

## Published material related to the MATCH modelling system

Within different categories: newest publication first; within each year: sorted alphabetically after author.  
Last updated: 2015-02-09 (Magnuz Engardt)

### Peer reviewed articles:

#### 2015

- Andersson, C., Bergström, R., Bennet, C., Robertson, L., Thomas, M., Korhonen, H., Lehtinen, K.E.J., and Kokkola, H. 2015. MATCH-SALSA – Multi-scale Atmospheric Transport and CHEMistry model coupled to the SALSA aerosol microphysics model – Part 1: Model description and evaluation. *Geosci. Model Dev.*, **8**, 171–189. doi:10.5194/gmd-8-171-2015
- Thomas, M.A., Kahnert, M., Andersson, C., Kokkola, H., Hansson, U., Jones, C., Langner, J. and Devasthale, A. 2015. Development of prognostic aerosol–cloud interactions combining a chemistry transport model and a regional climate model. *Geosci. Model Dev. Discuss.*, **8**, 897–933. doi:10.5194/gmdd-8-897-2015

#### 2014

- Arnold, S. R., Emmons, L. K., Monks, S. A., Law, K. S., Ridley, D. A., Turquety, S., Tilmes, S., Thomas, J. L., Bouarar, I., Flemming, J., Huijnen, V., Mao, J., Duncan, B. N., Steenrod, S., Yoshida, Y., Langner, J., and Long, Y. 2014. Biomass burning influence on high latitude tropospheric ozone and reactive nitrogen in summer 2008: a multi-model analysis based on POLMIP simulations, *Atmos. Chem. Phys. Discuss.*, **14**, 24573-24621, doi:10.5194/acpd-14-24573-2014
- Klingberg, J., Engardt, M., Karlsson, P.E., Langner, J. and Pleijel, H. 2014. Declining ozone exposure of European vegetation under climate change and reduced precursor emissions. *Biogeosciences*. **11**, 5269–5283. doi:10.5194/bg-11-5269-2014
- Monks, S. A., Arnold, S. R., Emmons, L. K., Law, K. S., Turquety, S., Duncan, B. N., Flemming, J., Huijnen, V., Tilmes, S., Langner, J., Mao, J., Long, Y., Thomas, J. L., Steenrod, S. D., Raut, J. C., Wilson, C., Chipperfield, M. P., Schlager, H., and Ancellet, G. 2014. Multi-model study of chemical and physical controls on transport of anthropogenic and biomass burning pollution to the Arctic, *Atmos. Chem. Phys. Discuss.*, **14**, 25281-25350, doi:10.5194/acpd-14-25281-2014
- Simpson, D., Andersson, C., Christensen, J.H., Engardt, M., Geels, C., Nyiri, A., Posch, M., Soares, J., Sofiev, M., Wind, P. and Langner, J. 2014. Impacts of climate and emission changes on nitrogen deposition in Europe: a multi-model study. *Atmos. Chem. Phys.* **14**, 6995-7017. doi:10.5194/acp-14-6995-2014

#### 2013

- Engardt, M. and Langner, J. 2013. Simulations of future sulphur and nitrogen deposition over Europe using meteorological data from three regional climate projections. *Tellus B* **65**, 20348, <http://dx.doi.org/10.3402/tellusb.v65i0.20348>

- Gidhagen, L., Omstedt, G., Pershagen, G., Willers, S. and Bellander, T. 2013. High-resolution modeling of residential outdoor particulate levels in Sweden. *Journal of Exposure Science and Environmental Epidemiology* **23**, 306–314. doi:10.1038/jes.2012.122
- Orru, H., Andersson, C., Ebi, K.L., Langner, J., Åström, C. and Forsberg, B. 2013. Impact of climate change on ozone-related mortality and morbidity in Europe. *Eur. Respir. J.* **41**, 285-294. DOI:10.1183/09031936.00210411
- Pleijel, H., Klingberg, J., Pihl Karlsson, G., Engardt, M. and Karlsson P.E. 2013. Surface ozone in the marine environment - horizontal ozone concentration gradients in coastal areas. *Water, Air, & Soil Pollution* **224**, 1603. DOI 10.1007/s11270-013-1603-4

## 2012

- Gidhagen, L., Engardt, M., Lövenheim, B. and Johansson, C. 2012. Modeling effects of climate change on air quality and population exposure in urban planning scenarios. *Advances in Meteorology*. **2012**. doi:10.1155/2012/240894
- Kukkonen, J. *et al.* 2012. A review of operational, regional-scale, chemical weather forecasting models in Europe. *Atmos. Chem. Phys.* **12**, 1-87. doi:10.5194/acp-12-1-2012
- Langner, J., Engardt, M. and Andersson, C. 2012. European summer surface ozone 1990–2100. *Atmos. Chem. Phys.* **12**, 10097–10105. doi:10.5194/acp-12-10097-2012
- Langner, J., Engardt, M., Baklanov, A., Christensen, J.H., Gauss, M., Geels, C., Hedegaard, G.B., Nuterman, R., Simpson, D., Soares, J., Sofiev, M., Wind, P. and Zakey, A. 2012. A multi-model study of impacts of climate change on surface ozone in Europe. *Atmos. Chem. Phys.* **12**, 10423-10440. doi:10.5194/acp-12-10423-2012

## 2011

- Kahnert M. and Devasthale A. 2011. Black carbon fractal morphology and short-wave radiative impact: a modelling study. *Atmos. Chem. Phys.* **11**, 11745-11759. doi: 10.5194/acp-11-11745-2011
- Klingberg J., Engardt M., Uddling J., Karlsson P.E. and Pleijel H. 2011. Ozone risk for vegetation in the future climate of Europe based on stomatal ozone uptake calculations. *Tellus* **63A**, 174-187. DOI: 10.1111/j.1600-0870.2010.00465.x
- Omstedt, G., Andersson, S., Gidhagen, L. and Robertson, L. 2011. Evaluation of new model tools for meeting the targets of the EU Air Quality Directive: a case study on the studded tyre use in Sweden. *Int. J. Environ. Pollution* **47**, 79–96. DOI: 10.1504/11.47328

## 2010

- Andersson, C. and Engardt, M. 2010. European ozone in a future climate: Importance of changes in dry deposition and isoprene emissions. *J. Geophys. Res.* **115**, D02303. doi:10.1029/2008JD011690
- Huijnen, V. *et al.* 2010. Comparison of OMI NO<sub>2</sub> tropospheric columns with an ensemble of global and European regional air quality models *Atmos. Chem. Phys.* **10**, 3273–3296. doi:10.5194/acp-10-3273-2010
- Kahnert, M. 2010. Modelling the optical and radiative properties of freshly emitted light absorbing carbon within an atmospheric chemical transport model, *Atmos. Chem. Phys.* **10**, 1403–1416. doi:10.5194/acp-10-1403-2010

Kahnert, M. 2010. Numerically exact computation of the optical properties of light absorbing carbon aggregates for wavelength of 200 nm–12.2µm. *Atmos. Chem. Phys.* **10**, 8319–8329. doi:10.5194/acp-10-8319-2010

## 2009

- Andersson, C., Bergström, R. and Johansson, C. 2009. Population exposure and mortality due to regional background PM in Europe – Long-term simulations of source region and shipping contributions. *Atmos. Environ.* **43**, 3614–3620. doi:10.1016/j.atmosenv.2009.03.040
- Emberson, L.D., Büker, P., Ashmore, M.R., Mills, G., Jackson, L.S., Agrawal, M., Atikuzzaman, M.D., Cinderby, S., Engardt, M., Jamir, C., Kobayashi, K., Oanh, N.T.K., Quadir, Q.F. and Wahid, A. 2009. A comparison of North American and Asian exposure–response data for ozone effects on crop yields. *Atmos. Environ.* **43**, 1945–1953. doi:10.1016/j.atmosenv.2009.01.005
- Engardt, M., Bergström, R. and Andersson, C. 2009. Climate and emission changes contributing to changes in near-surface ozone in Europe over the coming decades: Results from model studies. *Ambio* **38**, 452–458. DOI: 10.1579/0044-7447-38.8.452
- Gidhagen, L., Johansson, H. and Omstedt, G. 2009. SIMAIR - Evaluation tool for meeting the EU directive on air pollution limits. *Atmos. Environ.* **43**, 1029–1036. doi:10.1016/j.atmosenv.2008.01.056
- Kahnert, M. 2009. On the observability of chemical and physical aerosol properties by optical observations: Inverse modelling with variational data assimilation. *Tellus* **61B**, 747–755. DOI: 10.1111/j.1600-0889.2009.00436.x
- Langner, J., Andersson, C. and Engardt, M. 2009. Atmospheric input of nitrogen to the Baltic Sea basin: present situation, variability due to meteorology and impact of climate change. *Boreal Environ. Res.* **14**, 226–237.
- Vautard, R. et al. 2009. Skill and uncertainty of a regional air quality model ensemble. *Atmos Environ.* **43**, 4822–4832. doi:10.1016/j.atmosenv.2008.09.083

