Proceedings of the 10th International Conference on
Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

At "Kalimera Kriti Hotel & Village Resort"
Sissi (Malia), Crete, Greece

17-20 October, 2005

Editors:

Andreas N. Skouloudis
Institute for Environment and Sustainability
DG Joint Research Centre, European Commission

Pavlos Kassomenos
Laboratory of Meteorology, Dept of Physics,
University of Ioannina

John Bartzis
Dept of Engineering & Management of Energy Resources,
University of West Macedonia
# TABLE OF CONTENTS:

## AIR POLLUTION MANAGEMENT AND DECISION SUPPORT SYSTEMS

1. NEAR-SOURCE EXPOSURE AND REGIONAL AIR QUALITY MODELING OF INCREASED NO2/NO SPLIT IN NOX EMISSIONS FROM CATALYST-BASED DIESEL PARTICLE FILTERS FOR HEAVY-DUTY DIESEL VEHICLES IN CALIFORNIA
   - Bart E. Croes, Scott Fruin, Alberto Ayala, Tony Servin, Donald Dabdub and Eladio M. Knipping

2. A PRELIMINARY INVESTIGATION OF MODEL EVALUATION DATA NEEDS
   - John S. Irwin, William B. Petersen, and Steven C. Howard

3. THE CHALLENGES OF AIR POLLUTION IN THE TRANSPORT SECTOR, FROM THE FRENCH CASE
   - Robert Joumard

## MESOSCALE METEOROLOGY AND AIR-QUALITY MODELLING

4. COMPARISON OF RESULTS FROM THREE URBAN TRACER EXPERIMENTS
   - Akula Venkatram, Jing Yuan, Tao Zhan and David Pankratz

## METEOROLOGICAL DATA ASSIMILATION EFFECTS ON ATMOSPHERIC DISPERSION MODELS RESULTS

5. ASSESSMENT OF AIR POLLUTION IN THE CONURBATION OF MUNICH – PRESENT AND FUTURE
   - Peter Suppan

6. CHARACTERIZATION OF OZONE AND PARTICULATE MATTER LEVELS IN A COASTAL SITE WITH THE APPLICATION OF A TRAJECTORY CLUSTERING CORRELATION METHODOLOGY
   - Oriol Jorba, Pedro Jiménez, Carlos Pérez and José M. Baldasano

7. ON THE ANALYSIS OF IMPACT OF CHEMISTRY, TRANSPORT AND EMISSION SOURCES ON TROPOSPHERIC OZONE PRODUCTION IN MODEL SMOG
   - Tomas Halenka, Josef Brechler

8. INVESTIGATION OF CO DISPERSION FROM SÃO PAULO METROPOLIS BY MEANS OF A MODELLING SYSTEM FOR COMPLEX TERRAIN
   - Page vi
ARTIFICIAL NEURAL NETWORKS AS A SUPPORTING TOOL FOR SOLVING METEOROLOGICAL AND AIR QUALITY MEASUREMENT/MODELING PROBLEMS - AN APPLICATION FOR LONG TIME SERIES OF LONG WAVE MEASUREMENT CORRECTION ................................................................. 51

Primož Mlakar¹, Marija Zlata Božnar¹, Amauri P. Oliveira² and Jacyra Soares²

WINTER AND SUMMER BREEZES IN A COASTAL REGION ........................................... 57

Andrea Ferrera¹, Paolo Monti¹ and Giovanni Leuzzi¹

MESOSCALE MODELLING OVER AREAS CONTAINING HEAT ISLANDS.................. 62

Marke Hongisto

MODELLING OF ATMOSPHERIC DISPERSION OF PARTICLES RELEASED FROM CERAMIC INDUSTRIES OF CASTELLÓN (SPAIN)............................................. 67

De Pascual, A., Aceña, B., Palomino, I., Martín, F. Celades, I., Sanfelix, V., Monfort, E.

PHOTOCHEMICAL AIR POLLUTION IN THE CENTRE OF THE IBERIAN PENINSULA DURING THE AUGUST 2003 HEAT WAVE ............................................ 68

M. Palacios, B. Aceña, M. García and A. De Pascual.

MODELLING THE WET DEPOSITION AND PH VALUE OF PRECIPITATIONS OVER SOUTHERN AFRICA ................................................................. 69

G.D. Fourie¹, G.D. Djolov², J.J. Pienaar³, D. Syrakov⁴ & M. Prodanova⁴

AIR-POLLUTION MANAGEMENT AND DECISION SUPPORT SYSTEMS.............................. 71

THE ROLE OF ATMOSPHERIC MODELLING IN THE IMPLEMENTATION OF NEW NATIONAL ENVIRONMENTAL STANDARDS FOR AIR QUALITY IN NEW ZEALAND .............................................................................. 73

Sturman, A.P., Zawar-Reza, P.

