



Geospatial Monitoring of Air Pollution – H₂S and CH₄ in Region 5

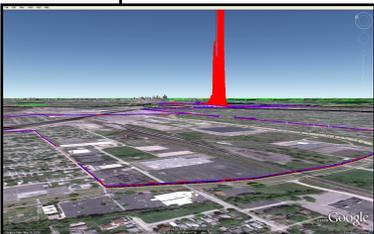
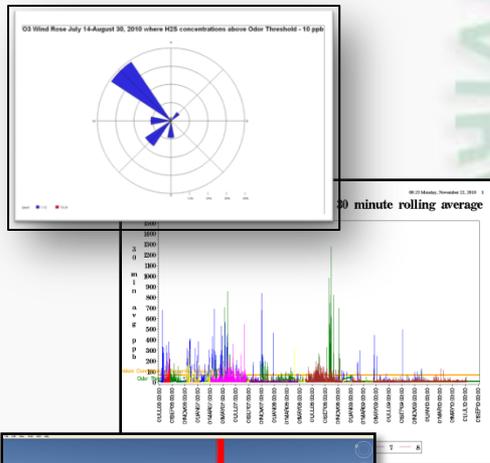
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H₂S in R5

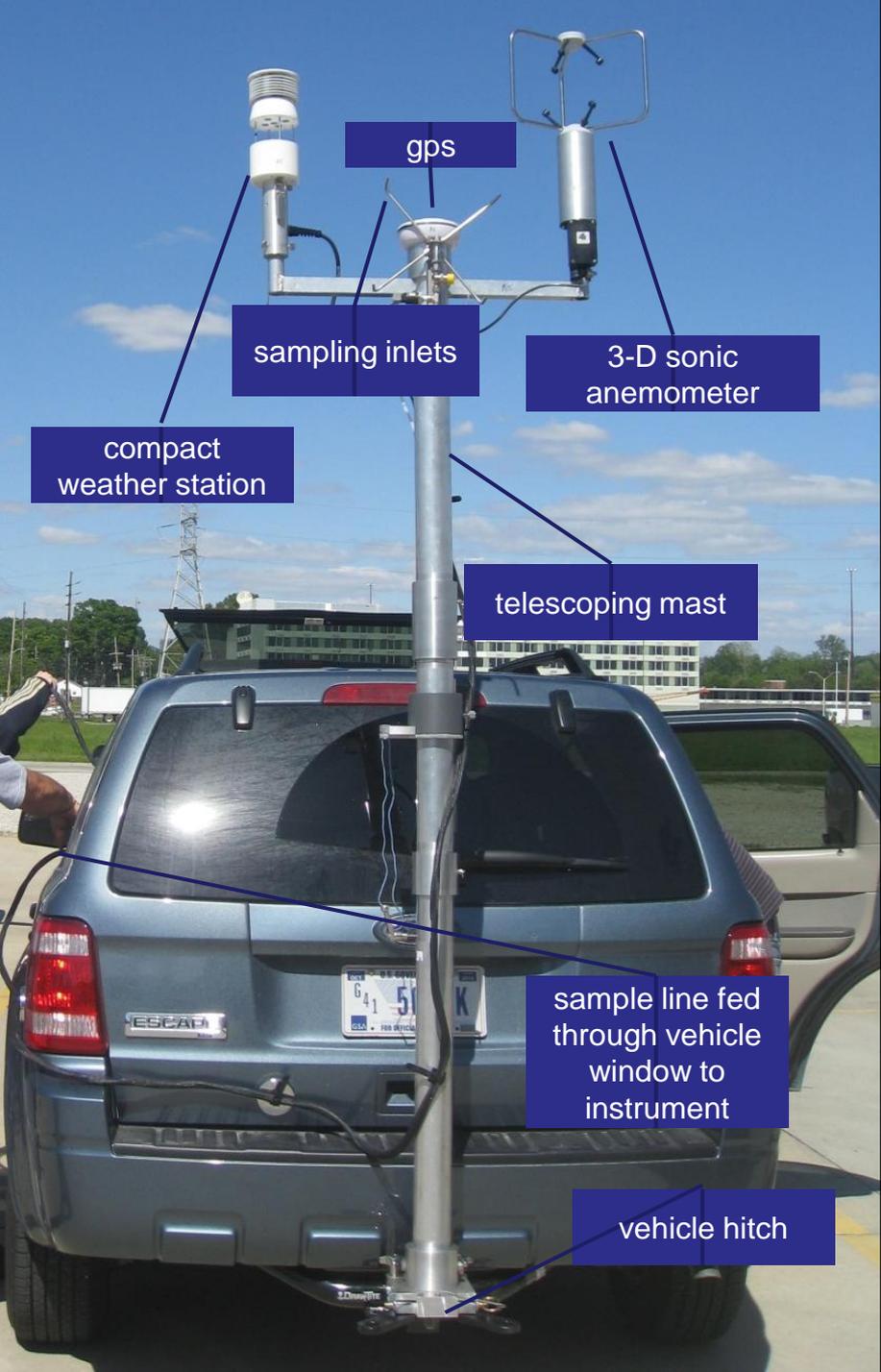


- Communities impacted by hydrogen sulfide (H₂S) from landfills, CAFOs, pulp and paper mills, and oil and gas facilities
- CH₄/H₂S CRDS
 - R5 purchased
 - AMI GEOSS grant - **EPA's Advanced Monitoring Initiative Global Earth Observation System of Systems (GEOSS)** - international effort to achieve comprehensive, coordinated, and sustained observations of the Earth system in an integrated manner

