

# Publications

## Weather Research and Development

The Weather Research and Development division is aimed at improving the quality and efficiency of the weather service in meeting the requirements of our users. An important focus is on more precise severe weather forecasts and providing better severe weather warnings. To this end, KNMI weather research ranges from observations to meteorological processes to models, applying innovative techniques and systems that fit our user needs best.

### Reviewed Publications

#### 2007

- Hersbach, H., A. Stoffelen and S. de Haan, 2007. *An Improved C-band scatterometer ocean geophysical model function: cMOD5*. *J. Geophys. Res.*, **112**.
- Holleman, I., 2007. *Bias adjustment and long-term verification of radar-based precipitation estimates*. *Meteorological Applications (Royal Met. Society)*, **14**, 195-203.
- Hooghoudt, J.O. and J. Barkmeijer, 2007. *The interaction between the stratosphere and the troposphere as revealed by singular vectors*. *Meteor. Z.*, **16**, 6, 723-739.
- Huuskonen, A. and I. Holleman, 2007. *Determining weather radar antenna pointing using signals detected from the sun at low antenna elevations*. *J. Atm. Oceanic Technol.*, **24**, 3, 476-483.
- Jarvinen, H., R. Eresmaa, H. Vedel, K. Salonen, S. Niemela and J. de Vries, 2007. *A variational data assimilation system for ground-based GPS slant delays*. *Quart. J. Royal Meteor. Soc.*, **133**.
- Kent, E., S. Woodruff, N. Rayner, T. Arbetter, C. Folland, F.B. Koek, D. Parker, R. Reynolds, R. Saunders, V. Smolyanitsky, S. Worley and T. Yoshida, 2007. *Advances in the Use of Historical Marine Climate Data*. *Bull. Amer. Meteor. Soc.*
- Kudryavtsev, V.N. and V.K. Makin, 2007. *Aerodynamic roughness of the sea surface at high winds*. *Bound.-Layer Meteorol.*, **125**.
- Makin, V.K., H. Branger, W.L. Peirson and J.P. Giovanangeli, 2007. *Stress above wind-plus-paddle waves: modeling of a laboratory experiment*. *J. Phys. Oceanogr.*, **37**.
- Manders, A.M.M., W.T.M. Verkley, J.J. Diepeveen and A.R. Moene, 2007. *Application of a potential vorticity modification method to a case of rapid cyclogenesis over the Atlantic Ocean*. *Quart. J. Royal Meteor. Soc.*, **133**.
- Wheeler, D., R. García Herrera, F.B. Koek, C. Wilkinson, G.P. Können, M. del Rosario Prieto, P.D. Jones and R. Casale, 2007. *CLIWOC, Climatological database for the world's oceans: 1750 to 1850; Results of a research project EVK1-CT-2000-00090*. 2007, Brussels, European Commission, ISBN 92-894-8279-6, 190p.

#### 2008

- Babanin, A.V. and V.K. Makin, 2008. *Effect of wind trend and gustiness on the sea drag: Lake George study*. *J. Geophys. Res.*, **113**
- Cauilliez, G., V. Makin and V. Kudryavtsev, 2008. *Drag at the water surface at limited fetches: observations and modelling*. *J. Phys. Oceanogr.*, **38**.
- Delgado, G., P. de Valk, A. Redano, S. van der Veen and J. Lorente, 2008. *Verification of a MSG Image Forecast Model: METCAST*. *Weather and Forecasting*, **23**.