TEAP: AN OPERATIONAL REAL-TIME AIR QUALITY DECISION SUPPORT SYSTEM FOR INDUSTRIAL PLANTS .................................................. 78

R. San José¹, Juan L. Pérez¹ and Rosa M. González¹

VALIDATION OF THE LONG-RANGE DISPERSION MODEL BT ETEX DATA ........ 83

K.S. Suh, E.H. Kim, W.T. Hwang, H.J. Jeong and M.H. Han

LOCAL AND REGIONAL CONTRIBUTIONS TO AMBIENT PARTICULATE MATTER IN OSLO, NORWAY ....................................................................... 88

Leiv Håvard Slerdal¹ and Peter Wind²
Proceedings of the 10th Int. Conf. on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

EVALUATION OF REAL-TIME MODELLING SYSTEMS FOR POLLUTANT DISPERSION IN CASE OF INDUSTRIAL ACCIDENTS ................................................. 93

Roberto Grimaldelli, Edoardo Peroni, Cristian Lussana, Silvana Angius, Gesuina Fusari, and Elisabetta Angelino

DEVELOPMENT OF AN ANN TO ESTIMATE TRAFFIC EMISSIONS IN ATHENS, GREECE ................................................................. 98

1Karakiotos S., 1Papaloukas C., 2Pilidis G., 2Kassomenos P

FOEHN PHENOMENA IN THE WESTERN CRETE. PART I. THE SYNOPTIC SITUATION AND FLOW FIELDS COMPUTED BY THE ARPS MODEL ..................... 104

P. A. Kassomenos and H. Karandeinos

RACON 3.01 – SOFTWARE TOOL FOR FAST RADIATION CONSEQUENCES PREDICTION AND FOR CRISIS MANAGEMENT OPTIMISATION ......................... 109

Jan Svanda, Jiri Tschiesche and Vladimir Fiser

EMISSIONS INVENTORY TO THE ATMOSPHERE OF MOBILE SOURCES IN THE METROPOLITAN ZONE OF THE VALLEY OF MEXICALI, BAJA CALIFORNIA, MEXICO ......................................................... 114

Tejeda D., Montufar P., Aguilar A., Gonzalez I.

A NUMERICAL TOOL FOR THE PREDICTION OF A TOXIC CHEMICAL SUBSTANCE DISPERSION AT THE WORKPLACE .................................................. 115

A Karagiannis1, I. Panagopoulos1, P. Kassomenos2

EMISSIONS INVENTORIES TO THE ATMOSPHERE OF POINT AND MOBILE SOURCES WITH POROSITIES OF MODELING ............................................ 120

Tejeda D., Montufar P., Suppen N.

VALIDATION AND INTERCOMPARISON OF MODELS .... 121

THE PREV'AIR SYSTEM, AN OPERATIONAL SYSTEM FOR LARGE SCALE AIR QUALITY FORECASTS OVER EUROPE; APPLICATIONS AT THE LOCAL SCALE 123

Cécile Honoré1, Laurence Rouil1, Frédéric Meleux1, Laure Malherbe1, Bertrand Bessagnet1, Robert Vautard2, Nathalie Poisson1, Vincent-Henri Peuch1, Anne Dufour1

MODELLING THE CAUSES OF VEHICLE EXHAUST EXPOSURE MICRO-EPISESODES .................................................................................. 128

Hongbin Wang1, Roy Colvile1, Elsa Aristodemou1, Christopher Pain2

EVALUATION OF ENHANCEMENTS TO THE CALPUFF MODEL FOR OFFSHORE AND COASTAL APPLICATIONS ......................................................... 134

Joseph S. Scire, David G. Strimaitis and Francoise R. Robe
VALIDATION OF CZECH REFERENCE MODEL SYMOS'97, ADAPTED FOR ODOUR DISPERSION MODELING ................................. 139

Josef Keder¹, Jiri Bubnik¹ and Jan Macoun¹

MODELS HARMONISATION AS A MATHEMATICAL PROBLEM ......................... 143

V.P. Yushkov

INTER-COMPARISON AND VALIDATION OF RANS AND LES COMPUTATIONAL APPROACHES FOR ATMOSPHERIC DISPERSION AROUND A CUBIC OBSTACLE 144

S. Andronopoulos¹, D.G.E. Grigoriadis¹, I. Mavroidis², R.F. Griffiths³ and J.G. Bartzis⁴

EXTENDED KALMAN FILTER ANALYSIS OF SHORT-RANGE ATMOSPHERIC DISPERSION OF RADIONUCLIDES ....................................................... 149

Bent Lauritzen and Martin Drews

LONG TERM EFFECT OF AIR POLLUTION NEAR TRAFFIC JUNCTIONS .............. 152

Artur Gzella and Arthur Schady

SHORT DISTANCE DISPERSION MODELLING ............................ 157

A GIS-BASED DISPERSION MODEL FOR PREDICTING POLLUTION FROM COGENERATION SYSTEMS IN URBAN AREAS ............................................. 159

