate mercury source-receptor relationships**
- Establish correlations with meteorology and ancillary trace species to better understand the emission, transport, transformations, and fate of mercury in the atmosphere**
- Provide a data set for model evaluation**

# Grand Bay Estuarine Research Reserve



## November 2006: Update –Grand Bay NERR



- Ancillary trace measurements added October 20, 2006:  
CO, O<sub>3</sub>, SO<sub>2</sub>
- Site operator selected and given initial training, SOP guidelines and instructions, Instrument status forms, etc.
- Scaffold Tower added Oct. 20, 2006  
Current height of Inlet: 4 m
- Will add dedicated Met system and new CO detector  
Dec. 2006
- Discussions proceeding on renovation of Pavilion site, addition of tilt-down tower, Internet communications, etc.
- Will establish MDN measurements FY2007
- Equipment procurement:  
SO<sub>2</sub>, Trailer improvements/replacement, Internet, etc.



# Recent Upgrades to Grand Bay NERR Site: Feb. 27-March 1, 2007



## Added:

- Meteorological measurements (T, RH, WS, WD, Solar, Precip Rate/Amount)
- Upgraded CO Detector Run side-by-side with original instrument for QA, continuity of measurements
- New data acquisition software for CO, O<sub>3</sub>, Met

# April 2007: Status of Atmospheric Measurements at Grand Bay NERR, Mississippi

*Type of Measurement:*

A = concentration in ambient air  
 B = concentration in precipitation  
 C = meteorological parameter



Measurement	Type	Start Date
Elemental mercury	A	Sept 2006
Fine particulate mercury	A	Sept 2006
Reactive gaseous mercury	A	Sept 2006
Sulfur dioxide	A	Oct 2006
Ozone	A	Oct 2006
Carbon Monoxide	A	Oct 2006
Nitrogen Oxides (NO, NO <sub>y</sub> )	A	*
Wind speed	C	Feb 2007
Wind Direction	C	Feb 2007
Relative Humidity	C	Feb 2007
Temperature	C	Feb 2007
Precipitation	C	Feb 2007
Total mercury in precipitation	B	*
Major ions in precipitation	B	*

\* to be established

# Planned Activities at Grand Bay NERR Site: April 30-May 3, 2007



- Remove old CO detector (has been running side by side with new instrument for the last month)
- Add freshly calibrated O<sub>3</sub> detector to run side by side with current O<sub>3</sub> detector for about a month –QA
- Tekran maintenance, filter and glassware changes as needed
- Replace a/c unit in trailer
- Meet with contractors –fence, power, etc.



## Update on Planned Future Activities

- Initial cost estimate to extend roofline of Pavilion and add a secured private enclosure was almost \$30K
- The new plan is to simply construct a wooden privacy fence near the Pavilion, to hide and protect the trailer and monitoring equipment and to restrict access to a planned walk-up sampling scaffold (10m)
- Procurement request for trailer will be submitted in the coming days.