Phase 1 – AMI GEOSS



- In collaboration with ORD
 - CRDS Performance Testing
 - Transport Case procurement
 - Mast Construction
 - Software construction/System Integration
 - Training/Technology Transfer
 - Field testing - feedback for improvements



Applications



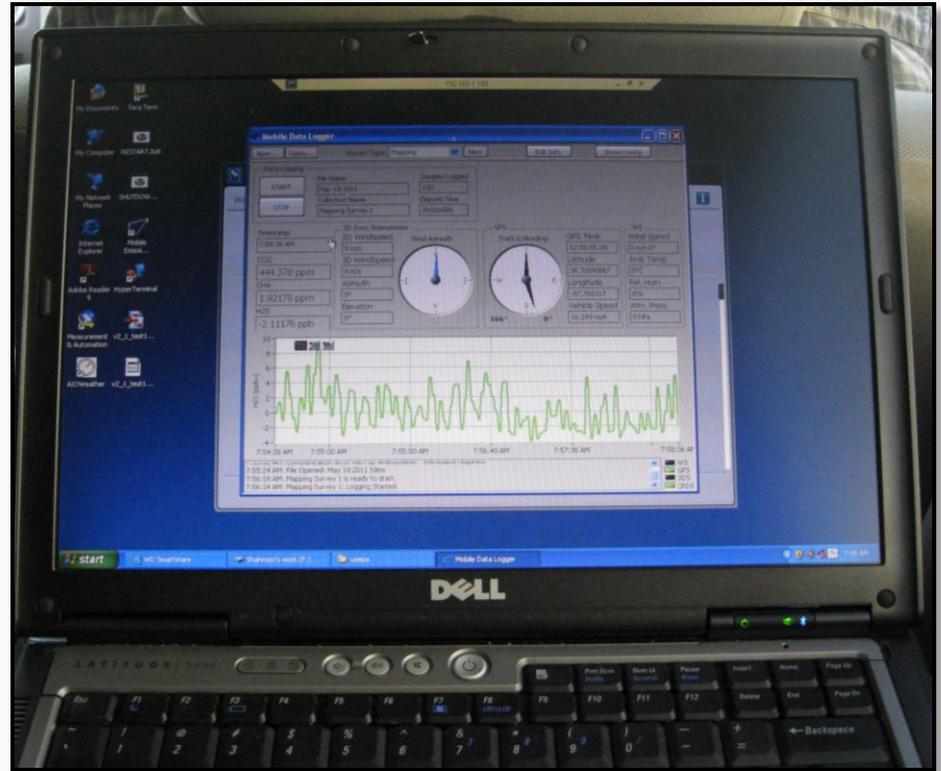
- Siting
- Scouting for non-compliance
- Mapping plumes
- Quantifying & assessing fence line measurements
- Processes within a facility
- Methane surrogate - VOCs

Successful Field Campaign Components:



- Approved Quality Assurance Project Plan
- Measureable Objectives
- Safety Plan/Personal Protective Equipment Assessment
- Communication Plan:
 - Vehicle handouts
 - Notify Facility/City/State Officials
 - Desk Statements
 - Public Meeting
- Budget
 - Travel and other expenses
- Collaboration

Planning and Reassessing



Major Industrial Sources of Concern to Community in Area

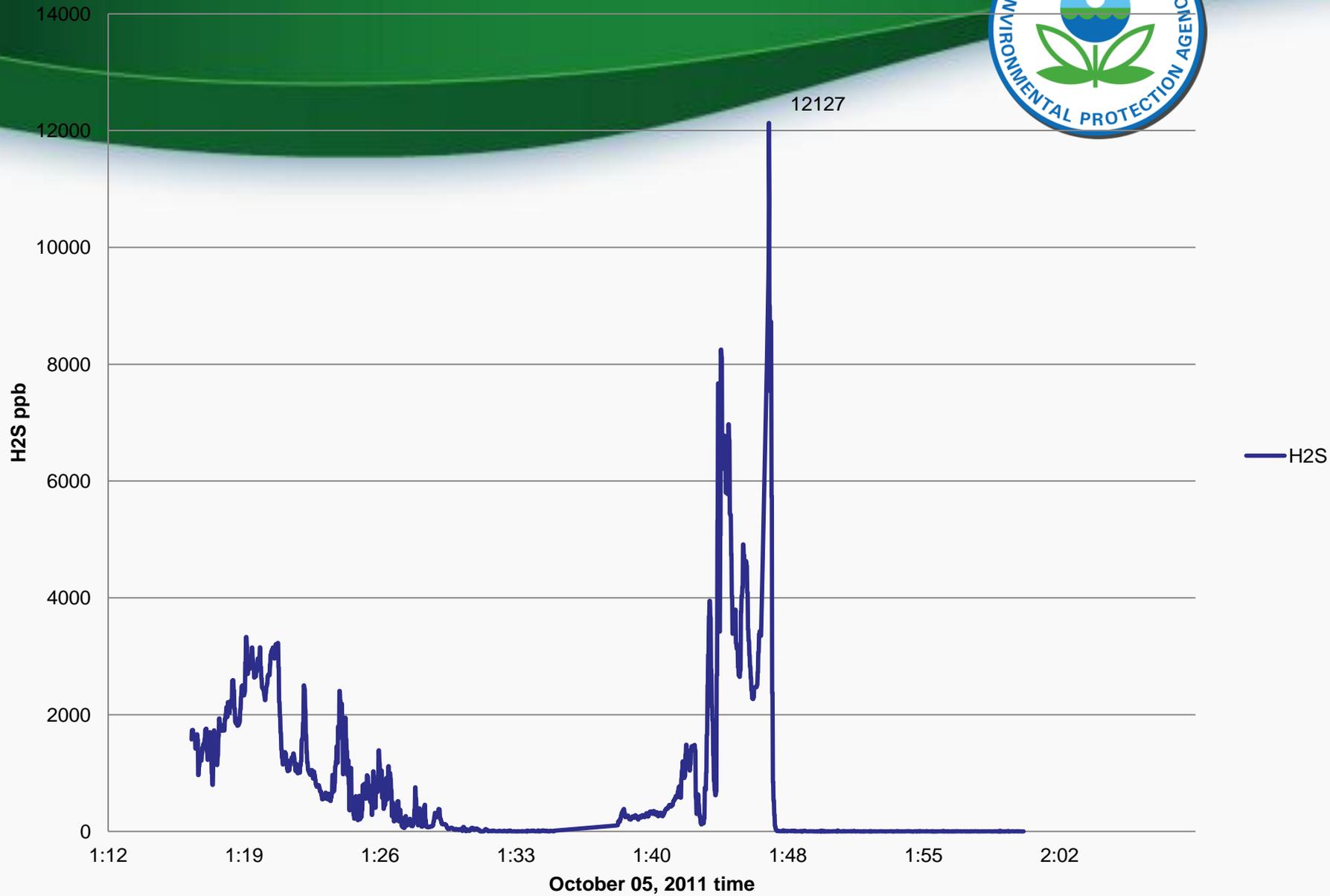


- Marathon Petroleum Oil
- Great Lakes Petroleum
- Carmeuse Lime Inc.
- EES Coke
- Ford Motor Company – Rouge Complex
- Severstal NA, Inc.
- Detroit Wastewater Treatment Plant
- Detroit Salt Mine
- DTE Energy Company (coal burning power plant)