Ayumu Sato¹ and Yoichi Ichikawa¹

REGULATORY MODELLING OF PM - A HYBRID APPROACH FOR MODELLING THE PARTICLE TOTAL NUMBER CONCENTRATIONS ...................... 163

Härkönen J (a,*), Karppinen A (a), Pakkanen T (a), Hussein T (b), Håmeri K (b, c)

COMPUTING ATMOSPHERIC DISPERSION NEAR BUILDINGS FOR EXPLOSION IMPACT ASSESSMENT ................................................................. 168

Marie Fabre¹, Bruno Lequime¹, Bruno Abart², Erwan Corfa², Armand Alberget²

PERLE: AN OPERATIONAL MESO-SCALE DISPERSION MODELLING SYSTEM FOR ACCIDENTAL RELEASE ..................................................... 177

F.Bonnardot¹, C.Lae¹, C.Camail¹, O.Connan², D.Maro², D.Hébert², M.Rozer²

URBAN SCALE AND STREET CANYON MODELLING ...... 183

TURBULENCE PARAMETERIZATION FOR DISPERSION IN URBAN AREAS ....... 185

Ekaterina Batchvarova (1), Sven-Erik Gryning (2)

EXPERIMENTAL INVESTIGATION OF URBAN CANOPY LAYER FLOW AND DISPERSION ................................................................. 190
Proceedings of the 10th Int. Conf. on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

Schatzmann, M.1, Bächlin, W.2, Emeis, S.3, Kühlwein, J.4, Leitl, B.1, Müller, W.J.5, Schäfer, K.3

AIR QUALITY ASSESSMENT IN A STREET-CANYON IN HELSINKI USING THE CFD MODEL ADREA-HF .......................................................... 195

P. Neofytou1, M. Haakana2, J. Kukkonen2, A. Venetsanos3, A. Kousa4, J. Bartzis1

LARGE EDDY SIMULATION OF SHADING EFFECTS ON NO2, NO AND O3 CONCENTRATIONS WITHIN AN IDEALISED STREET CANYON ...................... 200

David Grawe (d.grawe@bham.ac.uk), Xiaoming Cai, Roy M Harrison

MICRO-METEOROLOGICAL SIMULATIONS OVER THE COASTAL AREA OF MARSEILLE DURING THE ESCOMPTE EXPERIMENT ........................................... 201

Sylvie Leroyer1, Isabelle Calmet1, and Patrice G. Mestayer1

HOW TO DETERMINE URBAN BACKGROUND CONCENTRATIONS FROM TRAFFIC FLOWS IN NEIGHBOURING STREET CANYONS? .................................. 206

Guido Cosemans, Luc Int Panis and Clemens Mensink

MESOSCALE METEOROLOGY AND AIR-QUALITY MODELLING.................................................................................................................. 211

AIR QUALITY DEGRADATION IN THE MEDITERRANEAN URBAN REGIONS FROM ANTHROPOGENIC AND NATURAL PARTICULATE MATTER ............. 213

Marina Astitha, Petros Katsafados and George Kallos

VERY HIGH-RESOLUTION AND URBANISED SIMULATIONS WITH THE LOKALMODELL AND THEIR APPLICATION TO AIR POLLUTION MODELS FOR POLLUTION EPISODES IN EUROPEAN CITIES ........................................ 218

Fay B, Neunhäuserer L, Glaab H

APPLICATION AND INTERCOMPARISON OF THE RADM2 AND RACM ATMOSPHERIC CHEMISTRY MECHANISM INCLUDING A NEW ISOPRENE DEGRADATION SCHEME WITHIN THE ONLINE-COUPLED REGIONAL METEOROLOGY CHEMISTRY MODEL MCCM .................................... 219

Edwin Haas, Renate Forkel and Peter Suppan

VALIDATION AND SOURCE APPORTIONMENT ANALYSES OF CAMX MODEL OVER THE VENETO REGION AND VENICE LAGOON ........................................ 225

Fabio Dalan1, Silvia Pillon1, Giuseppe Maffei2, Francesca Liguori1 and Alessandro Benassi1

A GRID SENSITIVITY ANALYSIS METHOD FOR THE CALIBRATION OF PROGNOSTIC METEOROLOGICAL MODELS IN AIR POLLUTION MODELLING .... 230

Stamatis Zoras and Athanasios G. Triantafyllou
Proceedings of the 10th Int. Conf. on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

TURBULENCE CLOSURE IN ATMOSPHERIC CIRCULATION MODEL AND ITS INFLUENCE ON THE DISPERSION .......................................................... 235

