



Troposat-2

The Remote Sensing of Atmospheric Constituents from Space

ACCENT-TROPOSAT-2 (AT2): An ACCENT Integration Task

**The Remote Sensing of Tropospheric Constituents
from Space**

ACCENT-TROPOSAT-2: Activities 2007-8 & Final Report

Appendices

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Appendix A: Publications resulting from AT2 work, 2007-8

A1 ACCENT Reports and a Book from AT2

AT2 2004 - 2009

The Remote Sensing of Atmospheric Constituents from Space; the AT2 Strategy Document; editors: John Burrows and Peter Borrell, 2005; ACCENT Report, 2.2005.

Tropospheric Sounding from Space; ACCENT-TROPOSAT-2 in 2004-5; editors: John Burrows and Peter Borrell, 2005; ACCENT Report, 6.2005.

Remote Sensing of Tropospheric Composition from Space; ACCENT-TROPOSAT2 in 2005-6; editors: John Burrows and Peter Borrell, 2007; ACCENT Report, 1.2007.

Observing Tropospheric Trace Constituents from Space, ACCENT-TROPOSAT2 in 2006-7; editors: John Burrows and Peter Borrell, 2007; ACCENT Report, 6.2007.

Remote Sensing of Tropospheric Constituents from Space, ACCENT-TROPOSAT: Activities 2007-8 and Final Report; editors: John Burrows and Peter Borrell, 2009; ACCENT Report, 1.2009.

AT2 sponsored meetings, 2004 - 2008

Frontiers in the Transport and Transformation of Pollutants; the Report of the ACCENT Barnsdale Expert Meeting, 2004, editors, Paul Monks and Peter Borrell, 2005; ACCENT Report, 1.2005.

Understanding and quantifying the atmospheric nitrogen cycle; the 2nd ACCENT Barnsdale Expert Meeting, 2005, Editors R.A. Cox, David Fowler, Paul Monks and Peter Borrell; ACCENT Report, 3.2006.

Chemical Data Assimilation for the Observation of the Earth's Atmosphere, ACCENT/WMO Expert Workshop in support of IGACO, 2006 editors Leonard Barry, John P. Burrows, Paul Monks and Peter Borrell; ACCENT Report, 7.2006.

Volatile Organic Compounds in the Polluted Atmosphere, the 3rd ACCENT Barnsdale Expert Meeting, 2007. Editors, John Burrows, Tony Cox, David Fowler, Claire Granier, Ivar Isaksen, Paul Monks, Colin O'Dowd and Peter Borrell; ACCENT Report, 4.2007.

The Impact of Climate Change on Air Quality, the 4th ACCENT Barnsdale Expert Meeting, 2007. Editors, Peter Buitjes, David Fowler, Johann Feichter, Alastair Lewis, Paul Monks and Peter Borrell; ACCENT Report, 1.2008.

Book from an AT2 supported meeting, 2009

Kokhanovsky, A., and G. de Leeuw (Editors), 2009: Satellite Aerosol Remote Sensing Over Land. Springer, 2009, pp 400, ISBN: 978-3-540-69396-3

A2 Publications in the refereed literature, 2007 - 8

Baier, F., Erbertseder, T., Morgenstern, O., Bittner, M. and Brasseur, G.: Assimilation of MIPAS observations using a 3-D global chemistry-transport model, *Q. J. Roy. Meteor. Soc.*, **131**, 3529–3542, doi:10.1256/qj.05.92, 2005

Balis, D., M. Kroon, M. E. Koukouli, E. J. Brinksma, G. Labow, J. P. Veefkind and R. D. McPeters, Validation of Ozone Monitoring Instrument total ozone column measurements using Brewer and Dobson spectrophotometer ground-based observations, *J. Geophys. Res.*, **112**, D24S46, doi:10.1029/2007JD008796, 2007

Barrancos J., J.I. Rosello, D. Calvo, E. Padrón, G. Melián, P.A. Hernández, M.M. Millán and B. Galle. SO₂ emissions from active volcanoes measured simultaneously by COSPEC and mini-DOAS. *Pure appl. Geophys.* **165**, 115-133, 2008.

Barret, B., P. Ricaud, C. Mari, J.-L. Attié, N. Boussez, B. Josse, E. Le Flochmoën, N. J. Livesey, S. Massart, V.-H. Peuch, A. Piacentini, B. Sauvage, V. Thouret and J.-P. Cammas Study of the transport pathways of chemical species in the African upper troposphere during the monsoon season based upon the assimilation of space-borne CO observations in a Chemistry Transport Model. *Atmos. Chem. Phys.*, **8**, 3231-3246, 2008.

Barret, B., S. Turquety, D. Hurtmans, C. Clerbaux, J. Hadji-Lazaro, I. Bey, M. Auvray and P.-F. Coheur, Global carbon monoxide vertical distributions from space borne high-resolution FTIR nadir measurements, *Atmospheric Chem. and Phys.*, **5**, 2901-2914, 2005

- Beirle, S., M. Salzmann, M. G. Lawrence, and T. Wagner, Sensitivity of satellite observations for freshly produced lightning NO_x, *Atmos. Chem. Phys. Discuss.*, **8**, 18111-18153, 2008.
- Bergamaschi, P., C. Frankenberg, J.F. Meirink, M. Krol, F. Dentener, T. Wagner, U. Platt, J.O. Kaplan, S. Körner, M. Heimann, E.J. Dlugokencky, A. Goede., Satellite cartography of atmospheric methane from SCIAMACHY on board ENVISAT: 2. Evaluation based on inverse model simulations, *J. Geophys. Res.*, **112**, D02304, doi:10.1029/2006JD007268, 2007.
- Boersma, K. F., H. J. Eskes, J. P. Veefkind, E. J. Brinksma, R. J. van der A, M. Sneep, G. H. J. van den Oord, P. F. Levelt, P. Stammes, J. F. Gleason, and E. J. Bucsela, Near-real time retrieval of tropospheric NO₂ from OMI, *Atmos. Chem. Phys.*, **7**, 2103-2118, 2007.
- Boersma, K. F., D. J. Jacob, H. J. Eskes, R. W. Pinder, J. Wang, and R. J. van der A, Intercomparison of SCIAMACHY and OMI tropospheric NO₂ columns: observing the diurnal evolution of chemistry and emissions from space, *J. Geophys. Res.*, **113**, D16S26, doi:10.1029/2007JD008816, 2008.
- Boersma, K. F., D. J. Jacob, E. J. Bucsela, A. E. Perring, R. Dirksen, R. J. van der A, R. M. Yantosca, R. J. Park, M. O. Wenig, T. H. Bertram, and R. C. Cohen, Validation of OMI tropospheric NO₂ observations during INTEX-B and application to constrain NO_x emissions over the eastern United States and Mexico, *Atmos. Environ.*, **42(19)**, 4480-4497, doi:10.1016/j.atmosenv.2008.02.004, 2008.
- Breitkreuz, H, Schroedter-Homscheidt, M., Holzer-Popp, T., A case study to prepare the utilization of aerosol forecasts in energy studies, *Solar Energy*, **81**, 1377-1385, 2007
- Bremer, H., J. Kar, James R. Drummond, F. Nichitiu, J. Zou, J. Liu, J. C. Gille, M. N. Deeter, G. Francis, D. Ziskin and J. Warner, Spatial and temporal variation of MOPPITT CO in Africa and South America: A comparison with SHADOZ ozone and MODIS aerosol, *J. Geophys. Res.*, **109**, D12304, doi:10.1029/2003JD004234, 2004.
- Brinksma, E., G. Pinardi, R. Braak, H. Volten, A. Richter, A. Schönhardt, M. Van Roozendaal, C. Fayt, C. Hermans, R. Dirksen, T. Vlemmix, A.J.C Berkhout, D.P.J. Swart, H. Oetjen, F. Wittrock, T. Wagner, O. W. Ibrahim, G. de Leeuw, M. Moerman, R. L. Curier, E. A. Celarier, W. H. Knap, J. P. Veefkind, H.J. Eskes, M. Allaart, R. Rothe, A. J. M. PETERS and P. F. Levelt, The 2005 and 2006 DANDELIONS NO₂ and Aerosol Comparison Campaigns, *J. Geophys. Res.*, **113**, D16S46, doi:10.1029/2007JD008808, 2008.
- Brinksma, E.J. G. Pinardi, R. Braak, H. Volten, A. Richter, A. Schönhardt, M. van Roozendaal, C. Fayt, C. Hermans, R. J. Dirksen, T. Vlemmix, A. J. C. Berkhout, D. P. J. Swart, H. Ötjen, F. Wittrock, T. Wagner, O. W. Ibrahim, G. de Leeuw, M. Moerman, R. L. Curier, E. A. Celarier, W. H. Knap, J. P. Veefkind, H. J. Eskes, M. Allaart, R. Rothe, A. J. M. PETERS and P. F. Levelt, The 2005 and 2006 DANDELIONS NO₂ and Aerosol Validation Campaigns, *J. Geophys. Res. J. Geophys. Res.*, **113**, D16S46, doi:10.1029/2007JD008808, 2008
- Buchwitz, M., O. Schneising, J. P. Burrows, H. Bovensmann and J. Notholt, First direct observation of the atmospheric CO₂ year-to-year increase from space, *Atmos. Chem. Phys. Discuss.*, **7**, 6719-6735, 2007.
- Buchwitz, M., R. de Beek, S. Noël, J. P. Burrows, H. Bovensmann, O. Schneising, I. Khlystova, M. Bruns, H. Bremer, P. Bergamaschi, S. Körner and M. Heimann, Atmospheric carbon gases retrieved from SCIAMACHY by WFM-DOAS: version 0.5 CO and CH₄ and impact of calibration improvements on CO₂ retrieval, *Atmos. Chem. Phys.*, **6**, 2727-2751, 2006.
- Bulgin, C.E., P.I. Palmer, G.E. Thomas, C.P.G. Arnold, E. Campmany, E. Carboni, R.G. Grainger, C. Poulsen, R. Siddans, B.N. Lawrence, Regional and seasonal variations of the Twomey indirect effect as observed by the ATSR-2 satellite instrument, *Geophys. Res. Letts.* **35**, L02811, doi:10.1029/2007GL031394, 2008.
- Campmany, E., G.E. Thomas, E. Carboni, C.A. Poulsen, R.G. Grainger, B.N. Lawrence and P.D. Watts, Initial results from the GRAPE version 2 aerosol and cloud climatology, *Geophys. Res. Abstracts*, **9**, 04376, 2007.
- Carleer, M. R., Boone, C. D., Walker, K. A., Bernath, P. F., Strong, K., Sica, R. J., Randall, C. E., Vömel, H., Kar, J., Höpfner, M., Milz, M., von Clarmann, T., Kivi, R., Valverde-Canossa, J., Sioris, C. E., Izawa, M. R. M., Dupuy, E., McElroy, C. T., Drummond, J. R., Nowlan, C. R., Zou, J., Nichitiu, F., Lossow, S., Urban, J., Murtagh, D., and Dufour, D. G., Validation of water vapour profiles from the Atmospheric Chemistry Experiment (ACE), *Atmos. Chem. Phys. Discuss.*, **8**, 4499-4559, 2008.
- Celarier, E. A., Brinksma, E. J., Gleason, J. F., Veefkind, J. P., Cede, A, Herman, J. R., Ionov, D., Goutail, F., Pommereau, J.-P., Lambert, J.-C., van Roozendaal, M., Pinardi, G., Wittrock, F., Schönhardt, A., Richter, A., Ibrahim, O. W. , Wagner, T., Bojkov, B., Mount, G., Spinei, E., Chen, C. M. Pongetti, T. J. , Sander, S. P., Bucsela, E. J., Wenig, M. O. , Swart, D. P. J., Volten, H., Kroon, M., and Levelt, P. F., Validation of Ozone Monitoring Instrument nitrogen dioxide columns, *J. Geophys. Res.*, **113**, D15S15, doi:10.1029/2007JD008908, 2008

