

An Investigation of the Odor-Sensing Abilities of Moths

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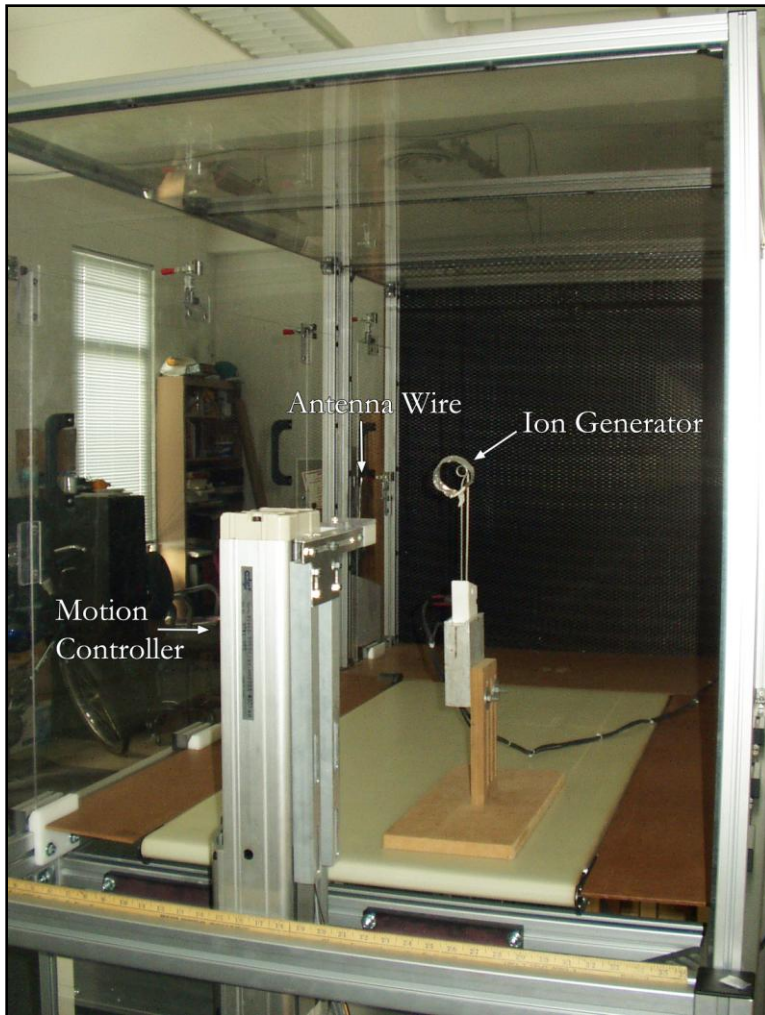