S. Alessandrini¹, E. Ferrero², C. Pertot¹, S. Trini Castelli¹, E. Orlandi¹

MATHEMATICAL MODEL OF ATMOSPHERE POLLUTION IN YEREVAN CAUSED BY INDUSTRIAL EMISSIONS .................................................. 240

Dr. Hamlet Melkonyan¹, Ani Melkonyan²

ANALYSIS OF ATMOSPHERIC RADIOXENON ACTIVITIES MEASURED BY A RADIONUCLIDE GAS STATION LOCATED IN FRANCE: SIMULATION OF THE ATMOSPHERIC TRANSPORT WITH A MESOSCALE MODELLING SYSTEM .......... 244

Patrick Armand¹, Pascal Achim², Vincent Daniel¹, Thomas Taffary¹, Xavier Blanchard¹, and Jean-Pierre Fontaine¹

FINE SCALE APPLICATION OF THE EMEP UNIFIED AIR POLLUTION MODEL TO THE UNITED KINGDOM ..................................................... 250

MODELLED CONCENTRATIONS OF AIR POLLUTANT DEPENDING ON INPUT DATA ......................................................................................... 255

Kornelija Spoler Čanić and Amela Jeričević

URBAN-SCALE AND STREET-CANYON MODELLING......261

CONSOLIDATING TOOLS FOR MODEL EVALUATION ............................................. 263

Helge R. Olesen¹ and Joseph C. Chang²

QUALITY ASSURANCE AND IMPROVEMENT OF MICRO-SCALE METEOROLOGICAL MODELS .................................................................. 268

M. Schatzmann

DEVELOPMENT OF A FAST TOOL FOR AIR QUALITY CFD MODELLING IN URBAN CANOPIES ................................................................. 273

J.G. Bartzis¹, A. Sfetsos¹², S. Andronopoulos², A. Venetsanos², K.D. Van den Hout¹

CREATION AND TESTING OF FLUX-TYPE ADVECTION SCHEMES FOR AIR POLLUTION MODELING APPLICATION ........................................... 278

Dimiter Syrakov, Hristina Kirova, Silvia Petrova, Marla Prodanova

AIR POLLUTION LEVELS AT HOTSPOT AREAS OF SELECTED EUROPEAN CITIES ......................................................................................... 283

Nicolas Moussiopoulos¹, Evangelia-Anna Kalognomou¹, Ioannis Douros¹, Zissis Samaras², Myrto Giannouli² and Giorgos Mellios²

VALIDATION AND INTERCOMPARISON OF MODELS ....289
REMOTE SENSING AND GIS AS POLLUTION MODEL VALIDATION AND EMISSION ASSESSMENT TOOLS

Michael Petrakis¹, Theodora Kopania², David Briggs², Asbjorn Aaheim³, Gerard Hoek¹, Gavin Shaddick³, Adrianos Retalis⁶ and Nicolaos Sifakis⁶

COMPARISON OF RESULTS FROM PHYSICAL AND NUMERICAL MODELLING OF FLOW AND DISPERSION IN AND AROUND THE PICADA FIELD SITE STREET CANYON CONFIGURATION

Photios Barmpas¹, Nicolas Moussiopoulos¹ and Michael Schatzmann²

LONG-TERM OZONE EXPOSURE CALCULATIONS WITH AN EPISODIC METHOD

A. Coppalle and C. Phillipe

NUMERICAL MODEL INTER-COMPARISON FOR A SINGLE BLOCK BUILDING WITHIN ATREUS

S. Vardoulakis¹, R. Dimitrova², K. Richards³, D. Hamlyn⁴, G. Camilleri⁵, M. Weeks¹, J-F. Sini², R. Britter⁴, C. Borrego¹, M. Schatzmann³, N. Moussiopoulos⁵

COMPARISON OF AERMOD TO EIAA WITH RESPECT TO THE LATEST TRACER FIELD DATA

Alessandro Dostio¹, Jordi Vila-Guerau de Arellano²

VALIDATION OF ONE-YEAR LAMI MODEL RE-ANALYSIS ON THE PO-VALLEY, NORTHERN ITALY. COMPARISON TO CALMET MODEL OUTPUT ON THE SUB-AREA OF VENETO REGION

Denise Pernigotti, Maria Sansone and Massimo Ferrario

A METEOROLOGICAL BASED VALIDATION OF ARPS DURING ESCOMPTE 2001: A CASE STUDY FROM IOP2A AND IOP2B

Matthias Demuzere¹, Koen De Ridder²

MESOSCALE MODEL ARPS

VALIDATION OF THE AEROPOL MODEL AGAINST THE KINCAID DATA SET

Marko Kaasik

AIR-POLLUTION MANAGEMENT AND DECISION SUPPORT SYSTEMS

RECEPTOR ORIENTED ENSEMBLE DISPERSION MODELLING AS PERFORMED ON THE STANDARDISED SOURCE RECEPTOR SENSITIVITY FIELDS SHARED WITHIN
THE CTBTO-WMO EMERGENCY RESPONSE SYSTEM FOR NUCLEAR EVENT LOCATION .................................................................................................................. 335