- Chen, D., B. Zhou, S. Beirle, L. M. Chen, and T. Wagner, Tropospheric NO₂ column densities deduced from zenith-sky DOAS measurements in Shanghai, China, and their application to satellite validation, *Atmos. Chem. Phys. Discuss.*, **8**, 16713-16762, 2008.
- Corradini, S., C. Spinetti, E. Carboni, C. Tirelli, M. F. Buongiorno, S. Pugnaghi, and G. Gangale, Mt. Etna tropospheric ash retrieval and sensitivity analysis using Moderate Resolution Imaging Spectroradiometer measurements, *J. Applied Remote Sensing*, **2**, 023550, 2008
- Clerbaux, C., D. P. Edwards, M. Deeter, L. Emmons, J-F. Lamarque, X. X. Tie, S. T. Massie, and J. Gille, Carbon monoxide pollution from cities and urban areas observed by the Terra/MOPITT mission, *Geophys. Res. Lett.*, **35**, L03817, doi:10.1029/2007GL032300, 2008.
- Clerbaux, C., J. Gille and D. Edwards, New Directions: Infrared measurements of atmospheric pollution from space, *Atmos. Env.*, **38**, 4599-4601, 2004.
- Clerbaux, C., M. George, S. Turquety, K. A. Walker, B. Barret, P. Bernath, C. Boone, T. Borsdorff, J.-P. Cammas, V. Catoire, M. Coffey, P.-F. Coheur, M. Deeter, M. De Mazière, J. Drummond, P. Duchatelet, E. Dupuy, R. de Zafra, F. Eddounia, D. P. Edwards, L. Emmons, B. Funke, J. Gille, D. W. T. Griffith, J. Hannigan, F. Hase, M. Höpfner, N. Jones, A. Kagawa, Y. Kasai, I. Kramer, E. Le Flochmoën, N. J. Livesey, M. López-Puertas, M. Luo, E. Mahieu, D. Murtagh, Ph. Nédélec, A. Pazmino, H. Pumphrey, P. Ricaud, C. P. Rinsland, C. Robert, M. Schneider, C. Senten, G. Stiller, A. Strandberg, K. Strong, R. Sussmann, V. Thouret, J. Urban and A. Wiacek, CO measurements from the ACE-FTS satellite instrument: data analysis and validation using ground-based, airborne and space-borne observations, *Atmos. Chem. Phys.*, **8**, 2569–2594, 2008.
- Clerbaux, C., P.-F. Coheur, D. Hurtmans, B. Barret, M. Carleer, R. Colin, K. Semeniuk, J. C. McConnell, C. Boone and P. Bernath, Carbon monoxide distribution from the ACE-FTS solar occultation measurements, *Geophys. Res. Lett.*, **32**, L16S01, doi:10.1029/2005GL022394, 2005.
- Coheur, P. -F., B. Barret, S. Turquety, D. Hurtmans, J. Hadji-Lazaro and C. Clerbaux, Retrieval and characterization of ozone vertical profiles from a thermal infrared nadir sounder, *J. Geophys. Res.*, **110**, D24303, doi:10.1029/2005JD005845, 2005.
- Coheur, P., H. Herbin, C. Clerbaux, D. Hurtmans, C. Wespes, M. Carleer, S. Turquety, C. P. Rinsland, J. Remedios, D. Hauglustaine, C. D. Boone and P. F. Bernath, ACE-FTS observation of a young biomass burning plume: first reported measurements of C₂H₄, C₃H₆O, H₂CO and PAN by infrared occultation from space, *Atmos. Chem. Phys.*, **7**, 5437-5446, 2007.
- Curier, R. L., J. P. Veeffkind, R. Braak, B. Veihelmann, O. Torres, and G. de Leeuw (2008), Retrieval of aerosol optical properties from OMI radiances using a multi-wavelength algorithm: Application to Western Europe., *J. Geophys. Res.*, doi:10.1029/2007JD008738
- De Laat, A. T. J.; Gloudemans, A. M. S.; Aben, I.; Krol, M.; Meirink, J. F.; van der Werf, G. R.; Schrijver, H. Scanning Imaging Absorption Spectrometer for Atmospheric Cartography carbon monoxide total columns: Statistical evaluation and comparison with chemistry transport model results. *J. Geophys. Res.*, **112**(D12), D12310, 2007.
- Dupuy, E., Walker, K.A., Kar, J., Boone, C.D., McElroy, C.T., Bernath, P.F., Drummond, J.R., Skelton, R., McLeod, S.D., Hughes, R.C., Nowlan, C.R., Dufour, D.G., Zou, J., Nichitiu, F., Strong, K., Baron, P., Bevilacqua, R.M., Blumenstock, T., Bodeker, G.E., Borsdorff, T., Bourassa, A.E., Bovensmann, H., Boyd, I.S., Bracher, A., Brogniez, C., Burrows, J.P., Catoire, V., Ceccherini, S., Chabrilat, S., Christensen, T., Coffey, M.T., Cortesi, U., Davies, J., De Clercq, C., Degenstein, D.A., De Mazière, M., Demoulin, P., Dodion, J., Firanski, B., Fischer, H., Forbes, G., Froidevaux, L., Fussen, D., Gerard, P., Godin-Beekman, S., Goutail, F., Granville, J., Griffith, D., Haley, C.S., Hannigan, J.W., Höpfner, M., Jin, J.J., Jones, A., Jones, N.B., Jucks, K., Kagawa, A., Kasai, Y., Kerzenmacher, T.E., Kleinböhl, A., Klekociuk, A.R., Kramer, I., Küllmann, H., Kuttippurath, J., Kyrölä, E., Lambert, J.-C., Livesey, N.J., Llewellyn, E.J., Lloyd, N.D., Mahieu, E., Manney, G.L., Marshall, B.T., McConnell, J.C., McCormick, M.P., McDermid, I.S., McHugh, M., McLinden, C.A., Mellqvist, J., Mizutani, K., Murayama, Y., Murtagh, D.P., Oelhaf, H., Parrish, A., Petelina, S.V., Piccolo, C., Pommereau, J.-P., Randall, C.E., Robert, C., Roth, C., Schneider, M., Senten, C., Steck, T., Strandberg, A., Strawbridge, K.B., Sussmann, R., Swart, D.P.J., Tarasick, D.W., Taylor, J.R., Tétard, C., Thomason, L.W., Thompson, A.M., Tully, M.B., Urban, J., Vanhellefont, F., von Clarmann, T., von der Gathen, P., von Savigny, C., Waters, J.W., Witte, J.C., Wolff, M., and Zawodny, J.M.: Validation of ozone measurements from the Atmospheric Chemistry Experiment (ACE), *Atmos. Chem. Phys. Discuss.*, **8**, 2513–2656, 2008, www.atmos-chem-phys-discuss.net/8/2513/2008/
- Ekström, M., Eriksson, P., Read, W. G., Milz, M., and Murtagh, D. P., Comparison of satellite limb-sounding humidity climatologies of the uppermost tropical troposphere, *Atmos. Chem. Phys.*, **8**, 309-320, 2008.
- El Amraoui, L., V.-H. Peuch, P. Ricaud, S. Massart, N. Semane, H. Teyssède, D. Cariolle, F. Karcher Ozone loss in the 2002-2003 Arctic vortex deduced from the assimilation of Odin/SMR O₃ and N₂O measurements: N₂O as a dynamical tracer, *Q. J. R. Met. Soc.*, **134**, 217-228, 2008.