Overview



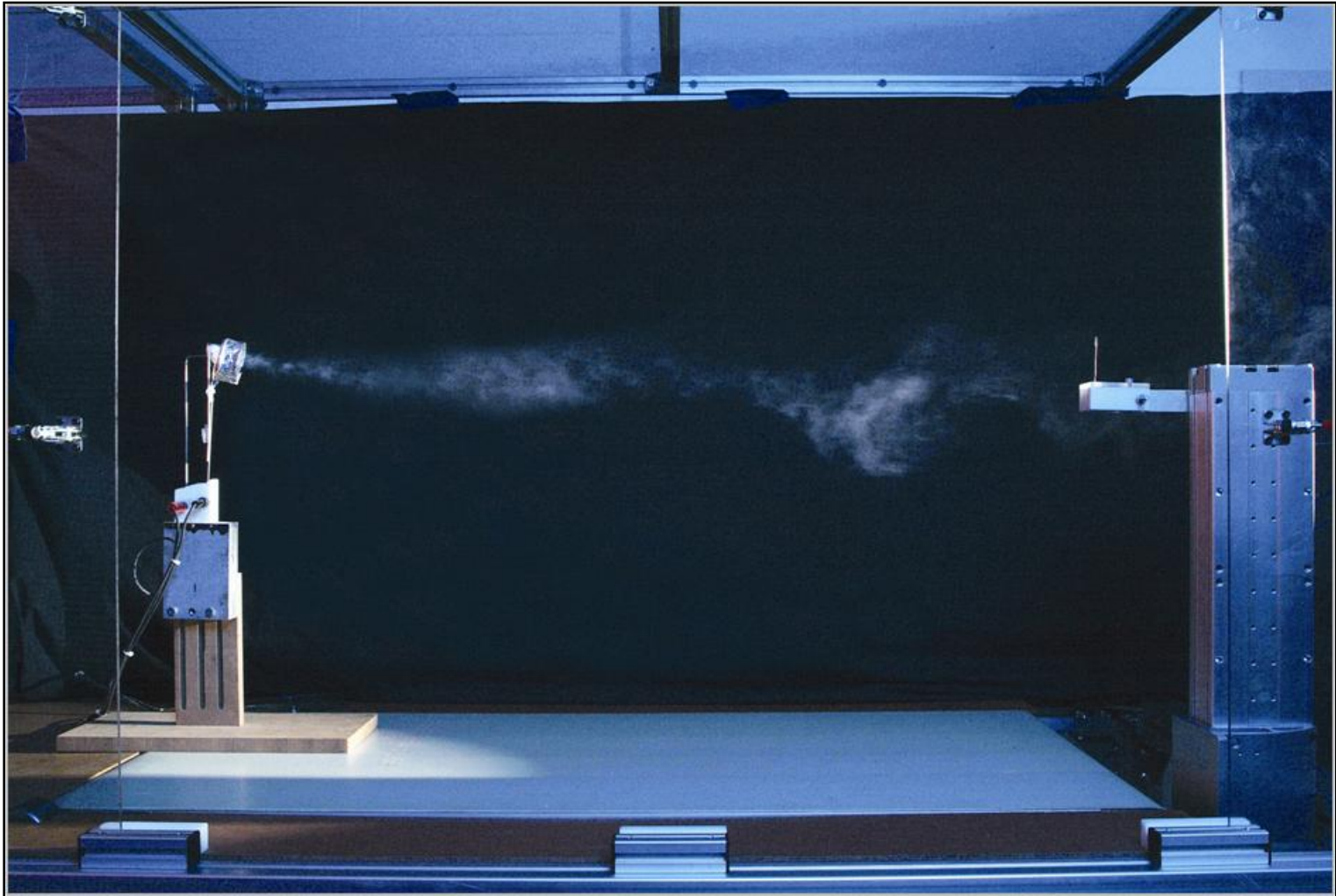
- Project Background
- Experimental Set-Up
- Results
- Deliverables
- Conclusion
- Acknowledgements
- Questions and Comments

