

# WMO GURME Training Course on Air Quality Modeling for Latin American Cities Project

**Mexico City**  
**August 10-14, 2009**

## AGENDA

### **Monday 10 August 10**

*(SEMARNAT Auditorium, Ave. Revolución 1425, Colonia Tlacopac, Delegación Álvaro Obregón)*

### **Workshop Inauguration and Fundamentals of Air Quality Modeling**

| Time        | Activity                              | Presenter   |
|-------------|---------------------------------------|---|
| 08:30-09:00 | Registration                          |   |
| 09:00-11:00 | Inaugural Session                     | Chair: Luisa Molina (MCE2)  |
| 09:00-09:30 | Welcome /Introductory Remarks         | Ana Maria Contreras (Dir. Gen. for Air Quality Management / RETC, Semarnat) |
|             |                                       | Michel Rosengaus (Director, SMN)  |
|             |                                       | Liisa Jalkanen (Chief, Atm. Env. Res. Div, WMO)                             |
|             |                                       | Adrian Fernandez ( President, INE/Semarnat)                                 |
| 09:30-11:00 | Overview/Context Talks                |   |
| 09:30       | GURME Overview                        | Liisa Jalkanen (Chief, Atm. Env. Res. Div, WMO)                             |
| 10:00       | Growing Importance of AQ Modeling     | Gregory Carmichael (U-Iowa, GURME SAG Chair)                                |
| 10:30       | AQ Management: Mexican Perspective    | Ramiro Barrios (Director for Air Quality, DGGCARETC-Semarnat)               |
| 11:00-11:30 | <b>COFFEE BREAK</b>                   |   |
| 11:30-12:15 | Workshop Details                      | Chair: Luisa Molina (MCE2)  |
| 11:30       | Overview of Workshop                  | Gregory Carmichael (U-Iowa)   |
| 12:00       | Introduction of Workshop Participants |   |
| 12:15-18:00 | <b>AQ Modeling Fundamentals</b>       | Chair: Luisa Molina (MCE2)  |
| 12:15       | Overview 1 - AQ Models                | Gregory Carmichael (U-Iowa)   |
| 13:00       | <b>LUNCH</b>                          |   |

| Time        | Activity  | Presenter                  |
|-------------|---|----------------------------|
| 14:00       | <b>AQ Modeling Fundamentals (cont.)</b>               | Chair: Luisa Molina (MCE2) |
| 14:00       | Overview 2 - AQ Meteorology                           | Ernesto Caetano (UNAM)     |
| 14:40       | Overview 3 - Emissions (Mexico City)                  | Jorge Sarmiento (GDF/SMA)  |
| 15:20       | Emissions (Santiago)                                  | Marcelo Mena (UNAB)        |
| 15:35       | Overview 4 - Ambient Air Quality Monitoring           | Armando Retama (GDF/SMA)   |
| 16:15-16:45 | <b>COFFEE BREAK</b>                                   |                            |
| 16:45       | Overview 5 - Photochemistry                           | Gustavo Sosa (IMP)         |
| 17:25       | Overview 6 - Urban Growth/Land-use Changes            | Manuel Suarez (UNAM)       |
| 18:00       | <b>DOCUMENTARY - Megacity: MILAGRO in Mexico City</b> |                            |
| 19:00-21:00 | <b>RECEPTION (SEMARNAT Lobby)</b>                     |                            |

## **Tuesday 11 August**

*(CECAL, Avenida San Jerónimo No. 458, P.B., Col. Jardines del Pedregal)*

|             | <b>WRF Tutorial</b>                    |   |
|-------------|--|---|
| 09:00       | WRF Overview                           | Cindy Bruyere                           |
| 09:15       | WRF and WPS: Compile                   | Dave Gill                               |
| 09:30       | WPS: Set up and Run                    | Cindy Bruyere                           |
| 10:15       | WRF: Set up and Run                    | Dave Gill                               |
| 11:00       | <b>COFFEE BREAK</b>                    |   |
| 11:30       | Nesting: Set up and Run                | Dave Gill                               |
| 12:15       | Post Processing Tools: NCL             | Cindy Bruyere                           |
| 13:00-14:00 | <b>LUNCH</b>                           |   |
| 14:00-15:30 | Practical Sessions with Provided Cases | (Bruyere, Gill, Grell, Peckham, Others) |
| 15:30       | <b>COFFEE BREAK</b>                    |   |
| 16:30       | Practical Session with User Cases      | Bruyere, Gill, Grell, Peckham, Others   |
| 17:30       | Question and Answer Session            | Bruyere, Gill, Grell, Peckham, Others   |
| 18:00       | <b>ADJOURN</b>                         |   |