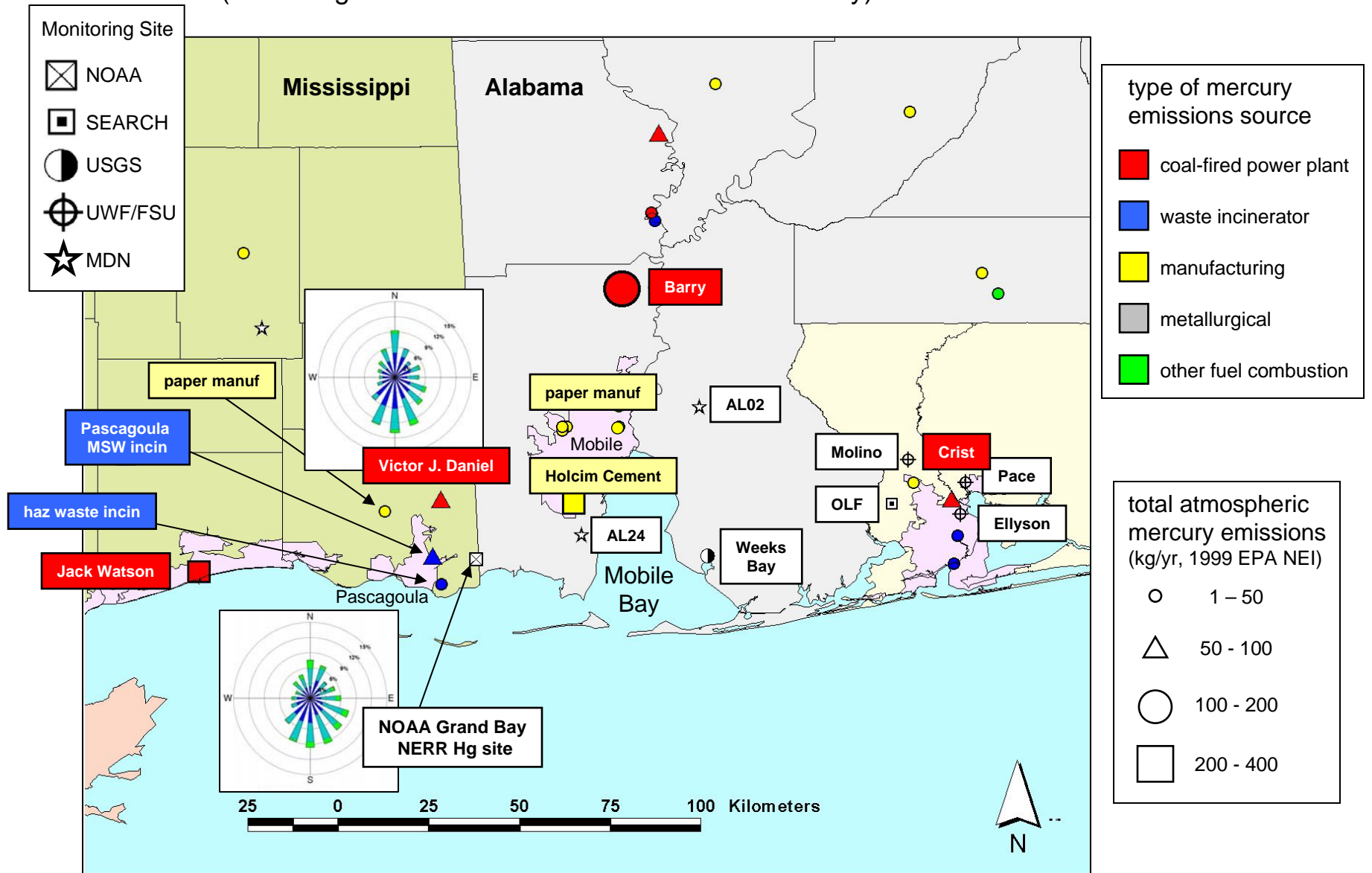


## **Update on Planned Future Activities Continued**

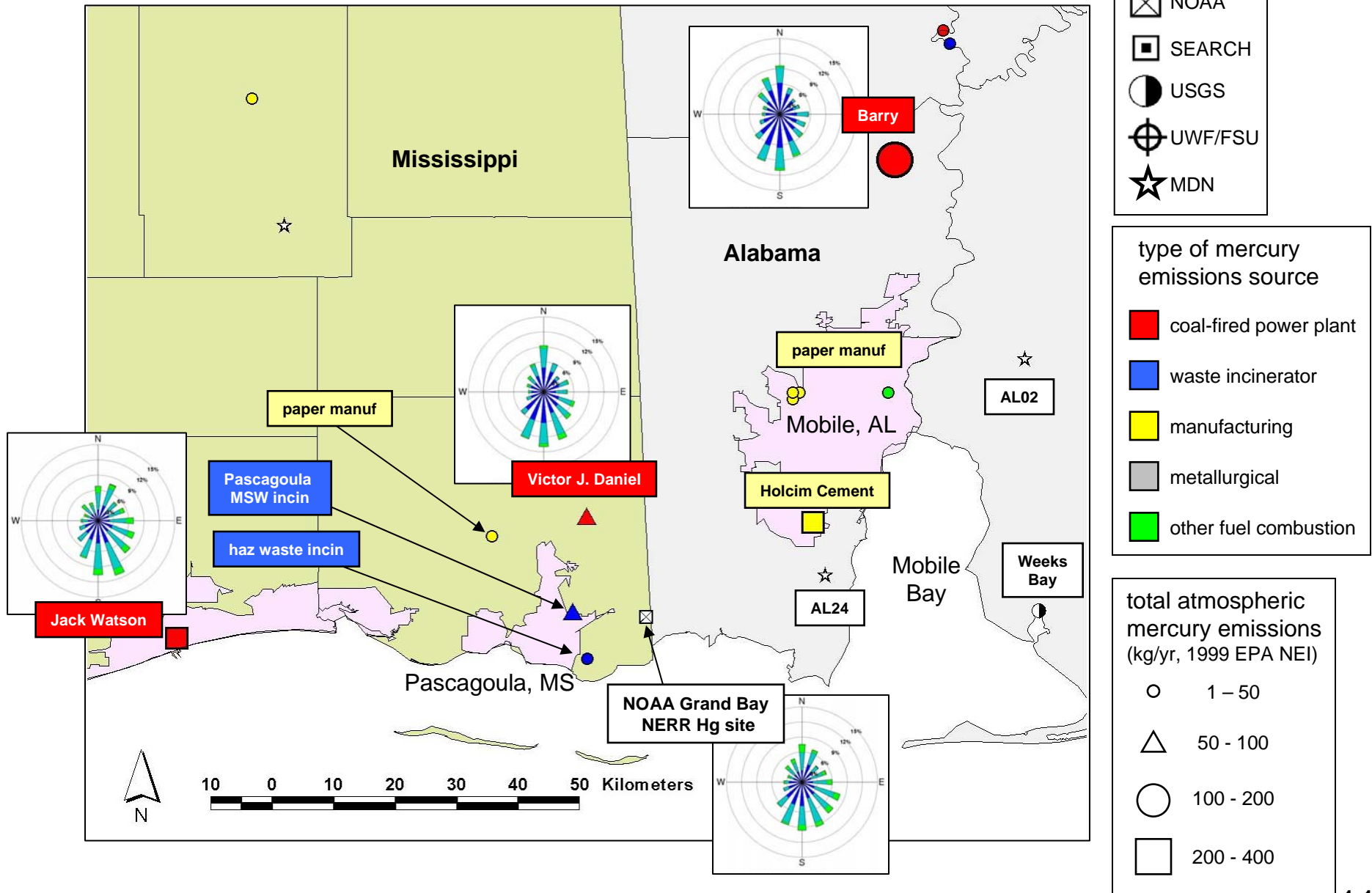
### **Other activities planned for FY2007:**

- **Addition of MDN collector, NO/NO<sub>y</sub> analyzer**
- **Purchase and installation of new, upgraded trailer**
- **Possible upgrade of SO<sub>2</sub> detector (subject to availability of funds)**
- **Installation of second Tekran system to allow for evaluation of QA/QC protocols, and to provide a continuous data stream.**
- **Pavilion site upgrades as discussed above, including power and internet access**