Background

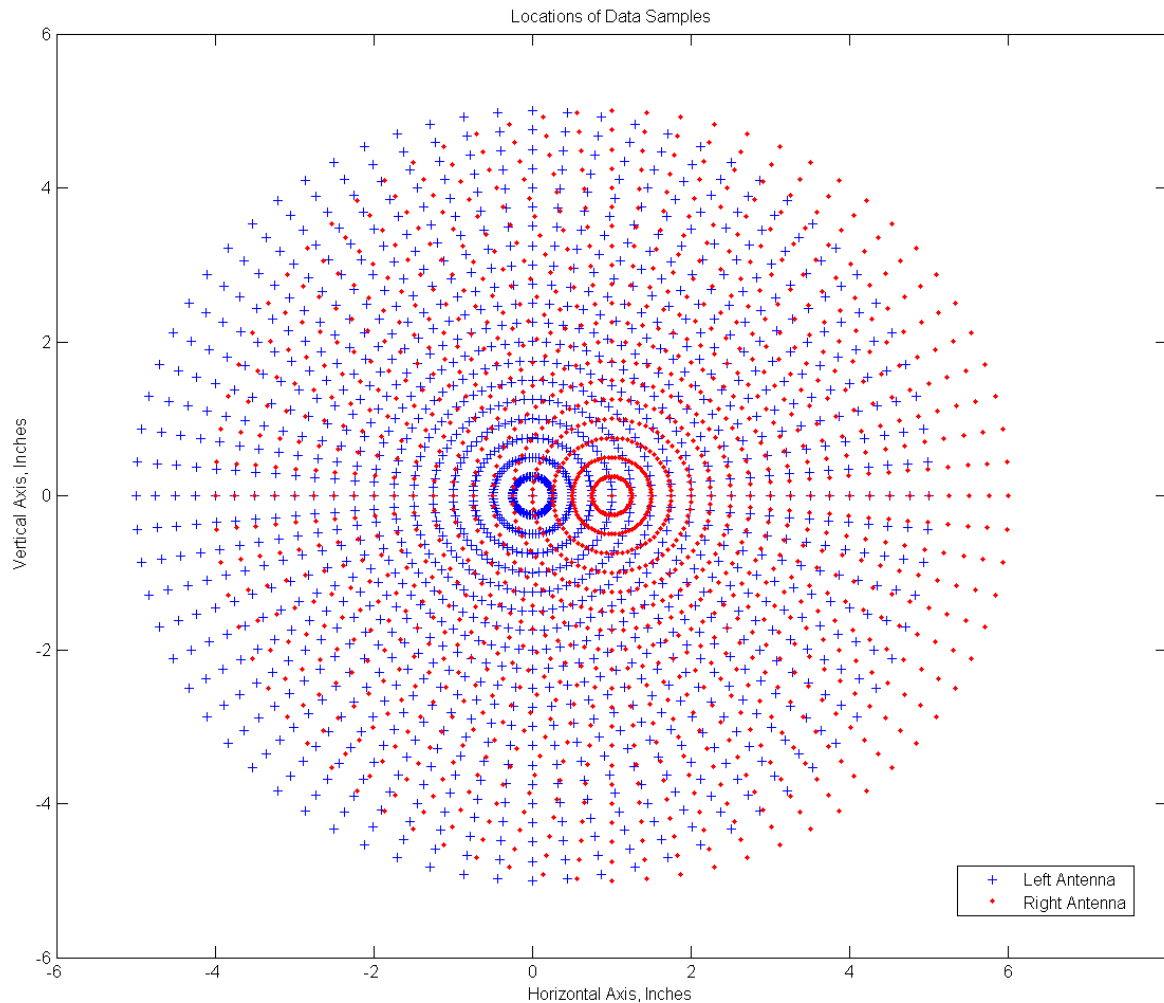


- Biology
 - Flying moths and observing behavior
- Robotics
 - Testing tracking algorithms
- Fluid Mechanics
 - Describing the environment