- Gasteren, H. van, I. Holleman, W. Bouten and E. van Loon, 2008. *Extracting bird migration information from C-band Doppler weather radars*. *Ibis*, **150**.
- Geertsema, G.T., 2008. *Re-analysis of meteorology for the 1994 European Tracer Experiment using present day modeling techniques*. ANS 2008 EP&R and R&RS Topical meeting., 9/3/2008-12/3/2008, 2008, Albuquerque, ANS, ISBN 0-89448-060-X, 155-161.
- Haan, S. de, 2008. *Meteorological applications of a surface network of Global Positioning System receivers*. Thesis, Wageningen University, 2008, Wageningen, 157p.
- Holleman, I., H. van Gasteren and W. Bouten, 2008. *Quality Assessment of Weather Radar Wind Profiles during Bird Migration*. *J. Atm. Oceanic Technol.*, **25**.
- Iversen, T., J. Kristiansen, T. Jung and J. Barkmeijer, 2008. *Optimal atmospheric forcing perturbations for the cold-ocean warm-land pattern*. *Tellus*, **60A**.
- Kok, K., B. Wichers Schreur and D. Voegelzang, 2008. *Valuing information from mesoscale forecasts*. *Meteorological Applications (Royal Met. Society)*, **15**.
- Makin, V.K., 2008. *On the possible impact of a following-swell on the atmospheric boundary layer*. *Bound.-Layer Meteorol.*, **129**.
- Marseille, G.J., A. Stoffelen and J. Barkmeijer, 2008. *Sensitivity Observing System Experiment (soSE) - A New Effective NWP-based Tool in Designing the Global Observing System*. *Tellus*, **A, 60**.
- Marseille, G.J., A. Stoffelen and J. Barkmeijer, 2008. *A cycled sensitivity observing system experiment on simulated Doppler wind lidar data during the 1999 Christmas storm*. *Tellus*, **A, 60**.
- Marseille, G.J., A. Stoffelen and J. Barkmeijer, 2008. *Impact assessment of prospective space borne Doppler wind lidar observations scenarios*. *Tellus*, **A, 60**.
- Meulen, J.P. van der and T. Brandsma, 2008. *Thermometer Screen Intercomparison in De Bilt (the Netherlands), Part I: Understanding the weather-dependent temperature differences*. *Int. J. Climatology*, **1, 28**.
- Overeem, A., T.A. Buishand and I. Holleman, 2008. *Rainfall depth-duration-frequency curves and their uncertainties*. *J. Hydrol.*, **348**.
- Roebeling, R.A., H.M. Deneke and A.J. Feijt, 2008. *Validation of cloud liquid water path retrievals from SEVIRI using one year of CLOUDNET observations*. *J. Appl. Meteor.*, **1, 47**.
- Roebeling, R.A., S. Placidi, D.P. Donovan, H.W.J. Russchenberg and A.J. Feijt, 2008. *Validation of liquid cloud property retrievals from SEVIRI using ground-based observations*. *Geophys. Res. Lett.*, **35**.
- Roebeling, R.A., 2008. *Cloud physical properties retrieval for climate studies using SEVIRI and AVHRR data*. Thesis, Wageningen Universiteit, 2008, Wageningen, 158p.
- Roebeling, R.A., A.J. Feijt and E. van Meijgaard, 2008. *Evaluation of the diurnal cycle of model predicted cloud properties using MSG-SEVIRI observations*. *International Radiation Symposium (IRS2008)*, 3/8/2008-8/8/2008, 2008, Iguacu Falls, Brazil, IRS.
- Rooy, W.C. de and A.P. Siebesma, 2008. *A simple parameterization for detrainment in shallow cumulus*. *Mon. Wea. Rev.*, **136**.
- Schmeits, M.J., C.J. Kok, D.H.P. Voegelzang and R.M. van Westrhenen, 2008. *Probabilistic forecasts of (severe) thunderstorms for the purpose of issuing a weather alarm in the Netherlands*. *Weather and Forecasting*, **23**.
- Schutgens, N.A.J., W. Greuell and R.A. Roebeling, 2008. *Effect of inhomogeneity on the validation of SEVIRI LWP*. *International Radiation Symposium (IRS2008)*, 3/8/2008-8/8/2008, 2008, Iguacu Falls, Brazil, IRS.
- Steenefeld, G.J., T. Mauritsen, E.I.F. de Bruijn, J. Vila-Guerau de Arellano, G. Svensson and A.M.M. Holtslag, 2008. *Evaluation of limited area models for the representation of the diurnal cycle and contrasting nights in CASES99*. *J. Appl. Meteor.*, **47**.
- Sterl, A., C. Severijns, H. Dijkstra, W. Hazeleger, G.J. van Oldenborgh, M. van den Broeke, G. Burgers, B. van den Hurk, P.J. van Leeuwen and P. van Velthoven, 2008. *When can we expect extremely high surface temperatures?* *Geophys. Res. Lett.*, **35**.
- Tan, D.G.H., E. Andersson, J. de Kloe, G.J. Marseille, A. Stoffelen and et al., 2008. *The ADM-Aeolus wind retrieval algorithms*. *Tellus*, **A, 60**.
- Vu, V. Thieu, G.J. Cats and A. Wolters, 2008. *Asynchronous Communication in the HIRLAM weather Forecast*. *ASCI*, 2008.
- Zagar, N., A. Stoffelen, G.J. Marseille, C. Accadia and P. Schlussel, 2008. *Impact Assessment of Simulated Wind Lidars with a Multivariate Variational Assimilation in the Tropics*. *Mon. Wea. Rev.*, **136**.