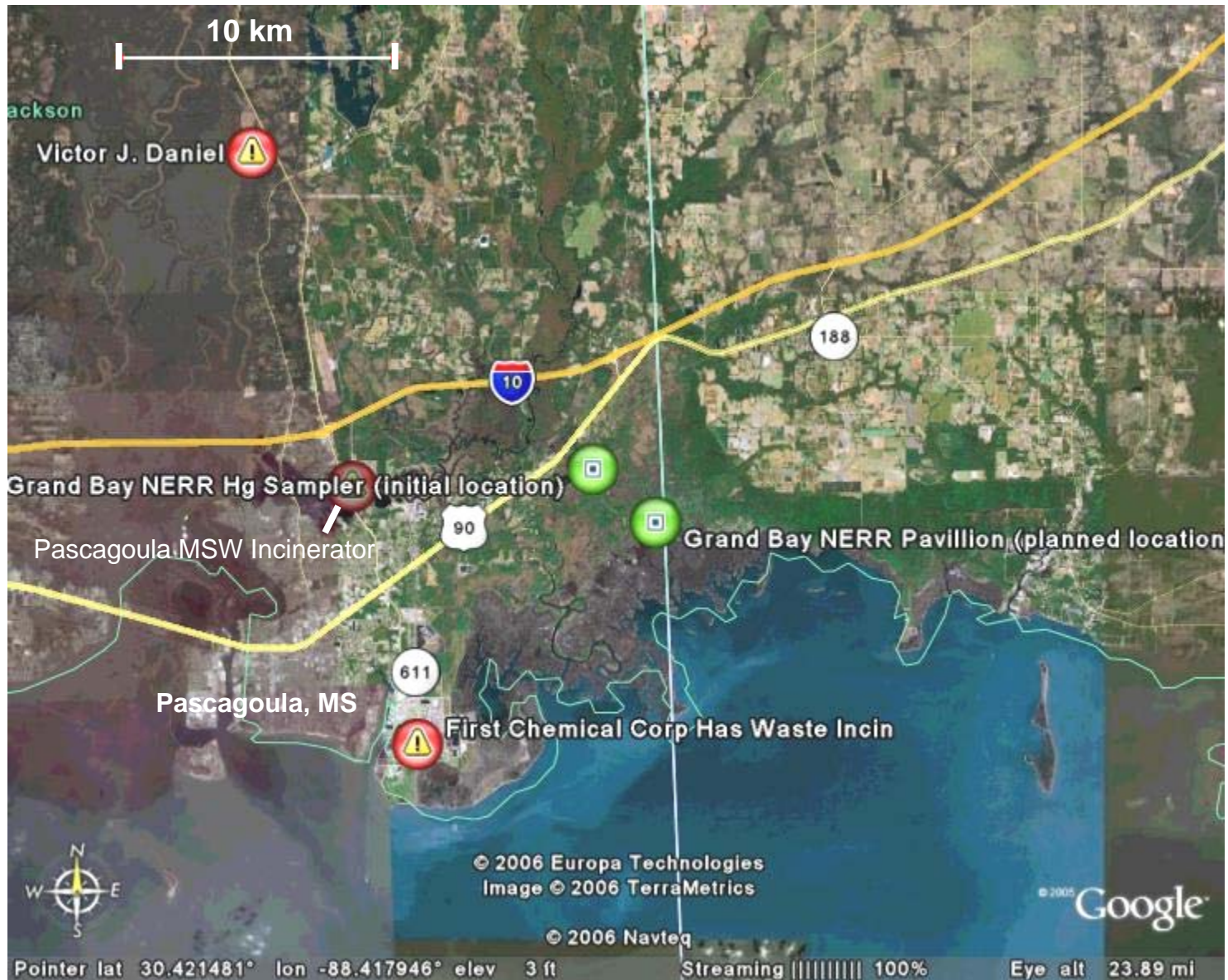
Location of the new NOAA Grand Bay NERR Atmospheric Mercury monitoring site, other atmospheric Hg monitoring sites, and major Hg point sources in the region (according to the EPA 1999 NEI emissions inventory)