Background

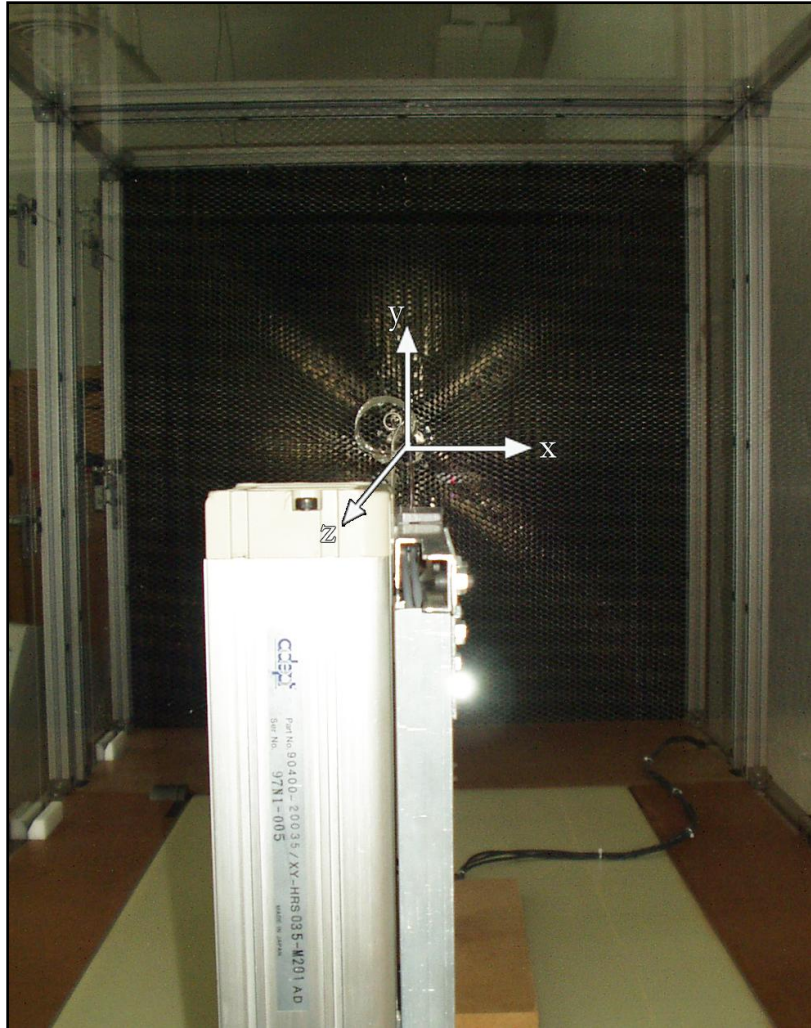


Experimental Set-Up



- Automated:
 - Motion Control
 - Data Acquisition
 - Data Analysis

Experimental Set-Up

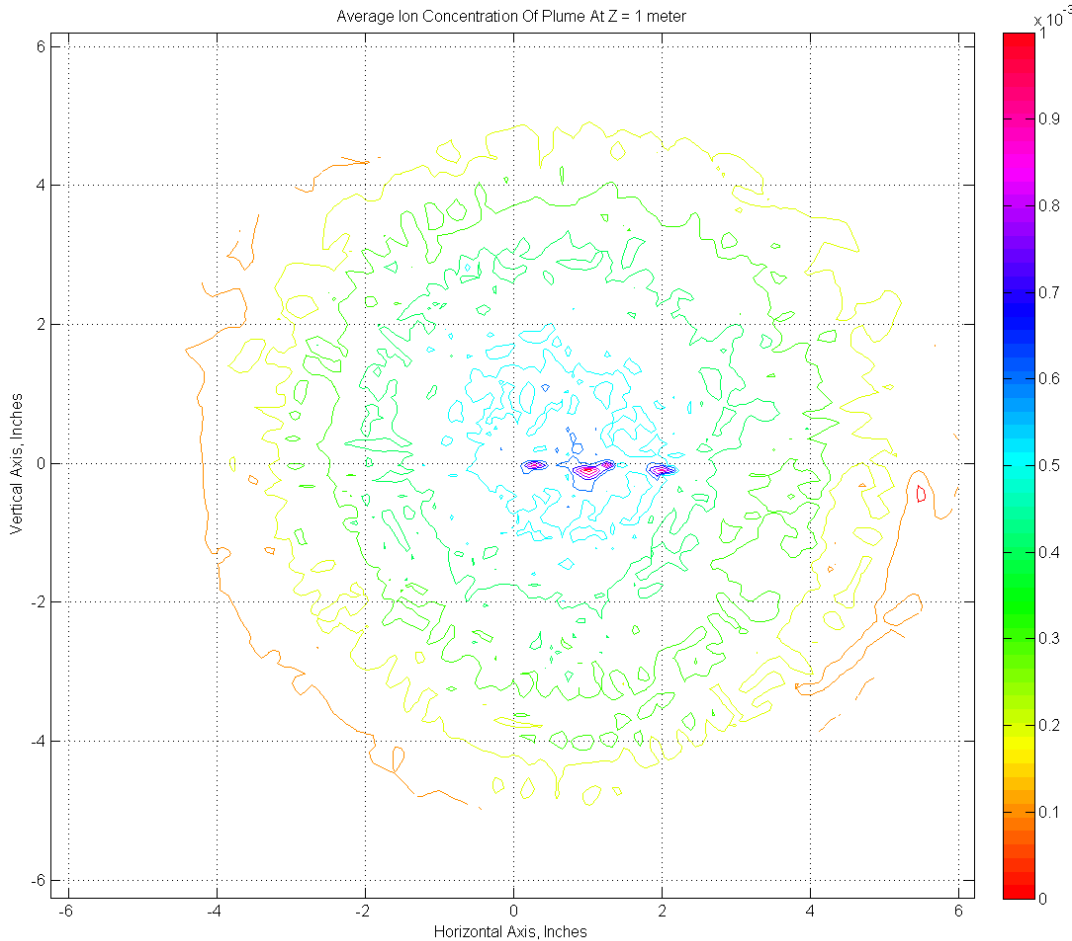