## 2009

- Bourassa, M., A. Stoffelen and et al., 2009. *Remotely sensed winds and wind stresses for marine forecasting and ocean modeling*. *OceanObs'09*, 21/9/2009-25/9/2009, M Bourassa (Ed.), 2009, Venice, Italy, IGBP/GCOS/CLIVAR. Geertsema, G.T. and B.G.J. Wichers Schreur, 2009. *The effect of improved nowcasting of precipitation on air quality modeling*. *Atmos. Environm.*, **43**.

- Greuell, W. and R.A. Roebeling, 2009. *Towards a standard procedure for validation of satellite-derived cloud liquid water path: a study with seviri data*. J. Appl. Meteor., **48**.
- Haan, S. de, I. Holleman and A.A.M. Holtslag, 2009. *Real-Time Water Vapor Maps from a GPS Surface Network: Construction, Validation, and Applications*. J. Appl. Meteor., **48**.
- Kudryavtsev, V.N. and V.K. Makin, 2009. *Model of the spume sea spray generation*. Geophys. Res. Lett., **36**.
- Overeem, A., I. Holleman and T.A. Buishand, 2009. *Derivation of a 10-year radar-based climatology of rainfall*. J. Appl. Meteor., **48**.
- Overeem, A., T.A. Buishand and I. Holleman, 2009. *Extreme rainfall analysis and estimation of depth-duration-frequency curves using weather radar*. Water Resour. Res., **45**.
- Overeem, A., 2009. *Climatology of extreme rainfall from rain gauges and weather radar*. Thesis, Wageningen University, 2009, Wageningen, 144p.
- Portabella, M. and A.C.M. Stoffelen, 2009. *On Scatterometer Ocean Stress*. J. Atm. Oceanic Technol., **26**.
- Roebeling, R.A. and E. van Meijgaard, 2009. *Evaluation of the daylight cycle of model predicted cloud amount and condensed water path over Europe with observations from MSG-SEVIRI*. J. Climate, **22**.
- Roebeling, R.A. and I. Holleman, 2009. *SEVIRI rainfall retrieval and validation using weather radar observations*. J. Geophys. Res., D2120, **114**.
- Rontu, L., F. Obleitner, S. Gollvik, C. Zingerle and A.B.C. Tijm, 2009. *HIRLAM experiments on surface energy balance across Vatnajökull, Iceland*. Meteor. Atmos. Phys., **103**.
- Schulz, J., H. Deneke, R. Roebeling, E. Wolters and et al., 2009. *Operational climate monitoring from space: the EUMETSAT satellite application facility on climate monitoring (CM-SAF)*. Atm. Chem. Phys.
- Schutgens, N.A.J. and R.A. Roebeling, 2009. *Validating the validation: the influence of liquid water distribution in clouds on the intercomparison of satellite and surface observations*. J. Atm. Oceanic Technol., **26**.
- Slangen, A.B.A. and M.J. Schmeits, 2009. *Probabilistic forecasts of winter thunderstorms around Amsterdam Airport Schiphol*. Advances in Science and Research, **3**.
- Verkley, W.T.M., 2009. *A balanced approximation of the one-layer shallow-water equations on a sphere*. J. Atmos. Sci., **66**.
- Verkley, W.T.M. and P. Lynch, 2009. *Energy and enstrophy spectra of geostrophic turbulent flows derived from a maximum entropy principle*. J. Atmos. Sci., **66**.
- Vogelzang, J., A. Stoffelen, A. Verhoef, J. de Vries and H. Bonekamp, 2009. *Validation of two-dimensional variational ambiguity removal on SeaWinds scatterometer data*. J. Atm. Oceanic Technol., **7**, **26**.
- Vries, J.W. de, 2009. *Probability Forecasts for Water Levels at the Coast of The Netherlands*. Marine Geodesy, **32**.
- Vu, V.T., G.J. Cats and A.A. Wolters, 2009. *Automatic Code Generation For Finite Element Methods Applied To The Shallow-Water Equations*. 2009 International Conference on Scientific Computing (csc 2009), 7/2009-7/2009, 2009, CSC, CSREA Press, 101-107.
- Vu, V.T., G.J. Cats and A.A. Wolters, 2009. *Automatic Code Generation for Finite Element Methods Applied to the Shallow-Water Equations*. 15<sup>th</sup> annual conference of the Advanced School for Computing and Imaging, 3/6/2009-5/6/2009, 2009, Zeewolde.