- Franke, K., Richter, A., Bovensmann, H., Eyring, V., Jöckel and J.P. Burrows, Ship emitted NO₂ in the Indian Ocean: comparison of model results with satellite data, *Atmos. Chem. Phys.*, **8**, 15997-16025, 2008
- Frankenberg, C., Bergamaschi, P., Butz, A., Houweling, S., Meirink, J. F., Petersen, K., Schrijver, H., Warneke, T., and Aben, I.: Tropical methane emissions: A revised view from SCIAMACHY onboard ENVISAT, *Geophys. Res. Lett.*, **35**, doi:10.1029/2008GL034300, 2008.
- Frankenberg, C., T. Warneke, A. Butz, L. R. Brown, F. Hase, P. Spietz and I. Aben, Methane spectroscopy in the near infrared and its implication on atmospheric retrievals, *Atmos. Chem. Phys. Disc.*, **8**, 10,021–10,055, 2008.
- Frankenberg, C., U. Platt and T. Wagner, Iterative maximum a posteriori (IMAP)-DOAS for retrieval of strongly absorbing trace gases: Model studies for CH₄ and CO₂ retrieval from near infrared spectra of SCIAMACHY onboard ENVISAT, *Atmos. Chem. Phys.*, **5**, 9–22, 2005.
- Gardiner, T., Forbes, A., de Mazière, M., Vigouroux, C., Mahieu, E., Demoulin, P., Velasco, V., Notholt, J., Blumenstock, T., Hase, F., Kramer, I., Sussmann, R., Stremme, W., Mellqvist, J., Strandberg, A., Ellingsen, K., and Gauss, M.: Trend analysis of greenhouse gases over Europe measured by a network of ground-based remote FTIR instruments, *Atmos. Chem. Phys.*, **8**, 6719–6727, 2008, www.atmos-chem-phys.net/8/6719/2008/
- Gil, M. Yela, M., Gunn, L. N. , Richter, A., Alonso, I., Chipperfield, M. P., Cuevas, E., Iglesias, J., M. Navarro, M. , Puentedura, O. , Rodríguez, S., NO₂ climatology in the northern subtropical region: diurnal, seasonal and interannual variability, *Atmos. Chem. Phys.*, **8**, 1635-1648, 2008
- Gloudemans, A. M. S., Schrijver, H., Hasekamp, O.P., and Aben, I.: Error analysis for CO and CH₄ total column retrievals from SCIAMACHY 2.3 micron spectra, *Atmos. Chem. Phys. Disc.*, **8**, 5183--5233, 2008.
- Gloudemans, A. M. S., Schrijver, H., Hasekamp, O.P., and Aben, I.: Error analysis for CO and CH₄ total column retrievals from SCIAMACHY 2.3 micron spectra, *Atmos. Chem. Phys.*, **8**, 3999-4017, 2008.
- Goede, A. P. H., Burrows, J. P., and Buchwitz, M., Global mapping of greenhouse gases and air pollutants, *Europhysicsnews*, 38(6), 26-31, 2007.
- Griesfeller, A., von Clarmann, T., Griesfeller, J., Höpfner, M., Milz, M., Nakajima, H., Steck, T., Sugita, T., Tanaka, T., and Yokota, T., Intercomparison of ILAS-II Version 1.4 and Version 2 target parameters with MIPAS-ENVISAT measurements, *Atmos. Chem. Phys.*, **8**, 825-843, 2008.
- Hassler, B., G. E. Bodeker, and M. Dameris, Technical Note: A new global database of trace gases and aerosols from multiple sources of high vertical resolution measurements, *Atmos. Chem. Phys.*, **8**, 5403-5421, 2008
- Hassinen, S., J. Tamminen, A. Tanskanen, G. Leppelmeier, A. Mälkki, T. Koskela, J. M. Karhu, K. Lakkala, P. Veefkind, N. Krotkov, O. Aulamo. Description and validation of the OMI very fast delivery products, *J. Geophys. Res.*, **113**, D16S35, doi:10.1029/2007JD008784, 2008.
- He, Y, Uno, I., Wang, Z., Ohara, T., Sugimoto, N., Shimizu, A., Richter, A., and Burrows, J. P., Variations of the increasing trend of tropospheric NO₂ over central east China during the past decade, *Atmospheric Environment*, **41**, 4865–4876, 2007
- Hendrick, F., Van Roozendaal, M., Chipperfield, M.P., Dorf, M., Goutail, Pyle, J.A., Theys, N., and De Mazière, M.: Retrieval of stratospheric and tropospheric BrO profiles and columns using ground-based zenith-sky DOAS observations at Harestua, 60°N, *Atmos. Chem. Phys.*, **7**, 4869-4885, 2007.
- Hendrick, F., Johnston, P.V., De Mazière, M., Fayt, C., Hermans, C., Kreher, K., Theys, N., and Van Roozendaal, M.: One-decade trend analysis of stratospheric BrO over Harestua (60°N) and Lauder (45°S) reveals a decline, *Geophys. Res. Lett.*, **35**, L14801, doi:10.1029/2008GL034154, 2008.
- Herbin, H., D. Hurtmans, C. Wespes, B. Barret, S. Turquety, J. Hadji Lazaro, C. Clerbaux and P.-F. Coheur, Global distributions of water vapour isotopologues retrieved from IMG/ADEOS data, *Atmos. Chem. Phys.*, **7**, 3957-3968, 2007.
- Heue, K.-P., T. Wagner, S. P. Broccardo, D. Walter, S. J. Piketh, K. E. Ross, S. Beirle, and U. Platt, Direct observation of two dimensional trace gas distribution with an airborne Imaging DOAS instrument, *Atmos. Chem. Phys.*, **8**, 6707-6717, 2008.
- Hoffmann, L., M. Kaufmann, R. Spang, R. Muller, D.P. Moore, J.J. Remedios, C.M. Volk, T. von Clarmann, and M. Riese, Envisat MIPAS measurements of CFC-11: retrieval, validation and climatology, *Atmospheric Chemistry and Physics*, **8**, 3671-3688, 2008.
- Ionov, D. V., Y. M. Timofeyev, V. P. Sinyakov, V. K. Semenov, F. Goutail, J.-P. Pommereau, E. J. Bucsela, E. A. Celarier, and M. Kroon, Ground-based validation of EOS-Aura OMI NO₂ vertical column data in the midlatitude mountain ranges of Tien Shan (Kyrgyzstan) and Alps (France), *J. Geophys. Res.*, **113**, D15S08, doi:10.1029/2007JD008659, 2008.

- Johansson M., B. Galle, T. Yu, L. Tang, D. Chen, H. Li, Jin X. Li and Y. Zhang, Quantification of total emission of air pollutants from Beijing using ground based optical remote sensing. *Atmospheric Environment*, **42**, 6926-6933, 2008.
- Jones, D. B. A., K. W. Bowman, J. A. Logan, C. L. Heald, J. Liu, M. Luo, J. Worden and J. R. Drummond, Inversion analysis of carbon monoxide emissions using data from the TES and MOPITT satellite instruments, *Atmospheric Chemistry and Physics Discussion*, **7**, 17625-17662, 2007.
- Jourdan, O., A. A. Kokhanovsky and J. P. Burrows, Calibration of SCIAMACHY using AATSR top-of-atmosphere reflectance over a hurricane. *IEEE Trans. Geosci. Rem. Sens., Letters*, **4**, 8-12, 2007.
- Junkermann, W. and Burger, J.M.: A new portable instrument for continuous measurement of formaldehyde in ambient air, *J. Atmos. Oceanic Tech.*, **23**, 38-45, 2006.
- Kaminski, J.W., L. Neary, J. Struzewska, J.C. McConnell, A. Lupu, J. Jarosz, K. Toyota, S.L. Gong, X. Liu, K. Chance and A. Richter, GEM-AQ, an on-line global multiscale chemical weather modelling system: model description and evaluation of gas phase chemistry processes. *Atmos. Chem. Phys.*, **8**, 3255-3281, 2008.
- Kar, J., D. B. A. Jones, J. R. Drummond, J. L. Attie, J. Liu, J. Zou, F. Nichitui, M. D. Seymour, D. P. Edwards, M. N. Deeter, J. C. Gille and A. Richter, Measurement of low-altitude CO over the Indian subcontinent by MOPITT, *J. Geophys. Res.*, **113**, 16307-16307, doi:10.1029/2007JD009362, 2008.
- Kar, J., H. Bremer, James R. Drummond, Y. J. Rochon, D. B. A. Jones, F. Nichitui, J. Zou, J. Liu, J. C. Gille, D. P. Edwards, M. N. Deeter, G. Francis, D. Ziskin and J. Warner, Evidence of vertical transport of carbon monoxide from measurements of pollution in the troposphere (MOPITT), *Geophys. Res. Lett.*, **31**, L23105, doi:10.1029/2004GL021128, 2004.
- Khokhar, M. F., U. Platt, and T. Wagner, Temporal trends of anthropogenic SO₂ emitted by non-ferrous metal smelters in Peru and Russia estimated from Satellite observations, *Atmos. Chem. Phys. Discuss.*, **8**, 17393-17422, 2008.
- Kiemle, C., Wirth, M., Fix, A., Ehret, G., Schumann, U., Gardiner, T., Schiller, C., Sitnikov, N., and Stiller, G., First airborne water vapour lidar measurements in the tropical upper troposphere and mid-latitudes lower stratosphere: accuracy evaluation and intercomparisons with other instruments, *Atmos. Chem. Phys. Discuss.*, **8**, 10353-10396, 2008.
- Kokhanovsky, A. A., Scattered light corrections to Sun photometry: analytical results for single and multiple scattering regimes. *J. Opt. Soc. America*, **24**, 1131-1137, 2007.
- Kokhanovsky, A. A., B. Mayer, V. V. Rozanov, K. Wapler, J. P. Burrows and U. Schumann, The influence of broken cloudiness on cloud top height retrievals using nadir observations of backscattered solar radiation in the oxygen A-band. *J. Quant. Spectr. Rad. Transfer*, **103**, 460-477, 2007.
- Kokhanovsky, A. A., B. Mayer, V. V. Rozanov, K. Wapler, L. N. Lamsal, M. Weber, J. P. Burrows and U. Schumann, Satellite ozone retrieval under broken cloud conditions: an error analysis based on Monte Carlo simulations. *IEEE Trans. Geosci. Rem. Sens.*, **45**, 187-194, 2007.
- Kokhanovsky, A. A., B. Mayer, W. von Hoyningen-Huene, S. Schmidt and P. Pilewskie, Retrieval of cloud spherical albedo from top-of-atmosphere reflectance measurements performed at a single observation angle. *Atmos. Chem. Phys.*, **7**, 3633-3637, 2007.
- Kokhanovsky, A. A., F.-M. Breon, A. Cacciari, E. Carboni, D. Diner, W. Di Nicolantonio, R. G. Grainger, W. M. F. Grey, R. Holler, K.-H. Lee, Z. Li, P.R.J. North, A. M. Sayer, G. E., Thomas and W. von Hoyningen-Huene, Aerosol remote sensing over land: a comparison of satellite retrievals using different algorithms and instruments, *Atmos. Res.*, **85**, 372-294, doi: 10.1016/j.atmosres.2007.02.008, 2007.
- Kokhanovsky, A. A., K. Bramstedt, W. von Hoyningen-Huene and J. P. Burrows, The intercomparison of top-of-atmosphere reflectivity measured by MERIS and SCIAMACHY in the spectral range of 443-865nm. *IEEE Trans. Geosci. Rem. Sens., Letters*, **4**, 293-296, 2007.
- Kokhanovsky, A. A., M. Vountas, V. V. Rozanov, W. Lotz, H. Bovensmann, J. P. Burrows and U. Schumann, Global cloud top height and thermodynamic phase distribution as obtained by SCIAMACHY on ENVISAT, *Int. J. Remote Sensing*, **28**, 4499-4507, 2007.
- Kokhanovsky, A. A., T. Nauss, M. Schreier, W. von Hoyningen-Huene and J. P. Burrows, The intercomparison of cloud parameters derived using multiple satellite instruments. *IEEE Trans. Geosci. Rem. Sens.*, **45**, 195-200, 2007.
- Kokhanovsky, A. A. and V. V. Rozanov, The uncertainties of satellite DOAS total ozone retrieval for a cloudy sky. *Atmos. Res.*, **87**, 27-36, 2008.
- Kokhanovsky, M. Schreier and W. von Hoyningen-Huene, The comparison of spectral top-of-atmosphere reflectances measured by AATSR, MERIS, and SCIAMACHY onboard ENVISAT. *IEEE Trans. Geosci. Remote Sens., Letters*, **5**, 53-56, 2008.