Horizontal Axis \rightarrow X

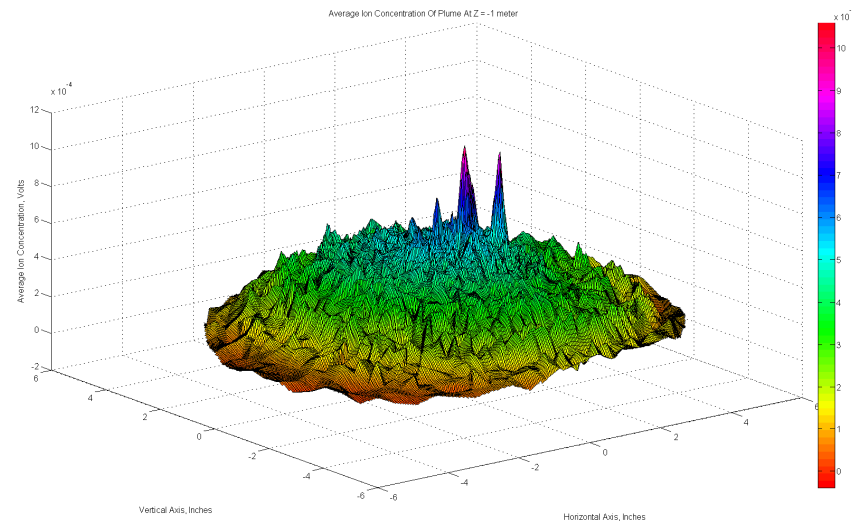
Vertical Axis \rightarrow Y

Flow Direction \rightarrow Z

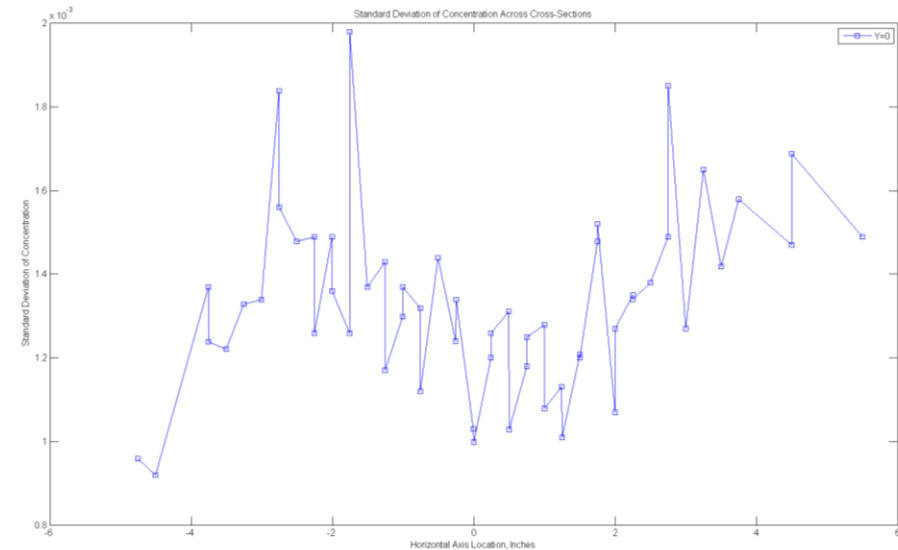
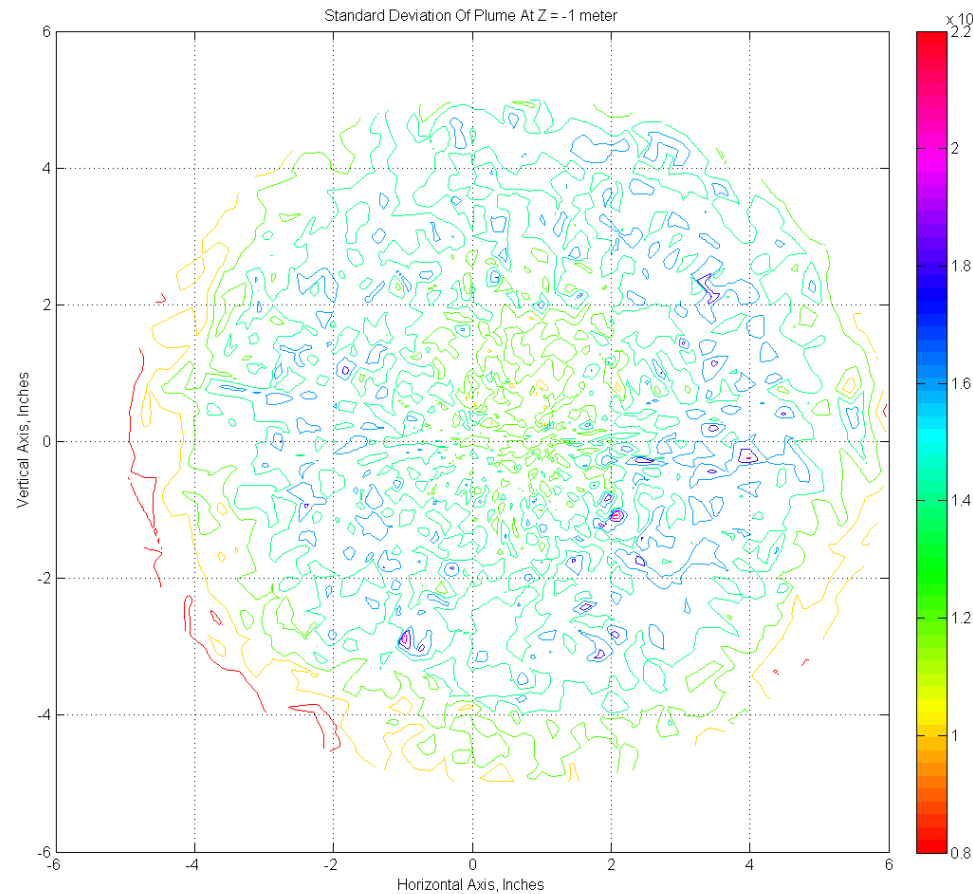
Results