## Other publications

### 2007

- Dabas, A., P. Poli, D. Tan, E. Andersson, A. Stoffelen, J. de Kloe and G.J. Marseille, 2007. *ADM-Aeolus Rayleigh-Brillouin Correction Look-up Tables Generator 10DD*. ADM-Aeolus Level-2B/2C Processor development, ESA.
- Gabarró, C., M. Portabella, M. Talone and J. Font, 2007. *Analysis of the smos ocean salinity inversion algorithm*. International Geoscience and Remote Sensing Symposium (IGARSS), 23/7/2007-27/7/2007, 2007, Barcelona, Spain, IEEE.
- Holleman, I. and F. Kroonenberg, 2007. *Verificatie van de SODAR bij Kerncentrale Borssele*. KNMI Internal Report IR-2007-06, pp18.
- Kloe, J. de, A. Stoffelen, K. Houchi, G.J. Marseille, E. Andersson, P. Poli, M.L. Denneulin, A. Dabas, D. Huber, O. Reitebuch, P. Flamant, O. Le Rille and H. Nett, 2007. *Development of ADM-Aeolus portable level 2B wind retrieval software*. EUMETSAT Meteorological Satellite Conference, 24/9/2007-28/9/2007, 2007, Amsterdam, EUMETSAT.
- Kloe, J. de, D. Tan and D. Huber, 2007. *Aeolus Level 2b Processor Software Verification & Validation Plan*. ADM-Aeolus Level-2B/2C Processor development, ESA.
- Koek, F.B. and M. Stam, 2007. *Van Turbo2 naar TurboWin (From Turbo2 to TurboWin)*. Meteorologisch Informatiebulletin Maritiem, pp4.