## **Wednesday 12 August**

*(CECAL, Avenida San Jerónimo No. 458, P.B., Col. Jardines del Pedregal)*

| <b>WRF-Chem Tutorial</b> |   |                              |
|--------------------------|---|------------------------------|
| 09:00                    | WRF/Chem Overview   | Gerog Grell                  |
| 09:30                    | Gas Phase Chemistry in WRF/Chem   | Rainer Schmitz               |
| 10:00                    | Introduction to aerosol modeling in WRF/Chem  | Cindy Bruyere                |
| 10:30                    | <b>COFFEE BREAK</b>   |                              |
| 11:30                    | Setting up and running WRF/Chem   | Steven Peckham               |
| 12:15                    | Practical Session I: WRF/Chem Basics  | G. Grell, S. Peckham, others |
| 13:00                    | <b>LUNCH</b>  |                              |
| 14:00                    | Excursion   |                              |
|                          | Option A: Ambient Air Quality Monitoring Network (RAMA) Headquarters, Mexico City. D.F. (Hosted by Secretaría del Medio Ambiente del Gobierno del Distrito Federal (GDF)) |                              |
|                          | Option B: Cuicuilco Pyramid Archaeological Ruins, Mexico City, D.F.   |                              |

## **Thursday 13 August**

*(CECAL, Avenida San Jerónimo No. 458, P.B., Col. Jardines del Pedregal)*

| <b>WRF-Chem Tutorial</b> |   |                              |
|--------------------------|---|------------------------------|
| 09:00                    | WRF/Chem Practical Session I: WRF/Chem basics provided cases  | S. Peckham, G. Grell, others |
| 10:30                    | <b>COFFEE BREAK</b>   |                              |
| 11:30                    | WRF/Chem practical session II on various aspects of the modeling system, including more advanced topics such as: Preparation of special emissions data sets (RETRO/EDGAR, wildfires), modifying the chemistry registry, adding output variables, setting up special model runs. | S. Peckham, G. Grell, others |
| 13:00                    | <b>LUNCH</b>  |                              |
| 14:00                    | WRF/Chem practical session II continuing  | S. Peckham, G. Grell, others |
| 15:30                    | <b>COFFEE BREAK</b>   |                              |

| <b>WRF-Chem Tutorial</b> |  |                              |
|--------------------------|--|------------------------------|
| 16:00                    | WRF-Chem Practical Session II continuing | S. Peckham, G. Grell, others |
| 17:30                    | Questions/Wrap up for the day            |                              |
| 18:00                    | <b>ADJOURN</b>                           |                              |

### **Friday 14 August**

*(CECAL, Avenida San Jerónimo No. 458, P.B., Col. Jardines del Pedregal)*

| <b>Applications of AQ Models</b> |  | Chair: Luisa Molina (MCE2)                                      |
|----------------------------------|--|---|
| 09:00                            | <b>AQ Forecasting</b><br>1. AQ Forecasting 1<br>2. "What if" Scenarios   | G. Carmichael (U-Iowa)<br>A. Garcia (UNAM)                      |
| 10:00                            | <b>AQ Modeling in Management</b><br>Evaluation of emission control strategies  | V.H. Paramo (Director AQ Management, SMA/GDF)                   |
| 11:00                            | <b>COFFEE BREAK</b>  |   |
| 11:30                            | <b>AQ Modeling in Analysis</b><br>1. Emission improvements using satellite observations<br>2. Lessons learned from MILAGRO<br>3. Evaluation of model performance | G. Carmichael (U-Iowa)<br>S. Madronich (NCAR)<br>M. Mena (UNAB) |
| 13:00                            | <b>LUNCH</b>   |   |
| 14:00                            | <b>AQ Impacts</b><br>1. Health and agriculture impacts<br>2. BenMap model for health impacts<br>- Practical training exercises                                   | L. Jalkanen (WMO)<br>G. Carmichael, M. Mena                     |
| 16:00                            | Questions/Wrap up  |   |
| 17:00                            | <b>CLOSING</b>   |   |