## 2008

- Bennet, C. and Engardt, M. 2008. A regional model for surface ozone in Southeast Asia. *Tellus* **60B**, 718–728. DOI: 10.1111/j.1600-0889.2008.00378.x
- Carmichael, G.R., Sakurai, T., Streets, D., Hozumi, Y., Ueda, H., Park, S.U., Fung, C., Han, Z., Kajino, M., Engardt, M., Bennet, C., Hayami, H., Sartelet, K., Holloway, T., Wang, Z., Kannari, A., Fu, J., Matsuda, K., Thongboonchoo, N. and Amann M. 2008. MICS-Asia II: The model intercomparison study for Asia Phase II methodology and overview of findings. *Atmos. Environ.* **42**, 3468–3490. doi:10.1016/j.atmosenv.2007.04.007
- Engardt, M. 2008. Modelling of near-surface ozone over South Asia. *J. Atmos. Chem.* **59**, 61–80. DOI:10.1007/s10874-008-9096-z.
- Han, Z., Sakurai, T., Ueda, H., Carmichael, G.R., Streets, D., Hayami, H., Wang, Z., Holloway, T., Engardt, M., Hozumi, Y., Park, S.U., Kajino, M., Sartelet, K., Fung, C., Bennet, C., Thongboonchoo, N., Tang, Y., Chang, A., Matsuda, K. and Amann, M. 2008. MICS-Asia II: Model Intercomparison and evaluation of ozone and relevant species. *Atmos. Environ.* **42**, 3491–3509. doi:10.1016/j.atmosenv.2007.07.031

- Hayami, H., Sakurai, T., Han, Z., Ueda, H., Carmichael, G.R., Streets, D., Holloway, T., Wang, Z., Thongboonchoo, N., Engardt, M., Bennet, C., Fung, C., Chang, A., Park, S.U., Kajino, M., Sartelet, K., Matsuda, K. and Amann, M. 2008. MICS-Asia II: Model intercomparison and evaluation of particulate sulfate, nitrate and ammonium. *Atmos. Environ.* **42**, 3510-3527. doi:10.1016/j.atmosenv.2007.08.057
- Hole, L. and Engardt, M. 2008. Climate change impact on atmospheric nitrogen deposition in Northwestern Europe: A model study. *Ambio* **37**, 9-17.
- Holloway, T., Sakurai, T., Han, Z., Ehlers, S., Spak, S.N., Horowitz, L.W., Carmichael, G.R., Streets, D.G., Hozumi, Y., Ueda, H., Park, S.U., Fung, C., Kajino, M., Thongboonchoo, N., Engardt, M., Bennet, C., Hayami, H., Sartelet, K., Wang, Z., Matsuda, K. and Amann, M. 2008. MICS-Asia II: Impact of global emissions on regional Air Quality in Asia. *Atmos. Environ.* **42**, 3543-3561. doi:10.1016/j.atmosenv.2007.10.022
- Kahnert, M. 2008. Variational data analysis of aerosol species in a regional CTM: Background error covariance constraint and aerosol optical observation operators. *Tellus* **60B**, 753-770.
- Wang, Z., Xie, F., Sakurai, T., Ueda, H., Han, Z., Carmichael, G.R., Streets, D., Engardt, M., Holloway, T., Hayami, H., Kajino, M., Thongboonchoo, N., Bennet, C., Park, S.U., Fung, C., Chang, A., Sartelet, K. and Amann, M. 2008. MICS-Asia II: Model intercomparison and evaluation of acid deposition. *Atmos. Environ.* **42**, 3528-3542. doi:10.1016/j.atmosenv.2007.12.071

## 2007

- Andersson, C. and Langner, J. 2007. Inter-annual variations of ozone and nitrogen dioxide over Europe during 1958-2003 simulated with a regional CTM. *Water, Air, and Soil Pollution: Focus* **7**, 15-23. doi:10.1007/s11267-006-9088-4.
- Andersson, C., Langner, J. and Bergström, R. 2007. Interannual variation and trends in air pollution over Europe due to climate variability during 1958-2001 simulated with a regional CTM coupled to the ERA40 reanalysis. *Tellus* **59B**, 77-98. doi: 10.1111/j.1600-0889.2006.00196.x
- Saipunkaew, W., Wolseley, P.A., Chimonides, P.J. and Boonpragob K. 2007. Epiphytic macrolichens as indicators of environmental alteration in northern Thailand. *Environmental Pollution* **146**, 366-374.
- van Loon, M., Vautard, R., Schaap, M., Bergström, R., Bessagnet, B., Brandt, J., Builtjes, P.J.H., Christensen, J., Cuvelier, K., Jonson, J.E., Krol, M., Langner, J., Roberts, P., Rouil, L., Stern, R., Tarrasón, L., Thunis, P., Vignati, E., White, L. and Wind, P. 2007. Evaluation of long-term ozone simulations from seven regional air quality models and their ensemble. *Atmos. Environ.* **41**, 2083-2097.

## 2006

- Huneus, N., Gallardo, L. and Rutllant, J.A. 2006. Offshore transport episodes of anthropogenic sulfur in northern Chile: Potential impact on the stratocumulus cloud deck. *Geophys. Res. Lett.* **33**, L19819, 10.1029/2006GL026921.
- Vautard, R., van Loon, M., Schaap, M., Bergström, R., Bessagnet, B., Brandt, J., Builtjes, P.J.H., Christensen, J., Cuvelier, K., Jonson, J.E., Krol, M., Langner, J., Roberts, P., Rouil, L., Stern, R., Tarrasón, L., Thunis, P., Vignati, E., White, L. and Wind, P. 2006. Is regional air quality model diversity representative of uncertainty for ozone simulation? *Geophys. Res. Lett.* **33**, L24818, doi:10.1029/2006GL027610.

## 2005

- Engardt, M., Siniarovina, U., Khairul, N.I. and Leong, C.P. 2005. Country to country transport of anthropogenic sulphur in Southeast Asia. *Atmos. Environ.* **39**, 5137–5148.
- Foltescu, V.L., Pryor, S.C. and Bennet C. 2005. Sea salt generation, dispersion and removal on the regional scale *Atmos. Environ.* **39**, 2123–2133.
- Gidhagen, L., Johansson, C., Langner J. and, Foltescu, V.L. 2005. Urban scale modeling of particle number concentration in Stockholm. *Atmos. Environ.* **39**, 1711–1725.
- Hedberg, E., Gidhagen, L. and Johansson, C. 2005. Source contributions to PM10 and arsenic concentrations in Central Chile using positive matrix factorization. *Atmos. Environ.* **39**, 549–561.
- Kulshrestha, U.C., Granat, L., Engardt, M. and Rodhe, H. 2005. Review of precipitation monitoring studies in India—a search for regional patterns. *Atmos. Environ.* **39**, 7403-7419.
- Langner, J., Bergström, R. and Foltescu, V. 2005. Impact of climate change on surface ozone and deposition of sulphur and nitrogen in Europe. *Atmos. Environ.* **39**, 1129-1141.
- Siniarovina, U. and Engardt, M. 2005. High resolution model simulations of anthropogenic sulphate and sulphur dioxide in Southeast Asia. *Atmos. Environ.* **39**, 2021-2034.
- Solberg, S., Bergström, R., Langner, J., Laurila, T. and Lindskog, A. 2005. Changes in Nordic surface ozone episodes due to European emission reductions in the 1990s. *Atmos. Environ.* **39**, 179-192.
- Solberg, S, Derwent, R.G., Hov, Ø., Langner, J. and Lindskog, A. 2005. European abatement of surface ozone in a global perspective. *Ambio* **34**, 47-53.
- Warner, S., Platt, N. and Heagy, J.F. 2005. Comparisons of transport and dispersion model predictions of the european tracer experiment: area- and population-based user-oriented measures of effectiveness. *Atmos. Environ.* **39**, 4425–4437.