- Center of plume not in center of tunnel
- Plume is axisymmetric

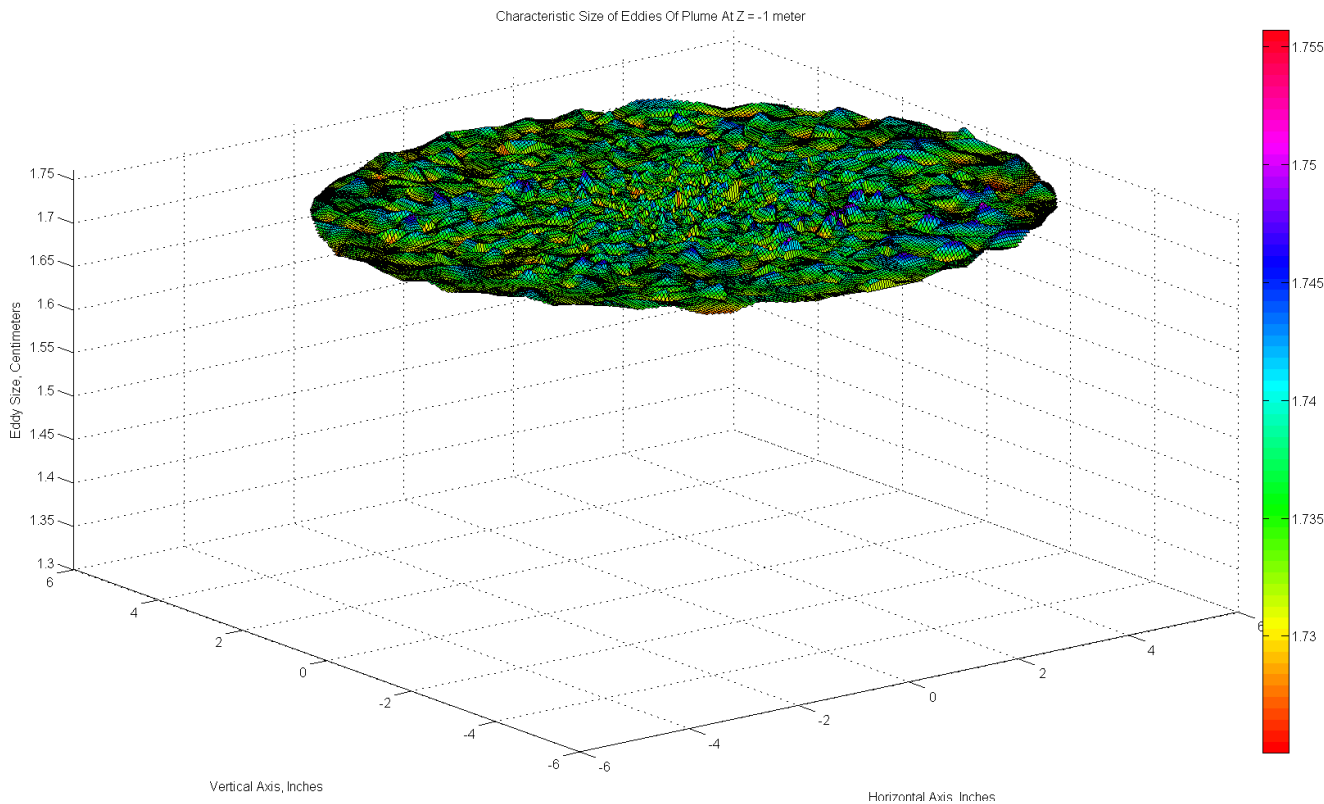


Results



- Standard deviations of concentration fluctuations also axisymmetric

Results



- Eddy length in Z-direction virtually constant at 1.7 cm



Conclusions

- Basic plume characteristics have been described.
- Characteristic eddy size in Z-direction found to be 1.7 cm.
- Automation raises possibilities for future investigations:
 - Comparing variations across cross-sections at varying Z's
 - Choosing new parameters for tracking



Acknowledgements



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Questions?

Comments?