- Kononov, I., Beekmann, M., Burrows, J. P. and Richter, A., Satellite measurement based estimates of decadal changes in European nitrogen oxides emissions, *Atmos. Chem. Phys. Discuss.*, **8**, 2013-2059, 2008
- Kramer, L. J., R. J. Leigh, J. J. Remedios and P. S. Monks, Comparison of OMI and ground-based in situ and MAX-DOAS measurements of tropospheric nitrogen dioxide in an urban area, *J. Geophys. Res.*, **113**, D16S39, doi:10.1029/2007JD009168, 2008.
- Kroon, M., I. Petropavlovskikh, R. Shetter, S. Hall, K. Ullmann, J. P. Veefkind, R. D. McPeters, E. V. Browell, and P. F. Levelt, OMI total ozone column validation with Aura-AVE CAFS observations, *J. Geophys. Res.*, **113**, D15S13, doi:10.1029/2007JD008795, 2008.
- Kroon, M., J. P. Veefkind, M. Sneep, R. D. McPeters, P. K. Bhartia and P. F. Levelt, Comparing OMI-TOMS and OMI-DOAS total ozone column data, *J. Geophys. Res.*, **113**, D16S28, doi:10.1029/2007JD008798, 2008.
- Kroon, M., M. R. Dobber, R. Dirksen, J. P. Veefkind, G. H. J. van den Oord and P. F. Levelt, Ozone Monitoring Instrument geolocation verification, *J. Geophys. Res.*, **113**, D15S12, doi:10.1029/2007JD008821, 2008.
- Krzyscin, J. W., J. Jaroslowski, B. Rajewska-Wiech, P. S. Sobolewski and L. Froidevaux, Comparison of ozone profiles by the Umkehr measurements taken at Belsk (52N, 21E) with the Aura Microwave Limb Sounder overpasses: 2004–2006, *J. Geophys. Res.*, **113**, D15S09, doi:10.1029/2007JD008586, 2008.
- Lahoz, W.A., A. J. Geer, S. Bekki, N. Bormann, S. Ceccherini, H. Elbern, Q. Errera, H. J. Eskes, D. Fonteyn, D. R. Jackson, B. Khattatov, S. Massart, V.-H. Peuch, S. Rharmili, M. Ridolfi, A. Segers, O. Talagrand, H. E. Thornton, A. F. Vik and T. von Clarmann, The Assimilation of ENVISAT data (ASSET) project, *Atmos. Chem. Phys.*, **7**, 1773-1796. SRef-ID: 1680-7324/acp/2007-7-1773, 2007.
- Liberato, M. L. R., C. Gouveia, A. Richter and J. P. Burrows, Impact of climate variability on tropospheric NO₂ retrieved from GOME and SCIAMACHY measurements. *Geophysical Research Abstracts*, **10**, EGU2008-A-10446, 2008 (SRef-ID: 1607-7962/gra/EGU2008-A-10446).
- Ibern, H., Strunk, A., Schmidt, H., and Talagrand, O.: Emission rate and chemical state estimation by 4-dimensional variational inversion, *Atmos. Chem. Phys.*, **7**, 1725–1783, 2007: <http://www.atmos-chem-phys-discuss.net/7/1725/2007/>
- Lee, C., Richter, A., Lee, H., Kim, Y. J., Burrows, J. P., Lee, Y. G., and Choi, B.C., Impact of transport of sulfur dioxide from the Asian continent on the air quality over Korea during May 2005, *Atmospheric Environment*, **42**, 1461–1475, 2008
- Lee, C., Richter, A., Weber, M., Burrows, J. P., SO₂ retrieval from SCIAMACHY using the weighting function DOAS (WFDOAS) technique: comparison with standard DOAS retrieval, *Atmos. Chem. Phys. Discuss.*, **8**, 10817-10839, 2008
- Lelieveld, J., Brühl, C., Jöckel, P., Steil, B., Crutzen, P. J., Fischer, H., Giorgetta, M. A., Hoor, P., Lawrence, M. G., Milz, M., Sausen, R., Stiller, G. P., and Tost, H., Stratospheric dryness, *Atmos. Chem. Phys. Discuss.*, **6**, 11247-11298, 2006.
- Liu, J., J. R. Drummond, D. B. A. Jones, Z. Cao, H. Bremer, J. Kar, J. Zou, F. Nichitui and J. C. Gille, Large horizontal gradients in atmospheric CO at the synoptic scale as seen by space-borne Measurements of pollution in the troposphere, *J. Geophys. Res.*, **111**, D02306, doi:10.1029/2005JD006076, 2006.
- Liu, J., James R. Drummond, Q. Li, J. C. Gille and D. C. Ziskin, Satellite mapping of CO emission from forest fires in Northwest America using MOPITT measurements, *Remote Sensing of Environment*, **95**, 502-516, 2005.
- Martynenko, D., L. Nieradzik, T. Holzer-Popp, M. Schroedter-Homscheidt and H. Elbern, Sensitivity analysis of synergetic aerosol retrieval and its application in assimilation procedure, *Geophysical Research Abstracts*, **10**, EGU2008-A-04030, 2008
- Meirink, J. F., P. Bergamaschi, C. Frankenberg, M. T. S. d'Amelio, E. J. Dlugokencky, L. V. Gatti, S. Houweling, J. B. Miller, T. Roeckmann, M. G. Villani, and M. C. Krol, Four-dimensional Variational Data Assimilation for Inverse Modelling of Atmospheric Methane Emissions: Analysis of SCIAMACHY Observations, *J. Geophys. Res.*, doi:10.1029/2007JD009740, 2008.
- Mieruch, S., S. Noël, H. Bovensmann and J. P. Burrows, Analysis of global water vapour trends from satellite measurements in the visible spectral range, *Atmos. Chem. Phys.*, **8**, 491-504, 2008.
- Migliorini, S., R. Brugge, A. O'Neill, M. Dobber, V. Fioletov, P. Levelt and R. McPeters, Evaluation of ozone total column measurements by the Ozone Monitoring Instrument using a data assimilation system, *J. Geophys. Res.*, **113**, D15S21, doi:10.1029/2007JD008779, 2008.

- Milz, M., T. von Clarmann, H. Fischer, N. Glatthor, U. Grabowski, M. Höpfner, S. Kellmann, M. Kiefer, A. Linden, G. Mengistu Tsidu, T. Steck, G.P. Stiller, B. Funke, and M. López-Puertas, Water vapour distributions measured with the Michelson Interferometer for Passive Atmospheric Spounding on board ENVISAT (MIPAS/ENVISAT), *J. Geophys. Res.*, **110**, D24307, doi:10.1029/2005JD005973, 2005.
- Müller, S. C., Kämpfer, N., Feist, D. G., Haefele, A., Milz, M., Sitnikov, N., Schiller, C., Kiemle, C., and Urban, J., Validation of stratospheric water vapour measurements from the airborne microwave radiometer AMSOS, *Atmos. Chem. Phys.*, **8**, 3169-3183, 2008.
- Myriokefalitakis, S., Vrekoussis, M., Tsigaridis, K., Wittrock, F., Richter, A., Brühl, C., Volkamer, R., Burrows, J.P. and Kanakidou, M., The influence of natural and anthropogenic secondary sources on the glyoxal global distribution, *Atmos. Chem. Phys.*, **8**, 4965-4981, 2008
- Nauss, T. and A. A. Kokhanovsky, Assignment of rainfall confidence values using multispectral satellite data at mid-latitudes: first results, *Adv. Geosci.*, **10**, 1-4, 2007.
- Nieradzki, L., D. Martynenko, M. Schroedter-Homscheidt, H. Elbern and T. Holzer-Popp, Towards chemistry resolved variational assimilation of satellite retrieved aerosol data, *Geophysical Research Abstracts* **10**, EGU2008-A-04150, 2008.
- Noël, S., S. Mieruch, H. Bovensmann and J. P. Burrows, Preliminary results of GOME-2 water vapour retrievals and first applications in polar regions, *Atmos. Chem. Phys.*, **8**, 1519-1529, 2008.
- Olmos R., F. Barahona, D.L. López, B. Henriquez, C. Rivera, A. Hernández, E. Benitez, B. Galle, J. Barrancos, P.A. Hernández, N.M. Pérez, and C. Rudamas, Anomalous emissions of SO₂ during the recent eruption of Santa Ana Volcano, El Salvador, Central America. *Pure and Applied Geophysics*, **64**, 2489-2506, 2007.
- Payne, V.H., D. Noone, A. Dudhia, C. Piccolo, R. G. Grainger, Global satellite measurements of HDO and implications for understanding the transport of water vapour into the stratosphere, *Quar. J. Roy. Meteorol. Soc.*, **133**, 1459-1471, 2007.
- Piccolo, C. and A. Dudhia, Precision Validation of MIPAS-ENVISAT Products, *Atmos. Chem. Phys.*, **7**, 1915-1923, 2007
- Remedios, J.J., G. Allen, A.M. Waterfall, H. Oelhaf, A. Kleinert and D.P. Moore, Detection of organic compound signatures in infra-red, limb emission spectra observed by the MIPAS-B2 balloon instrument, *Atmos. Chem. Phys.*, **7**, 1599-1613, 2007.
- Ricaud, P., P. Ricaud, B. Barret, J.-L. Attié, E. Motte, E. Le Flochmoën, H. Teyssèdre, V.-H. Peuch, N. Livesey, A. Lambert, and J.-P. Pommereau, Impact of land convection on troposphere-stratosphere exchange in the tropics, *Atmos. Chem. Phys.*, **7**, 5639-5657, 2007.
- Robles-Gonzalez, C., and G. de Leeuw, Aerosol properties over the SAFARI-2000 area retrieved from ATSR-2. *JGR-Atmospheres*, **113**, doi:10.1029/2007JD008636, 2008
- Schaap, M., Timmermans, R.M.A, Koelemeijer, R.B.A, de Leeuw, G. and Bultjes, P.J.H., Evaluation of MODIS aerosol optical thickness over Europe using sun photometer observations, *Atmos. Environ.*, **42**, 2187-2197, doi:10.1016/j.atmosenv.2007.11.044, 2008.
- Schaub, D., D. Brunner, K. F. Boersma, J. Keller, D. Folini, B. Buchmann, H. Berresheim, and J. Staehelin: SCIAMACHY tropospheric NO₂ over Switzerland: estimates of NO_x lifetimes and impact of the complex Alpine topography on the retrieval, *Atmos. Chem. Phys.*, **7**, 5971-5987, 2007
- Schneising, O., Buchwitz, M., Burrows, J. P., Bovensmann, H., Reuter, M., Notholt, J., Macatangay, R., and Warneke, T., Three years of greenhouse gas column-averaged dry air mole fractions retrieved from satellite - Part 1: Carbon dioxide, *Atmos. Chem. Phys. Discuss.*, **8**, 5477-5536, 2008.
- Schneising, O., Buchwitz, M., Burrows, J. P., Bovensmann, H., Bergamaschi, P., and Peters, W., Three years of greenhouse gas column-averaged dry air mole fractions retrieved from satellite - Part 1: Carbon dioxide, *Atmos. Chem. Phys.*, **8**, 3827-3853, 2008
- Schönhardt, A., Richter, A., Wittrock, F., Kirk, H., Oetjen, H., Roscoe, H. K. and Burrows, J. P., Observations of iodine monoxide (IO) columns from satellite, *Atmos. Chem. Phys.*, **8**, 637-653, 2008
- Semane N., V.-H. Peuch, L. El Amraoui, H. Bencherif, S. Massart, D. Cariolle, J.-L. Attié, R. Abida: An observed and simulated stratospheric ozone intrusion over the high Canadian Arctic ULTS region during the summer of 2003. *Q. J. R. Meteorol. Soc.* **133**, S2, 171-178, doi: 10.1002/qj.141, 2007
- Shavrina, A. V., Y. V. Pavlenko, A. Veles, I. Syniavskiy, and M. Kroon, Ozone columns obtained by ground-based remote sensing in Kiev for Aura Ozone Measuring Instrument validation, *J. Geophys. Res.*, **112**, D24S45, doi:10.1029/2007JD008787, 2007.
- Sneep, M., J. F. de Haan, P. Stammes, P. Wang, C. Vanbauce, J. Joiner, A. P. Vasilkov and P. F. Levelt, Three-way comparison between OMI and PARASOL cloud pressure products, *J. Geophys. Res.*, **113**, D15S23, doi:10.1029/2007JD008694, 2008.