## 2004

- Politis, K and Robertson, L. 2004. Bayesian updating of atmospheric dispersion after a nuclear accident. *Appl. Statist.* **53**, 583-600.
- Warner, S., Platt, N. and Heagy, J.F. 2004. Application of user-oriented measure of effectiveness to transport and dispersion model predictions of the European tracer experiment. *Atmos. Environ.* **38**, 6789–6801.

## 2003

- Eneroth, K., Kjellström, E. and Holmén, H. 2003. A trajectory climatology for Svalbard; investigating how atmospheric flow patterns influence observed tracer concentrations. *Physics and Chemistry of the Earth* **28**, 1191-1203.
- Eneroth, K., Kjellström, E. and Holmén, H. 2003. Interannual and seasonal variations in transport to a measuring site in western Siberia and their impact on the observed atmospheric CO<sub>2</sub> mixing ratio. *J. Geophys. Res.* **108** (D21), 4660, doi:10.1029/2002JD002730.

## 2002

- Carmichael, G.R., Calori, G., Hayami, H., Uno, I., Cho, S.Y., Engardt, M., Kim, S.-B., Ichikawa, Y., Ikeda, Y., Woo, J.-H., Ueda, H. and Amann, M. 2002. The MICS-Asia study: model intercomparison of long-range transport and sulfur deposition in East Asia. *Atmos. Environ.* **36**, 175-199.

- Gallardo, L., Olivares, G., Langner, J. and Aarhus, B., 2002. Coastal lows and sulfur air pollution in Central Chile. *Atmos. Environ.* **36**, 3829-3841.
- Gidhagen, L., Kahelin, H., Schmidt-Thomé, P. and Johansson, C., 2002. Anthropogenic and natural levels of arsenic in PM10 in Central and Northern Chile. *Atmos. Environ.* **36**, 8303-3817.
- Kjellström, E., Holmén, K., Eneroth, K. and Engardt, M., 2002, Summertime Siberian CO<sub>2</sub> simulations with the regional transport model MATCH: A feasibility study of carbon uptake calculations from EUROSIB data. *Tellus* **54B**, 834-849.
- Lövblad, G., Persson, C., Staaf, H. and Wilander, A. 2002. Nationella dataunderlag för karteringarna. In: *Kritisk belastning för svavel och kväve*. (Eds: U. Bertills and G. Lövblad). Naturvårdsverket **Rapport 5174**, pp. 28-38. (In Swedish).
- Olivares, G., Gallardo, L., Langner, J. and Aarhus, B., 2002. Regional dispersion of oxidized sulfur in Central Chile. *Atmos. Environ.* **36**, 3819-3828.
- Tilmes, S., Brandt, J., Flatøy, F., Bergström, R., Flemming, J., Langner, J., Christensen, J.H., Frohn, L.M., Hov, Ø., Jacobsen, I., Reimer, E., Stern, R. and Zimmermann, J. 2002. Comparison of five Eulerian air pollution forecasting systems for the summer of 1999 using the German Ozone monitoring data. *J. Atmos. Chem.* **42**, 91-121.

## 2001

- Brandefelt, J. and Holmén, K. 2001. Anthropogenic and biogenic winter sources of Arctic CO<sub>2</sub> – a model study. *Tellus* **53B**, 10-21.
- Carmichael, G.R., Hayami, H., Calori, G., Uno, I., Cho, S.Y., Engardt, M., Kim, S.-B., Ichikawa, Y., Ikeda, Y., Ueda, H. and Amann, M. 2001. Model intercomparison study of long range transport and sulfur deposition in East Asia (MICS-Asia). *Water, Air, and Soil Pollution* **130**, 51-62.
- Engardt, M. 2001. Sulphur simulations for East Asia using the MATCH model with meteorological data from ECMWF. *Water, Air, and Soil Pollution* **130**, 289-294.
- Engardt, M. and Leong, C.P. 2001. Regional modelling of anthropogenic sulphur in Southeast Asia. *Atmos. Environ.* **35**, 5935-5947.
- Kuylensstierna, J.C.I., Hicks, W.K., Cinderby, S., Vallack, H.W. and Engardt, M. 2001. Variability in mapping acidification risk scenarios for terrestrial ecosystems in Asian countries. *Water, Air, and Soil Pollution* **130**, 1175-1180.

## 2000

- Zunckel, M., Robertson, L., Tyson, P.D. and Rodhe, H. 2000. Modelled transport and deposition of sulphur over Southern Africa. *Atmos. Environ.* **34**, 2797-2808.

## 1999

- Engardt, M. and Holmén, K. 1999. Model simulations of anthropogenic-CO<sub>2</sub> transport to an Arctic monitoring station during winter. *Tellus* **51B**, 194-209.
- Robertson, L., Langner, J. and Engardt, M. 1999. An Eulerian limited-area atmospheric transport model. *J. Appl. Meteor.* **38**, 190-210.

## 1998

- Langner, J., Robertson, L., Persson, C. and Ullerstig, A. 1998. Validation of the operational emergency response model at the Swedish meteorological and hydrological institute using data from ETEX and the Chernobyl accident. *Atmos. Environ.* **32**, 4325-4333.

Robertson, L. and Langner, J. 1998. Source function estimate by means of variational data assimilation applied to the ETEX-1 tracer experiment. *Atmos. Environ.* **32**, 4219-4225.

#### 1996

Engardt, M. and Holmén, K. 1996. Towards deducing regional sources and sinks from atmospheric CO<sub>2</sub> measurements at Spitsbergen. *Physics and Chemistry of the Earth* **21**, 523-528.

#### 1995

Langner, J., Persson, C. and Robertson, L. 1995. Concentration and deposition of acidifying air pollutants over Sweden: Estimates for 1991 based on the MATCH model and observations. *Water Air and Soil Pollution* **85**, 2021-2026.

Robertson, L., Rodhe H. and Granat, L. 1995. Modelling of sulfur deposition in the southern Asian region. *Water, Air and Soil Pollution* **85**, 2337-2343.

#### 1993

Robertson, L. and Persson, C. 1993. Attempts to apply four dimensional data assimilation of radiological data using the adjoint technique. *Radiation Protection Dosimetry* **50**, 333 - 337.

#### 1987

Persson, C., Rodhe, H and De Geer, L.-E. 1987. The Chernobyl accident – A meteorological analysis of how radionuclides reached and were deposited in Sweden. *Ambio* **16**, 20-31.

## Book chapters:

2011

Robertson, L. and Foltescu, V. 2011. A note on using the non-hydrostatic model AROME as a driver for the MATCH model. In: *Integrated systems of meso-meteorological and chemical transport models*. (Eds: A. Baklanov, A. Maura and R.S. Sokhi). pp. 155-157. Springer. ISBN 978-3-642-13979-6. DOI 10.1007/978-3-642-13980-2

2010

Emberson, L.D., Büker, P., Engardt, M., van Tienhoven, A.M., Agrawal, M., Zunckel, M., Hicks, K., Pleijel, H., Oanh, N.T.K., Amgain, L.P., Islam, T., Shamsi, S.R.A., Perera, G.A.D., Krüger, G.H.J. and Smit, P.R. 2010. Assessing ground-level ozone (O<sub>3</sub>) impacts to crops in parts of Asia and southern Africa: The Regional Air Pollution in Developing Countries (RAPIDC) Crops Project. In: *Air Pollution. Health and environmental impacts*. (Eds: B.R. Gurjar, L.T. Molina and C.S.P. Ojha). pp. 421-446. CRC Press. Taylor & Francis Group. ISBN 978-1-4398-0962-4.