Andreas Becker, Gerhard Wotawa and Lars-Erik De Geer

LAGRANGIAN MODELLING OF PLUME CHEMISTRY FOR SECONDARY POLLUTANTS IN LARGE INDUSTRIAL PLUMES ................................................................. 340

D. R. Middleton¹, A. R. Jones¹, A. L. Redington¹, D. J. Thomson¹, R. S. Sokhi², L. Luhana¹ and B. E. A. Fisher²

A NEW OZONE PREDICTION SYSTEM USING OPERATIONAL ALADIN DATA .... 345

Marcus Hirtl¹, Kathrin Baumann-Stanzer¹, Matthias Langer¹ and Bernd C. Krüger²

AN AUTOMATED AIR QUALITY CONTROL SYSTEM IN INDUSTRIAL ZONE OF PANCEVO .................................................................................................................. 350

Zoran Grsic¹, Milena Jovasevic-Stojanovic¹, Predrag Mitulatinovic², Dragan Dramlic²

THE SYNTHESIS OF A VEHICLE EMISSION MODEL, A SHORT RANGE DISPERSION MODEL AND A REGIONAL CHEMICAL TRANSPORT MODEL ........ 355

Rakesh B. Singh and James J. Sloan

ADAPTATION OF A LAGRANGIAN PARTICLE-DISPERSION MODEL FOR THE USE IN RADIOPROTECTION AND RADIOECOLOGY .................................................................................. 360

Christoph Haustein

COMPLEX TERRAIN AND SPECIFIC METEOROLOGICAL CONDITIONS A STRATEGY TO OVERCOME THE APPLICATION LIMITS OF THE DISPERSION MODEL OF THE UPDATED TA LUFT BY COUPLING THE PROGNOSTIC FLOW MODEL FITNAH .................................................................................................................. 365

Jost Nielinger¹, Werner-Jürgen Kost¹ and Wolfgang Kunz²

VALIDATION AND INTERCOMPARISON OF MODELS .... 375

PM10 LONG-TERM ASSESSMENT OF EMISSION REDUCTION SCENARIOS OVER NORTHERN ITALY ................................................................................................................. 377

Elisabetta Angelino¹, Marco Bedogni², Claudio Carnevale³, Enrico Minguzzi⁴, Edoardo Peroni¹, Cesare Pertot¹ and Guido Pirovano³

EVALUATION OF A TURBULENT FLOW AND DISPERSION MODEL IN A TYPICAL STREET CANYON IN YORK, U.K ............................................................................................................. 382


A VALIDATION EXERCISE ON THE SAFE-AIR VIEW SOFTWARE .................................................................................................................................................. 387

F. D’Alberti ⁴, F. d’Amati ⁴, E. Canepa ³, G. Triacchini ³
EVALUATION AND VALIDATION OF THE OPS MULTI-SCALE DISPERSION MODEL USING LOCAL, NATIONAL AND INTERNATIONAL DATASETS............. 392

Hans van Jaarsveld, Guus Velders and Addo van Pul

EXPERIENCES USING MODELS IN IMPLEMENTING DIRECTIVES.................................................................397

APPLICATION OF LAGRANGIAN PARTICLE DISPERSION MODELS TO AIR QUALITY ASSESSMENT IN THE TRANS-MANCHE REGION OF NORD-PAS-DE-CALAIS (FRANCE) AND KENT (GREAT BRITAIN). ................................................................. 398

S. Plainiotis¹, K A Pericleous¹, BEA Fisher², L. Shier³

USING VISIBILITY ANALYSES AS AN ALTERNATIVE APPROACH TO REGULATE AIR QUALITY ................................................................. 404

Richard H. Schulze, Weiping Dai, and Christine M. Otto

USE OF 3D ATMOSPHERIC DISPERSION MODELLING FOR AIR QUALITY MANAGEMENT IN A VERY COMPLEX TERRAIN ALPINE REGION (VALLE D’AOSTA)................................................................. 409

Giordano Pession¹, Manuela Zublena¹, Giovanni Agnesod¹, Giuseppe Bristasca²,

Giuseppe Calori², Alessandro Nanni², Sandro Finardi², Camillo Silibello², Gianni Tinarelli²

AIR POLLUTION MODELING FOR THE IMPLEMENTATION OF THE IPPC DIRECTIVE IN SLOVENIA................................. 414

Marija Zlata Boznar, Primož Mlakar

URBAN-SCALE AND STREET-CANYON MODELLING.....415

STREET CANYON MODEL INTERCOMPARISON EXERCISE AND VALIDATION STUDY................................................................. 417