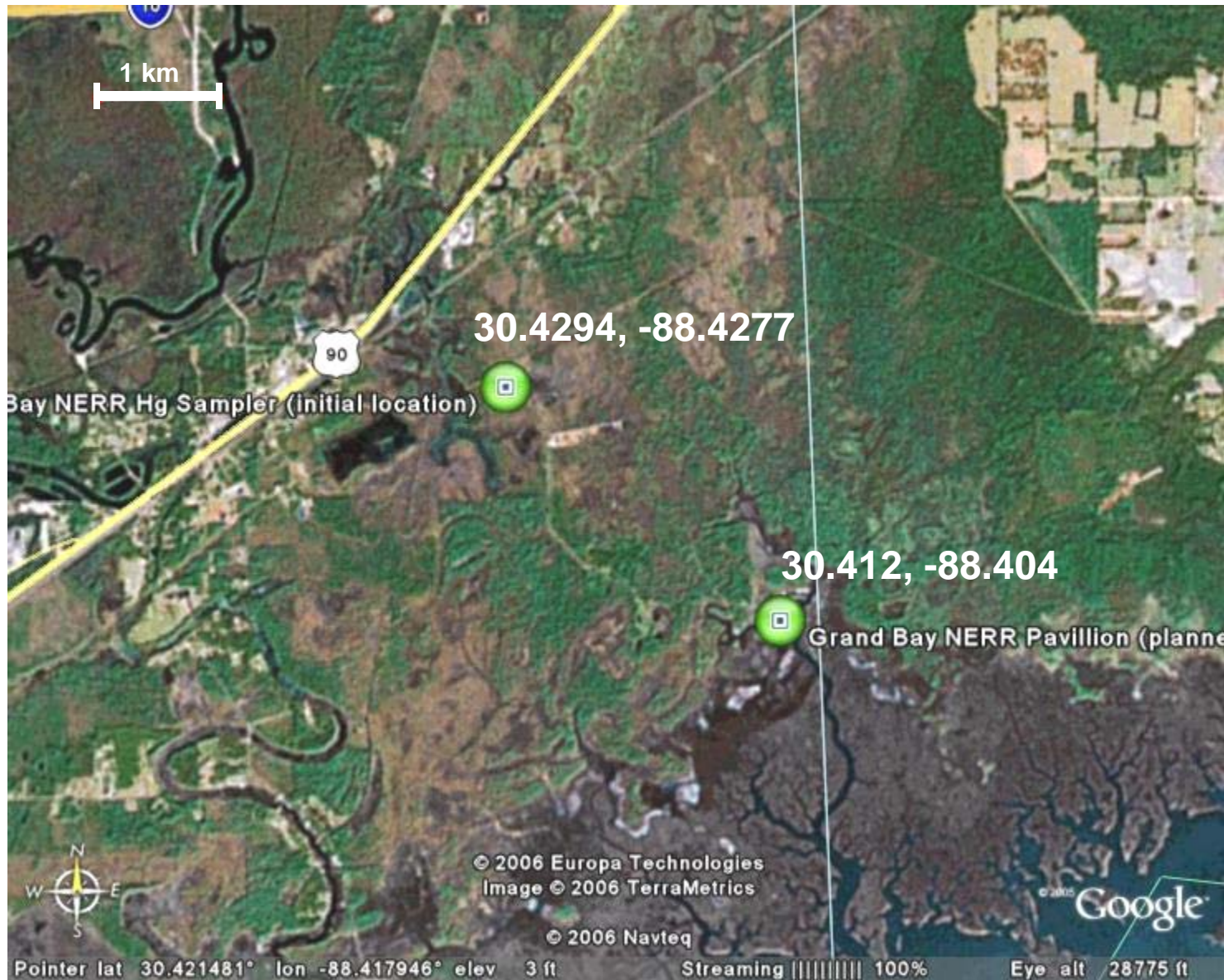
Location of the new NOAA Grand Bay NERR Atmospheric Mercury monitoring site, other atmospheric Hg monitoring sites, and major Hg point sources in the region (according to the EPA 1999 NEI emissions inventory)