- Stammes, P., M. Sneep, J. F. de Haan, J. P. Veefkind, P. Wang and P. F. Levelt, Effective cloud fractions from the Ozone Monitoring Instrument: Theoretical framework and validation, *J. Geophys. Res.*, **113**, D16S38, doi:10.1029/2007JD008820, 2008.
- Steck, T., Glatthor, N., von Clarmann, T., Fischer, H., Flaud, J. M., Funke, B., Grabowski, U., Höpfner, M., Kellmann, S., Linden, A., Perrin, A., and Stiller, G. P., Retrieval of global upper tropospheric and stratospheric formaldehyde (H₂CO) distributions from high-resolution MIPAS-ENVISAT spectra, *Atmos. Chem. Phys.*, **8**, 463-470 2008.
- Stenke, A., M. Dameris, V. Grewe, and H. Garny, Implications of Lagrangian transport for coupled chemistry-climate simulations, *Atmos. Chem. Phys. Discuss.*, **8**, 18727-18764, 2008.
- Stenke, A., V. Grewe, and M. Ponater, Lagrangian transport of water vapor and cloud water in the ECHAM4 GCM and its impact on the cold bias, *Clim. Dyn.*, **31**, 491-506, doi: 10.1007/s00382-007-0347-5, 2008.
- Stiller, G.P., T. von Clarmann, C. Brühl, H. Fischer, B. Funke, N. Glatthor, U. Grabowski M. Höpfner, P. Jöckel, S. Kellmann, M. Kiefer A. Linden, M. López-Puertas, G. Mengistu Tsidu, M. Milz, T. Steck, and B. Steil, Global distributions of HO₂NO₂ as observed by the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS), *J. Geophys. Res.*, **112**, D09314, doi:10.1029/2006JD007212, 2007.
- Stiller, G. P., von Clarmann, T., Höpfner, M., Glatthor, N., Grabowski, U., Kellmann, S., Kleinert, A., Linden, A., Milz, M., Reddmann, T., Steck, T., Fischer, H., Funke, B., López-Puertas, M., and Engel, A.: Global distribution of mean age of stratospheric air from MIPAS SF₆ measurements, *Atmos. Chem. Phys.*, **8**, 677-695, 2008.
- Strong K., M. A. Wolff, T. E. Kerzenmacher, K. A. Walker, P. F. Bernath, T. Blumenstock, C. Boone, V. Catoire, M. Coffey, M. De Mazière, P. Demoulin, P. Duchatelet, E. Dupuy, J. Hannigan, M. Höpfner, N. Glatthor, D. W. T. Griffith, J. J. Jin, N. Jones, K. Jucks, H. Kuellmann, J. Kuttippurath, A. Lambert, E. Mahieu, J. C. McConnell, J. Mellqvist, S. Mikuteit, D. P. Murtagh, J. Notholt, C. Piccolo, P. Raspollini, M. Ridolfi, C. Robert, M. Schneider, O. Schrems, K. Semeniuk, C. Senten, G. P. Stiller, A. Strandberg, J. Taylor, C. Tétard, M. Toohey, J. Urban, T. Warneke, and S. Wood, Validation of ACE-FTS N₂O measurements, *Atmos. Chem. Phys.*, **8**, 4759-4786, 2008.
- Sussmann, R. and Buchwitz, M.: Initial validation of ENVISAT/SCIAMACHY columnar CO by FTIR profile retrievals at the Ground-Truthing Station Zugspitze, *Atmos. Chem. Phys.*, **5**, 1497-1503, 2005.
- Tanskanen, A., et al., Validation of daily erythemal doses from Ozone Monitoring Instrument with ground-based UV measurement data, *J. Geophys. Res.*, **112**, D24S44, doi:10.1029/2007JD008830, 2007.
- Teysseère, H., P. Ricaud, B. Barret, J.-L. Attié, E. Motte, E. Le Flochmoën, H. Teyssède, V.-H. Peuch, N. Livesey, A. Lambert, and J.-P. Pommereau A new tropospheric and stratospheric Chemistry and Transport Model MOCAGE-Climat for multi-year studies: evaluation of the present-day climatology and sensitivity to surface processes, *Atmos. Chem. Phys.*, **7**, 5815-5860, 2007.
- Theys, N., Van Roozendaal, M., Hendrick, F., Fayt, C., Hermans, C., Baray, J.-L., Goutail, F., Pommereau, J.-P., and De Mazière, M.: Retrieval of stratospheric and tropospheric BrO columns from multi-axis DOAS measurements at Reunion Island (21°S, 56°E), *Atmos. Chem. Phys.*, **7**, 4733-4749, 2007.
- Thomas, G.E., C.A. Poulsen, R. L. Curier, G. de Leeuw, S. H. Marsh, E. Carboni, R. G. Grainger and R. Siddans. Comparison of AATSR and SEVIRI aerosol retrievals over the Northern Adriatic. *Quart. J. Roy. Meteorol.* (ADRIEX special issue), **133** (S1) 85-95 doi: 10.1002/qj.126, 2007.
- Turquety, S., Clerbaux, C., Law, K., Coheur, P.-F., Cozic, A., Szopa, S., Hauglustaine, D.A., Hadji-Lazaro, J., Gloudemans, A.M.S., Schrijver, H., Boone, C.D., Bernath, P.F., and Edwards, D. P.: CO emission and export from Asia: an analysis combining complementary satellite measurements (MOPITT, SCIAMACHY and ACE-FTS) with global modelling, *Atmos. Chem. Phys.*, **8**, 5187-5204, 2008
- Turquety, S., J. Hadji-Lazaro, C. Clerbaux, D. A. Hauglustaine, S. A. Clough, V. Cassé, P. Schlüssel and G. Mégie, Operational trace gas retrieval algorithm for the Infrared Atmospheric Sounding Interferometer, *J. Geophys. Res.*, **109**, D21301, doi:10.1029/2004JD004821, 2004.
- von Hoyningen-Huene, W., A. A. Kokhanovsky, M. Wuttke, M. Buchwitz, S. Noel, K. Gerilowski, J. P. Burrows, B. Latter, R. Siddans and B. J. Kerridge, Validation of SCIAMACHY top-of-atmosphere reflectance for aerosol remote sensing using MERIS L1 data. *Atmos. Chem. Phys.*, **7**, 97-106, 2005.
- von Clarmann, T., Glatthor, N., Koukouli, M. E., Stiller, G. P., Funke, B., Grabowski, U., Höpfner, M., Kellmann, S., Linden, A., Milz, M., Steck, T., and Fischer, H., MIPAS measurements of upper tropospheric C₂H₆ and O₃ during the southern hemispheric biomass burning season in 2003, *Atmos. Chem. Phys.*, **7**, 5861-5872, 2007.

- Wagner, T., S. Beirle, T. Deutschmann, E. Eigemeier, C. Frankenberg, M. Grzegorski, C. Liu, T. Marbach, U. Platt and M. Penning de Vries, Monitoring of atmospheric trace gases, clouds, aerosols and surface properties from UV/vis/NIR satellite instruments, *J. Opt. A: Pure Appl. Opt.* **10**, 104019, doi: 10.1088/1464-4258/10/10/104019, 2008
- Wagner, T., S. Beirle, T. Deutschmann, M. Grzegorski, and U. Platt, Dependence of cloud fraction and cloud top height on surface temperature derived from spectrally resolved UV/vis satellite observations, *Atmos. Chem. Phys.*, **8**, 2299-2312, 2008.
- Wespes, C., D. Hurtmans, H. Herbin, B. Barret, S. Turquety, J. Hadji-Lazaro, C. Clerbaux and P.-F. Coheur, First global distributions of nitric acid in the troposphere and the stratosphere derived from infrared satellite measurements, *J. Geophys. Res.*, **112**, D13, D13311, doi:10.1029/2006JD008202, 2007.
- Zhang, Q. , Streets, D. G., He, K., Wang, Y., Richter, A., Burrows, J. P., Uno, I., Jang, C. J., Chen, D., Yao, Z., Lei, Y., NO_x emission trends for China, 1995–2004: The view from the ground and the view from space, *J. Geophys. Res.*, **112**, D22306, doi:10.1029/2007JD008684, 2007
- Zlatev, Z. & Dimov, I.: Computational and Numerical Challenges in Environmental Modelling. Elsevier. - *Studies in Computational Mathematics* **13**: 392 pp.(2006)
- Zlatev, Z. and J. Brandt, Testing the accuracy of a data assimilation algorithm. *Int. J. Computational Science and Engineering*, **3(4)**, 305-313, 2007.