- Kudryavtsev, V.N. and V.K. Makin, 2007. *Aerodynamic roughness of the sea surface at high winds*. In Atmospheric Boundary Layers, Baklanov and Grisogono (Eds.), 2007, Springer, ISBN 978-0-387-74318-9, p133-148.
- Marseille, G.J., 2007. *The added value of prospective spaceborne Doppler wind lidar for extreme weather events*. 29<sup>th</sup> EWGLAM and 14<sup>th</sup> SRNWP Meetings, 8/10/2007-11/10/2007, 2007, Dubrovnik.
- Marseille, G.J., 2007. *Scheepswaarnemingen voor numerieke weersverwachting - zinvol of achterhaald?* Meteorologisch Informatiebulletin Maritiem, 73, 6-11.
- Marseille, G.J., 2007. *Ship observations for numerical weather prediction - useful or redundant?* Meteorologisch Informatiebulletin Maritiem, 73, 6-11.
- Masutani, M., A. Stoffelen, G.J. Marseille and et al., 2007. *Progress in Joint osSES*. AMS 18<sup>th</sup> conference on Numerical Weather Prediction, 25/6/2007-29/6/2007, 2007, Parkcity UT, USA, AMS.
- Meulen, J.P. van der, 2007. *The Challenge to Increase the Performance of an AWS*. Proceedings of the 4<sup>th</sup> ICEAWS, Lisboa, 24-26 May 2.
- Meulen, J.P. van der, 2007. *Mistdetectie en signalering (Programma Gevaarlijk Weer, Project Verwachtingen voor mist en lage stratus)*. KNMI Internal Report IR-2007-04, pp28.
- North, S. and F.B. Koek, 2007. *Het Maritieme Waarnemers Logboek*. Meteorologisch Informatiebulletin Maritiem, pp3.
- Portabella, M., A. Stoffelen, J. Vogelzang, A. Verhoef and J. Verspeek, 2007. *Towards a high-resolution ASCAT scatterometer wind product*. 19/11/2007, International Geoscience and Remote Sensing Symposium (IGARSS) (Ed.), 2007, Barcelona, Spain, IEEE.
- Portabella, M., A. Stoffelen, A. Verhoef, J. Verspeek and J. Vogelzang, 2007. *Towards a high-resolution gridded ocean forcing*. EUMETSAT/AMS conference, 24/9/2007-28/9/2007, 2007, Amsterdam, The Netherlands, EUMETSAT.
- Portabella, M., A. Stoffelen, J. Verspeek, A. Verhoef and J. Vogelzang, 2007. *ASCAT scatterometer ocean calibration*. International Geoscience and Remote Sensing Symposium (IGARSS), 23/7/2007-23/7/2007, 2007, Barcelona, Spain, IEEE.
- Roebeling, R.A., A.J. Feijt and E. van Meijgaard, 2007. *Evaluation of the diurnal cycle of model predicted cloud liquid water path with MSG-SEVIRI observations*. EUMETSAT/AMS Met. Sat. Conference, 24/9/2007-28/9/2007, 2007, Amsterdam, Eumetsat.
- Schmeits, M.J., C.J. Kok, D.H.P. Voegelzang and R.M. van Westrhenen, 2007. *Probabilistic 0-12 h forecasts of (severe) thunderstorms for the purpose of issuing a weather alarm*. In: KNMI Biennial scientific report 2005-2006, 2007.
- Schmeits, M.J., C.J. Kok, D.H.P. Voegelzang and R.M. van Westrhenen, 2007. *Kansverwachtingen voor onweer ten behoeve van uitgifte Weeralarm (kouw)*. KNMI Internal Report IR-2007-03.
- Stappers, R. and J. Barkmeijer, 2007. *Hirlam singular vectors*. Hirlam Newsletter, **52**, 79-83.
- Stoffelen, A., 2007. *OSI SAF: Contributions to the analysis for the ASCAT 3-dimensional measurement space (which includes ASCAT CA/VAL Activities)*. Draft report.
- Stoffelen, A., 2007. *OSI SAF: Development of a global scatterometer validation and monitoring*. Final Report.
- Stoffelen, A., G.J. van Oldenborgh, J. de Kloe, M. Portabella and A. Verhoef, 2007. *SOS - Development of a scatterometer ocean stress product*. CM SAF report.
- Tan, D.G.H., E. Andersson, J. de Kloe, G.J. Marseille, A. Stoffelen, P. Poli, M.L. Denneulin, A. Dabas, D. Huber, O. Reitebuch, P. Flamant, O. Le Rille, A.G. Straume and H. Nett, 2007. *ADM-Aeolus Level-2B Wind Retrieval Algorithms*. 14<sup>th</sup> Bi-Annual Coherent Laser Radar Conference (CLRC), 9/7/2007-13/7/2007, 2007, Snowmass, Colorado USA, Universities Space Research Association (USRA).
- Tan, D.G.H., E. Andersson, J. de Kloe, G.J. Marseille, A. Stoffelen, P. Poli, M.L. Denneulin, A. Dabas, D. Huber, O. Reitebuch, P. Flamant, O. Le Rille and H. Nett, 2007. *The ADM-Aeolus wind retrieval algorithms*. 2007, ECMWF, Technical Memorandum, 27p.
- Verhoef, A., A. Stoffelen, M. Portabella, J. Verspeek and J. Vogelzang, 2007. *EUMETSAT SAF and EARS scatterometer wind services at KNMI*. EUMETSAT/AMS conference, 24/9/2007-28/9/2007, 2007, Amsterdam, The Netherlands, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *ERS Scatterometer Product User Manual version 1.3*. KNMI-publicatie ; 212c, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *ASCAT Wind Product User Manual version 1.0*. SAF/OSI/CDOP/KNMI/TEC/MA/126, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *ERS Scatterometer Product User Manual version 1.4*. KNMI-publicatie ; 212d, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *ASCAT Wind Product User Manual version 1.1*. SAF/OSI/CDOP/KNMI/TEC/MA/126, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *ERS Scatterometer Product User Manual version 1.5*. KNMI-publicatie ; 212e, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *SeaWinds Product Manual version 1.4*. SAF/OSI/CDOP/KNMI/TEC/MA/134, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *ASCAT Wind Product User Manual version 1.2*. SAF/OSI/CDOP/KNMI/TEC/MA/126, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2007. *ASCAT Wind Product User Manual version 1.3*. SAF/OSI/CDOP/KNMI/TEC/MA/126, EUMETSAT.
- Verhoef, A., J. Vogelzang and A. Stoffelen, 2007. *AWDP User Manual and Reference Guide version 1.0k*. NWPSAF-KN-UD, EUMETSAT.

Verspeek, J., A. Stoffelen, M. Portabella, A. Verhoef and J. Vogelzang, 2007. *ASCAT scatterometer cal/val and winds*. EUMETSAT/AMS conference, 24/9/2007-28/9/2007, 2007, Amsterdam, The Netherlands, EUMETSAT.

Vitart, J.F. and J. Barkmeijer, 2007. *Organized convection and weather prediction on sub-seasonal time-scales*. BAMS.

Vogelzang, J., A. Stoffelen, M. Portabella, A. Verhoef and J. Verspeek, 2007. *Mesoscale winds over the oceans*. EUMETSAT/AMS conference, 24/9/2007-28/9/2007, 2007, Amsterdam, The Netherlands, EUMETSAT.

Vogelzang, J., 2007. *Two dimensional variational ambiguity removal (2DVAR)*. Technical report NWPSAF-KN-TR-004, EUMETSAT.

Vogelzang, J., 2007. *Validation of 2DVAR on SeaWinds data*. Technical Report NWPSAF-KN-TR-005, EUMETSAT.

Wijngaard, J.B., D.H.P. Voegelzang, J. van Bruggen and N. Maat, 2007. *Low visibility and ceiling forecasts at Schiphol; Part 1-assessment of the current system*. pp30. (Wijngaard is a staff member of the Product and Process Innovation Division, for which in this report no separate list of publications is presented).