Nicolas Moussiopoulos, Apostolos Papathanassiou, Photios Bampas, Christos Vlachokostas, Sofia Eleftheriadou and Thanos Spiliotopoulos

COMBINATION OF A DISPERSION MODEL AND AN AEROSOL PROCESS MODEL FOR MODELLING ROADSIDE ENVIRONMENT PARTICLES, AND EVALUATION WITH MEASURED DATA ................................................................. 422

Pohjola M. A. (a,*), Pirjola L. (b), Kukkonen J. (a), Karppinen A. (a), Härkönen J. (a), Ketzel M. (c)

ATMOSPHERIC DISPERSION WITHIN OBSTACLE ARRAYS: MODELLING OF MEAN CONCENTRATION AND CONCENTRATION FLUCTUATIONS ................................................................. 427

I. Mavroidis¹, S. Andronopoulos² , J.G. Bartzis¹,² and R.F. Griffiths¹

SMALL SCALE PM DISPERSION MODELING IN THE INNER PART OF AN URBAN AREA................................................................. 437
Proceedings of the 10th Int. Conf. on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

Jiri Pospisil, Miroslav Jichal, Vladimir Adamec, Marcela Sucmanova

RECENT ADVANCES OF THE FLOW AND DISPERAL MODEL MISCAM: MODEL DEVELOPMENT AND EVALUATION

Joachim Eichhorn, Anke K. Kniffka, Achim Lohmeyer and Thomas Flussak

ANALYSIS OF TURBULENCE STRUCTURE IN THE URBAN BOUNDARY LAYER

Hitoshi Kono and Kae Koyabu

AN URBAN SCALE STUDY OF POLLUTANT DISPERSION IN ROME

Andrea Amicarelli, Matteo Ferrucci, Giovanni Leuzzi and Paolo Monti

AIR POLLUTION DISPERSION INSIDE A STREET CANYON OF GÖTTINGER STRASSE (HANNOVER, GERMANY) – NEW RESULTS OF THE ANALYSIS OF FULL SCALE DATA

Nicolás Mazzeo and Laura Venegas

MESOSCALE METEOROLOGY AND AIR-QUALITY MODELLING

ARE CURRENT OPERATIVE NWP-MODELS ABLE TO PROVIDE THE METEOROLOGICAL CONDITIONS FOR REGULATORY AIR QUALITY MODELS IN FINNISH EPISODIC CONDITIONS?

MODELLING OF VARIOUS EMISSION SCENARIOS FOR 1985-2010 IN SWITZERLAND

Sebnem Andreani-Aksoyoglu, Johannes Keller, Andre S.H. Prevo and Martin Schultz

EFFECTS OF TOPOGRAPHY ON URBAN HEAT ISLAND

Theodoros Nitis, Zvjezdana B. Klaic and Nicolas Moussiopoulos

APPLICATION OF A NEURAL NET- AIR DISPERSION MODELLING ON THE INDIANAPOLIS URBAN DATA SET

A. Pelliccioni, T. Tirabassi, C. Gariazzo

GLOBAL AND SYNOPTIC-SCALE WEATHER PATTERNS CONTROLLING WET DEPOSITION OVER CENTRAL EUROPE

URI DAYAN, DENNIS LAMB

PROPOSAL OF CRITERIA FOR THE ASSESSMENT OF A POLLUTANT REPRESENTATIVE LEVEL IN ZONES AND AGGLOMERATIONS TO BE COMPARED WITH LIMIT VALUES AND TO BE USED FOR EVALUATION OF MEASURES ADOPTED IN THESE AREAS

Lucia Ramponi, Leonardo Benedusi, Alberto Toschi and Piero Pagotto
REGULATORY MODEL FOR CALCULATING OF THE VEHICLES' EMISSIONS AND POLLUTANTS' CONCENTRATION IN THE SURFACE LAYER - SOFTWARE

TRAFFIC ORACLE ................................................................. 489


DISPERSION MODELLING IN SERBIAN PRACTICE ........................................ 490

Grbic Z, Jovasevic-Stojanovic M, Zujic A.

A COMPARISON OF THE AERMOD MODEL WITH THE POLISH REGULATORY DISPERSION MODEL ................................................................. 494

Joanna Cieslińska¹ and Lech Łobocki²

MODELLING OF STREET CANYONS – VALIDATION STUDY WITH THE DATA PROVIDED FOR THE STREET EMISSION CEILINGS EXERCISE ........................................ 499

Marcus Hirtl

REGULATORY MODELS-COUNTRY REVIEW ................. 503

ESTIMATION OF WORLDWIDE CO-, NMVOC-, NOX- AND PM-EMISSIONS ........ 505

Norbert Metz

DISPERSION MODELLING OF PARTICULATE MATTER CONCENTRATIONS AT THE INTRAURBAN SCALE: EPIDEMIOLOGICAL APPLICATIONS ........................................ 509