A3 Recent publications related to AT2 work in the conference literature

- Apituley, A., M. Schaap, R. Koelmeijer, R. Timmermans, R. Schoemaker, G. de Leeuw. Construction of satellite derived PM_{2.5} maps using the relationship between AOD and PM_{2.5} at the Cabauw experimental site for atmospheric research (CESAR) – The Netherlands. IGARSS, 2008
- Barret, B., J.-P. Cammas, B. Sauvage, E. Le Flochmoën, J.-L. Attié, P. Ricaud, C. Mari, V. Thouret(1), V.-H. Peuch, B. Josse, S. Massart, Transport pathways of chemical species between Asia and Africa in the upper troposphere during the monsoon season: a study based on the assimilation of spaceborne observations in the MOCAGE chemistry transport model, *IGAC*, Annecy, France, 2008.
- Beirle, S; Deutschmann, T; Grzegorski, M; Platt, U; Wagner, T Impact of clouds on tropospheric tracegas retrievals, *EGU meeting*, Vienna, 2007.
- Beirle, S.; Platt, U.; Wagner, T. Sensitivity of satellite observations for lightning NO_x, *EGU meeting*, Vienna, 2008.
- Beirle, S., Sources and fate of tropospheric NO_x: What can we learn from satellite observations?, NO₂ Workshop, Utrecht, 2007.
- Buchwitz, M., I. Khlystova, O. Schneising, H. Bovensmann and J. P. Burrows, SCIAMACHY/WFM-DOAS tropospheric CO, CH₄, and CO₂ scientific data products: Validation and recent developments, *Proc. Third Workshop on the Atmospheric Chemistry Validation of ENVISAT (ACVE-3)*, 4-7 Dec. 2006, ESA/ESRIN, Frascati, Italy, ESA Publications Division Special Publication SP-642 (CD), 2006.
- Buchwitz, M., O. Schneising, I. Khlystova, H. Bovensmann and J. P. Burrows, Three years of global simultaneous measurements of tropospheric methane, carbon dioxide and carbon monoxide retrieved from SCIAMACHY using WFM-DOAS, *Proc. 2nd ACCENT Symposium, Atmospheric Composition Change - Causes and consequences - Local to global*, Urbino, Italy, July 23-27, 2007.
- Buchwitz, M., R. de Beek, J. P. Burrows, H. Bovensmann, B. Dils, and M. De Maziere, Carbon monoxide, methane and carbon dioxide retrieved from SCIAMACHY near-infrared nadir observations using WFM-DOAS, *Proc. Atmospheric Science Conference*, 8-12 May 2006, ESA-ESRIN, Frascati, Italy, 2006.
- Carboni E., G. Thomas, R. Grainger, C. Poulsen, R. Siddans, D. Peters, E. Campmany, A. Sayer, H. Brindley, Retrieval of aerosol properties from SEVIRI using visible and infrared channels. Proceedings of EUMETSAT/AMS conference 2007, Amsterdam 24-28 Sept. 2007
- Ciais, P., B. Buchmann, S. Godin-Beekmann, D. Hauglustaine, P. Keckhut, G. de Leeuw, M. De Maziere, Ciais, P., C. Textor, M. Logan, B. Buchmann, S. Godin-Beekmann, P. Keckhut, G. de Leeuw, M. De Maziere, E. G. Nisbet, P. Rayner and M. Schulz. Exploring the synergistic use of many observations and models to improve understanding of the composition of the atmosphere. *IGAC conference*, 7-12 Sep 2008, Annecy, France, 2008
- Ciais, P., B. Buchmann, S. Godin-Beekmann, D. Hauglustaine, P. Keckhut, G. de Leeuw, M. De Maziere, E. G. Nisbet, P. Rayner, K. Torseth, C. Textor. Monitoring the atmospheric composition - using satellite-ground-based synergies. *EGU*, 2008
- Claeyman, M., et al., Observing System Simulation Experiments for an Air Quality geostationary mission, *IGAC*, Annecy, France, 7-12 September 2008.
- de Leeuw G., R.L. Curier, A. Staroverova, A. Kokhanovsky, W. Von Hoyningen-Huene, V.V. Rozanov, J.P. Burrows, G. Hesselmanns, L. Gale and M. Bouvet. AMARSI: aerosol modeling and retrieval from multi-spectral imagers. MERIS-AATSR, ESRIN, Frascati, September 2008.
- Dils, B., De Maziere, M., Blumenstock, T., Hase, F., Kramer, I., Mahieu, E., Demoulin, P., Duchatelet, P., Mellqvist, J., Strandberg, A., Buchwitz, M., Khlystova, I., Schneising, O., Velasco, V., Notholt, J., Sussmann, R., and Stremme, W., Validation of WFM-DOAS v0.6 CO and v1.0 CH₄ scientific products using European ground-based FTIR measurements, *proceedings of the Third Workshop on the Atmospheric Chemistry Validation of ENVISAT (ACVE-3)*, 4-7 Dec. 2006, ESA/ESRIN, Frascati, Italy, ESA Publications Division Special Publication SP-642 (CD), 2006.
- Dudhia, A. and C. Piccolo, MIPAS Observations of Stratospheric Trends, *Proc. ESA ENVISAT Symp. 2007*, Montreux, Switzerland, 22-27 April 2007.

- Galle B. Platt U., M. Van Roozendaal, C. Oppenheimer, T. Hansteen, G. Boudon, M. Burton, H. Delgado, W. Strauch, E. Malavassi, G. Garzon, C. Pullinger, M. Kasereka, L. Molina, S. Carn, NOVAC – Network for Observation of Volcanic and Atmospheric Change, *EGU General Assembly, Vienna, 2007*.
- Galle B. Platt U., M. Van Roozendaal, C. Oppenheimer, T. Hansteen, G. Boudon, M. Burton, H. Delgado, W. Strauch, E. Malavassi, G. Garzon, C. Pullinger, M. Kasereka, L. Molina, S. Carn, P. Samaniego and E. Sanchez, NOVAC – Network for Observation of Volcanic and Atmospheric Change, *AGU Joint Assembly, 2007*.
- Galle B., J. Mellqvist, M. Johansson, C. Rivera, J. Samuelsson and Y. Zhang, Optical Remote Sensing measurements of air pollution in Mexico City during MCMA-2006. *AGU Joint Assembly, 2007*
- Galle B., U. Platt, M. Van Roozendaal, C. Oppenheimer, T. Hansteen, G. Boudon, M. Burton, H. Delgado, W. Strauch, E. Duarte, G. Garzon, D. Escobar, M. Kasereka, M. Molina, S. Carn, P. Samaniego, E. Sanchez, S. Inguaggiato, NOVAC – Network for Observation of Volcanic and Atmospheric Change, present status, *IAVCEI General Assembly - Reykjavík, 2008*
- Glatthor, N., T. von Clarmann, H. Fischer, U. Grabowski, M. Höpfner, S. Kellmann, A. Linden, M. Milz, T. Steck, G.P. Stiller, and B. Funke, Global peroxyacetyl nitrate (PAN) retrieval in the upper troposphere from limb emission spectra of the Michelson Interferometer for Passive Atmospheric Soundings (MIPAS), in: H. Lacoste and L. Ouweland (eds.), *Proceedings 'ENVISAT Symposium 2007'*, Montreux, Switzerland, 23 - 27 April 2007 (ESA SP-636, July 2007), ESA Communication Production Office, ESTEC, Noordwijk, The Netherlands, 2007.
- Gouveia, C., M. L. R. Liberato, M. Weber and J. P. Burrows: GOME global distribution of total ozone – a comparison study, *Quadrennial Ozone Symposium*, Tromsø, Norway, 2008.
- Gouveia, C., M. L. R. Liberato, R. M. Trigo, M. Weber and J. P. Burrows: Evidence of high ozone levels in Europe during summer 2003, *Quadrennial Ozone Symposium*, Tromsø, Norway, 2008.
- Hurley, J., A. Dudhia and D. Grainger, Cloud Parameter Retrieval from MIPAS Data, *Proc. ESA ENVISAT Symp. 2007*, Montreux, Switzerland, 2007.
- Keller J., S. Bojinski and A. S. H. Prevot, Simultaneous retrieval of aerosol and surface optical properties using Multi-angle Imaging SpectroRadiometer (MISR) data. *2nd ACCENT Symposium, Atmospheric Composition Change Causes and Consequences - local to Global*, Urbino, Italy, July 23-27, 2007.
- Khlystova, I. G., M. Buchwitz, J. P. Burrows and H. Bovensmann, Three years of SCIAMACHY carbon monoxide measurements, *Proc. ENVISAT Symp. 2007*, Montreux, Switzerland, 23-27 April 2007, ESA publications division SP-636 (CD), p. 5, 2007.
- Kroon, M., E.J. Brinksma, D. Balis, D. Ionov, M. Sneep, L. Curier, A. Tanskanen, C. Zehner, J. Carpay and P.F. Levelt., Validation results from the joint ESA KNMI NIVR calibration and validation announcement of opportunity for the Ozone Monitoring Instrument, *Proc. 2007 ENVISAT Symp.*, ESA SP-636.
- Lee, C., Richter, A.; Burrows, J. P.; Kim, Y. J.; Lee, Y. G.; Choi, B. C. Impact of transport of sulfur dioxide from the Asian continent on air quality over Korea in May 2005, *EGU meeting, 2007*
- Leitão, J., Richter, A.; Heckel, A.; Burrows, J.P. Impact of aerosol on the NO₂ air mass factors used for satellite retrievals, *EGU – General Assembly 2008*, Vienna, Austria, 2008
- Leitão, J., et al., Sensitivity of satellite NO₂ retrievals to aerosols, *4th DOAS International Workshop 2008 for Environmental Research and Monitoring*, Hefei, China, April 2008
- Levelt, P.F., J.P. Veefkind, M. Kroon, E.J. Brinksma, R.D. McPeters, G. Labow, N. Krotkov, D. Ionov, E. Hilsenrath, J. Tamminen, A. Tanskanen, G.H.J. van den Oord and P.K. Bhartia. Several First Year's Results of the Ozone Monitoring Instrument. In: *Proc. ESA Atmospheric Science Conference*, Frascati, Italy. ESA Publications Division, Noordwijk, The Netherlands, 2006.
- Liberato, M. L. R., C. Gouveia, J. M. Castanheira, C. C. DaCamara, M. Weber and J. P. Burrows: On the effect of planetary Rossby waves on total ozone from GOME, *4th SPARC General Assembly*, Bologna, Italy, 2008.
- Marbach, T., S., Beirle, F., Khokhar, U., Platt and T. Wagner, Identification of Tropospheric Emissions Sources from Satellite Observations: Synergistic Use of HCHO, NO₂ and SO₂ Trace Gas Measurements, *Proc. 1st ACCENT Symp.* 2006 ISBN 88-548-0851-2, 2006.
- Marbach, T., S. Beirle, C. Frankenberg, U. Platt and T. Wagner, Identification of tropospheric trace gas sources: synergistic use of HCHO and other satellite observations, *Proc. ENVISAT Symp.*, ESA publication SP-636, (CD-ROM), ISBN 92-9291-200-1, 2007.
- Marbach, T., S. Beirle, J. Hollwedel, U. Platt and T. Wagner, Identification of tropospheric emission sources from satellite observations: Synergistic use of trace gas measurements of formaldehyde (HCHO), and nitrogen dioxide (NO₂), *Proc. ENVISAT and ERS Symp.*, 2004, Salzburg, Austria, ESA publication SP-572, (CD-ROM), ISBN: 92-9092-883-2, 2004.