Run 1





821 ft

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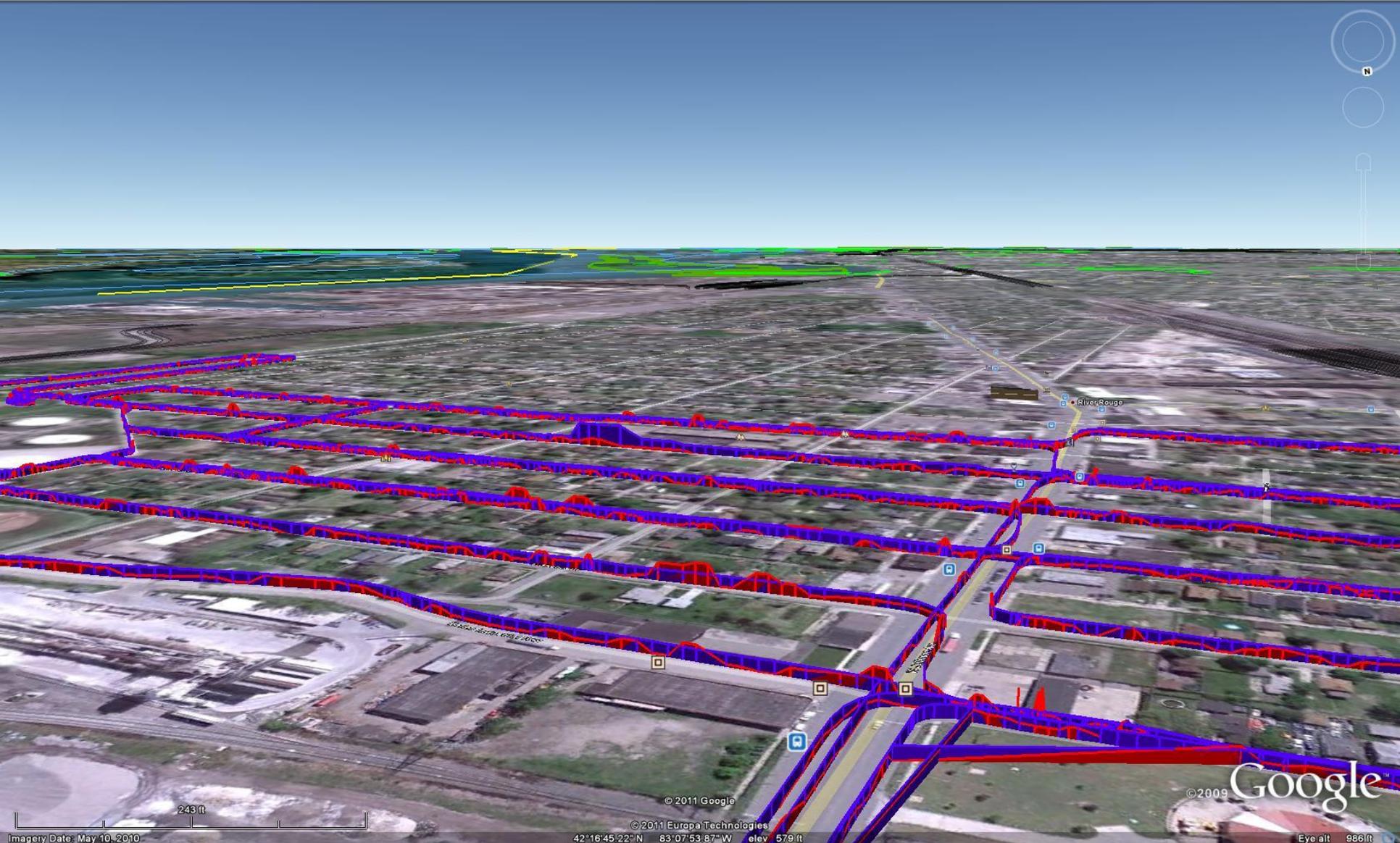
Image NOAA

