Air Quality Monitoring Stations In Hyderabad Field Notes

This book examines air pollution of a big city using multi-year and multi-season data from ground-based air monitoring stations and satellite sounding data, which provides more clear and detailed information on the main sources of air pollution, the long-term trend of pollution, the influence of meteorological parameters on pollution levels, and trajectories of polluted air masses. For example, the book shows that particulate matter from local sources is transported from deserts to create air quality challenges. It also analyzes the effects of desert and semi-desert landscapes on high concentrations of pollutants.

Air pollution is about five decades or so old field and continues to be a global concern. Therefore, the governments around the world are involved in managing air quality in their countries for the welfare of their citizens. The management of air pollution involves understanding air pollution sources, monitoring of contaminants, modeling air quality, performing laboratory experiments, the use of satellite images for quantifying air quality levels, indoor air pollution, and elimination of contaminants through control. Research activities are being performed on every aspect of air pollution throughout the world, in order to respond to public concerns. The book is grouped in five different sections. Some topics are more detailed than others. The readers should be aware that multi-authored books have difficulty maintaining consistency. A reader will find, however, that each chapter is intellectually stimulating. Our goal was to provide current information and present a reasonable analysis of air quality data compiled by knowledgeable professionals in the field of air pollution.

Design of Air Quality Monitoring Networks

The Impact of Air Pollution on Health, Economy, Environment and Agricultural Sources

Fundamentals, Applications, and Corroborative Analysis

Transportation and Air Quality

Report to the Congress

This book aims to strengthen the knowledge base dealing with Air Pollution. The book consists of 21 chapters dealing with Air Pollution and its effects in the fields of Health, Environment, Economy and Agricultural Sources. It is divided into four sections. The first one deals with effect of air pollution on health and human body organs. The second section includes the Impact of air pollution on plants and agricultural sources and methods of resistance. The third section includes environmental changes, geographic and climatic conditions due to air pollution. The fourth section includes case studies concerning of the impact of air pollution in the economy and development goals, such as, indoor air pollution in México, indoor air pollution and millennium development goals in Bangladesh, epidemiologic and economic impact of natural gas on indoor air pollution in Colombia and economic growth and air pollution in Iran during development programs. In this book the authors explain the definition of air pollution, the most important pollutants and their different sources and effects on humans and various fields of life. The authors offer different solutions to the problems resulting from air pollution.