- Meyer-Arnek, J.; Valks, P.; Fader, M; Erbertseder, T.: Estimation of NO₂ amounts emitted from the Portuguese wildfires in 2005: A synergistic use of observations by imaging and atmospheric instruments and chemistry-transport models. *ESA Atmospheric Science Conference*, Frascati, 2006.
- Mieruch, S., S. Noël, H. Bovensmann and J. P. Burrows, Verification of SCIAMACHY level 1 data by AMC-DOAS water vapour retrieval, in *Proc. Third Workshop on the Atmospheric Chemistry Validation of ENVISAT (ACVE-3)*, Frascati, Italy, 2007.
- Millan-Valle, L.F. and A. Dudhia, Mesospheric Retrievals from MIPAS, *Proc. ESA ENVISAT Symp. 2007*, Montreux, Switzerland, 2007
- Müller, S.C., Milz, M., Kämpfer, N., Comparison of water vapour measurements between the satellite limb sounder MIPAS/ENVISAT and the airborne microwave radiometer AMSOS, *Proc. ENVISAT Symp. 2007*, ed.: Huguette Lacoste and L. Ouwehand, ESA-SP636, 2007.
- Remedios, J.J., D.P. Moore, P. Meacham, G. Allen, A.M. Waterfall and H. Sembhi, New measurements of trace species in the upper troposphere from infra-red spectra of the atmosphere, *Remote Sensing of the Atmosphere for Environmental Security*, NATO Science through Security Series, A. Perrin, N. Ben Sari-Zizi and J. Demaison (eds), Springer, pp 71-85, 2007.
- Remedios, J.J., G. Allen and A.M. Waterfall, Infra-red remote sensing of organic compounds in the upper troposphere, in *Proceedings of the "First Conference on Atmospheric Science"* (ed. H. Lacoste), ESA SP-68, ESA Publications Division, European Space Agency, Noordwijk, The Netherlands, 2006.
- Ricaud, P., et al., Equatorial Transport as diagnosed from nitrous oxide variability, *COSPAR*, Canada, 2008.
- Richter, A. et al. Long-term evolution of satellite derived tropospheric NO₂ fields, *Quadrennial Ozone Symposium*, Tromsø, 2008
- Richter, A., et al., How large is the influence of tropospheric signals on SCIAMACHY limb measurements?, *DPG Frühjahrstagung*, 2007
- Richter, A., et al., Tropospheric Composition Change observed from Space, *2nd ACCENT Symposium*, Urbino, Italy, 2007
- Rivera C., A. Morales, M. Herrera, M. Johansson, Y. Zhang, B. Galle and W. Strauch, NOVAC scanning instruments at San Cristóbal and Masaya volcanoes (Nicaragua): installation and first results, *AGU Joint Assembly*, 2007.
- Rivera C., J.M. Alvarez-Nieves, H. Delgado-Granados, P. Alonso-Rivera and B. Galle, SO₂ emission Monitoring Network of Popocatepetl Volcano (Mexico): Installation and First Results of NOVAC Scanning Instruments, *AGU Joint Assembly*, 2007.
- Sayer, A.M., R.G. Grainger, C.T. Mutlow, G.E. Thomas, A dual-view optimal estimation scheme for aerosol retrieval using AATSR data, *Proc. ESA ENVISAT Symp. 2007*, Montreux, Switzerland, 2007.
- Schaap, M., A. Apituley, R. Koelemeijer, R. Timmermans, G. de Leeuw. Mapping the PM_{2.5} distribution in the Netherlands using MODIS AOD, *EAC 2008*
- Schönhardt, A., Richter, A.; Wittrock, F.; Burrows, J. P. First observations of iodine oxide columns from satellite, *EGU meeting*, 2007
- Schönhardt, A., et al., MAXDOAS measurements from the DANDELIONS campaigns, *DPG Frühjahrstagung*, 2007
- Sembhi, H., J.J. Remedios, J. Greenhough and P. Raspollini, Validation of cloud-free tropical UTLS MIPAS ozone and water vapour, in *Proc. 1st Conf. Atmospheric Science*" (ed. H. Lacoste), *ESA SP-628*, ESA Publications Division, European Space Agency, Noordwijk, The Netherlands, 2006.
- Sergio, P., S. Corradini, C. Tirelli, G. Gangale, S. Amici, M.F. Buongiorno and E. Carboni, On ground TIR camera for volcanic plume detection: Sensitivity study on sulfur dioxide and volcanic ash retrieval, *IUGG.*, Perugia, 2007.
- Sogacheva, L., P. Kolmonen, A.-M. Sundström, L. Curier, V. Aaltonen and G. de Leeuw. Aerosol retrieval over Finland using the dual-view AATSR algorithm. MERIS-AATSR, ESRIN, Frascati, 2008.
- Sundström, A.-M., G. de Leeuw, P. Kolmonen, L. Sogacheva, and L. Curier. Smoke plume detection with (A)ATSR over land. MERIS-AATSR, ESRIN, Frascati, 2008.
- Steck, T., N. Glatthor, T. von Clarmann, H. Fischer, U. Grabowski, M. Höpfner, S. Kellmann, M. Kiefer, A. Linden, M. Milz, G.P. Stiller, B. Funke, A. Perrin, and J.-M. Flaud, Retrieval of formaldehyde from high-resolution MIPAS-Envisat spectra, in: H. Lacoste and L. Ouwehand (eds.), *Proceedings 'ENVISAT Symposium 2007'*, Montreux, Switzerland, 2007 (ESA SP-636, July 2007), ESA Communication Production Office, ESTEC, Noordwijk, The Netherlands, 2007.
- Sussman R. et al., 2008, On detecting temporal variability of columnar methane on global scale groundbased data from the European FTIR network versus last generation ENVISAT/SCHIAMACHY retrievals, *IGAC 10th International Conference*, Annecy, France, 2008

- Thomas, G.E., R. Siddans, C.A. Poulsen, R.G. Grainger, O.P. Navarro, B.J. Kerridge, DUE GlobAEROSOL - A multi-instrument satellite aerosol product, *Eos Trans. AGU*, 88, Abstract A11E-04, 2007.
- Thomas, G.E., C.A. Poulsen, R. Siddans, R.G. Grainger, B.J. Kerridge, C. Gomez. DUE GlobAEROSOL: Validation of global aerosol data from ATSR-2, AATSR and SEVIRI. *Proc. ENVISAT Symp. 2007*, Montreux, Switzerland, 2007 (ESA SP-636, July 2007)
- von Clarmann, T., N. Glatthor, G. P. Stiller, U. Grabowski, M. Höpfner, S. Kellmann, A. Linden, M. Milz, T. Steck, H. Fischer, B. Funke, and M. E. Koukouli, Southern hemispheric biomass burning as seen by MIPAS: C₂H₆ and ozone, in: H. Lacoste and L. Ouwehand (eds.), *Proceedings ENVISAT Symposium 2007*, Montreux, Switzerland, 2007 (ESA SP-636, July 2007), ESA Communication Production Office, ESTEC, Noordwijk, The Netherlands, 2007.
- Vrekoussis, M., Wittrock, F.; Richter, A.; Burrows, J.P.; Myriokefalitakis, S.; Kanakidou, M.; Tsigaridis, K. Anthropogenic and natural sources affecting glyoxal global observations from space, EGU – General Assembly 2008, Vienna, Austria, 2008
- Vrekoussis, M., Wittrock, F; Richter, A; Burrows, JP Long-term measurements of glyoxal (CHOCHO) and formaldehyde (HCHO) from space, EGU meeting, 2007
- Vrekoussis, M., et al., Global observations of Glyoxal (CHOCHO) from space, M. Vrekoussis et al., Aerosols - Properties, Processes and Climate (APPC), *ESF - INTROP conference*, Crete, Greece, 2007
- Wagner, S. Beirle, T. Deutschmann, M. Grzegorski and U. Platt, Relation of atmospheric humidity and cloud properties to surface-near temperatures derived from GOME satellite observations, *Proc. 2nd ACCENT Symp.*, Urbino, 2007.
- Wagner, T., S Beirle, M. Grzegorski, U. Platt, Effects of ENSO on global cloud cover, poster presentation at the *EGU General Assembly 2008 - Vienna, Austria*, 2008.
- Wagner, T., S. Beirle, M. Grzegorski, T. Deutschmann, and U. Platt, Global Distribution of Atmospheric Photon Path Lengths Derived from GOME and SCIAMACHY, *Proc. ENVISAT Symp.*, Montreux, Switzerland, 2007.
- Wagner, T., S. Beirle, T. Deutschmann, B.Dix, U. Platt, Aerosol information from MAX-DOAS observations of the Ring effect, *4th DOAS International Workshop*, 30st March to 3nd April, 2008, Hefei, China (<http://doas.aiofm.ac.cn>), 2008.
- Walker, J. and A. Dudhia, Joint Retrieval of CO and Vibrational Temperature from MIPAS-Envisat, *Proc. ESA ENVISAT Symp. 2007*, Montreux, Switzerland, 2007.
- Waymark, C., A. Dudhia, J. Barnett, F. Taylor and C. Piccolo, Combined Ozone Retrieval using the Michelson Interferometer for Passive Atmospheric Sounding (MIPAS) and the Tropospheric Emission Spectrometer (TES), *Proc. ESA ENVISAT Symp. 2007*, Montreux, Switzerland, 2007

A4 Reports related to AT2 work

- Denby, B, M. Kahnert, J. Brandt, J. Frydendall and Z. Zlatev, 2008: "Development and application of data assimilation in regional scale atmospheric chemistry models", NILU O 30/2007, Ref: O-105077, April 2008, pp. 47.
- Koelemeijer, R.B.A., M. Schaap, R.M.A. Timmermans, T. van Noije, J. Matthijsen, P.J.H. Builtjes, R. Schoemaker, G. de Leeuw, Monitoring aerosol over Europe using AATSR, HIRAM final report, MNP report 555034002/2007, 2007
- Koelemeijer, R.B.A., Schaap, M., Timmermans, R.M.A., Homan, C.D., Matthijsen, J., Kasstele, J. van de, Builtjes, P.J.H., Monitoring aerosol concentrations and optical thickness over Europe, PARMA final report, MNP report 555034001/2006, 2006.
- Schaap, M., A. Apituley, R.B.A. Koelemeijer, R.M.A. Timmermans, R. Schoemaker, J. Mathijssen, G. de Leeuw, 2008. On the relation between aerosol optical depth and PM_{2.5} in the Netherlands. SATLINK final report, MNP Report 555034003.
- Timmermans, R.M.A., M. Schaap, P.J.H. Builtjes, R. Siddans, H. Elbern and R. Vautard, The operational use of satellite derived aerosol information to assess fine particulate matter concentrations in Europe, TNO-Report, 2006-A-R0309-B, 2006.
- Timmermans, R.M.A., P.J.H. Builtjes, A. Segers, R. Vautard, R. Siddans, M. Schaap and H. Elbern, The added value of satellite observations of aerosol optical depth for operational air quality forecasts, TNO-Report, 2008-U-R0704-A, (2008).
- Zlatev, Z.: Computational and Numerical background of the Unified Danish Eulerian Model. In: Ebel, A. and Datashvili, T.(Eds.): Air, Water and Soil Quality Modelling for Risk and Impact Assessment. Proceedings of the NATO Advanced Research Workshop on Air, Water and Soil Quality Modelling for Risk and Impact Assessment, held in Tabakhmela (Tbilisi), Georgia, 2005. Springer. - NATO Science for Peace and Security Series. *NATO Science for Peace and Security Series C: Environmental Security* : Pp. 293-302.(2007)