42°17'17.19" N 83°07'47.55" W elev 586 ft

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Google

Eye alt 1331 ft



243 ft

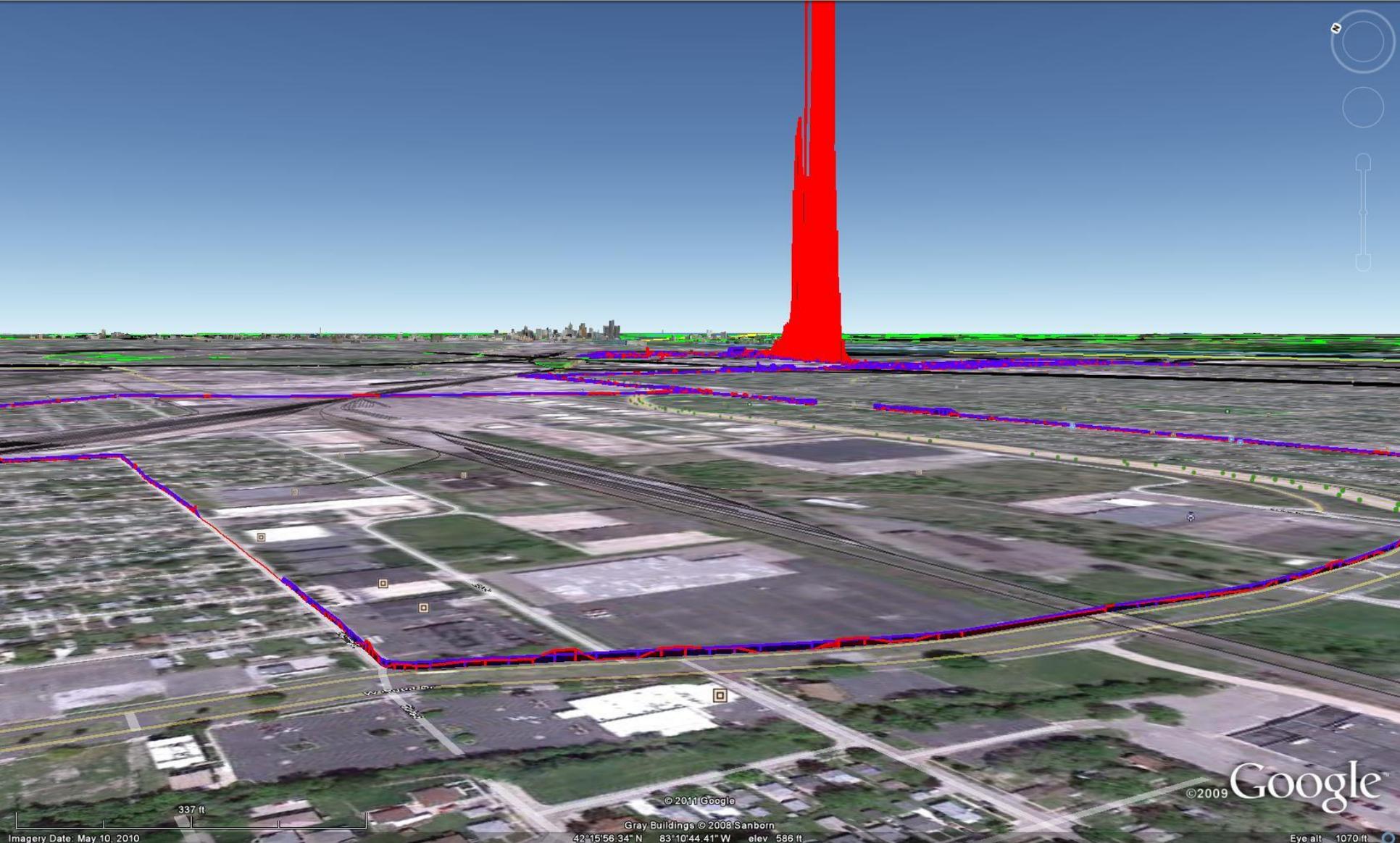