AbstractThe Maptaphut Industrial Estate is located on the Gulf of Thailand, Rayong Province. The area, which has been designated as a main centre for the petrochemical industry currently occupies 16 sq km and comprises petrochemical plants, chemical and fertilizer plants, refineries, construction plants, and steel industry; there are also residential and commercial areas (IEAT, 2004). There is a significant population around the site, with 24,000 inhabitants in the immediate vicinity according to Jadsri et a/ (2006). The estate has been held responsible for deaths and hospital admissions due to leaks and accidents dating back as far as 1997. Whilst the environmental and health and safety performance of the estate as a whole has significantly improved over recent years, there are still significant outpatient admission rates to Maptaphut hospital for respiratory illness, as recently reported by Jadsri et al. (2006), raising the question of whether local emissions are significantly contributing to ill health, or whether general background concentrations of pollutants from nearby road sources and from Rayong City are the main contributions. The main aim of this research, therefore, was to accurately model the dispersion of pollutants from the estate, and to attempt to quantify the health impacts of these emissions. The specific objectives of this study were to (a) to characterise meteorological conditions in the Maptaphut area; (b) to develop a multiple linear regression statistical model to characterise and predict atmospheric pollutant concentrations in Maptaphut; (c) to investigate the relationship between air pollution and ill health in Maptaphut using a multiple linear regression statistical model; (d) to evaluate the effectiveness of Gaussian and Computational Fluid Dynamics atmospheric dispersion modelling software packages in predicting ground level pollutant concentrations at points around the industrial estate and (e) to use the results of the dispersion modelling studies to assess the contribution of the industrial estate to the overall atmospheric pollutant load in the Maptaphut area, and from published health impact factors, to assess the overall health impact of the estate. The first objective was to characterise the environmental status, trend, and impacts of air pollution during the period 1998 to 2007. The estate is located in the coastal area; thus, the role of the sea-land breeze has a significant role in the dispersion of air pollutants harmfulness. Data collected for the Maptaphut Industrial Estates area, including regional, temporal and spatial considerations included: meteorological data from 100-metres tall meteorological mast; ambient air quality data from three ambient air quality monitoring stations; industrial emissions data; traffic volume on nearby major roads; and outpatient admissions data at the Maptaphut and Rayong hospitals. Comparisons with the ambient air quality in the Bangkok area were made, and the daily and yearly trends in concentrations of the main air pollutants were analysed. Multiple linear regression models correlating pollutant concentrations with respiratory outpatient admissions rates showed that 03, PMio and NO were statistically significant determinants. The overall correlation had a coefficient of Determination (R2) of 41.4% for one week average data, increasing to 51.2% when air temperature and %RH were included. Accumulation effect of pollutants up to four weeks period exposure does not appear to have an effect. A basic health impact analysis study using the ADMS modelled concentrations and the WHO AirQ tool, along with default risk factors, showed that emissions from the Maptaphut industrial estate account for almost all of the NO2 and SO2 related respiratory illness and between 10 and 27% of the PMio related admissions; this actually represents less than 2% of the total respiratory admissions for this area. Furthermore, statistic models were developed to predict daily maximum of 1-hour Ozone and PM1,3 concentration by multiple linear regression based on 1998-2002 statistical data. Average percentage errors for the model then applied to the prediction of time series were 21% and 38% for Ozone and PM10, respectively. The effectiveness of a range of dispersion models in predicting ambient pollutant concentrations from the industrial estate was also investigated. Of these, ADMS showed the best performance; it was able to predict sulphur dioxide concentrations with a reasonable degree of accuracy and both the magnitude of the peaks and the general trends were reasonably characterised. This indicated that the meteorology model used in ADMS, and the treatment of the boundary layer and Monin-Obukhov lengths is applicable to South East Asian climatic conditions. For PK? and NOR, where there were significant other sources apart from the industrial estate, the characterisation was less good, with some significant under predictions of PM10 in particular. The predicative capability of ISC for SO2, NO and PMic, was generally very poor. There was some coincidence of peaks, but generally the peaks were over predicted for SO2 and NO2 and under predicted for PM10. Finally, for PanEIA, which is a this computational fluid dynamics (CFD) dispersion model, the model was able to predict general trends and peaks, particularly for SO2; however there was a tendency to significantly overestimate the daily average concentrations. In addition, run times are significantly greater than those for either ADMS or ISC, possibly by a factor of 10. On the basis of the research findings, the following recommendations were made to the regulatory authorities: (a) that ADMS be adopted for regulatory purposes in plae of ISC3, and that other advanced Gaussian models such as AEROMOD be evaluated;(b) that further research be carried out on statistical approaches to predicting PK? and ozone concentrations in conjunction with specific data sets collected from mobile meteorological and air quality monitoring stations; (c) in view of the conclusion that that ambient air quality in populated areas adjacent to the Maptaphut estate is not adequately characterised by the locations of the current monitoring stations it is recommended that either additional monitoring stations are installed in areas of high pollution levels or that use be made of mobile air quality monitoring stations are used routinely to collect air quality data at several points around the industrial estateFurther work should include: (a) the compilation of a more accurate pollutant inventory in addition to the industrial emissions from Maptaphut; (b) the further investigation of chemistry and coastal modules of ADMS in order to build a more accurate model, including atmospheric chemistry; (c) further work to be carried out on statistical techniques for predicting ambient pollutant concentrations, preferably in conjuction with additional monitoring data from mobile monitoring; and (d) repeat the health impact analysis studies based on more complete hospital admission data including: age, sex, district of residence.

The Role of Monitoring Networks in the Management of the Nation's Air Quality

New York State Air Quality Report

Air Quality Assessment and Management

(1998 SLAMS & NAMS Report)

Problems in Air Quality Monitoring System Affect Data Reliability

This book is a printed edition of the Special Issue "Air Quality Monitoring and Forecasting" that was published in Atmosphere

A guide to the principles and methods of air quality assessment aimed at measuring population exposure to ambient air pollutants and estimating the effects on health. Addressed to policy-makers as well as scientists engaged in air quality monitoring, the book responds to the failure of most monitoring systems to provide data that are useful in estimating and managing threats to health. The need for exposure data on populations at special risk is also addressed. Throughout, emphasis is placed on methods of monitoring and modelling that are cost-effective, targeted, and appropriate to local and national conditions. The report has six chapters. The first introduces WHO activities related to air quality management and explains the need for monitoring systems capable of assessing health impact. The types of information required for health impact assessment are described in chapter two, which outlines several methods of monitoring and modelling that can be used to measure the level and distribution of exposure to air pollutants in populations, identify population groups with high exposure, and estimate adverse effects on health. Chapter three formulates a general concept of air quality assessment, offering advice on principles for designing a monitoring network, interpreting and reporting data, and solving problems with quality assurance. Also included is a comparison of the advantages, disadvantages, and costs of different methods for air quality monitoring. Against this background, the fourth and most extensive chapter describes specific methods for the monitoring of carbon monoxide, ozone, sulfur dioxide, nitrogen dioxide, particulate matter, benzene, polycyclic aromatic hydrocarbons, lead, and atmospheric cadmium. Monitoring strategies for each pollutant are presented according to a standard format, which covers health effects, sources and exposure patterns, monitoring methods, recommended strategies for monitoring and assessment, and a practical example. The remaining chapters offer advice on the collation, analysis, interpretation, and dissemination of data, and summarize the main conclusions and recommendations of the report. Detailed technical guidelines for the use of various methods and models are provided in a series of annexes. The report also reproduces the newly revised WHO air quality guidelines for Europe.