## 2008

Barkmeijer, J., F. Vitart, M. Leutbecher, T. Jung and J.O. Hooghoudt, 2008. *The Stratosphere-Troposphere connection in ensemble forecasting*. Workshop on Ensemble Prediction, 7/11/2007-9/11/2007, 2008, Reading, ECMWF.

Brujijn, E.I.F. de and A.B.C. Tijm, 2008. *Overall tuning of the turbulence scheme of HIRLAM with the focus on the stable boundary layer*. HIRLAM Newsletter, 53, 32-36.

Burgers, G., F. Koek, J.W. de Vries and M. Stam, 2008. *Searching for Factors that Limit Observed Extreme Maximum Wave Height Distributions in the North Sea*. In *Extreme Ocean Waves*, E. Pelinovsky, C. Kharif (Eds.), 2008, Springer.

Cats, G.J., 2008. *Numerieke weersverwachtingen*. *Eureka!*, 21, 4-7.

Cats, G.J., 2008. *24 More Years of Numerical Weather Prediction: A Model Performance Model*. KNMI Scientific Report WR-2008-1.

Dekker, A., H. van Gasteren, W. Bouten, J. Shamoun-Baranes, A. Borst, I. Holleman, A. Dokter, A. Ginati and G. Garofalo, 2008. *The European Space Agency's FlySafe project, looking at the bird strike problem from another perspective*. 28<sup>th</sup> Meeting of International Bird Strike Committee, 10/2008, 2008, Brazilie, IBSC.

Geertsema, G.T., S. Calabretta-Jongen and H. Eskes, 2008. *Daily air quality forecasts, experiences with CHIMERE interfacing to HIRLAM data*. HIRLAM Newsletter, 53, 79-86.

Holleman, I., L. Delobbe and A. Zgonc, 2008. *Update on the European Weather Radar Network (OPERA)*. WMO Technical Conference (TECO 2008), 11/2008, 2008, St. Petersburg, WMO.

Holleman, I., L. Delobbe and A. Zgonc, 2008. *The European Weather Radar Network (OPERA): An opportunity for hydrology!*. *Weather Radar and Hydrology 2008*, 10/3/2008, 2008, Grenoble.

Holleman, I., L. Delobbe and A. Zgonc, 2008. *Update on the European Weather Radar Network (OPERA)*. ERAD 5, 30/6/2008-4/7/2008, 2008, Helsinki.

Holleman, I., 2008. *Wind observations with Doppler weather radar*. ERAD 5, 30/6/2008-4/7/2008, 2008, Helsinki.

Holleman, I., A. Huuskonen, M. Kurri and H. Beekhuis, 2008. *Monitoring of weather radar receivers using solar signals detected in operational scan data*. WMO Technical Conference (TECO 2008), 11/2008, 2008, St. Petersburg, WMO.

Hove, R. ten and J.B. Wijngaard (Eds.), *Improved Low visibility and Ceiling Forecasts at Schiphol Airport*, KNMI-publicatie: KDC/2008/0089 - KNMI publication 222, 7/2008.

Holleman, I., 2008. *Wind observations with Doppler weather radar*. WMO Technical Conference (TECO 2008), 11/2008, 2008, St. Petersburg, WMO.

Holleman, I., 2008. *Dopplerwaarnemingen met buienradar*. *Nederlands Tijdschrift voor Natuurkunde*, 9, 304-308.

Holleman, I., 2008. *Echotops for annotation on radar imagery*. KNMI Technical Report TR-299, pp28.

Kloe, J. de, G.J. Marseille and A. Stoffelen, 2008. *Vertical Aeolus Measurement Positioning, Technical note TN1, v.1.0*. Vertical Aeolus Measurement Positioning, TN1, v1.0, KNMI.

Kloe, J. de, A. Stoffelen and P. Poli, 2008. *Aeolus Level 2b Processor Product Specification*. SAF documentation on ADM-Aeolus L2Bp development, KNMI.

Kloe, J. de, 2008. *The ADM Atmospheric database*. ADM-Aeolus Level-2B/2C Processor development, ESA.

Kloe, J. de, P. Poli and D. Tan, 2008. *Aeolus Level 2b Processor Top Level Design*. SAF documentation on ADM-Aeolus L2Bp development, KNMI.

Kloe, J. de and A. Stoffelen, 2008. *ADM-Aeolus, Ocean albedo, v.1.0*. Technical note on Ocean Albedo as a function of local wind and wave conditions and its effect on the zero-wind calibration., KNMI.

