

CURRICULUM VITAE

Daewon W. Byun, Professor

Department of Geosciences and Department of Chemistry (Joint Appointment)

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Education

Ph.D. Atmospheric Science, 1987: North Carolina State University, NC

M.S. Atmospheric Science, 1983: North Carolina State University, NC

B.S. Meteorology, 1977: Seoul National University, Korea

Professional Experience

Professor, Department of Geosciences and Chemistry (Joint Appointment), University of Houston, 2001 - Present

Physical Scientist, National Oceanic and Atmospheric Administration (NOAA), 1992 – 2001

Environmental Protection Agency (on assignment from NOAA), 1992 - 2001

Adjunct Professor, North Carolina State University, 1998 - Present

Senior Scientific Specialist, Computer Sciences Corporation, 1988 - 1992

Meteorologist, Environmental Research and Technology/ENSR, 1987 - 1988

Research Assistant, North Carolina State University, 1981 - 1987

Weather Officer, Navy Fleet Weather Center (R.O.K.), 1977 – 1981

Graduate Advisor for Ph.D. Students (UH, Rutgers University, UNC, NCSU, SNU, KNU, etc.)

Host and advisor to EPA and NOAA postdocs (3) and international visiting scientists (4)

Workshop and meeting organization of multidisciplinary and multi-institutional projects

Review for various journals and proposals for federal and state agencies

Director, the UH Institute for Multidimensional Air Quality Studies (IMAQS) (Pending for the Center Approval)

Awards and Honors

2000 NOAA Air Resources Laboratory “Paper of the Year” Award (Byun 1999a &b)

1999 EPA Silver Medal Award for Superior Service (Development of Models-3 CMAQ)

1993 – 2000 Outstanding Performance Awards, NOAA (every year)

1991 Individual Recognition Award, Computer Sciences Corporation

1985 Elected as a member of Pi Mu Epsilon

1983 Elected as a member of Phi Kappa Pi

Achievements

Implementation and evaluation of Regional Acid Deposition Model (RADM)

Design and development of EPA’s Models-3 Community Multi-scale Air Quality (CMAQ) modeling system (Science team leader of Models-3/MCAQ and project officer for related cooperative agreements)

One-atmosphere air quality modeling concept linking meteorology and chemistry (the idea is being realized in the NCAR/NOAA’s Weather Research and Forecasting model development.

Professional Associations

Director of the UH Institute for Multidimensional Air Quality Studies (IMAQS)

Science Board member of the NCAR and NOAA Weather Research and Forecasting (WRF) project

External Advisory committee of the Models-3 Community Modeling and Analysis System (CMAS)

Executive Board member, Texas Commission on Environmental Quality Science Steering Committee

Science Advisory Committee, Texas Environmental Research Center, HARC

Associate Editor, Journal of Environmental Informatics

AMS Committee, Meteorological Aspects of Air Pollution

AMS Committee, Atmospheric Chemistry

American Meteorological Society, American Geophysical Union, Phi Kappa Pi, Pi Mu Epsilon