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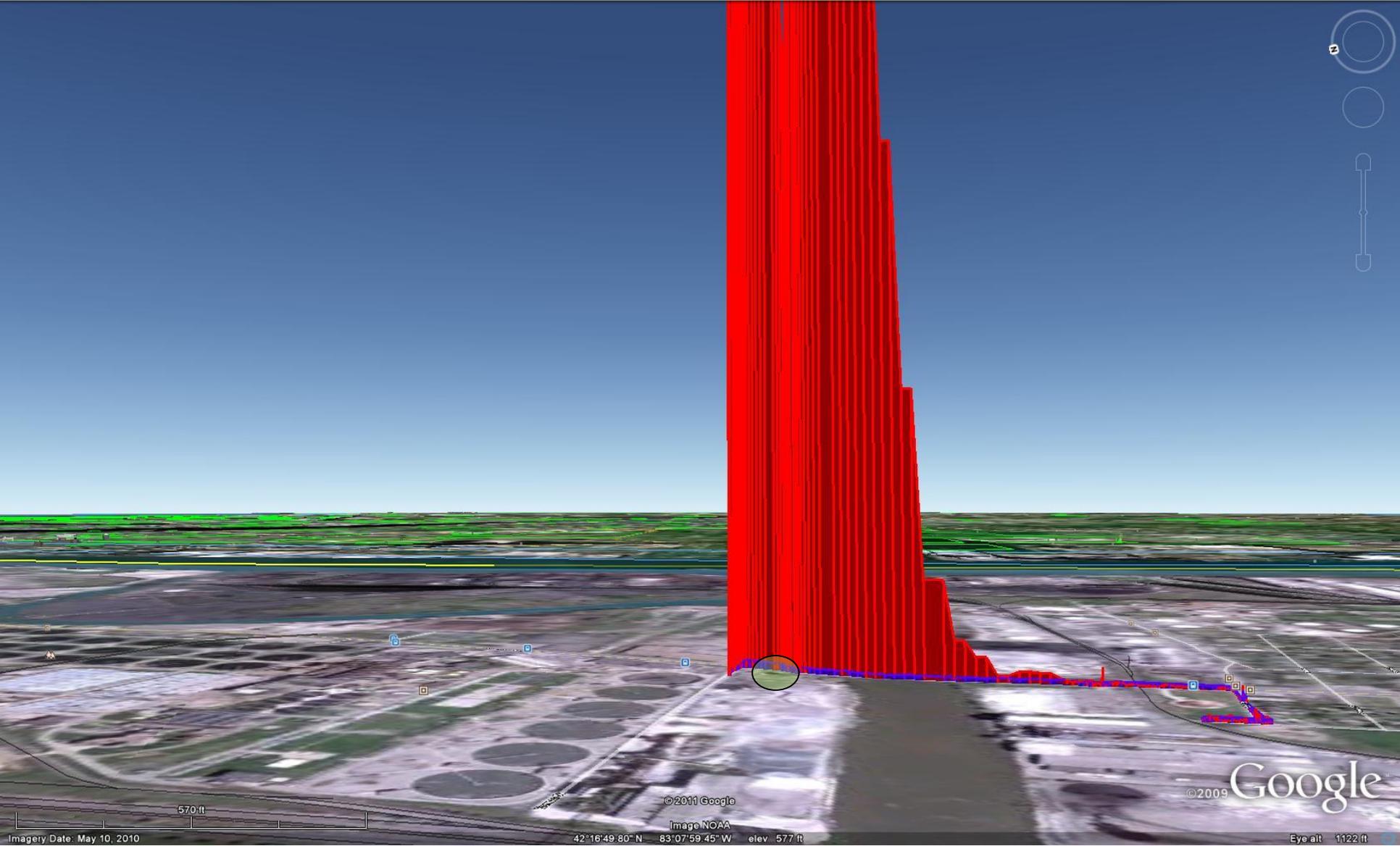
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© 2011 Europa Technologies
42°16'45.22" N 83°07'53.87" W elev 579 ft