J. Gaines Wilson¹ and Peyman Zawar-Reza³

SIMULATIONS OF THE DISPERSION FROM A WASTE INCINERATOR IN THE TURIN AREA IN THREE DIFFERENT METEOROLOGICAL SCENARIOS ........................................ 514

S. Trini Castelli¹, D. Anfossi¹

ESTIMATION OF THE IMPACT IN THE AIR QUALITY BY THE USE OF CLEAN FUELS (FUEL OIL VS NATURAL GAS) USING MODEL DISPERSION AND MEASUREMENTS. ................................................................. 519

J.L. Lopez *, C. Mandujano

EXPOSURE MODELLING ................................................................. 525

ANALYSES OF HUMAN EXPOSURE TO URBAN AIR QUALITY IN A CHILDREN POPULATION ................................................................. 526

J.M.Garcia¹, L.M.R.Coelho¹, C.Gouveia¹, R.Cerdeira¹, C.Louro¹, T.Ferreira², M.N.Baptista²

COMPARISON OF POPULATION EXPOSURES DURING FOUR SELECTED EPISODE DAYS IN HELSINKI IN 2002 ................................................................. 532

Otto Hänninen ¹, Ari Karppinen², Jaakko Kukkonen², Anu Kousa², Päivi Aarnio², and Matti Jantunen¹
HEALTH RISK ASSESSMENT RELATED TO ATMOSPHERIC EMISSIONS AT AN INDUSTRIAL ZONE. CASE STUDY: AN INDUSTRIAL ZONE IN DUNKIRK, FRANCE

Eva-Marie Eriksson¹, Bruno Abart¹, Anne-Sophie Senard¹, Aurore Rouhan¹, Dominique Baricheff¹ and Armand Albergel¹

MODELLING OF RANDOM ACTIVITY CONCENTRATION FIELDS IN AIR FOR PURPOSES OF PROBABILISTIC ESTIMATION OF RADIOLOGICAL BURDEN OF POPULATION

Petr Pecha¹, Emilie Pechova²

SIMULATION OF THE PLUME GAMMA EXPOSURE RATE WITH 3D LAGRANGIAN PARTICLE MODEL SPRAY AND POST-PROCESSOR CLOUD_SHINE

Patrick Armand¹, Pascal Achim², Marguerite Monfort¹, Jérôme Carrère¹, Olivier Oldrini³, Julien Commanay³, and Armand Albergel¹

THREAT TO TURKEY FROM POTENTIAL ACCIDENTS AT THE SOVIET DESIGNED METSAMOR NUCLEAR POWER PLANT, ARMENIA: TRACER AND TRAJECTORY ANALYSES AND EPISODE STUDIES

Tayfun Kindap¹, Shu-Hua Chen²

EXTREME TEMPERATURE EVENTS IN NW GREECE

Aristides Bartzokas and Elias E. Houssos

SPATIAL DISTRIBUTION OF EXCEEDANCE OF EC OZONE THRESHOLD VALUES - METHODS OF CALCULATION

Artur Gzella and Jerzy Zwoździak

EFFECTS OF AIR POLLUTION AND WEATHER PARAMETERS ON HUMAN HEALTH IN THE CITY OF ATHENS, GREECE

Emmanouil Mentzakis and Doriana Delfino

HOSPITAL ADMISSIONS AND WEATHER TYPES IN ATHENS, GREECE

SHORT DISTANCE DISPERSION MODELLING

WELL MIXED CONDITION VERIFICATION IN WINDY AND LOW WIND SPEED CONDITIONS

D. Anfossi¹, G. Tinarelli², S. Trini Castelli¹, E. Ferrero¹, D. Oettl¹, G. Degrazia²

REGULATORY MODELLING FOR ASSESSING AIR QUALITY IN STREET CANYONS IN THE U.K. – CURRENT PRACTICE AND FUTURE NEEDS

Sotiris Vardoulakis¹, Helen ApSimon², Marios Valiantis², James Milner³, Terry Ellis¹

ONGOING EVALUATIONS OF URBAN HPAC
Proceedings of the 10th Int. Conf. on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

N. Platt, S. Warner and J.F. Heagy

PARAMETERISING LOW-FREQUENCY MEANDER IN ATMOSPHERIC DISPERSION MODELS ................................................................. 594

Helen N Webster and David J Thomson

SENSITIVITY ANALYSIS OF THE MESOSCALE PUFF MODEL – RIMPUFF .......... 599

Zita Ferenczi

WIND FIELD FEATURES IMPACT ON THE SPECIES DIFFUSION IN THE ATMOSPHERIC BOUNDARY LAYER ............................................. 604

Anischenko V.I., Tarasova O.A., Yushkov V.P.