Theoretical and Applied Research Areas

Air pollution modeling, atmospheric chemistry

Numerical algorithms for atmospheric transport and chemistry solvers

Meteorology and mesoscale dynamics

Boundary layer physics, turbulence and diffusion

Model evaluation techniques, sensitivity and uncertainty studies

Software engineering for science models and data

Invited Lectures and Seminars

- 1994: Invited speaker at the Eulerian Air Quality Modeling Workshop, Chuncheon, Korea
1996: Invited speaker at the Fourth Supercomputing Workshop of NIES, Tsukuba, Japan
1996: Invited seminar at the Korea Institute of Science & Technology, Seoul, Korea
1999: Lectures at the Workshop on Ozone Forecasting System for Seoul City, Korea
1999: Invited seminar and lectures at the Kangwon National University, Chuncheon, Korea
1999: Invited seminar at Program in Environmental Fluid Dynamics, ASU, Tempe, AZ
2000: Invited seminar at NIES, Tsukuba, and visiting scientist at Kyushu University, Japan
2000: Invited speaker at the Institute for Mathematics & Its Applications, Minneapolis, MN
2000: Invited speaker at the Houston Air Quality Workshop, Houston, TX
2000: Invited seminar at Earth System Science Center, University of Alabama at Huntsville, AL
2000: Invited speaker at the Workshop on Air Quality Modeling Challenges, Taiwan
2000: Invited seminar and lectures at the University of Houston, Houston, TX
2001: Invited seminar at the University of Iowa, Iowa City, IA
2001: Invited seminar at the ASU, Tempe, AZ
2001: Invited seminar at Texas A&M, College Station, TX
2001: Invited seminar at Lamar University, Beaumont, TX
2002: Invited seminar at Pusan University, Korea
2002: Invited seminar at Kyushu University, Japan
2003: Invited paper at Community Air Quality Modeling Workshop, Japan
2003: Invited seminar at Harvard University, Cambridge, MA
2004: Invited key note speaker at Advanced Computing Annual Meeting, Lamar Univ., Beaumont, TX
2004: Lectures at the Workshop on Air Quality Modeling, Kangwon Univ., Korea
2004: Invited presentation at Houston Air Quality, Rice Shell Sustainability Center, Houston, TX
2004: Invited seminar at Univ. of Texas Medical Branch, Galveston, TX
2004: Invited panel member, Air Quality in Houston, Rice University Shell Center for Sustainable Development
2005: Invited panel member, Coastal cities, climate change and environment, Rice University Shell Center for Sustainable Development

Selected List of Publications

- Byun, D.W., and K. L. Schere, 2006: Review of the Governing Equations, Computational Algorithms, and Other Components of the Models-3 Community Multiscale Air Quality (CMAQ) Modeling System. *Applied Mechanics Reviews*, Volume 59, Number 2 (March 2006), pp. 51-77.
- Byun, D.W., S.-T. Kim, B. Czader, D. Nowak, S. Stetson, and M. Estes, 2005: Estimation of Biogenic Emissions with Satellite-Derived Land Use and Land Cover Data for Air Quality Modeling of Houston-Galveston Ozone Nonattainment Area, *J. of Env. Management*, Vol. 75/4 June, 285-301.
- Han, J. I. and D.W. Byun, 2005: An improvement of two stream model for vertical mixing of passive tracer in the convective boundary layer, *Atmos. Env.*, 39, 1775-1788. DOI information: 10.1016/j.atmosenv.2004.10.007
- Mathur, R., Shankar, U., Hanna, A., Odman, M. T., McHenry, J. N., Coats, C. J., Alapaty, K., Xiu, A., Arunachalam, S., Olerud, D. T., Byun, D. W., Schere, K. L., Binkowski, F. S., Ching, J. K. S., Dennis, R. L., Pierce, T. E., Pleim, J. E., Roselle, S. J. and Young, J. O., 2005: The Multiscale Air Quality Simulation Platform (MAQSIP): Initial Applications and Performance for Tropospheric Ozone and Particulate Matter, *J. Geophys. Res.*, 110, D13308, doi:10.1029/2004JD004918.