2009

Andersson, C., Engardt, M. and Klingberg, J. 2009. Climate change modifies air quality. In: *Air pollution & Climate change. Two sides of the same coin?* (Ed: H. Pleijel). pp. 79-87. Swedish Environmental Protection Agency. ISBN 978-91-620-1278-6

van Pul, A., Hertel, O., Geels, C., Dore, A.J., Vieno, M., van Jaarsveld, H.A., Bergström, R., Schaap, M. and Fagerli, H. 2009. Modelling of the atmospheric transport and deposition of ammonia at a national and regional scale. In: *Atmospheric Ammonia. Detecting emission changes and environmental impacts*. (Eds: M.A. Sutton, S. Reis, S.M.H. Baker). pp. 301-358. Springer Science + Business Media B.V.

2007

Bergström, S. 2007. Images as tools in SMHI's research on climate, weather and the environment. In: *Images in Arts and Sciences*. (Eds: L. Johannesson, U. Eliasson, P. Hallberg, B. Karlsson) pp. 61-73. Royal Soc. of Arts and Sciences in Göteborg, ISBN/ISSN: 978-91-85252-68-8.

2003

Emberson, L. Kuylentierna, J. and Ashmore, M. 2003. Assessing the extent of air pollution impacts in developing country regions. In: *Air Pollution Impacts on crops and forests. A global assessment*. (Eds: L. Emberson, M. Ashmore and F. Murray) pp. 309-335. Imperial College Press, London.



## Technical reports:

2014

- Karlsson, P.E., Danielsson, H., Pleijel, H., Engardt, M., Andersson, C. and Andersson, M., 2014. En ekonomisk utvärdering av inverkan av marknära ozon på växtligheten i Sverige. En uppdatering i samband av den fördjupade utvärderingen av miljö kvalitetsmålet Frisk Luft. **IVL Rapport C 59**, 68 pp. (In Swedish).
- Karlsson, P.E., Engardt, M., Pleijel, H. and Langner, J. 2014. Utvecklingen vad gäller preciserings för marknära ozon. Inför den fördjupade utvärderingen av miljömålet Frisk Luft. **IVL Rapport C 63**, 27 pp. (In Swedish).

2013

- Andersson, C., Bergström, R., Bennet, C., Thomas, M., Robertson, L., Kokkola, H., Korhonen, H. and Lehtinen, K. 2013. *MATCH-SALSA Multi-scale Atmospheric Transport and CHEMISTRY model coupled to the SALSA aerosol microphysics model*. Swedish Meteorological and Hydrological Institute, **RMK No. 115**, 102 pp.
- Andersson, S. and Omstedt, G. 2013. *Utvärdering av SIMAIR mot mätningar av PM10 och NO<sub>2</sub> i Göteborg, Stockholm och Umeå för åren 2006-2009. Undersökning av en ny emissionsmodell för vägtrafikens slitagepartiklar*. **SMHI Meteorologi Nr 152**, 51 pp. (In Swedish).
- Hansen, K., Pihl Karlsson, G., Ferm, M., Karlsson, P.E., Bennet, C., Granat, L., Kronnäs, V., von Brömssen, C., Engardt, M., Akselsson, C., Simpson, D., Hellsten, S. and Svensson, A. 2013. *Trender i kvävenedfall över Sverige 1955-2011*. **IVL Rapport B 2119**, 86 pp (In Swedish, abstract also in English).
- Holmin Fridell, S., Jones, J., Bennet, C., Södergren, H., Kindell, S., Andersson, S. Torstensson, M. and Jakobsson, M. 2013. *Luftkvaliteten i Sverige år 2030*. **SMHI Meteorologi Nr 155**, 51 pp. (In Swedish).
- Johansson, C., Törnqvist, L., Forsberg, B., Meister, K., Åström, C., Robertson, L., Engardt, M., Alm Kübler, K., Ekeboom, A. and Östensson, P. 2013. *Kartbaserad prognosinformation till astmatiker och andra känsliga grupper om luftkvaliteten*. SLB-analys, Environment and Health administration, **SLB 3:2013**, 20 pp. (In Swedish).
- Pihl Karlsson, G., Karlsson P.E., Akselsson, C., Kronnäs, V. and Hellsten, S. 2013. *Krondroppsnätets övervakning av luftföroreningar i Sverige – mätningar och modellering. Resultat t.o.m. september 2012*. **IVL rapport B 2095**, 50 pp. (In Swedish).
- Sjöberg, K., Pihl Karlsson, G., Svensson, A., Wängberg, I., Brorström-Lundén, E., Hansson, K., Potter, A., Rehgren, E., Sjöblom, A., Areskoug, H., Kreuger, J., Södergren, H., Andersson, C., Holmin-Fridell, S. och Andersson, S. 2013. *Nationell Miljöövervakning – Luft. Data t.o.m. 2011*. **IVL Rapport B 2109**, 123 pp (In Swedish).
- von Schoenberg, P. and Thaning, L. 2013. *Våtdeposition av radioaktiva partiklar*. **FOI-R—3818—SE**. ISSN 1650-1942. 31 pp (In Swedish, with Summary in English).

## 2012

- Omstedt, G., Andersson, S., Asker, C., Jones, J., Kindell, S., Segersson, D. and Torstensson, M. 2012. *Luftkvaliteten i Sverige år 2020. Uppföljning av miljö kvalitetsmålet Frisk luft för trafikmiljöer i svenska tätorter*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr 150**, 86 pp. (In Swedish).
- Segersson, D., Asker, C., Engardt, M. and Holmin-Fridell, S. 2012. *Sjöfartens påverkan på luftmiljön i Göteborg*. Swedish Meteorological and Hydrological Institute, **SMHI Rapport 2012 Nr 19**, 31 pp. (In Swedish).

## 2011

- Andersson, C., Andersson, S., Langner, J. and Segersson, D. 2011. *Halter och deposition av luftföroreningar. Förändring över Sverige från 2010 till 2020 i bidrag från Sverige, Europa och internationell sjöfart*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr 147**, 32 pp. (In Swedish).
- Klein, T., Karlsson, P.E., Andersson, S., Engardt, M. and Sjöberg, K. 2011. *Assessing and improving the Swedish forecast and information capabilities for ground-level ozone*. Swedish Meteorological and Hydrological Institute, **RMK No. 114**, 95 pp.

## 2010

- Engardt, M., Andersson, C. and Bergström, R. 2010. *Modellering av marknära ozon. Regionala och högupplösta tillämpningar av MATCH*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr 145**, 27 pp. (In Swedish).
- Omstedt, G., Andersson, S., Bennet, C., Bergström, R., Gidhagen, L., Johansson, C. and Persson, K. 2010. *Kartläggning av partiklar i Sverige –halter, källbidrag och kunskapsluckor*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr 144**, 102 pp. (In Swedish).
- Omstedt, G., Andersson, S. and Bergström, R. 2010. *Dagens och framtidens luftkvalitet i Sverige. Haltberäkningar av NO<sub>2</sub>, PM<sub>10</sub> och PM<sub>2.5</sub> i svenska trafikmiljöer för framtidsscenarioer med minskade europeiska emissioner*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr 140**, 56 pp. (In Swedish).

## 2009

...

## 2008

- Andersson, S., Bergström, R., Omstedt, G. and Engardt, M. 2008. *Dagens och framtidens partikelhalter i Sverige. Utredning av exponeringsminskningsmål för PM<sub>2.5</sub> enligt nytt luftdirektiv*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr 133**, 35 pp. (In Swedish).
- Bergström, R. 2008. *TESS - Traffic Emissions, Socioeconomic valuation and Socioeconomic measures Part 2: Exposure of the European population to atmospheric particles (PM) caused by emissions in Stockholm*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr 132**, 35 pp.
- Johansson, C., Andersson, C., Bergström, R. and Krecl, P. 2008. Exposure to particles due to local and non-local sources in Stockholm - Estimates based on modelling and measurements 1997 – 2006. Department of applied environmental Science, Stockholm university, **ITM-rapport 175**, 69 pp.