PARAMETERIZATION OF HEAT EXCHANGE WITH SURFACE IN THE DENSE GAS DISPERSION MODELING .................................................. 605

Ivan Kovalets' and Vladimir Maderich'

IMPACT ASSESSMENT OF THE FUTURE DEVELOPMENT OF OPEN-CAST COAL MINES “TRAYANOVO” ON THE AIR QUALITY ........................................... 611

A.Tzenkova*, J. Ivancheva*, D. Syrakov*, Ivan Ivanov**

ASSESSMENT OF TRAFFIC INDUCED POLLUTION FROM THE NEW HIGHWAY OF ATHENS (ATTIKI ODOS) ......................................................... 616

Michael Petrakis', Ilias Kavouras', Basil Psiloglou', Spyros Lykoudis' and Theodora Kopania'

CONTRIBUTION TO THE STUDY OF ATMOSPHERIC DISPERSION OF A MESOSCALE POLLUTANT: USE OF KRYPTON-85 RELEASED BY THE COGEMA LA HAGUE NUCLEAR SPENT FUEL REPROCESSING PLANT AS ATMOSPHERIC TRACER .................................................................................. 621

Denis Maro', Lionel Tenailleau', Alexis Coppalle', Pierre Germain', Didier Hebert', Luc Solier'

EXPERIENCES USING MODELS IN IMPLEMENTING DIRECTIVES ................................................................. 627

EVALUATION OF ATMOSPHERIC BENZENE CONCENTRATIONS IN THE HELSINKI METROPOLITAN AREA IN 2000-2003 .................................................. 629

Hellén H., Kukkonen J. (*), Kaunhiemi M., Hakola H., Laurila T. and Pietarila H.

DEVELOPMENT OF AN OPERATIONAL ACTION PLAN FOR CONFRONTING WITH ATMOSPHERIC POLLUTION IN THESSALONIKI ........................................... 634

Athena G. Proyou(1), Ioannis C. Ziomas(2)

PM10 SOURCE APPORTIONMENTS WITHIN THE CITY OF KLAGENFURT, AUSTRIA........................................................................... 638
Proceedings of the 10th Int. Conf. on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes

Dietmar Oettl, Christian Kurz, Wolfgang Hafner and Peter Sturm

ESTIMATION OF THE IMPACT OF DIFFERENT EMISSION SOURCES IN THE AIR QUALITY CONCENTRATIONS

Vidmantas Ulevicius, Kestutis Senuta Vytautas Vebra and Kristina Plauskaite

EXPOSURE MODELLING

MODEL BASED YEARLY AIR QUALITY EVALUATION ON PIEMONTE REGION

Camillo Silibello, Giuseppe Calori, Giorgio Arduino, Carla Contardi and Franca Sordi

AN AMBIENT AIR QUALITY MONITORING NETWORK FOR BUENOS AIRES CITY

Laura Venegas and Nicolás Mazzeo

AIR QUALITY ASSESSMENT IN BOLOGNA BY AN URBAN DISPERSION MODEL

Vanes Poluzzi, Linda Passoni, Marco Deserti, Michele Stortini, Enrico Minguzzi, Giovanni Bonafè

APPLICATION DATA MINING FOR FORECASTING OF HIGH-LEVEL AIR POLLUTION IN URBAN-INDUSTRIAL AREA IN SOUTHERN POLAND

Leszek Osrodka, Marek Wojtylak, Ewa Krajny, Rafal Dunal and Krzysztof Klejnowski

HIGH RESOLUTION MAPS OF ANNUAL NOX AND NO2 CONCENTRATIONS IN AN INFLUENCED RURAL AREA USING A DETERMINISTIC MODELLING METHOD

Philippe OLIVIER (1), Alexis COPPALLE (2), André WROBLEWSKI (1), Esperanza PERDRIX (1), Jean-Claude GALLOO (1)

REGULATORY MODELS-COUNTRY REVIEW

FORECASTING OF OZONE DAILY MAXIMA WITH A STATISTICAL PROGNOSTIC MODEL: METHODOLOGY AND RESULTS OF ITS VALIDATION

Eugene Genikhovich, Lev Sonkin and Victoria Kirillova

EXPERIMENTAL DETERMINATION OF VEHICLE EMISSION FACTORS OVER MULTIPLE DRIVING CYCLES IN URBAN AND EXTRA URBAN AREAS, FOR MODELING SIMULATION OF SOLUTIONS ADOPTED WITHIN PLANS FOR AIR QUALITY CONSERVATION AND IMPROVEMENT

F. Alberici, S. Florio, L. Ramponi, A. Toschi, G. Zironi

RADIOLOGICAL IMPACT OF INDUSTRIAL SOURCES: INFLUENCE OF METEOROLOGICAL CONDITIONS AND PARTICLE SIZE DISTRIBUTION

Cristina P. Tanzi, Harry Eleved