- Lee, S. M., S.-C. Yoon, and D. W. Byun, 2004: The Effect of Mass Inconsistency of Meteorological Field Generated by a Meteorological Model on Air Quality Modeling, *Atmospheric Environment*, 38, 2917-2926.
- Byun, D.W., S.-T. Kim, F.-Y. Cheng, S.-B. Kim, A. Cuclis, and N.-K. Moon 2003: Information infrastructure for air quality modeling and analysis: Application to the Houston-Galveston ozone nonattainment area., *J. of Env. Informatics* 2 (2), 38-57.
- Byun, D.W. and S.-M. Lee, 2002: Numerical advection of trace species under non-uniform density distribution. In IMA volume on Air Quality Modeling, ed. D. Chock and G. Carmichael. 109-151
- Zhang, M., I. Uno, S. Sugata, Z. Wang, D. Byun, and H. Akimoto, 2002: Numerical study of boundary layer ozone transport and photochemical ozone production in east Asia in the wintertime. *Geophys. Res. Letters*. Vol. 29, NO. 11, 1545, 10.1029/2001GL014368
- Byun, D.W., 1999a: Dynamically consistent formulations in meteorological and air quality models for multi-scale atmospheric applications: Part I. Governing equations in generalized coordinate system. *Journal of Atmospheric Science*, Vol 56, 3789-3807.
- Byun, D.W., 1999b: Dynamically consistent formulations in meteorological and air quality models for multi-scale atmospheric applications: Part II. Mass conservation issues. *Journal of Atmospheric Science*, Vol 56, 3808-3820.
- Alapaty, K.A., J.E. Pleim, S. Raman, D.S. Niyogi, and D.W. Byun, 1997: Simulation of atmospheric boundary layer processes using local- and nonlocal-closure schemes. *Journal of Applied Meteorology*. Vol 36, 214-233.
- Dennis, R.L., D.W. Byun, J.H. Novak, K.J. Galluppi, C.J. Coats, and M.A. Vouk, 1996: The next generation of integrated air quality modeling: EPA's Models-3, *Atmos. Env.*, 30, No. 12, 1925-1938.
- Hwang, D., H.A. Karimi, and D.W. Byun, 1998: Uncertainty analysis of environmental models within GIS environments, *Computer & Geoscience*, 24, No. 2, 119-130.
- Lee, C.B., C.R. Cho, and D.W. Byun, 1999: A modeling study on the transport of acid pollutant by regional acid deposition model: Spatial pattern and variation of air pollutants in Eastern Asia and Central part of Korea., *J. of EIA*, 8, No. 1, 1-16.
- Byun, D.W. and S.P.S. Arya, 1986: A study of mixed layer momentum evolution. *Atmospheric Environment*, 20, 715-728.
- Byun, D.W. and S.P.S. Arya, 1990: A two dimensional mesoscale numerical model of an urban mixed layer: I. Model formulation, surface energy budget, and mixed layer dynamics. *Atmospheric Environment*, 24A, 829-844.
- Byun, D.W. 1990: On the analytical solutions of flux-profile relationships for the atmospheric surface layer. *Journal of Applied Meteorology*, Vol 29, No. 7, 652-657.
- Byun, D. W. 1991. Determination of similarity functions of the resistance laws for the planetary boundary layer using surface-layer similarity functions. *Boundary-Layer Met.*, 57, 17-48.
- Byun, D. W., and R.L. Dennis, 1995: Design artifacts in Eulerian air quality models: Evaluation of the effects of layer thickness and vertical profile correction on surface ozone concentrations. *Atmospheric Environment*, 29, No. 1, 105-126.
- Byun D. W., A. Hanna, Coats C., and D. Hwang. 1995: Models-3 air quality model prototype science and computational concept development. *Transactions of Air & Waste Management Association Specialty Conference on Regional Photochemical Measurement and Modeling Studies*, Nov. 8-12, San Deigo, CA. 1993, 197-212.
- Arya, S.P.S. and D.W. Byun, 1997: Rate equations for the PBL depth (urban vs. rural). *Modeling Urban Boundary Layer*, American Meteorological Society, 215-251.
- Coats, C. J., A.H. Hanna, D. Hwang, and D.W. Byun, 1995: Model engineering concepts for air quality models in an integrated environmental modeling system. *Transactions of Air & Waste Management Association Specialty Conference on Regional Photochemical Measurement and Modeling Studies*, Nov. 8-12, San Deigo, CA. 1993, 213-223.
- Dennis, R.L., D.W. Byun, J.H. Novak, K.J. Galluppi, C.J. Coats, and M.A. Vouk, 1996: The next generation of integrated air quality modeling: EPA's Models-3. *Atmos. Env.*, 30, No. 12, 1925-1938.
- Dennis, R.L., J.N. McHenry, W.R. Barchet, F.S. Binkowski, and D.W. Byun, 1993: Correcting RADMI's sulfate underprediction: Discovery and correction of model errors and testing the corrections through comparisons against field data. *Atmos. Env.*, 27A, No. 6, 975-997.