Air Quality Monitoring, Assessment and Management

New York State Air Quality Report. Ambient Air Monitoring System

Air Quality Monitoring Station Siting Study for the San Diego County Air Pollution Control District

Continuous and manual air monitoring systems

Monitoring, Modelling and Health Impacts of Air Pollutants Arising from the Maptaphut Industrial Estates, Thailand

Air Quality Assessment and Management: A Practical Guide describes the techniques available for an assessment while detailing the concepts and methodologies involved. It reviews the principles of air quality management; primary sources of air pollution; impact of emissions on human health, flora and fauna; scoping of air quality impacts; baseline monitoring; impact prediction; impact significance; and pollution mitigation and control. Emphasis will be placed on the practical side of AQA, with numerous international case studies and exercises to aid the reader in their understanding of concepts and applications.

Human beings need to breathe oxygen diluted in certain quantity of inert gas for living. In the atmosphere, there is a gas mixture of, mainly, oxygen and nitrogen, in appropriate proportions. However, the air also contains other gases, vapours and aerosols that humans incorporate when breathing and whose composition and concentration vary spatially. Some of these are physiologically inert. Air pollution has become a problem of major concern in the last few decades as it has caused negative effects on human health, nature and properties. This book presents the results of research studies carried out by international researchers in seventeen chapters which can be grouped into two main sections: a) air quality monitoring and b) air quality assessment and management, and serves as a source of material for all those involved in the field, whether as a student, scientific researcher, industrialist, consultant, or government agency with responsibility in this area.

WSN Based Air Pollution Monitoring System

Planning and Implementing a Real-time Air Pollution Monitoring and Outreach Program for Your Community

Field Notes

Environmental Impact Statement

Quality assurance guidance document model quality assurance project plan for the PM25 ambient air monitoring program at state and local air monitoring stations (SLAMS).

Managing the nation â € ™s air quality is a complex undertaking, involving tens of thousands of people in regulating thousands of pollution sources. The authors identify what has worked and what has not, and they offer wide-ranging recommendations for setting future priorities, making difficult choices, and increasing innovation. This new book explores how to better integrate scientific advances and new technologies into the air quality management system. The volume reviews the three-decade history of governmental efforts toward cleaner air, discussing how air quality standards are set and results measured, the design and implementation of control strategies, regulatory processes and procedures, special issues with mobile pollution sources, and more. The book looks at efforts to spur social and behavioral changes that affect air quality, the effectiveness of market-based instruments for air quality regulation, and many other aspects of the issue. Rich in technical detail, this book will be of interest to all those engaged in air quality management: scientists, engineers, industrial managers, law makers, regulators, health officials, clean-air advocates, and concerned citizens.

AIR QUALITY MONITORING AND CONTROL STRATEGY essentially deals with air quality and underlines a strategy to improve it. To this effect this volume describes briefly the problem of air pollution, impact of various pollutants present in the indoor/outdoor atmosphere on health, the various monitoring techniques/instruments and their practical use, instructions, precautions etc., control instrumentation and environment impact assessment. The answer to questions like the need for air quality monitoring, choice of monitoring location and parameters, averaging time and frequencies etc. has been provided along with the basic statistics required to work out certain statistical figures in air quality. The science of meteorology, an important subject that takes care of dispersion/dilution of air pollutants at a place, has been discussed briefly. A chapter on noise pollution, another vital air toxicant, has also been dealt with to a certain limit. Two case studies have been incorporated to elucidate the importance of EIA and the need to develop a strategy for management of ambient air quality. Revised new standards have also been included.

Development of a methodology for designing carbon monoxide monitoring networks

Air Quality Monitoring and Control Strategy

California Air Quality Data for ...

A Hybrid Neural Network- Mathematical Programming Approach to Design an Air Quality Monitoring Network for an Industrial Complex

National Air Quality, Monitoring, and Emissions Trends Report

Wireless sensor networks (WSNs) have emerged as a phenomenon of the twenty-first century with numerous kinds of sensor being developed for specific applications. The origins of WSNs can, however, be traced back to the early days of connectivity between computers and their peripherals. Work with distributed sensor networks is evidenced in the literature during the latter part of the 1970s, continuing in functionality increases in the 1980s and 1990s. As a configuration of independent devices in a data communications network, WSNs are now pre-eminent as working solutions to numerous precision data collection situations where software control of instruments and routing protocols are needed. In this book, the authors have chosen a selection of specific topics relating to WSNs: their design, development, implementation and function. Some operating topics are addressed such as power management, data interchange protocols, instrument reliability and system security. Other topics are more application oriented, where particular hardware and software configurations are described to deliver system solutions for specific needs. All are clearly written with considerable detail relating to each of the issues addressed by the authors. Each of the chapters provides a rationale for the topic being covered and some general WSN details where appropriate. The citations used in the chapters are comprehensively referred to, which adds depth to the information being presented.