JRC 2008. *EURODELTA II. Evaluation of a sectoral approach to integrated assessment modelling including the Mediterranean Sea*. (Eds: P. Thunis and C. Cuvelier). JRC Scientific and Technical Reports, **EUR 23444 EN**. DOI 10.2788/87066.

#### 2007

- Engardt, M. and Foltescu, V. 2007. *Luftföroreningar i Europa under framtida klimat*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr. 125**, 62 pp. (In Swedish).
- Marmefelt, E., Sahlberg, J. and Bergstrand, M. 2007. *HOME Vatten i södra Östersjöns vattendistrikt. Integrerat modellsystem för vattenkvalitetsberäkningar* Swedish Meteorological and Hydrological Institute, **SMHI Oceanografi Nr. 87**, 77 pp. (In Swedish).

#### 2006

- Nettelblatt, A., Westling, O., Akselsson, C., Svensson, A. and Hellsten, S. 2006. *Luftföroreningar i skogliga provytor – Resultat till och med september 2005*. **IVL Rapport B 1682**. 50 pp. (In Swedish).
- Persson, C. and Kahnert, M. 2006. *Återanalys av föroreningsdepositionen till Sverige 2002-2004*. **SMHI Rapport 2006 Nr. 8**, 8 pp. (In Swedish).

#### 2005

- Derwent, R.G., Grennfelt, P., Hov, Ø., Langner, J., Lindskog, A. and Solberg, S. 2005. *The development of European surface ozone. Implications for a revised abatement policy. A contribution from the EU research project NEPAP*. EMEP/CCC-Report 1/2005.
- Langner, J., Bergström, R., Nerhagen, L. and Forsberg, B. 2005. *Final report: Economic valuation of environmental effects of NO<sub>x</sub>-emissions from air traffic at different altitudes*. SMHI Dnr 2004/2071/1934.
- Marmefelt, E. and Olsson, H. 2005. *Integrerat kustzonssystem för Hallandskusten*. Swedish Meteorological and Hydrological Institute, **SMHI Oceanografi Nr. 80**. 42pp. (In Swedish).
- Tarrasón, L., Benedictow, A., Fagerli, H., Jonson, J.E., Klein, H., van Loon, M., Simpson, D., Tsyro, S., Vestreng, V., Wind, P., Forster, C., Stohl, A., Amann, M. Cofala, J., Langner, J., Andersson, A. and Bergström, R. 2005. *Transboundary acidification, eutrophication and ground level ozone in Europe in 2003*. **EMEP Report 1/2005**, Norwegian Meteorological Institute.

#### 2004

- Langner, J., Bergström, R., Klein, T. and Skagerström, M. 2004. *Nuläge och scenarier för inverkan på marknära ozon av emissioner från västra Götalands län. Beräkningar för 1999*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr. 117** (Länsstyrelsen Västra Götalands län. **Rapport 2004:55**), 47 pp. (In Swedish).
- Laurila, T., Jonson, J.E., Langner, J., Sundet, J., Tuovinen, J.-P., Bergström, R., Foltescu, V., Tarvainen, V. and Isaksen, I.S.A. 2004. *Ozone exposure scenarios in the Nordic countries during the 21st century*. **EMEP/MS-CW Technical Report 2/2004**. Norwegian Meteorological Institute, Oslo. 41 pp.

- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Hallands län. Resultat till och med september 2004. IVL rapport B1618*. 26 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Blekinge län. Resultat till och med september 2004. IVL rapport B1621*. 21 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Jönköpings län. Resultat till och med september 2004. IVL rapport B1622*. 21 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Östergötlands län. Resultat till och med september 2004. IVL rapport B1623*. 22 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Södermanlands län. Resultat till och med september 2004. IVL rapport B1624*. 22 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Västra Götalands län. Resultat till och med september 2004. IVL rapport B1625*. 31 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Örebro län. Resultat till och med september 2004. IVL rapport B1626*. 18 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Stockholms län. Resultat till och med september 2004. IVL rapport B1627*. 36 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i norra Sverige. Resultat till och med september 2004. IVL rapport B1628*. 41 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Dalarna och Gävleborgs län. Resultat till och med september 2004. IVL rapport B1629*. 12 pp. (In Swedish).
- Liljergren, A. (redaktör). 2004. *Övervakning av luftföroreningar i Skåne. Resultat till och med september 2004. IVL rapport B1631*. 31 pp. (In Swedish).
- van Loon, M., Roemer, M.G.M., Builtjes, P.J.H., Bessagnet, B., Rouil, L., Christensen, J., Brandt, J., Fagerli, H., Tarrason, L., Rodgers, I., Teasdale, I., Stern, R., Bergström, R., Langner, J. and Foltescu, V. 2004. *MODEL INTER-COMPARISON In the framework of the review of the Unified EMEP model. TNO-report R2004/282*, 53 pp. Available at [www.mep.tno.nl](http://www.mep.tno.nl).
- Lövblad, G., Persson, C., Klein, T., Ruoho-Airola, T., Hovmand, M., Tarrason, L., Tørseth, K., Moldan, F., Larssen, T. and Rapp, L. 2004. *The deposition of base cations in the Nordic countries. IVL report B1583*. 36 pp.
- Persson, C., Ressner, E. and Klein, T. 2004. *Nationell miljöövervakning – MATCH-Sverige modellen. Metod- och resultatsammanställning för åren 1999-2002 samt diskussion av osäkerheter, trender och miljömål. SMHI Meteorologi Nr. 113*, 32 pp. (In Swedish).
- Robertson, L. 2004. *Extended back-trajectories by means of adjoint equations*. Swedish Meteorological and Hydrological Institute, **RMK No. 105**, 37 pp.

## 2003

- Hass, H., van Loon, M., Kessler, C., Stern, R., Matthijsen, J., Sauter, F., Zlatev, Z., Langner, J., Foltescu, V. and Schaap, M. 2003. *Aerosol modelling: Results and intercomparison from European regional-scale modelling systems*. A contribution to the EUROTRAC-2 subproject *GLOREAM*. International Scientific Secretariat (ISS), GSF – National Research Center for Environment and Health, Munich, Germany. (Available at [www.trumf.fu-berlin.de/veranstaltungen/events/gloream/GLOREAM\\_PMmodel-comparison.pdf](http://www.trumf.fu-berlin.de/veranstaltungen/events/gloream/GLOREAM_PMmodel-comparison.pdf) or [www.rivm.nl/bibliotheek/digitaaldepot/GLOREAM\\_PMmodel-comparison.pdf](http://www.rivm.nl/bibliotheek/digitaaldepot/GLOREAM_PMmodel-comparison.pdf))
- Iverfeldt, Å., Sjöberg, K., Engardt, M., Garivait, H., Robertson, L., Andersson, I., Peterson, K. and Ferm, M. 2003. *Study of Possible Acidification in Thailand. Technical Report. IVL Swedish Environmental Research Institute, U 857*.

- Näs, A., Moldanová, J., Lindskog, A., Bergström, R. and Langner, J. 2003. *Identification and management of critical environmental impacts from air transportation over north Europe*. Final Report, **LIFE Project Number LIFE99 ENV/S/000631**. 122 pp. (Available at [www.eiatne.se/internt/FOI-S--1041--SE-EIATNE.pdf](http://www.eiatne.se/internt/FOI-S--1041--SE-EIATNE.pdf))
- Roemer, M., Beekmann, M., Bergström, R., Boersen, G., Feldmann, H., Flatøy, F., Honore, C., Langner, J., Jonson, J.E., Matthijsen, J., Memmesheimer, M., Simpson, D., Smeets, P., Solberg, S., Stern, R., Stevenson, D., Zandveld P. and Zlatev, Z. 2003. *Ozone trends according to ten dispersion models*. EUROTRAC-2 Special Report, ISS Munich.
- Uggla, E., Hallgren Larsson, E., Knulst, J. and Westling, O. 2003. *Jämförelse mellan uppmätt och modellberäknad deposition av svavel och kväve i Sverige* **IVL Rapport/report B 1530**, 40 pp. (In Swedish).