- Jang, J. C., H.E. Jeffries, D.W. Byun, and J.E. Pleim. 1995: Sensitivity of ozone to model grid resolution. Part I: Application of high-resolution Regional Acid Deposition Model. *Atmospheric Environment*, 29, No. 21, 3085-3100
- Hwang, D., D. W. Byun and M.T. Odman, 1997: An automatic differentiation technique for sensitivity analysis of numerical advection schemes in air quality models, *Atmospheric Environment*, 31, No. 6, 879-888
- Hwang D., H. A. Karimi, and D.W. Byun, 1998: Uncertainty analysis of environmental models within GIS environments, *Computer & Geoscience*, 24, No. 2, 119-130.

Submitted/In print

Kim, S. and D.W. Byun. Comparison of emissions from SMOKE and EPS2 used for Houston-Galveston photochemical air quality studies. (Review return with conditional acceptance for publication for AW&MA. The revised version will be submitted in a month.)

Byun, D.W., S.-T. Kim, S.-B. Kim. Evaluation of CMAQ for the simulation of a high ozone episode in the Houston metropolitan area. (*Atmospheric Environment*, In Print)

Kim, S.-B. and D.W. Byun. A study of the properties of air trajectories in the planetary boundary layer using a two-dimensional mixed layer model (Third version submitted, in final review, *Journal of Applied Meteorology*)

PUBLISHED PAPERS

- Byun, Daewon, Peter Percell, Tanmay Basak. 2005: Application of Static Adaptive Grid Techniques for Regional-Urban Multiscale Air Quality Modeling. *International Conference on Computational Science (2)*, 814-821
- Alapaty, K., R. Mathur, and D.W. Byun, 1996: A modeling study of vertical diffusion of passive and reactive tracers using local- and nonlocal-closure boundary layer schemes. *Air Pollution Modeling and Its Application XI*, ed. S.E. Gryning and F. Schiermeier. 433-442.
- Byun, D.W., D. Dabdub, S. Fine, A. F. Hanna, R. Mathur, M. T. Odman, A. Russell, E. J. Segall, J. H. Seinfeld, P. Steenkiste, and J. Young, 1996: Emerging Air Quality Modeling Technologies for High Performance Computing and Communication Environments, *Air Pollution Modeling and Its Application XI*, ed. S.E. Gryning and F. Schiermeier. 491-502.
- Byun, D.W., J.K.S. Ching, J. Novak, and J. Young, 1998: Development and Implementation of the EPA's Models-3 Initial Operating Version: Community Multi-scale Air Quality (CMAQ) Model, Twenty-Second NATO/CCMS International Technical Meeting on Air Pollution Modelling and Its Application, 2-6 June, 1997. *Air Pollution Modeling and Its Application XII*, ed. S.E. Gryning and N. Chaumerliac, Plenum Publishing Corp. 357-368.
- Byun, D.W., 1999: One atmosphere dynamics description in the Models-3 Community Multiscale Air Quality (CMAQ) modeling system. *Air Pollution VII*. C.A. Brebbia, M. Jacobson, and H. Power ed. WIT Press. 883-892.
- LeDuc, S.K., D.W. Byun, and K.L. Schere, 1999: Models-3/CMAQ. *NARSTO News*, Vol. 3, No. 2, (Summer/Fall), NARSTO Management Coordinator's Office, Pasco, WA, p. 8 (1999). Available on-line from <http://www.cgenv.com/Narsto/>

