REFORMA – City & Urban Life Section

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NEWS

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  See how they damage your health.

NASA TO MEASURE POLLUTION LEVELS OVER MEXICO CITY

Mexico City selected to study the everyday deterioration of air quality and how it affects climate change.

Dr. Luisa Molina is the head-coordinator of the Milagro Campaign. Photograph: Juan Pablo Zamora

Grupo Reforma

Mexico City (January 22, 2006).- American, European, Japanese and Mexican investigators will participate in the study using aircraft for scientific monitoring, satellite evaluations and ground-based laboratories.

Mexico City ranks as the second most populated city in the world and is also one of the most polluted. This is the reason why it was selected to measure the deterioration of air quality in an urban center.

From the 1st to the 30th of March, 300 specialists from 60 universities and research centers will use high-tech instruments to measure and examine how pollution affects the city as well as other regions of the country and the world.

The cost of the MILAGRO campaign (Megacity Initiative: Local And Global Research Observations) will be 15 million dollars, provided by international foundations and U.S. government institutions.

The Mexican Metropolitan Environmental Commission (CAM) will contribute to the campaign with 6 million 640 thousand pesos, as well as 500 thousand pesos from the National Institute of Ecology.

By air: six aircraft from the National Center for Atmospheric Research, the U. S. Department of Energy, and NASA will fly over the Mexico City Metropolitan Area and its neighboring regions.

In space: nine satellites will register the behavior of pollutants generated in the city.

On the ground: three large ground-based laboratories (supersites) will be installed in Mexico City, the State of Mexico and Hidalgo.

“The chemical composition of the planet’s atmosphere is changing. The campaign to measure the components attempts to understand how pollution in megacities affects and contributes to this transformation, and its influence on climate change”, explained Mario Molina, Nobel Prize in Chemistry, responsible for assembling the scientists.

The head coordinator of the project, Luisa T. Molina, indicated that pollution “ is neither created nor destroyed, only transformed; the pollution generated in Mexico City does not disappear, it only relocates to other regions”. She added that, as more and more of the planet’s population tends to concentrate in urban settings, pollution in megacities caused by cars and industries is a growing phenomenon, and its consequences to the atmosphere are still unknown.

Previous measurement campaigns revealed that during the month of March, pollutants emanating from the city, similar to smoke plumes from a chimney, travel northeast toward the urban municipalities of the State of Mexico, Hidalgo and the Gulf of Mexico.

The ground-based laboratories, satellites and flight routes for the different aircraft, will conduct measurements over the region assisted by different types of vehicles and specially equipped balloons. 5 of the airplanes will be based in the port city of Veracruz and one, from NASA, will fly from Houston.

Stations from the Mexican government’s Atmospheric Monitoring System (Simat) are measuring constantly six criteria pollutants in order to learn the state of the air quality.

Rafael Ramos, director of Simat, revealed that “the scientists, recognized specialists in each of their areas, will operate the equipment to measure and discover at least one hundred compounds and a multitude of reactions, currently unknown”

Satellite records have corroborated the movement of mass pollutants from one continent to the next or even across the ocean.

“We are concerned about how pollution travels from one region to the next and how it is altering the chemistry of the planet’s atmosphere”, indicated Mario Molina.

The information resulting from these measurements will be compiled in a mega

database only available to the participating researchers for the first few years after which the conclusions will be presented and published.

Iván Sosa and Alejandro Ramos
Time of publication: 17:22

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RESULTS ESTIMATED FOR 2007

In addition to the data and measurements gathered from the Milagro campaign, proposals will be submitted to the authorities who deal with environmental issues.

Grupo Reforma

Mexico City (January 22, 2006).- The results obtained from the atmospheric monitoring project of the Mexico City Metropolitan Area and other regions in the country related to the Milagro campaign will be made public in March 2007, revealed the head coordinator of the project, Luisa T. Molina.

She indicated that, in addition to presenting the results gained from the pollutants and the direction taken towards other regions of the country and the world, recommendations and measures will be submitted to the corresponding environmental authorities to be valued and applied.

The analysis of the samples collected from six U.S. specialized airplanes and ground-based mobile laboratories will take approximately one year.

This year's campaign will take place from the 1st to the 30th of March. The final results will be delivered to the authorities and made public during this same month in 2007.

Luisa T. Molina also mentioned that all the information, including planning, scientific techniques, methodologies, maps, monitoring equipment and final results, will be available on the internet to be accessed and downloaded by all interested parties in January 2008.