Imagery Date: May 10, 2010

Eye alt 986 ft





570 ft

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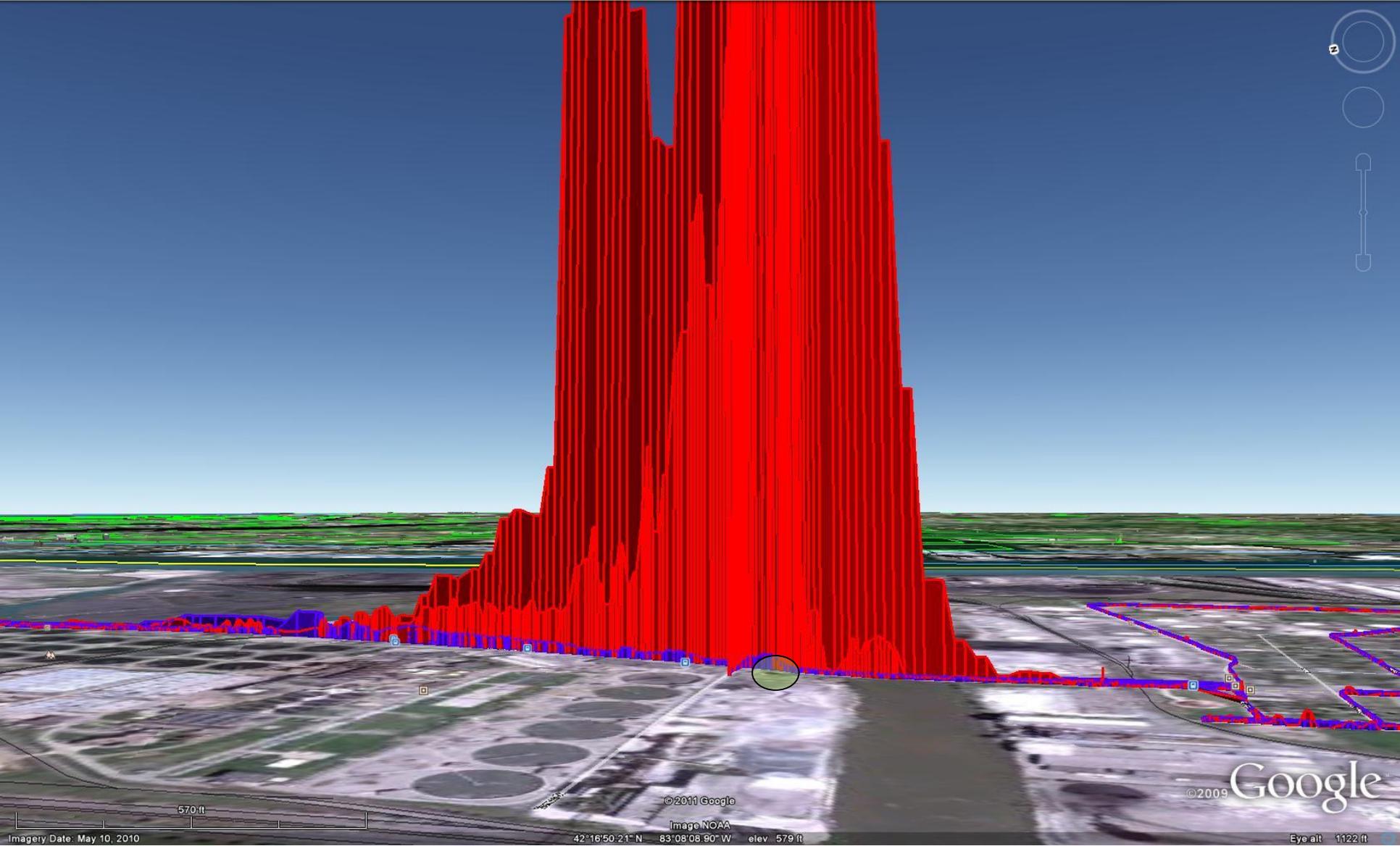
Image NOAA