## 2002

- Bertills, U. and Lövblad, G. (Eds). 2002. *Kritisk belastning för svavel och kväve*. Naturvårdsverket Rapport 5174. 221 pp. (In Swedish).
- Engardt, M., Omstedt, G., Langner, J. och Häggkvist, K. 2002. *Spridningsberäkningar för Östergötlands län. Analys av 1998 års data*. **SMHI Rapport 2002 Nr. 51**, 45 pp. (In Swedish).
- Johansson, C. 2002. Nedfall av kväve och svavel. *Beräkningar för 1998. Länsstyrelsen i Stockholms län*. **Rapport 2002:9**. 55 pp. (In Swedish).
- Klein, T., Bergström, R. and Persson, C. 2002. *Parameterization of dry deposition in MATCH*. Swedish Meteorological and Hydrological Institute, **RMK No. 100**, 45 pp.
- Persson, C. 2002. *Kvaliteten hos nederbördskemiska mätdata som dataassimileras i MATCH-Sverige modellen. Rapport till Naturvårdsverkets nationella miljöövervakning, delprogram Luft*. **SMHI Meteorologi Nr. 105**, 17 pp. (In Swedish).
- Solberg, S., Bergström, R., Langner, J., Laurila, T., Sjöberg, K. and Lindskog, K. 2002. *Changes in ozone episodes due to emission reductions. A Nordic study*. EMEP Co-operative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants, **EMEP/CCC-Report 10/2002**, 72 pp. (Available at [www.emep.int/emep2002\\_publications.html](http://www.emep.int/emep2002_publications.html).)

## 2001

- Engardt, M., Langner, J. och Häggkvist, K. *Effekt på luftkvalitet och deposition av försurande ämnen i Skåne vid ersättning motsvarande en av reaktorerna vid Barsebäcks kärnkraftverk med dansk fossilbaserad kraftproduktion*. Swedish Meteorological and Hydrological Institute, **SMHI Rapport 2001 Nr. 24**, 17 pp. (in Swedish).
- Foltescu, V.L. and Persson, C. 2001. *Beräkning av moln- och dimdepositionen i Sverigemodellen. Resultat för 1997 och 1998*. **SMHI Meteorologi Nr. 98**, 36 pp. (In Swedish, with English abstract).
- Kindbom, K., Svensson, A., Sjöberg, K. and Persson, C. 2001. *Nationell miljöövervakning av luft- och nederbörds kemi 1997, 1998 och 1999*. **SMHI Meteorologi Nr. 96 (IVL Rapport B 1420)**, 96 pp. (In Swedish).
- Zlatev, Z., Bergström, R., Brandt, J., Hongisto, M., Jonson, J. E., Langner, J. and Sofiev, M. 2001. *Studying sensitivity of air pollution levels caused by variations of different key parameters*. TemaNord 2001:569, Nordic Council of Ministers, 47 pp.

## 2000

- Engardt, M. 2000. *Sulphur simulations for East Asia using the MATCH model with meteorological data from ECMWF*. Swedish Meteorological and Hydrological Institute, **RMK No. 88**, 33 pp.
- Gallardo, L., Olivares, G., Aguayo, A., Langner, J., Aarhus, B., Engardt, M. and Gidhagen, L. 2000. *Strengthening of the Air Quality Information System. Working area 2: Application of a regional-scale model over the central part of Chile. Regional dispersion of oxidized sulfur over Central Chile using the HIRLAM-MATCH system*. Final report (in English and Spanish) and Technical Appendix (in English) CONAMA, December 2000.
- Gidhagen, L. 2000. *Determinación de línea base nacional de contenido de arsénico en material particulado respirable*. SMHI final report, November 2000. (in Spanish).
- Graziani, G., Galmarini, S. and Mikkelsen T. 2000. *RTMOD: Real-Time MODEL Evaluation*. **Risø-Report-1174(EN)/JRC-Ispra Report TN.I.00.11**. Risø National Laboratory, Roskilde. 47 pp.
- Langner, J., Häggkvist, K., Bergström, R., Engardt, M., Johansson, J., Omstedt, G. and Robertson, L. 2000. *Regional luftmiljöanalys för Skåne län baserad på MATCH modellberäkningar och mätdata. Analys av 1997 års data*. **SMHI Rapport 2000 Nr. 58**, 53 pp. (in Swedish).
- Langner, J. and Bergström, R. 2000. *Bedömning av påverkan på marknära ozon av emissioner från Skåne Län, Själland och Bornholm. Beräkningar för 1997*. **SMHI Rapport 2000 Nr. 67**, 38 pp. (in Swedish).
- Lövblad, G., Persson, C. and Roos, E. 2000. *Deposition of base cations in Sweden*. Swedish Environmental Protection Agency. **Report 5119**, 60 pp.
- Persson, C., Robertson, L. and Thaning, L. 2000. *Model for simulation of air and ground contamination associated with nuclear weapons. An emergency preparedness model*. Swedish Meteorological and Hydrological Institute, **SMHI Meteorologi Nr. 95**, 42 pp.

## 1999

...

## 1998

- Hicks, K., Kuylenstierna, J., Robertson, L. and Granat, L. 1998. Atmospheric transfer and deposition. In: *Regional air pollution in developing countries. Background document for policy dialogue, Bangkok, March 1998*. (Eds: J. Kuylenstierna and K. Hicks). Stockholm Environment Institute, pp. 73-86.
- Kindbom, K., Sjöberg, K., Munthe, J., Peterson, K., Persson, C., Roos, E. and Bergström, R. 1998. *Nationell miljöövervakning av luft- och nederbörskemi 1996*. **SMHI Meteorologi Nr. 89**.
- Langner, J., Bergström, R. and Pleijel, K. 1998. *European scale modeling of sulfur, oxidised nitrogen and photochemical oxidants. Model development and evaluation for the 1994 growing season*. Swedish Meteorological and Hydrological Institute, **RMK No. 82**, 71 pp. (with errata).

## 1997

- Bringfelt, B., Backström, H., Kindell, S., Omstedt, G., Persson, C. and Ullerstig, A. 1997. *Calculations of PM-10 concentrations in Swedish cities - Modelling of inhalable particles*. Swedish Meteorological and Hydrological Institute, **RMK No. 76**, 83 pp.

Kindbom K., Sjöberg K., Munthe J., Peterson K., Persson C. and Ullerstig, A. 1997. *Nationell miljöövervakning av luft- och nederbörds kemi. Övervakning av svavel- och kväveföreningar, ozon, baskatjoner, tungmetaller och kvicksilver i bakgrundsmiljö. IVL Rapport B 1252.*

Persson C. and Ullerstig A. 1997. *Regional luftmiljöanalys för Västmanlands län baserad på MATCH modellberäkningar och mätdata - Analys av 1994 års data.* Swedish Meteorological and Hydrological Institute, **RMK No. 78**. 53 pp. (in Swedish).

#### 1996

Langner, J., Persson, C., Robertson, L. and Ullerstig, A. 1996. *Air pollution assessment study using the MATCH modelling system. Application to sulfur and nitrogen compounds over Sweden 1994.* Swedish Meteorological and Hydrological Institute, **RMK No. 69**. 38 pp.

Persson, C. and Ullerstig, A. 1996. *Model calculations of dispersion of lindane over Europe. Pilot study with comparisons to measurements around the Baltic Sea and the Kattegat.* Swedish Meteorological and Hydrological Institute, **RMK No. 68**. 18 pp.

Persson, C., Ullerstig, A. Robertson, L., Kindbom, K. And Sjöberg, K. 1996. *The Swedish precipitation chemistry network. Studies in network design using the MATCH modelling system and statistical methods.* Swedish Meteorological and Hydrological Institute, **RMK No. 72**. 43 pp.

Robertson, L. 1996. *Modelling of anthropogenic sulfur deposition to the African and South American continents.* Swedish Meteorological and Hydrological Institute, **RMK No. 73**, 10 pp.