In this environmental effort there are experts participating from Mexico, Japan, Europe and the United States. Providing backup and support are six U.S. aircraft, satellites, aerostatic balloons and five mobile laboratories.

"Milagro is the first project to study, on a global scale, the behavior of atmospheric pollution generated in the Mexico City Metropolitan Area, as well as the exportation of the cloud of pollutants to other regions of the country and other continents of the world", explained Mario Molina, Nobel Prize in Chemistry.

During the following weeks and up until the end of February, meetings will be taking place in preparation for the campaign, at the Petroleum Mexican Institute (IMP) in Mexico City.

Also worth mentioning in this great environmental crusade is the participation and contribution of researchers from the UNAM, the UAM, the National Environmental Research and Training Center (CENICA), the National Institute of Ecology (INE), the SEMARNAT, the environmental authorities from Mexico City, the State of Mexico, as well as other government agencies from the states of Hidalgo, Morelos, Nuevo Leon and Jalisco.

The Milagro campaign has received 15 million dollars of financial support from U.S. and Mexico foundations and government agencies.

The Mexican Metropolitan Environmental Commission (CAM) contributed 6 million 640 thousand pesos, plus 600 thousand pesos from the National Institute of Ecology, to be added to the 15 million-dollar sum total for the campaign.

Improving the air quality

Claudia Sheinbaum, Secretary of the Environment of Mexico City indicated that the Milagro campaign is of a scientific nature; the results of which will contribute to the decision-making actions in order to improve the air quality in the Mexico City Metropolitan Area.

“We are very pleased that world-class scientists will collect data from the city that, in time, will provide results and conclusions that will help to improve the air quality in other cities”.

She added that technicians from the Mexican Atmospheric Monitoring System will have a direct participation and will be in charge of calibrating the different pieces of equipment to be used to conduct measurements on behalf of the researchers.

The Mexico City government will provide assistance in coordination with the Environmental Metropolitan Commission and the State of Mexico in the activities carried out by the scientists.

By Alejandro Ramos and Iván Sosa
Time of publication: 13:19

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MEXICO CITY MAKES IT TO GUINNESS BOOK OF RECORDS

Title for most polluted city on the planet is now vacant.

Iván Sosa

Mexico City (January 20, 2006).- The Mexico City Metropolitan Area has ceased to appear in the Guinness Book of Records under the category of most polluted city in the world.

On the www.guinnessrecords.com website, 2006 edition, the space awarded to quote the city with the worst air quality in the world is now empty.

Mexico City greeted 2006 with an environmental contingency due to excessive use of firecrackers, campfires and tire-burning. Photo: Archive

On the 27th of May, 2004, REFORMA reported that in accordance to the Guinness records Mexico was the most polluted city for that year.

The Secretary of the Environment of Mexico City, Claudia Sheinbaum, issued a letter indicating to the authors of the international book of records that the information on which they had based their caption was imprecise.

“With international information and World Bank data on which they based their conclusions for two years, we will prove to them that there are no global comparative parameters to attribute that category to Mexico City”, explained Rafael Ramos, director of the Mexican Atmospheric Monitoring System.

Also cited was Nobel Prize in Chemistry, Mario Molina, in which he states that: “Mexico City has ceased being the most polluted in the world; this position is now being challenged by cities such as Los Angeles, Cairo or Shanghai”.

During a meeting this Thursday with the Head of the Mexico City Government, Alejandro Encinas and the coordinator of an international project set for March to study the pollution in the city, Luisa Molina pointed out the exclusion of Mexico city from the Guinness Book of Records.

Last December, Claudia Sheinbaum announced that the levels of pollution registered in 2005 were the lowest in the last 15 years, even though the limit marked by the norm to protect people from exposure to ozone was still surpassed 60 per cent of the days.

Controversial nomination

Beijing took second place, Xian (China) came in third, and New Delhi (India) in fourth, were listed after Mexico City in the Guinness Book of Records as the most contaminated in the world.

According to the Ministry of Environment of Mexico City, the organization based their 2004 nomination on information from a 1998 World Bank report whose data, aside from not being updated, was imprecise.

The record was given for sulfur dioxide and carbon monoxide levels of pollution that have been controlled for a decade.