Kloe, J. de, 2008. *Aeolus Level 2b Processor Users Guide*. L2BP Users Guide, ESA.

Kloe, J. de and A. Stoffelen, 2008. *ADM-Aeolus Mission, Guide on applying L2B processed winds*. SAF documentation on ADM-Aeolus L2Bp development, KNMI.

Leijnse, H., R. Uijlenhoet and I. Holleman, 2008. *Sources of error in microwave link rainfall estimation*. *Weather Radar and Hydrology 2008*, 6/2/2008, 2008.

Liechti, F., A. Dokter, J. Shamoun-Baranes, H. van Gasteren and I. Holleman, 2008. *Combining radar systems to get a 3D – picture of the bird migration*. 28<sup>th</sup> Meeting of International Bird Strike Committee, 10/2008, 2008, Brazilie, IBSC.

Masutani, M., A. Stoffelen, G.J. Marseille and et al., 2008. *Progress in Joint ossees - Three Joint osse nature runs and simulation of observation*. 12<sup>th</sup> Conference on IOAS - AOLS, 20/1/2008-24/1/2008, 2008, New Orleans, LA, USA, AMS, AMS.

Masutani, M., A. Stoffelen, G.J. Marseille and et al., 2008. *Progress in Joint ossees - Three Joint osse nature runs and simulation of observation*. 88<sup>th</sup> AMS annual meeting 2008, 20/1/2008-24/1/2008, 2008, New Orleans, AMS.

Overeem, A., I. Holleman and A. Buishand, 2008. *A 10-year Radar-based Climatology of Rainfall*. ERAD 5, 30/6/2008-4/7/2008, 2008, Helsinki.

Poli, P., A. Dabas, D. Tan, E. Andersson, J. de Kloe and G.J. Marseille, 2008. *ADM-Aeolus Level-2b Processor Test Plan*. ADM-Aeolus Level-2b Processor Test Plan, ESA.

Poli, P., J. de Kloe and D. Tan, 2008. *ADM-Aeolus Level-2B processor Input/Output Fortran structures description*. SAF documentation on ADM-Aeolus L2Bp development, KNMI.

Roebeling, R. and I. Holleman, 2008. *Validation of Rain Rate Retrievals from SEVIRI using Weather Radar Observations*. EUMETSAT Meteorological Satellite Conference, 9/2008, 2008, Darmstadt, EUMETSAT.

Slangen, A., 2008. *Probabilistic forecasts of winter thunderstorms around Schiphol Airport using Model Output Statistics*. KNMI Technical Report TR-300, pp55.

Stappers, R.J.J. and J. Barkmeijer, 2008. *Hirlam CAPE singular vectors*. Hirlam Newsletter, 54.

Stappers, R.J.J., 2008. *De voorspelbaarheid van diepe convectie*. Meteorologica, **17**, 4.

Stoffelen Ad, 2008. *ON IMPROVED MESOSCALE FORCING*. EUROGOOS, 20/5/2008-22/5/2008, 2008, Exeter, UK, EUROGOOS,.

Stoffelen Ad, Marcos Portabella, Anton Verhoef, Jeroen Verspeek and Jur Vogelzang, 2008. *Advancements in Scatterometer Wind Processing*. 9<sup>th</sup> International Winds Workshop, 14/4/2008-18/4/2008, 2008, Annapolis, Maryland, USA, NOAA, EUMETSAT.

Stoffelen Ad, Marcos Portabella, Anton Verhoef and Jur Vogelzang, 2008. *ON HIGH RESOLUTION COASTAL WINDS*. EUROGOOS, 20/5/2008-22/5/2008, 2008, Exeter, UK, EUROGOOS,.

Stoffelen, A., M. Portabella, A. Verhoef, J. Verspeek and J. Vogelzang, 2008. *HIGH-RESOLUTION ASCAT SCATTEROMETER WINDS NEAR THE COAST*. International Geoscience and Remote Sensing Symposium (IGARSS), 6/7/2008-11/7/2008, 2008, Boston, USA, IEEE.

Stoffelen, A.C.M., G.J. Marseille, J. de Kloe, K. Houchi, H. Körnich and N. Žagar, 2008. *SCIENTIFIC PREPARATIONS FOR AEOLUS AND AEOLUS FOLLOW-ON*. 9<sup>th</sup> International Winds Workshop, 14/4/2008-18/4/2008, 2008, Annapolis, maryland, USA, NOAA, EUMETSAT.

Stoffelen, A. and J. de Kloe, 2008. *Science Plan, improved wind profile assimilation procedure for ADM-Aeolus*. SAF documentation on ADM-Aeolus L2Bp development, KNMI.