Oct 2006 pictures of initial monitoring site





**Pictures of planned (eventual) monitoring site**

U.S. Fish and Wildlife Service Pavilion at Grand Bay NERR



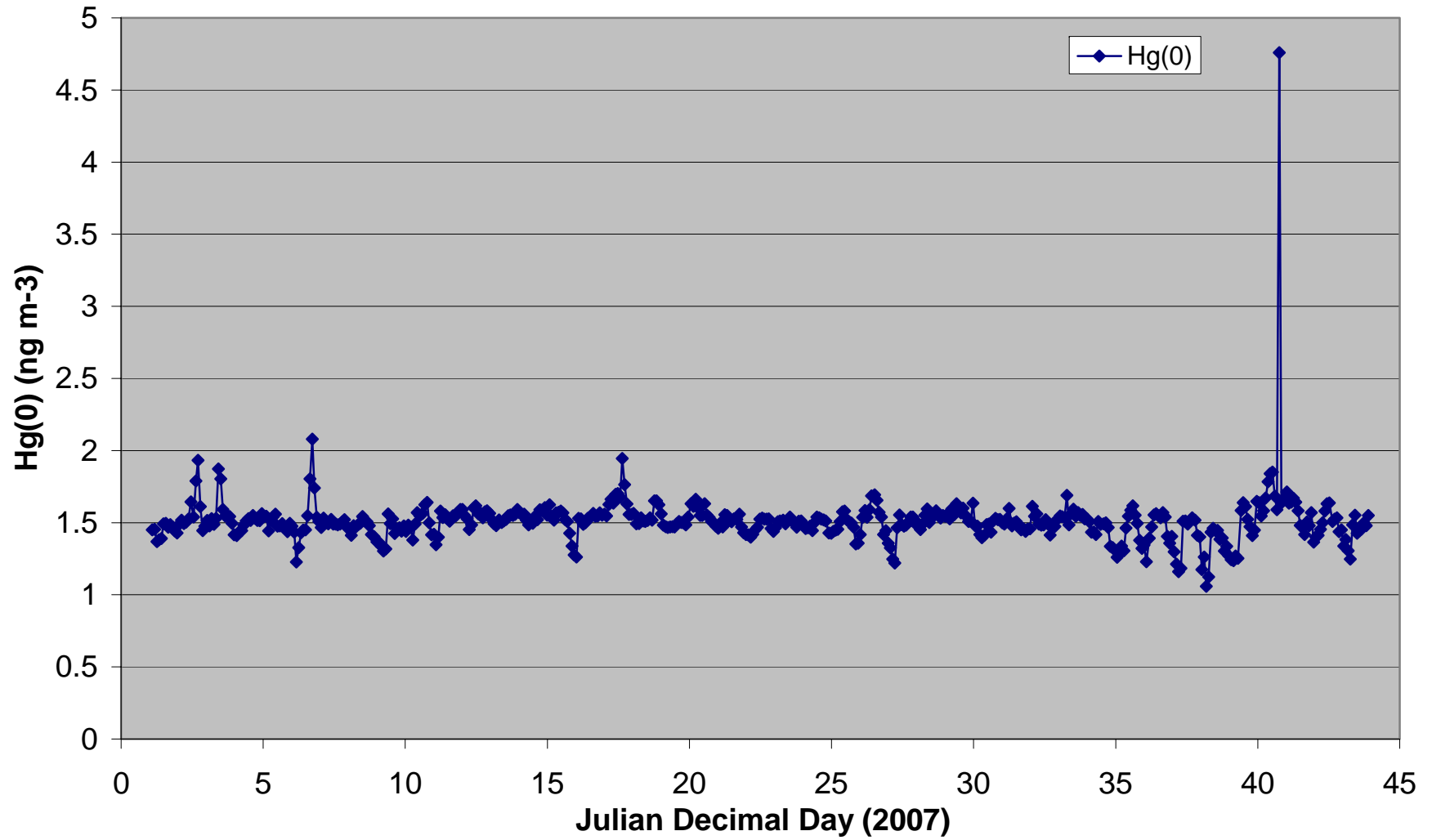
View looking east from the U.S. Fish and Wildlife Service Pavilion at Grand Bay NERR