BOOK CHAPTERS

- Byun, D.W., A. Lacser, P. Zannetti, and R. Yamartino. 2003, *Eulerian Dispersion Models*. Chapter 10 of *AIR QUALITY MODELING - Theories, Methodologies, Computational Techniques, and Available Databases and Software. Vol. I - Fundamentals* (P. Zannetti, Editor). Published by EnviroComp Institute (<http://www.envirocomp.org/>) and the Air & Waste Manag. Assoc. (<http://www.awma.org/>). (invited)
- Byun, D.W., 2000: Description of atmospheric transport processes in Eulerian air quality models. Book chapter in *Mesoscale Atmospheric Dispersion: Advances in Air Pollution*. Z. Boybei ed. WIT Press. (invited)

REPORTS

- Byun, D.W. and J.K.S. Ching, ed., 1999: Science Algorithms of the EPA Models-3 Community Multi-scale Air Quality (CMAQ) Modeling System, EPA Report, EPA/600/R-99/030, NERL, Research Triangle Park, NC. (peer reviewed).
- Byun, D.W., 1999: Fundamentals of one-atmosphere dynamics for multiscale air quality modeling. In *Science algorithms of the EPA Models-3 Community Multiscale Air Quality (CMAQ) modeling system*. Chapter 5. D.W. Byun, and J.K.S. Ching (Eds.). EPA/600/R-99/030, National Exposure Research Laboratory, Research Triangle Park, NC, 1–39.
- Byun, D.W., J. Young, and M.T. Odman. 1999: Governing equations and computational structure of the Community Multiscale Air Quality (CMAQ) chemical transport model. In *Science algorithms of the EPA Models-3 Community Multiscale Air Quality (CMAQ) modeling system*. Chapter 6. D.W. Byun, and J.K.S. Ching (Eds.). EPA/600/R-99/030, National Exposure Research Laboratory, Research Triangle Park, NC, 1–37.
- Byun, D.W., J. Young, J. Pleim, M.T. Odman, and K. Alapaty. 1999 Numerical transport algorithms for the Community Multiscale Air Quality (CMAQ) chemical transport model in generalized coordinates. In *Science algorithms of the EPA Models-3 Community Multiscale Air Quality (CMAQ) modeling system*. Chapter 7. D.W. Byun, and J.K.S. Ching (Eds.). EPA/600/R-99/030, National Exposure Research Laboratory, Research Triangle Park, NC, 1–56.
- Byun, D.W., J.E. Pleim, R.T. Tang, and A. Bourgeois. 1999: Meteorology-chemistry interface processor (MCIP) for Models-3 Community Multiscale Air Quality (CMAQ) modeling system. In *Science algorithms of the EPA Models-3 Community Multiscale Air Quality (CMAQ) modeling system*. Chapter 12. D.W. Byun, and J.K.S. Ching (Eds.). EPA/600/R-99/030, National Exposure Research Laboratory, Research Triangle Park, NC, 1–91.