42°16'49.80" N 83°07'59.45" W elev 577 ft

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Eye alt 1122 ft

Imagery Date: May 10, 2010



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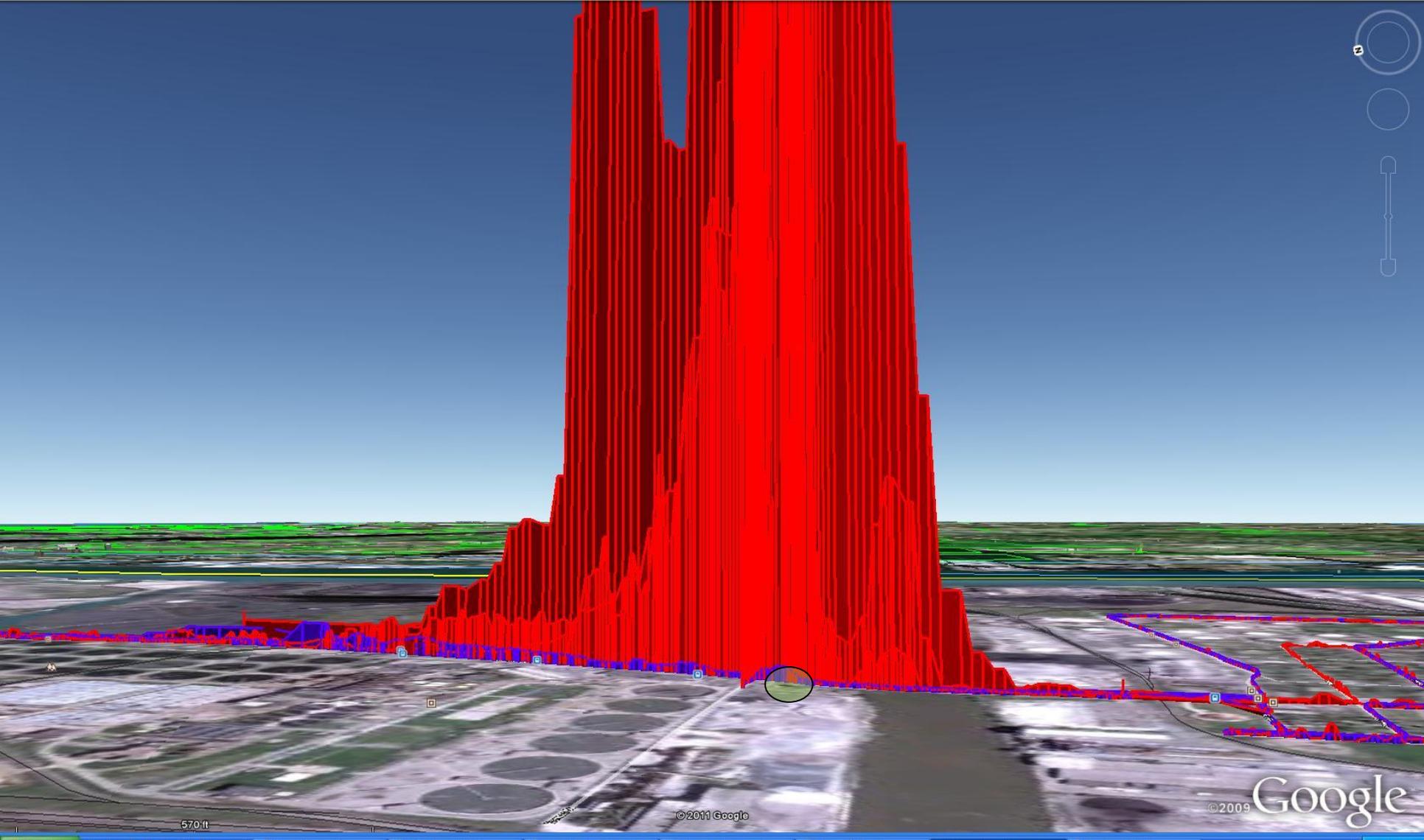
Image NOAA

42°16'50.24" N 83°08'08.90" W elev 579 ft

570 ft

Imagery Date: May 10, 2010

Eye alt 1122 ft



570 ft

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Current/Future Needs:



- Perpetual:
 - Audit/Calibration gases (H₂S and CH₄)
 - Spare Mounting hardware, sample line, cables, etc.
 - Maintenance contract
 - Communication service contract
 - Dedicated vehicle
 - Travel Budget
- Leveraging R5 resources to enhance monitoring:
 - PID
 - IR Camera
 - VOC SUMMA cans
- Further Enhancements :
 - Web Camera

Phase 2



- Working with ORD
 - Software updates/corrections
 - Real-time, remote data review capabilities
 - Non-vendor mapping capabilities
 - Projected Summer 2012



Bridgeport campaign - R5 AMAS and ORD - May 2011