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ANIMATED GRAPHICS

A Miracle project

Particles 'mega-study' to take place in the Mexico City Metropolitan Area

MILAGRO CAMPAIGN (*background picture of polluted Mexico City*)

Using aircraft for scientific monitoring, satellite evaluations and ground-based laboratories, American, European, Japanese and Mexican investigators will study atmospheric pollution in the Mexico City Metropolitan Area from the 1st to the 30th of March, 2006.
Get to know the Milagro project in its efforts to analyze everyday deterioration of air quality in an urban center.

REGIONS OF EXPLORATION

MCMA-2006 (Molina)	MAX-Mex (DOE)	MIRAGE_MEX (NSF)	INTEX (Nasa/NSF)

MCMA-2006 (Mexico City Metropolitan Area 2006) Led by the Molina Center for Strategic Studies in Energy and the Environment with funding from the National Science Foundation (NSF) and the Department of Energy (DOE). It will study the pollution in the Mexico City Metropolitan Area.

MAX-Mex (Megacity Aerosol Experiment in Mexico City) Led by the Atmospheric Science Program with funding from DOE, it aims to examine the evolution of aerosols and gas-aerosols interactions in the immediate urban outflow.

MIRAGE-Mex (Megacity Impacts on Regional and Global Environments) Led by the National Center for Atmospheric Research (NCAR) with funding from NSF, it has the objective of examining the evolution of the Mexico City pollution plume on larger regional scales.

INTEX-B (Intercontinental Chemical Transport Experiment, Phase B) Led by NASA, it aims to study the evolution and transport of pollution on global scales. Phase A studied the migration of pollutants from Asia to North America.

The campaign

- 25 million dollars is the cost of the Milagro campaign (Megacity Initiative Local and Global Research).
- 350 specialists will install scientific equipment to measure pollution.
- 6 aircraft will fly over the Mexico City Metropolitan Area and neighboring regions.
- 9 satellites will record the behavior of pollutants generated in the city.
- 3 ground-based laboratories will be installed in Mexico City, the State of Mexico and Hidalgo.
- 1 year is the period of time that it will take to analyze the air samples collected.
- March 2007 is when the results are to be delivered to the authorities and made public.
- March 2008 is when all the information will be available for consultation via the internet.

Explorers

From the sky: aircraft from the National Center for Atmospheric Research, the U. S. Department of Energy, and the National Aeronautics and Space Administration (NASA) will fly over Mexico's Metropolitan Area and its neighboring regions to determine which pollutants are exported to other cities and continents.

Jetstream 31 – Equipped with photometers and optical analyzers, it evaluates the behavior of aerosols through a vertical profile. Based in Veracruz.

King Air 2 – It will analyze the distribution of aerosols with laser equipment. The laser beams emitted will be compared and corroborated on the ground. Based in Veracruz.

Gulfstream G-1 – With a slow moving flight trajectory, it will study chemical reactions in the atmosphere. Based in Veracruz.

DC-8 – It will measure peroxides and peroxiacilnitrates. Operated by NASA, it will fly from Houston to evaluate flight routes through which the pollution from the city spreads out to other regions.

Twin Otter – It will evaluate the information obtained from the particles produced by forest fires. Based in Veracruz.

Hércules C-130 – For scientific missions. Property of the National Center for Atmospheric Research.

MONITORING (*interactive map*)

Ground-based monitoring – A variety of measurement equipment will be distributed to study the deterioration of air quality throughout the Mexico City Metropolitan Area and the Northeastern region; where pollution migrates to other areas.

Supersites - T0-IMP (Instituto Mexicano del Petróleo)
T1 (Universidad Tecnológica de Tecamac)
T2 (Rancho La Bisnaga)

Stations - TULA, MER, Flux Tower

Mobile Units - T3, TEC, Atizapán, Colegio Alemán, Huixquilucan, Revolución, CENICA, Avila Camacho, CORENA, Santa Ana, Tenango del Aire.

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Watch out for pollutant particles!
See how they damage your health.

POLLUTANT PARTICLES

'The invisible enemy'

Recent studies reveal that atmospheric pollution undoubtedly affects our health. However, the ways in which **PM10**, **PM2.5** and nanoparticles are harmful to us depend mostly on their size and chemical characteristics. Get to know more about this problem.

Effects and damage

Recent studies have revealed that atmospheric pollution in Mexico City not only affects our lungs and respiratory airways, but also damages soft-tissue organs such as the brain, kidneys, liver and heart.

Their composition

For years the fight against pollution has focused mainly on ozone, although some investigations indicate that sources emitting fine particles such as the PM 10 and PM 2.5 should also be controlled. These last ones are still without regulations.