Appendix B Theses related to AT2 work

- Allen, G, The infrared remote sensing of peroxyacetyl nitrate (PAN) in the upper troposphere. Ph. D. Thesis, University of Leicester, 2005.
- Bousserez, N., Etude du transport intercontinental de la pollution entre l'Amérique du Nord et l'Europe à l'aide du modèle de chimie transport MOCAGE, PhD Thesis, University of Toulouse, 2008
- Curier, R.L., Aerosol retrievals and validations. PhD thesis, Technical University Eindhoven., the Netherlands, 2008
- Johansson, Mattias, Development and Use of Optical Remote Sensing Methods for Studies of Megacity Air Pollution and Volcanic Gas Emissions, *Licentiate Thesis*, Chalmers University of Technology, 2007.
- Natunen, A., Remote sensing of atmospheric aerosols, Master thesis, Tampere technical University, The Netherlands, 2008.
- Rivera, Claudia, Application of scattered sunlight spectroscopy for quantification of gas emissions from anthropogenic and natural sources, *Licentiate Thesis*, Chalmers University of Technology, 2007.
- Sembhi, H., Observing Water Vapour and Ozone in the Tropical UTLS with the MIPAS instrument on ENVISAT. Ph. D. Thesis, University of Leicester, 2007.
- Sfakianaki M., Formation and climatic impact of aerosols in the East Mediteranean – a study based on satellite retrievals, PhD Thesis, University of Crete, Dec 2007.
- Zhang, Yan, Development and Implementation of a Wireless Sensor Network for Volcanic Gas Emission Monitoring, *Licentiate Thesis*, Chalmers University of Technology, 2007.

Appendix C. AT2 workshops and meetings, 2004 to 2008.**AT2 Workshops and Meetings
2004 to 2008**

1 st AT2 Steering Group	June 2004	Bremen
1st AT2 workshop	A strategy for AT2, June 2004	Bremen
2 nd AT2 Steering Group Meeting	December 2004	Schipol Airport
SCIAMACHY validation workshop	Dec. 2004 (AT2 supported meeting) Organiser: <i>Ankie Pifers</i>	Bremen
2nd AT2 workshop	Steps towards Collaboration in AT2 January 2005	Bremen
3 rd AT2 Steering Group	January 2005	Bremen
SCIAMACHY CO retrieval intercomparison	April 2005 (AT2 supported meeting) Organiser: <i>Annemieke Gloudemans</i>	Utrecht
DANDELIONS workshop	April 2005 (AT2 supported meeting) Organiser: <i>Ellen Brinksma</i>	Cabauw
4 th AT2 Steering Group	June 2005	Oberpfaffenhofen
3rd AT2 workshop	Progress towards the goals in AT2 June 2005	Oberpfaffenhofen
Workshop on Radiation Transfer Modelling	June 2005 (AT2 supported meeting) Organiser: <i>Thomas Wagner</i>	Heidelberg
Fourth AT2 workshop	12th September	Urbino
First ACCENT Symposium	September 12th – 17th, 2005	Urbino
ACCENT Nitrogen Expert Meeting	Oct. 31st – Nov. 2nd, 2005. Organiser: <i>Peter Borrell</i> (AT2 supported meeting)	Barnsdale Hall Hotel, Rutland
International workshop on cloud diurnal cycle characterization from space observations	November 2005 (AT2 supported meeting) Organiser: <i>Jean-Louis Brenguier</i>	Toulouse
5 th AT2 Steering Group	15th December 2005	Paris
3rd International DOAS workshop	20. – 24th March 2006 (AT2 supported meeting). Organiser: <i>Thierry Marbach</i>	Bremen
ACCENT Meeting on Data Assimilation in support of IGACO	24th – 26th April 2006 Organiser: <i>Peter Borrell</i> (AT2 supported meeting)	Geneva
E-learning workshop	June 1st & 2nd 2006 Organisers: <i>Peter Borrell and Richard Law</i>	Heraklion
5th AT2 workshop	Combining satellite observations to study atmospheric composition July 3rd and 4th 2006	Heraklion
6 th Steering Group	June 2nd 2006	Heraklion
ACCENT VOC Expert Meeting	Mon Oct. 30th – Wed. Nov. 1st. Organiser: <i>Peter Borrell</i> (AT2 supported meeting)	Barnsdale Hall Hotel, Rutland

Dandelions Follow Up	August to October 2006 Organiser: <i>Ellen Brinkma</i> (AT2 supported meeting)	Cabauw, NL
Tropospheric trace gas retrieval using mid-infrared spectroscopy from space	November 2006 Organiser: <i>Jean-Marie Flaud</i> (AT2 supported meeting)	Paris
7 th Steering Group Meeting	Friday 6th December 2006	ESRIN
International Aerosol Workshop	21st – 24th April 2007. Organiser: <i>Maria Kanakidou</i> (AT2 supported meeting)	Heraklion
6th AT2 Workshop.	Observing trace substances from space and integrating the results with models. Mon. 18th – Wed. 20th June 2007	IUP Bremen
8th Steering Group Meeting	Wed. 20th June 2007	IUP Bremen
Aerosol Retrieval Workshop	21st – 22nd June 2007 <i>Gerrit de Leeuw & Alexander Kokhanovsky</i> (AT2 supported meeting)	IUP, Bremen
ACCENT Symposium	23rd – 27th July 2007	Urbino
Air Quality and Climate Change 4th Barnsdale Expert Meeting	5th – 7th November 2007, Organiser: <i>Peter Borrell</i> (AT2 supported meeting)	Barnsdale Hall Hotel
H ₂ O vapour retrieval workshop	November 2007 <i>Diego Loyola & Thomas Wagner</i> (AT2 supported meeting)	DLR, Oberpfaffenhofen
9th Steering Group	18th December 2007	MPI, Mainz
AT2 book authors meeting	18th December 2007	MPI, Mainz
4 th International DOAS workshop	March 2008 Organiser: <i>Ulrich Platt</i> (AT2 supported meeting)	China
AT2 book – 2 nd authors meeting	September 2008	FMI, Finland
7th and final AT2 Workshop	30th September – 1st October 2008	FMI, Finland
10 th and final AT2 Steering Group	2nd October 2008	FMI, Finland
Future Scientific and Policy Challenges in Tropospheric Composition 5th Barnsdale Expert Meeting	27th - 29th October 2008, Organiser: <i>Peter Borrell</i> (AT2 supported meeting)	Barnsdale Hall Hotel
The AT2 e-learning workshop	17th - 19th November, 2008 Organiser: <i>Richard Law</i>	IUP, Bremen

Peter Borrell
P&PMB Consultants
Newcastle-under-Lyme, UK
12th October 2008

AT2 Supported meetings and Activities

Support offered: 2004 to 2008

For the year 2008-9

Paul Monks	Barnsdale	Future Scientific and Policy Challenges 5th Barnsdale Expert Meeting October 2008
Dominik Brunner Ulrich Platt	EMPA, CH China	Student visit to KNMI, NL 4th International DOAS meeting March 2008

For the year 2007-8

Maria Kanakidou	Heraklion	International Aerosol Workshop April 2007
Gerrit de Leeuw	IUP, Bremen	Aerosol Retrieval Workshop June 2007
Ankie PETERS	KNMI, de Bilt	Tropospheric NO ₂ workshop September 2007
Thomas Holzer Popp	RIU and DLR-DFD	Aerosol retrieval from space 2 students
Paul Monks	Barnsdale	Air Quality and Climate Change 4th Barnsdale Expert Meeting November 2007
Diego Loyola & Thomas Wagner	Brussels	H ₂ O vapour retrieval workshop November 2007

For the year 2006-7

Thierry Marbach	Heidelberg	3rd Intl. DOAS Meeting, Bremen, March 2006 (AT2 hosted)
Coordinator	Geneva	AT2 Joint Meeting with T&TP on Data Assimilation in Support of IGACO, April/May 2006
Jean Marie Flaud	Paris	Tropospheric trace gas retrieval using mid-infrared spectroscopy from space
Ellen Brinksma Paul Monks	Cabau Barnsdale	DANDELIONS follow up campaign ACCENT VOC 3 rd Barnsdale meeting, October 2006

For the year 2005-6

Thomas Holzer Popp	DLR-DFD	Visit of 3 students to RIU for aerosol validation modelling
Christian Frankenberg	Heidelberg	2nd Intl Workshop on Greenhouse Gas Measurements from Space
Paul Monks	Barnsdale	ACCENT N ₂ meeting, 2 nd Barnsdale Meeting October 2005
Annemieke Gloudemans	SRON	AT2 Hosted Workshop on SCIAMACHY CO retrievals
Ellen. Brinksma)	KNMI	DANDELIONS validation for NO ₂ and aerosol (AT2 supported)

Oleg Postlyakov	Moscow	Attendance at AT2 and Heidelberg workshops
Coordinator		Support for the 5th AT2 workshop at the ACCENT Symposium,
Thomas Wagner	Heidelberg	Heidelberg Workshop on Radiative Transfer Modelling, June 2005
Jean-Louis Brenguier	Toulouse	International workshop on cloud diurnal cycle characterization from space observations, November 2005

For the year 2004-5.

Anki Piters	KNMI	SCIAMACHY validation meeting in Bremen (2004/12)
S. Gerry Jennings	Galway	Student exchange Galway-Bremen(2005/2)
Maria Kanakidou	Heraklion	Student exchange Crete - Bremen(2005/1)
Justus Notholt	Bremen	attending scientific meetings in New Zealand (2004/11)
Andreas Richter	Bremen	ICARRT, Orlando & Boulder, April 2004
W. v. Hoyningen-Huene	Bremen	EGU, Nice, April 2004
D. Lamsal	Bremen	EGU, Nice, April 2004
Mark Weber	Bremen	QOS, Kos, June 2004
Mark Weber & D. Lamsal	Bremen	ENVISAT symp, Salzburg, Oct. 2004
M.D. Dolores- Hernandez	Bremen	CEAM Valencia, Jan 2005
M.D. Dolores- Hernandez	Bremen	Amma, Paris, Feb. 2005

Peter Borrell
P&PMB Consultants
12th October 2008