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Nota di contenuto	Air Quality Forecast Systems from the Regional Scale to the Urban Street -- Urban Vegetation Effects on Meteorology and Air Quality: A Comparison of Three European Cities -- The Impact of Imperviousness on Boundary Layer Mixing, Air Pollution and Cloud Formation Over Urban Areas -- Comparison of Different Modeling Strategies for Estimating Long-term PM2.5 Exposure Using MAIAC (Multiangle Implementation of Atmospheric Correction) AOD in China -- Developments of SPRAY Lagrangian Particle Dispersion Model for Tracing the Origin of Odour Nuisance -- On the Utilization of Real-time Activity and Air Quality Sensor Data in a Local-scale Operative Dispersion Model in Helsinki -- 3D Multi-scale Weather and Dispersion Models Applied to Assess the Impact of Industrial Plants on Human Health and the Environment -- Calibration and Application of the Integrated Assessment Tool RIAT+ for Air Quality Planning in the Po Valley -- Effect of Atmospheric Stability on Modeling Air Quality In and Around a Major Airport -- Modelling Street-scale Resolution Air Quality for the West Midlands (UK) Using the ADMS-Urban RML System -- Urban Air Pollution Reduction During the COVID Pandemia -- Predicting Hourly Street-scale NO2 and PM2.5 Concentrations Using Machine Learning at One of the Danish Traffic Hotspots -- Sources and Processes Affecting Air Pollution in the Arctic and Northern High Latitudes – A Modelling Study -- Contributions of Source Regions to

Changes in Long-Range Transported Ozone to North America During 1990-2010: A Modeling Analysis -- Diagnostic Analysis of CMAQ Dry Deposition Fields in the Context of AQMEII4 -- Forecasting Birch Pollen Levels in Belgium: First Analysis of the 2021 Season -- Air Quality Improvements During the COVID-19 Lockdown in Central Europe: Separation of Emission Reduction and Meteorological Impacts -- Analysis of Emission-driven Changes in the Oxidation Capacity of the Atmosphere in Major European Urban Cities -- Attribution of the Californian Fire Emissions to the Surface Pollutant Levels in Sweden -- Wildfire Emissions and Atmospheric Dispersion -- Ozone Episodes in Northern and Western Iberia: Understanding and Quantifying the Sources and Transport Mechanisms by Integrated Process Analysis -- Recommendations and Generic Data Assimilation Tools for the Improvement of CAMS Regional Air Quality Service -- Status and Future Vision of the CALIOPE Air Quality Forecasting System: Support for Air Quality Policies -- Data Fusion for the Improvement of Low-Cost Air Quality Sensors -- An Evaluation of Data-driven Models -- Assimilation of Surface Ozone Measurements to WRF-Chem – Impact on the Model Capability to Predict Peak Concentrations -- Forecasting PM2.5 Concentrations with uEMEP and EMEP4PL for Poland -- Influence of Meteorology on Fine Particles Concentration in an Urban Center in Southeast of Brazil -- Climate Change Impact on Source Contributions to the Air Quality in Aveiro Region -- Intercomparison and Sensitivity Analysis of Gas-phase Dry Deposition Schemes -- The WMO Barcelona Dust Regional Center: Linking Research with the Development of Dust User-oriented Services -- Performance of SILAM Model in Respect to Peak Concentrations of Trace Gases Attributable to Regional Point Sources -- MONARCH Regional Reanalysis of Desert Dust Aerosols: An Initial Assessment -- How Does the Use of Different Soil Mineralogical Atlases Impact Soluble Iron Deposition Estimates? -- Modelling the Absorption of Organic Aerosols at Regional and Global Scales -- Comparative Study Between the Effects of Autumn and Winter Rainfall on Aerobiological Variables in the NE of the Iberian Peninsula -- Estimating Particulate Matter Using Remote Sensing Data and Meteorological Variables Over Ahvaz, Iran -- Modelling of Biogenic Volatile Organic Compounds Emissions Using a Detailed Vegetation Inventory Over a Southern Italy Region -- Modelling Pollutant Concentrations in Streets: a Sensitivity Analysis to Asphalt and Traffic Related Emissions -- An Updated Agriculture Emissions Inventory and Contribution Estimation Using WRF-CMAQ Model for Turkey -- Evaluation of Satellite Vegetation Indices for BVOC Emission Modelling. Case Study: Basque Country -- Impact of Facility-Specific Temporal Profiles for Public Power Sector on WRF-CMAQ Simulations -- Urban Population Exposure to Air Pollution Under COVID-19 Lockdown Conditions - Combined Effects of Emissions & Population Activity -- Towards a Comprehensive Evaluation of the Environmental and Health Impacts of Shipping Emissions -- Modelling Short-term Health Effects in Milan Area Due to Lockdown Reduced Emissions: Combined Uncertainty Analysis from Estimated NO2 Levels and Exposure-Response Functions. .

Sommario/riassunto

This book states that current developments in air pollution modeling are explored as a series of contributions from researchers at the forefront of their field. This newest contribution on air pollution modeling and its application is focused on local, urban, regional and intercontinental modeling; long-term modeling and trend analysis; data assimilation and air quality forecasting; model assessment and evaluation; aerosol transformation. Additionally, this work also examines the relationship between air quality and human health and

the effects of climate change on air quality. This work is a collection of selected papers presented at the 38th International Technical Meeting on Air Pollution Modeling and its Application, held in Barcelona, Spain, Oct 18–22, 2021. The book is intended as reference material for students and professors interested in air pollution modeling at the graduate level as well as researchers and professionals involved in developing and utilizing air pollution models.