Air Quality Monitoring and Forecasting.

A Practical Guide

Urban Air Pollution in Asian Cities

EPA-600/4

Air Quality Data Directory of Air Quality Monitoring Sites, 1971

Air Quality Management in the United States

This dissertation, "Air Pollution Impacts as Indicated by Roadside Air Quality Monitoring Stations" by 韓, Hin-kee, Kong, was obtained from The University of Hong Kong (Pokfulam, Hong Kong) and is being sold pursuant to Creative Commons: Attribution 3.0 Hong Kong License. The content of this dissertation has not been altered in any way. We have altered the formatting in order to facilitate the ease of printing and reading of the dissertation. All rights not granted by the above license are retained by the author. DOI: 10.5353/th_b3125424 Subjects: Air - Pollution - China - Hong Kong Air quality monitoring stations - China - Hong Kong Air quality indexes - China - Hong Kong Automobiles - Environmental aspects - China - Hong Kong Air quality management - China - Hong Kong

Research Paper from the year 2013 in the subject Computer Science - Miscellaneous, , course: Computer Engineering - Wireless Sensor Network, language: English, abstract: Air pollution monitoring is extremely important as air pollution has a direct impact on human health and environment. In this paper we introduce a wireless sensor network system for participatory air pollution monitoring. The traditional air quality monitoring system, controlled by the Pollution Control Department, is extremely expensive. Analytical measuring equipment is costly, time and power consuming. In contrast to traditional air pollution monitoring stations, we present the design, implementation, and evaluation of low power, low cost WSN based Air Pollution Monitoring System which provides real time monitoring of polluted materials at proper locations by using distributed (real time) air pollution monitoring systems.

Status, Challenges and Management

Air Quality

Air Quality in the San Joaquin Valley Air Basin

The AirBeat Project of Roxbury, Massachusetts

Air pollution has become part of the daily existence of many people who work, live and use the streets in Asian cities. Each day millions of city dwellers breathe air polluted with concentrations of chemicals, smoke and particles that dramatically exceed World Health Organization guideline values. Deteriorating air quality has resulted in significant impacts on human health and environment in Asia. This book provides a comprehensive and comparative assessment of the current status and challenges in urban air pollution management in 20 cities in the Asian region. It examines the effects on human health and the environment and future implications for planning, transport and energy sectors. National and local governments have begun to develop air quality management strategies to address the deterioration in urban air quality; however, the scope and effectiveness of such strategies vary widely. This book benchmarks these air quality management strategies, examines successes and failures in these cities and presents strategies for improving air quality management in cities across Asia and the rest of our rapidly urbanizing world. Information on air quality in Asia is clearly presented with easy-to-read city profiles, tables and graphs. This is an essential resource for all those concerned with urban air quality management, not just in Asia but in cities across our rapidly urbanizing world. Cities covered Bangkok, Beijing, Busan, Colombo, Dhaka, Hanoi, Ho Chi Minh City, Hong Kong, Jakarta, Kathmandu, Kolkata, Metro Manila, Mumbai, New Delhi, Seoul, Shanghai, Singapore, Surabaya, Taipei and Tokyo

Chemical Modeling for Air Resources describes fundamental topics in chemical modeling and its scientific and regulatory applications in air pollution problems, such as ozone hole, acid rain, climate change, particulate matter, and other air toxins. A number of corroborative analysis methods are described to help extract information from model data. With many examples, Chemical Modeling for Air Resources may serve as a textbook for graduate students and reference for professionals in fields of atmospheric science, environmental science and engineering. Presents atmospheric chemical modeling from both scientific and regulatory perspectives Includes a range of topics for each pollutant, including the science of how it forms, its health effects, the regulatory context, and modeling A succinct overview for air quality regulators and industry consultants interested in the most widely used modeling software

Multi-season characteristics from Lanzhou City, China

1988 Air Pollution Monitoring Report for Air Monitoring Stations in Albuquerque, New Mexico

Urban Sprawl Modeling, Air Quality Monitoring, and Risk Communication

Arlington, Heating Plant

Wireless Sensor Networks

This session contains the following paper: Air quality impacts of a regional HOV system (Purvis, class).

Environmental Protection Agency's Monitoring Programs

Air Pollution Impacts as Indicated by Roadside Air Quality Monitoring Stations

Air Quality Monitoring and Forecasting

Monitoring Ambient Air Quality for Health Impact Assessment

Insights and Innovations