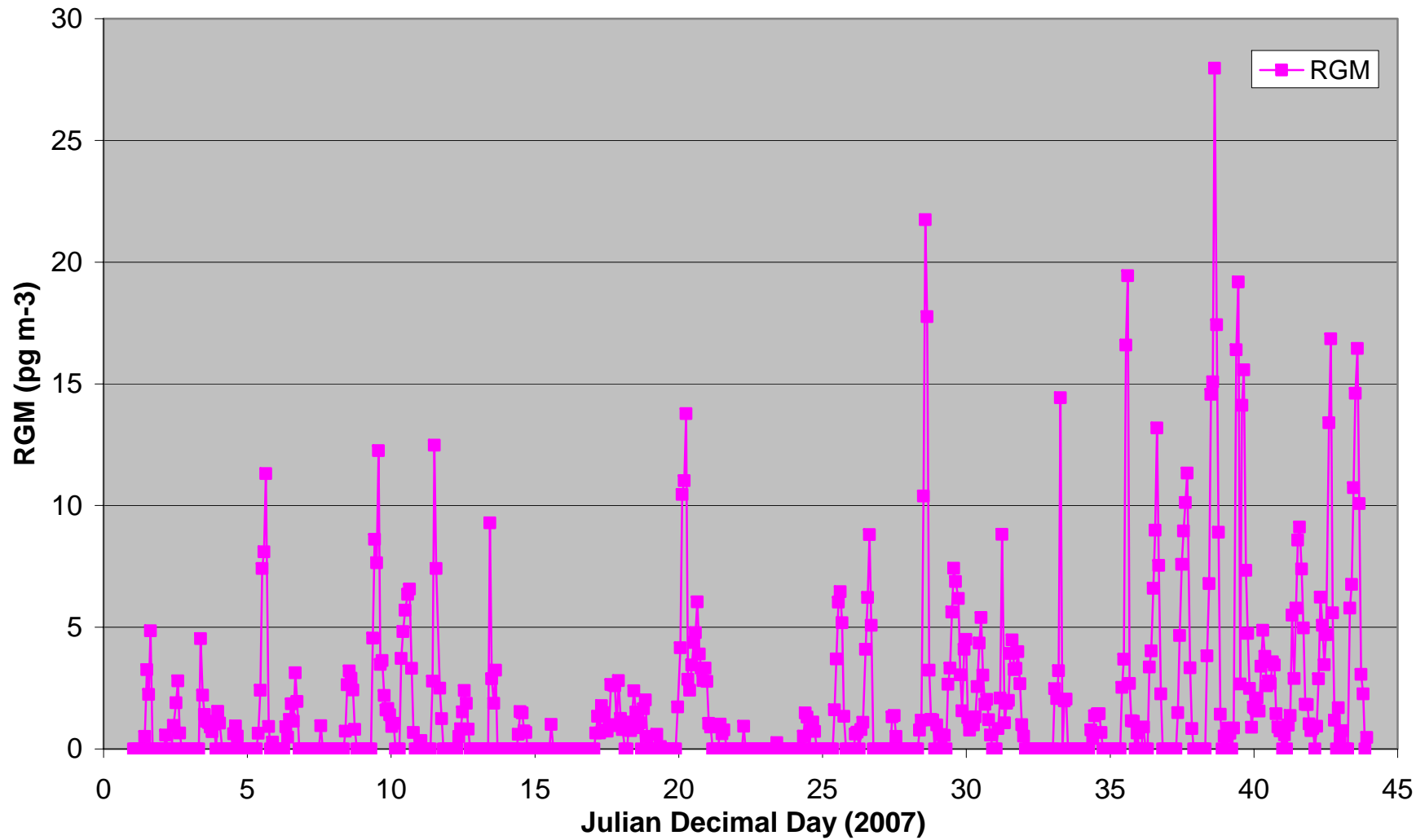
View looking south and west from the U.S. Fish and Wildlife Service Pavilion at Grand Bay NERR



