

# Simulating the Atmospheric Fate and Transport of Air Toxics with the NOAA HYSPLIT Model

**(with Particular Attention to Dioxin and Mercury)**

**Mark Cohen**  
NOAA Air Resources Laboratory  
Silver Spring, Maryland, USA  
<http://www.arl.noaa.gov/mercury.php>

**Paul Bartlett**  
City University of New York (CUNY)  
& Saint Peter's College,  
Jersey City, New Jersey, USA

**Transport and Fate Modeling of Air Toxics in Mexico**  
**August 19: Hotel Radisson Paraíso, Cuspide 53, Room “Paraíso A”**  
**August 24–27, 2009: CECAL SEMARNAT, Av. San Jerónimo 458**



# Organization of Course

## INTRODUCTION

1. Course overview
2. Air Toxics overview
3. HYSPLIT overview

## HYSPLIT Theory and Practice

4. Meteorology
5. Back Trajectories
6. Concentrations / Deposition
7. HYSPLIT-SV for  
semivolatiles (e.g, PCDD/F)
8. HYSPLIT-HG for mercury

## Overall Project Issues & Examples

9. Emissions Inventories
10. Source-Receptor Post-  
Processing
11. Source-Attribution for Deposition
12. Model Evaluation
13. Model Intercomparison
14. Collaboration Possibilities

# General Themes and Objectives

- Understanding Air Toxics
- Recognizing and dealing with uncertainties
- Measurements vs. Models
- Policy Relevance -- Source-Attribution
- *HYSPLIT Modeling*
  - Theory
  - Nuts and Bolts
  - Hints and Tips
  - Strengths and Limitations
  - “still a work in progress”

# Acknowledgements

- ❑ Roland Draxler, NOAA Air Resources Laboratory (ARL), the “father of HYSPLIT”
- ❑ Glenn Rolph, Barbara Stunder, Nick Heffter, Ariel Stein and other HYSPLIT colleagues at ARL
- ❑ Barry Commoner & colleagues at the Center for the Biology of Natural Systems (CBNS) at Queens College
- ❑ Commission of Environmental Cooperation and all the organizers of this meeting