- Ching, J.K.S., and D.W. Byun. Introduction to the Models-3 framework and the Community Multiscale Air Quality (CMAQ) model. 1999: In *Science algorithms of the EPA Models-3 Community Multiscale Air Quality (CMAQ) modeling system*. Chapter 1. D.W. Byun, and J.K.S. Ching (Eds.). EPA/600/R-99/030, National Exposure Research Laboratory, Research Triangle Park, NC, 1–18.
- Novak, J.H., R.L. Dennis, D.W. Byun, and J.E. Pleim, K.J. Galluppi, C.J. Coats, S. Chall, M.A. Vouk, and System Development Center. 1995: EPA Third Generation Air Quality Modeling System Volume 1: Concept. EPA/600/R-95/082, National Exposure Research Laboratory (NERL), Research Triangle Park, NC.
- Byun, D.W., S.-T. Kim, T.C. Ho, and C. Lin, 2003,. Development of Texas Emissions Inventory Preparation System. TARC Project Interim Report, Dec. 2003. 29pp. Byun, D.W., D. Allen, J. Nielson-Gammon, 2003. Quality Assurance Project Plan. Development of Joint Multi-Pollutant Air Quality Modeling Facility and Air Monitoring Stations. August 2003. Prepared for U.S. EPA., 72pp.
- Byun, D.W., et al, 2004, Modeling Protocol and Quality Assurance Project Plan, Science Assessment of CAMx and CMAQ. January 2004. Prepared for TCEQ., 20pp.
- Byun, D.W., B. Czader, S.T. Kim, and P. Percell, 2004, Photochemical modeling of ethylene and propylene emissions in the Houston-Galveston non-attainment area. Project Final Report. August, 2004. Prepared for Texas Advanced Research Center. 79pp.
- Byun, D.W., S.T. Kim, B. Czader, Bonnie Cheng, 2004, Modeling effects of land use and land cover modifications on the urban heat island phenomena and air quality in Houston. Project Final Report, November, 2004. Prepared for Houston Advanced Research Center. 54pp.
- Byun, D.W., S.B. Kim, N.K. Moon, F. Ngan, Y. Li, and T. Ng, 2004a Real-Time Trajectory Analysis Operation and Tool Development, Final Report: for Houston Advanced Research Center, September, 2004, Houston, Texas, 66 pp.
- Byun, Daewon, Soon Tae Kim, Beata Czader, Bonnie Cheng, Seungbum Kim, Peter Percell, Heejin In, Chang Keun Song, Violeta Coarfa, Fantine Ngan, HARC Project H12/HRB Final Report Role of Modeling Assumptions in the Houston Mid-Course Review, February, 2005, 82 pp
- Byun, Daewon, S.-T. Kim, Beata Czader, Bonnie Cheng, 2005. Modeling Effects of Land Use/Land Cover Modifications on the Urban Heat Island Phenomenon and Air Quality in Houston, Texas , HARC Project H17 Final Report, November 2004, 55 pp