## Mercury at Grand Bay NERR -2007

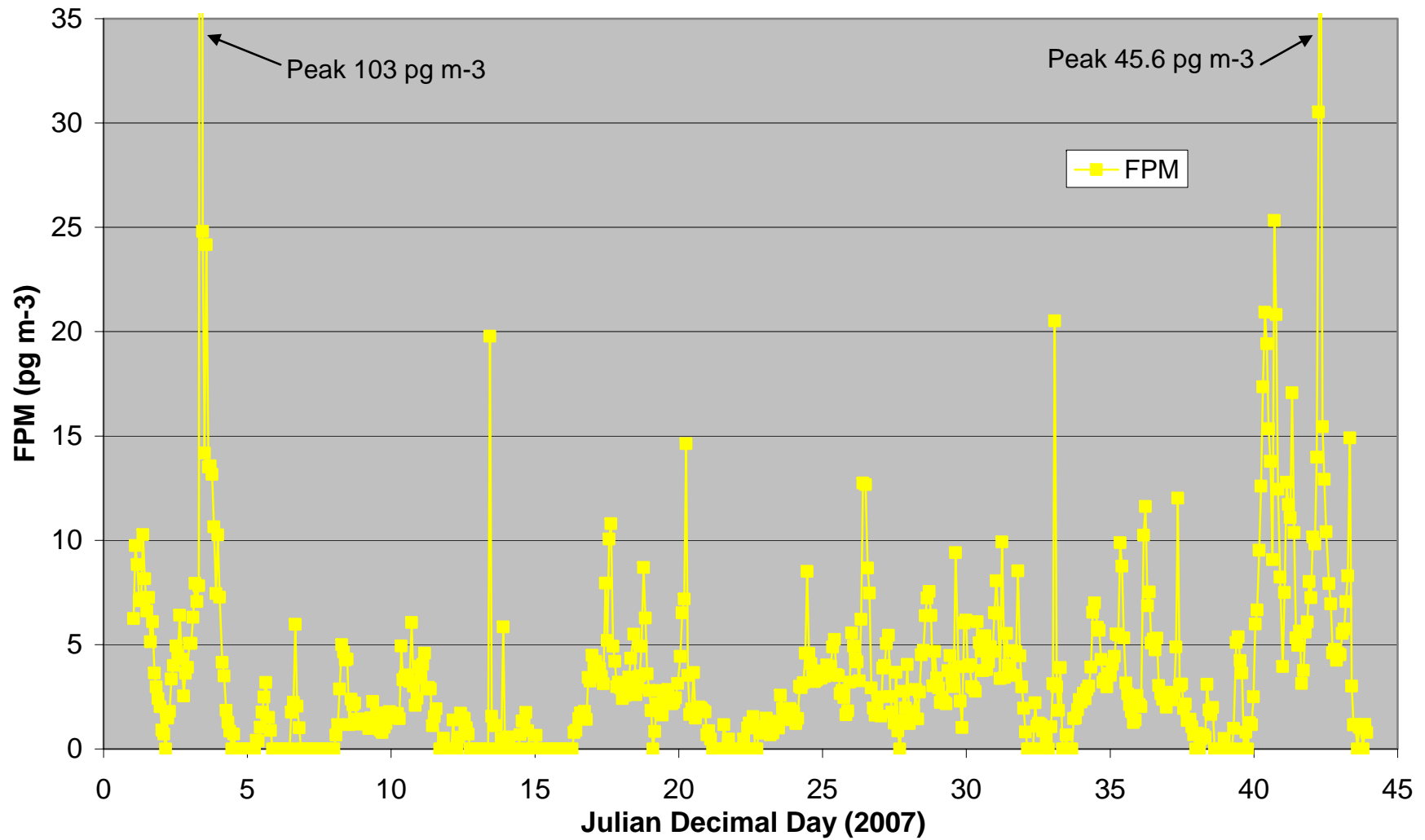


## Mercury at Grand Bay NERR -2007





## Mercury at Grand Bay NERR -2007



**For additional information on these  
atmospheric measurements,  
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