Robertson, L., Langner, J. and Engardt, M. 1996. *MATCH - Meso-scale Atmospheric Transport and Chemistry modelling system. Basic transport model description and control experiments with <sup>222</sup>Rn.* Swedish Meteorological and Hydrological Institute, **RMK No. 70**, 37 pp.

#### 1995

Persson, C., Langner, J. and Robertson, L. 1995. *Regional spridningsmodell för Sverige. Regional luftmiljöanalys för år 1991.* Naturvårdsverket, **Rapport 4386**, 56 pp. (in Swedish).

#### 1994

Persson, C., Johansson, M., Lövblad, G., Skärby, L. and Pihl, G. 1994. *Miljökonsekvensbeskrivning för Skåne år 2000. Skånes Luftvårdsförbund, Rapport L 93-126*, 117 pp. (In Swedish).

Persson, C., Langner, J. and Robertsson, L. 1994. *Regional spridningsmodell för Göteborgs och Bohus, Hallands och Älvsborgs län. Regional luftmiljöanalys för år 1991. (A mesoscale air pollution dispersion model for the Swedish west-coast region - Air pollution assessments for the year 1991.)* Swedish Meteorological and Hydrological Institute, **RMK No. 65**, 76 pp. (in Swedish, with captions also in English).

#### 1993

Persson, C., Langner, J., Robertson, L. and Luide, T. 1993. *Regional spridningsmodell för Kopparbergs och Gävleborgs län. SMHI, Meteorologi* (In Swedish).

1990

Persson, C., Robertson, L., Häggkvist, K. and Meuller, L. 1990. *Mesoskalig spridningsmodell. Modellanpassning till Skåne-regionen*. SMHI, Meteorologi (In Swedish).

1986

Persson, C., Rodhe, H. and De Geer, L.-E. 1986. *The Chernobyl accident - A meteorological analysis of how radionuclides reached Sweden*. Swedish Meteorological and Hydrological Institute, **RMK No. 55**, 49 pp.

Persson, C., Rodhe, H. and De Geer, L.-E. 1986. *Tjernobylolyckan. En meteorologisk analys av hur radioaktivitet spreds till Sverige*. Swedish Meteorological and Hydrological Institute, **METEOROLOGI No. 24**, 45 pp. (In Swedish).

### Selected conference proceedings and reports:

2012

Langner, J., Engardt, M. and Andersson, C. 2012. Modelling the impact of climate change on air pollution over Europe using the MATCH CTM linked to an ensemble of regional climate scenarios. In: *Air Pollution Modeling and its application XXI* (Eds. D.G. Steyn and S.T. Castelli). Springer Science+Business Media B.V., pp. 627-635. DOI: 10.1007/978-94-007-1359-8\_103

2011

Robertson, L. 2011. Chemical weather forecasting. In: *NSC News 2011:2*, pp 1, 3-5.  
Engardt, M., Johansson, C. and Gidhagen, L. 2011. Web Services for Incorporation of Air Quality and Climate Change in Long-Term Urban Planning for Europe. In: *Environmental Software Systems*. (Eds. J. Hřebíček, G. Schimak, and R. Denzer). IFIP Advances in Information and Communication Technology 359, pp. 558–565.

2004

Langner, J. 2004. Spridning av luftföroreningar med MATCH. In: *Nytt från NSC*, Nr 17. Nationellt Superdatorcentrum vid Linköpings universitet. pp. 1,3. (In Swedish).

2003

Engardt, M. 2003. Model simulations of nitrogen and sulphur species over South Asia using meteorological data from ECMWF for the year 2000. In: *5<sup>th</sup> workshop on the transport of air pollutants in Asia (Model intercomparison study – MICS-Asia) January 20-21, 2003. Workshop proceedings prepared for Acid Deposition and Oxidant Research Center (ADORC), Japan*.



## 2002

- Engardt, M. 2002. Model simulations of nitrogen and sulphur species over South Asia using meteorological data from ECMWF for the year 2000. In: *First Composition of Asian Deposition (CAD) workshop proceedings*, (Eds: C.P. Leong, R. Bala, H. Rodhe and K. Hicks) pp. 153-157. (Workshop held at Malaysian Meteorological Service, Petaling Jaya, 21-23 November 2002).
- Ibrahim, K.N., Siniarovina, U. and Engardt, M. 2002. Country to country transport of anthropogenic sulphur in South East Asia. In: *First Composition of Asian Deposition (CAD) workshop proceedings*, (Eds: C.P. Leong, R. Bala, H. Rodhe and K. Hicks) pp. 165-169. (Workshop held at Malaysian Meteorological Service, Petaling Jaya, 21-23 November 2002).
- Hass, H., van Loon, M., Matthijsen, J., Stern, R., Zlatev, Z. and Langner, J. 2002. GLOREAM aerosol modelling intercomparison. In: *Global and regional atmospheric modelling* (Eds: C. Borrego, P. Builtjes, A.I. Miranda, P. Santos and A.C. Carvalho). Universidade de Aveiro, Aveiro, Portugal. pp. 90-94. (Presented at 6<sup>th</sup> GLOREAM workshop in Aveiro 4-6 September 2002.).
- Siniarovina, U., Peng, C.P. and Engardt, M. 2002. High resolution model simulations of anthropogenic sulphur in Southeast Asia. In: *First Composition of Asian Deposition (CAD) workshop proceedings*, (Eds: C.P. Leong, R. Bala, H. Rodhe and K. Hicks) pp. 159-164. (Workshop held at Malaysian Meteorological Service, Petaling Jaya, 21-23 November 2002).

## 2001

- Eneroth, K., Kjellström, E., Holmén, K. and Engardt, M. 2001. *How do CO<sub>2</sub> anomalies propagate into the atmosphere? – using trajectories to interpret CO<sub>2</sub> anomalies*. Poster presented at the 6th international CO<sub>2</sub> conference in Sendai, Japan.
- Kjellström, E., Eneroth, K., Holmén, K. and Engardt, M. 2001. *Siberian CO<sub>2</sub> simulations with the regional transport model MATCH: A feasibility study of carbon uptake calculations from observational data*. Poster presented at the 6th international CO<sub>2</sub> conference in Sendai, Japan.
- Langner, J. and Bergström, R. 2001. *Impact of climate change on regional air pollution budgets*. Poster presented at the EUROTRAC Symposium in Garmisch-Partenkirchen, Germany 2000. On CD-ROM included in: *Transport and Chemical transformation in the troposphere. Proceeding of EUROTRAC Symposium 2000* Garmisch-Partenkirchen, Germany 27-31 March 2000, (Eds: P.M. Midgley, M. Reuther and M. Williams). Springer Verlag.
- Persson, C. and Bergström, R. 2001. Atmospheric transport model studies for Sweden – Comparison to EMEP model results and evaluation of precipitation chemistry station networks. In: *Air pollution modeling and its Application XIV*, (Eds: Gryning and Schiermeier). Kluwer Academic/Plenum Publishers, New York. pp. 165-172.

## 2000

- Engardt, M. 2000. Sulphur simulations for East Asia using the MATCH model with meteorological data from ECMWF. In: *A comprehensive assessment of large-scale environmental problems in East Asia. Proceedings of the workshop on the transport of air pollutants in Asia 22-23 July 1999. Report to the Central Institute of Electric Power Industry (CRIEPI). IIASA Contract No. 99-124*. International Institute for Applied Systems Analysis, Laxenburg, Austria.

- Gallardo, L., Olivares, G., Aguayo, A., Langner, J., Engardt, M., Aarhus, B. and Gidhagen, L., 2000. *Application of a regional scale model over Central Chile*, 6th International Conference on Southern Hemisphere Meteorology and Oceanography, 6th ICSHMO, April 3-7, 2000 Santiago, Chile.
- Persson, C., Lövblad, G. and Roos, E. 2000. Meso-scale modelling of base cation deposition in Sweden. In: *Air pollution modeling and its Application XIII*, (Eds: S.-E. Gryning and E. Batchvarova). Kluwer Academic/Plenum Publishers, New York. pp. 117-125.
- Robertson, L. and Langner, J. 2000. On the issue of quality control in data assimilation. In: *Air pollution modeling and its Application XIII*, (Eds: S.-E. Gryning and E. Batchvarova). Kluwer Academic/Plenum Publishers, New York. pp. 299-309.