- Byun, Daewon, Seung-Bum Kim, Nan-Kyoung Moon, Fong Ngan, Yupeng Li, Trung Ng , 2004, Real-Time Trajectory Analysis Operation and Tool Development, Final Report Prepared for Houston Advanced Research Center (HARC) September 2004, 66pp
- Byun, Daewon, S.-T. Kim, Beata Czader, Bonnie Cheng, 2005. Modeling Effects of Land Use/Land Cover Modifications on the Urban Heat Island Phenomenon and Air Quality in Houston, Texas , HARC Project H17 Supplemental Final Report, June 2005, 44 pp
- Byun, Daewon, S.-T. Kim, , Meongdo Jang, Heejin In, Chang-Keun Song, Ryan Perna, Fang-Yi Cheng, Fong Ngan, Peter Percell, 2005. HARC Project H45 Interim Report for Task Group A: Modeling Strategy in Support of TexAQS-II and 8-Hour Ozone Assessment, August 31, 2005, 62 pp

CONFERENCE PROCEEDINGS (since 1990 and selected)

- Byun, C.-K. Song, S.B. Kim, F. Ngan, F.-Y. Cheng , 2005, Coupling WRF/EM and WRF/NMM with Community Multiscale Air Quality (CMAQ) modeling., June, 2005, WRF/MM5 Workshop, Boulder, CO
- Byun, D.W., S.-T. Kim, and S.-B. Kim, 2004: Evaluation of CMAQ results for the simulation of a high ozone episode in the Houston-Galveston-Brazoria metropolitan area. Extended abstract. 2004 Models-3 Conference, October 18th - 20th, 2004, Chapel Hill, NC
- Byun, D.W., S.-T. Kim, F.-Y. Cheng, S. Stetson, D. J. Nowak, M. Estes, and D. Hitchcock, 2004: Utilization of satellite-derived high resolution land use/land cover data for the meteorological, emissions, and air quality modeling. *Fifth Conference on Urban Environment, Vancouver, B.C.*, 22-27 August 2004, *Amer. Meteor. Soc.*
- Byun, D. W. and S.-B. Kim, 2003: On-line and off-line paradigms of linking WRF with air quality modeling system. The fourth WRF users' workshop. June 12-13, 2003, Boulder, CO, USA.
- Byun, D.W., S.-T. Kim, F.-Y. Cheng, S. Stetson, D. J. Nowak, M. Estes, and D. Hitchcock, 2004: Utilization of satellite-derived high resolution land use/land cover data for the meteorological, emissions, and air quality modeling. *Fifth Conference on Urban Environment, Vancouver, B.C.*, 22-27 August 2004, *Amer. Meteor. Soc.*
- Byun, D.W., S.-T. Kim, and S.-B. Kim, 2004: Evaluation of CMAQ results for the simulation of a high ozone episode in the Houston-Galveston-Brazoria metropolitan area. Extended abstract. 2004 Models-3 Conference, October 18th - 20th, 2004, Chapel Hill, NC
- Byun, D. W. and S.-B. Kim, 2003: On-line and off-line paradigms of linking WRF with air quality modeling system. The fourth WRF users' workshop. June 12-13, 2003, Boulder, CO, USA.
- Byun, D. W., and F. S. Binkowski, 1991: Sensitivity of RADM to point source emissions processing. Seventh Joint Conference on Applications of Air Pollution Meteorology with AWMA. New Orleans, La. Jan. 14-18, 70-73.
- Byun, D. W., R.L. Dennis, D. Hwang, C. J. Coats, and M. T. Odman, 1994: Computational modeling issues in next generation air quality models. 14th World Congress of the International Association for Mathematics and Computers in Simulation (IMACS) on Computation and Applied Mathematics, Atlanta, Georgia, July 11-15.
- Byun, D. W., Charlie J. Coats, Dongming Hwang, Steve Fine, Talat Odman, Adel Hanna and Kenneth J. Galluppi, 1995: Prototyping and implementation of multiscale air quality models for high performance computing. Mission Earth Symposium, Phoenix, AZ, April 9-13, 1993. 527-532.
- Byun, D.W., 1995: Influence of the planetary boundary layer on the photochemical ozone production: Preliminary study with RADM., Conference on Atmospheric Chemistry., Anaheim, CA., Jan 17-22, 1993. 39-46.
- Byun, D.W., 1996: Effects of vertical resolution of a regional photochemical model on the diurnal ozone concentrations in the planetary boundary layer. Proceedings for the Ninth Joint Conference on the Applications of Air Pollution Meteorology of American Meteorological Society. Atlanta, GA., Jan. 28- Feb. 2, 1996. 203-206.
- Byun, D.W., and R.L. Dennis, 1995: Influence of vertical resolution of the diurnal ozone concentration predictions in a regional photochemical model: A preliminary study with Window RADM. Air & Waste Management Association Specialty Conference on Regional Photochemical Measurement and Modeling Studies, San Diego, California, November 7-12, 1993. 805-817.