#### 1999

- Engardt, M., Rodhe, H., Granat, L. and Kuylenstierna, J. 1999. Preliminary sulphur transport simulations for southern and eastern Asia using the MATCH model with meteorological data from ECMWF. In: *Proceedings of the fourth meeting of the IGAC/DEBITS project: Composition and Acidity of Asian Precipitation (CAAP)*. Chulalongkorn University, Bangkok 9-12 November, 1998. Stockholm Environmental Institute, Stockholm, Sweden, pp. 35-40.

#### 1998

- Engardt, M., Robertson, L. and Lindskog, M. 1998. Sulphur transport in Southeast Asia with the MATCH model. In: *Workshop on transport of air pollutants in Asia 27-29 July 1998. INTERIM REPORT to the Central Institute of Electric Power Industry (CRIEPI)*. International Institute for Applied Systems Analysis, Laxenburg, Austria. pp. 57-66.
- Langner, J., Persson, C. and Robertson, L. 1998. High resolution, long-period modelling of photochemical oxidants over Europe. In: *Air pollution modeling and its Application XII*, (Eds: S.-E. Gryning and N. Chaumerliac). Plenum Press, New York. pp. 71-76.
- Lindskog, M. and Engardt, M. 1998. *The performance of the HIRLAM model in the tropics and sulphur transport studies based on its forecasts*. Poster presented at the 23<sup>rd</sup> EGS General Assembly in Nice, France.
- Robertson, L. and Langner, J. 1998. Emergency response modelling at the Swedish Meteorological and Hydrological Institute: Results from ETEX and the Chernobyl Accident. In: *Long-Range air pollution: From models to policies*. (Eds: D. Syrakov, E. Batchvarova and B. Wiman). Proceedings from the Swedish-Bulgarian workshop 19-23 October 1997, Sozopol, Bulgaria. pp. 133-142.
- Robertson, L. and Langner, J. 1998. Data assimilation techniques for air pollution assessment studies. In: *Long-Range air pollution: From models to policies*. (Eds: D. Syrakov, E. Batchvarova and B. Wiman) Proceedings from the Swedish-Bulgarian workshop 19-23 October 1997, Sozopol, Bulgaria. Pensoft publishers Sofia, Moscow. pp. 187-199.

#### 1997

- Engardt, M. and Holmén, K. 1997. Flaring of gas in western Siberia, an overlooked source for CO<sub>2</sub> and other anthropogenic species during Arctic haze episodes? In: *Atmospheric research in Ny-Ålesund* (Eds: Fløisand, I., Gernandt, H. Stoltz Larsen, E., Stordal, F. and Wada, M.) Norsk Institutt for luftforskning, Kjeller, Norway. **NILU OR 19/97**, pp. 95-98.

- Langner, J. 1997. Regional scale modelling of photochemical oxidants at the Swedish Meteorological and Hydrological Institute (SMHI). In: *Regional Modelling of Air Pollution in Europe*. (Eds: G. Geernaert, A Walløe Hansen and Z. Zlatev), Proceedings of the first REMAPE Workshop in Copenhagen, Ministry of Environment and Energy, National Environmental Research Institute, Denmark.
- Langner, J., Robertson, L., Persson, C. and Ullerstig, A. 1997. The operational emergency response model at the Swedish Meteorological and Hydrological Institute (SMHI). In: *Proceedings from the ETEX symposium on long-range atmospheric transport, model verification and emergency response, Vienna 1997*, (Ed. K. K. Nodop). **EUR 17346**, European Commission.
- Marmefelt, E., Arheimer, B. and Langner, J. 1997. A biogeochemical model system for the Baltic sea - a pilot study. With rivers to the sea. Interactions of land activities, fresh water and enclosed coastal seas. In: *Proceedings from the joint conference of 7th Stockholm water symposium and 3rd international conference on the environmental management of coastal seas (EMECS), 10-15 Aug. 1997, Stockholm, Sweden*.
- Robertson, L. and Langner, J. 1997. Variational assimilation ETEX-1 data. In: *Proceedings from the ETEX symposium on long-range atmospheric transport, model verification and emergency response, Vienna 1997*, (Ed. K. K. Nodop). **EUR 17346**, European Commission.

#### 1996

- Persson, C., Langner, J. and Robertson, L. 1996. Air pollution assessment studies for Sweden based on the MATCH model and air pollution measurements. In: *Air Pollution Modeling and Its Application XI*. (Eds: S.-E. Gryning and F. Schiermeier), NATO/CCMS Plenum Press, New York and London.

#### 1994

- Persson, C., Langner, J. and Robertson, L. 1994. MATCH: A mesoscale atmospheric dispersion model and its application to air pollution assessments in Sweden. In: *Air Pollution and its Application*, Vol. X. (Ed. E. Gryning.) Plenum Press, New York.
- Persson, C., Langner, J. and Robertson, L. 1994. Comparison Dispersion Model Results from the BER-1 Emergency Exercise, 21 June 1993

#### Degree projects:

- Dingwell, A. 2010. *Evaluation of calculated concentrations of air pollution in the Stockholm region – comparison with measurements*. Master Degree Project in Meteorology. 30 ECTS credits. (Supervisor: Christer Johansson. Stockholm University)
- Larsson, A. 2007. *Ensembleprognoser som indata i atmosfärskemiska spridningsberäkningar – en fallstudie vid SMHI*. Examensarbete i Fysik 20 poäng (30 ECTS) vid Lunds universitet med inriktning mot meteorologi i samarbete med Köpenhamns universitet. (Handledare: Aksel Walløe Hansen och Peter Aakjær (DMI), Mikael Magnusson och Lennart Robertson (SMHI)). (In Swedish, abstract in English).
- Andersson, C. 2005. *Inter-annual variations of air pollution due to meteorological variability over Europe during 1958-2003 – simulations using the MATCH-model*. Diploma work. Department of Experimental Physics, Chalmers University of Technology. (supervisor: Joakim Langner, SMHI).

- Bender, F. 2004. *Transboundary transport of acidifying and eutrophying pollutants in Europe*. Degree Project in Meteorology 20p, for Master of Science. (Supervisors: Magnuz Engardt, Joakim Langner, SMHI and Henning Rodhe. Stockholm University).
- Sundkvist, P. 2004 *Polycykliska aromatiska kolväten i stadsluftkällor. Spridning och betydelse för folkhälsan*. 69 pp. Examensarbete (20p) inom magisterutbildningen Miljöskydd och hälsoskydd, 40p. (Handledare Christer Johansson, ITM och Joakim Langner, SMHI). (In Swedish, abstract in English).
- Johnston, S. 2003. *Regional modelling of carbon dioxide isotopes. How the oceanic uptake of CO<sub>2</sub> influences the atmospheric CO<sub>2</sub> concentration*. Degree Project in Meteorology 20p, for Master of Science. (Supervisors: Kim Holmén, Erik Kjellström, Stockholm University and Magnuz Engardt, SMHI).
- Julin, A.-C. 2003. *Atmosfärisk transport av nitrat till Svalbard; En trajektorie- och modellstudie*. Examensarbete meteorologi 20p. (Handledare: Kim Holmén och Erik Kjellström, Stockholms Universitet). (In Swedish).
- Illarzen, A. 2002. *The balance of nitrogen compounds in the Indian atmosphere*. Degree Project in Meteorology 20p, for Master of Science. (Supervisor: Henning Rodhe, Stockholm University).
- Rietz, A. 1999. *Numerisk modell för global transport av spårämnen i atmosfären*. Examensarbete i teknisk fysik och elektroteknik vid Linköpings universitet, 20p. (Handledare: Lennart Robertson, SMHI). (In Swedish).
- Thor, J. 1998. *Anthropogenic and Biogenic Winter Sources of CO<sub>2</sub> – a model study*. Degree Project in Meteorology 20p, for Master of Science. (Supervisor: Kim Holmén, Stockholm University).