- Byun, D.W., A. Lacser, D.W. Byun, W. Benjey, and J.K.S. Ching, 2000: Effects of grid resolution on the simulation of urban air quality: Application of Models-3/CMAQ to the Philadelphia metropolitan area at 12, 4 and 1.3 km resolutions. Third Symposium on the Urban Environment, Davis, CA, August 14-18, 88-89.
- Byun, D.W. and J.E. Pleim, 2000: Sensitivity of ozone and aerosol predictions to the transport algorithms in the Models-3 Community Multiscale Air Quality (CMAQ) modeling system. Millenium NATO/CCMS International Technical Meeting on Air Pollution Modelling and Its Applications. Boulder, CO, May 15-19.
- Byun, D.W., J. Young., G. Gipson., J. Godowitch., F. Binkowsk., S. Roselle, B. Benjey, J. Pleim, J. Ching., J. Novak, C. Coats, T. Odman, A. Hanna, K. Alapaty, R. Mathur, J. McHenry, U. Shankar, S. Fine, A. Xiu, and C. Jang, 1998: Description of the Models-3 Community Multiscale Air Quality (CMAQ) model. Proceedings of the American Meteorological Society 78th Annual Meeting, Phoenix, AZ, Jan. 11-16, 1998.
- Byun, D.W., J. Young., G. Gipson., K. Schere, J. Godowitch., J. Pleim, F. Binkowsk., S. Roselle, B. Benjey, J. Ching., J. Novak, S. LeDuc, 1998: An urban air quality simulation with the community multi-scale air quality modeling system. The Second Urban Environment Symposium, Albuquerque, NM, Nov. 2-6, 1998. Amer. Meteor. Soc.,
- Cheng, F.-Y., S.-T. Kim, D. W. Byun, and S. Stetson, 2004: Fine Scale Meteorological Simulations of the Houston-Galveston Metropolitan Area with LANDSAT-Derived High-Resolution Land Use and Land Cover Datasets, *Fifth Conference on Urban Environment, Vancouver, B.C., 22-27 August 2004, Amer. Meteor. Soc.*
- Cheng, F.-Y., S.-T. Kim, D. W. Byun, and S. Stetson, 2004: Fine Scale Meteorological Simulations of the Houston-Galveston Metropolitan Area with LANDSAT-Derived High-Resolution Land Use and Land Cover Datasets, *Fifth Conference on Urban Environment, Vancouver, B.C., 22-27 August 2004, Amer. Meteor. Soc.*
- Cheng., F.-Y., D.W. Byun, and S.-B. Kim, 2003: Sensitivity study of the effects of land surface characteristics on meteorological simulations during the TexAQS 2000 period in the Houston-Galveston area, Extended Abstract. The Thirteenth Penn State/NCAR MM5 User's Workshop, Boulder, Co. June, 2003.
- Cheng., F.-Y., S.-B. Kim, and D.W. Byun, 2002: Effects of soil moisture treatment in MM5 on the land-sea breeze simulation during TexAQS2000 period in the Houston-Galveston area, Extended Abstract. The Twelfth Penn State/NCAR MM5 User's Workshop, Boulder, Co. June, 2002.
- Coarfa V.F., and D. W. Byun, 2004: Improvement of the aromatic hydrocarbon representation in the SAPRC99 chemical mechanism of the Community Multiscale Air Quality (CMAQ) system. Extended abstract. 2004 Models-3 Conference, October 18th - 20th, 2004, Chapel Hill, NC
- Czader, B. and D. W. Byun, 2004: A study of source attribution of unsaturated hydrocarbons for ozone production in the Houston-Galveston area with the extended SAPRC99 chemical mechanism. Extended abstract. 2004 Models-3 Conference, October 18th - 20th, 2004, Chapel Hill, NC
- In, H.-J., D. W. Byun, R. J. Park, D. J. Jacob, S. Kim, J.-H. Woo, N.-K. Moon, and S. Zhong, 2004: The impacts of trans-boundary transport of aerosols on the regional air quality in the United States. *Preprints 13th Joint Conference on Applications on Air Pollution Meteorology with the Air and Waste Management Association, Vancouver, B.C., 22-27 August 2004, Amer. Meteor. Soc.*
- Lee, S.-M., H. J. S. Fernando, D. W. Byun, and J. Ching, 2004: CFD modeling of fine scale flow and transport in the Houston metropolitan area, Texas, *Fifth Conference on Urban Environment, Vancouver, B.C., 22-27 August 2004, Amer. Meteor. Soc.*
- Moon, N.-K., D. W. Byun, 2003: Linkage Issues Between Global Tropospheric Chemistry Model and Regional Air Quality Model, AGU fall meeting, 8-12 December, 2003, San Francisco
- Cheng., F.-Y., D.W. Byun, and S.-B. Kim, 2003: Sensitivity study of the effects of land surface characteristics on meteorological simulations during the TexAQS 2000 period in the Houston-Galveston area, Extended Abstract. The Thirteenth Penn State/NCAR MM5 User's Workshop, Boulder, Co. June, 2003.
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