Stoffelen, A., G.J. Marseille, J. de Kloe, A. Dabas, D. Huber, O. Reitebuch, P. Flamant and D. Tan, 2008. *Comparison of Aeolus burst and continuous mode concepts*. TN 5.1, burst vs. continuous, ESA.

Tan, D.G.H., E. Andersson, J. de Kloe, G.J. Marseille, A. Stoffelen, P. Poli, A. Dabas, D. Huber, O. Reitebuch, P. Flamant, A.G. Straume, O. Le Rille and H. Nett, 2008. *ADM-AEOLUS WIND RETRIEVAL ALGORITHMS FOR NWP*. 9<sup>th</sup> International Winds Workshop (9iww), 14/4/2008-18/4/2008, 2008, Annapolis, Maryland, USA, NOAA/NESDIS/EUMETSAT/CIMSS.

Tan, D., E. Andersson, A. Dabas, P. Poli, A. Stoffelen, J. de Kloe and D. Huber, 2008. *ADM-Aeolus Level-2B/2C Processor Input/Output Data Definitions Interface Control Document*. L2BP IODD, ESA.

Tijm, A.B.C., 2008. *Intercomparison of STRACO and KF-RK*. HIRLAM Newsletter, 53, 13-24.

Tijm, A.B.C., 2008. *HIRLAM physics changes and importance for ACT modelling*. Summer school on ACT modelling, 6/7/2008-10/7/2008, 2008, Zelenogorsk, NetFAM, COST 728.

Tijm, A.B.C., 2008. *Vertical diffusion*. In NetFAM, COST 728 summer school on HIRLAM and ACT, Baklanov & Mahura (Eds.), 2008.

Tijm, A.B.C., 2008. *Overview of contents HIRLAM system*. In NetFAM, COST 728 summer school on HIRLAM and ACT, Baklanov & Mahura (Eds.), 2008.

Tijm, A.B.C., 2008. *HIRLAM strategy on ACT modelling*. NetFAM, COST 728 summer school on HIRLAM and ACT, 6/7/2008-10/7/2008, Baklanov & Mahura (Eds.), 2008.

Tijm, A.B.C., 2008. *Strategy on HARMONIE physics developments*. Beschrijving van strategie voor mesoschaal fysica ontwikkeling HARMONIE.

Verhoef, A. and A. Stoffelen, 2008. *SeaWinds Product Manual version 1.5*. SAF/OSI/KNMI/TEC/MA/134, EUMETSAT.

Verhoef, A., J. Vogelzang and A. Stoffelen, 2008. *Validation of SeaWinds 25 km winds*. SAF/OSI/CDOP/KNMI/TEC/RP/143, EUMETSAT.

Verhoef, A. and A. Stoffelen, 2008. *ASCAT Wind Product User Manual version 1.4*. SAF/OSI/KNMI/TEC/MA/126, EUMETSAT.

Verhoef, A., M. Portabella, A. Stoffelen and H. Hersbach, 2008. *CMOD5.n - the CMOD5 GMF for neutral winds*. SAF/OSI/CDOP/KNMI/TEC/TN/165, EUMETSAT.

Verhoef, A., J. Vogelzang, J. Verspeek and A. Stoffelen, 2008. *AWDP Test Report, version 1.0.14*. NWPSAF-KN-TV-005, EUMETSAT.

Verhoef, A. and A. Stoffelen, 2008. *ASCAT Wind Product User Manual version 1.5*. SAF/OSI/CDOP/KNMI/TEC/MA/126, EUMETSAT.

Verhoef, A. and A. Stoffelen, 2008. *ERS Scatterometer Product User Manual version 1.6*. KNMI-publicatie ; 212f, EUMETSAT.

Verhoef, A., J. Vogelzang, J. Verspeek and A. Stoffelen, 2008. *AWDP User Manual and Reference Guide, version 1.0.16*. NWPSAF-KN-UD-005, EUMETSAT.

Verspeek, J., A. Stoffelen, M. Portabella, A. Verhoef and J. Vogelzang, 2008. *Ascat scatterometer ocean calibration*. International Geoscience and Remote Sensing Symposium (IGARSS), 6/7/2008-11/7/2008, 2008, Boston, USA, IEEE.

Verspeek, J., M. Portabella, A. Stoffelen and A. Verhoef, 2008. *Calibration and Validation of ASCAT Winds, version 4.0*. SAF/OSI/KNMI/TEC/TN/163, EUMETSAT.

Vogelezang, D. and K. Kok, 2008. *Kansen in de weersverwachting*. *Euclides*, **83**, 4, 204-207.

Vogelzang, J., 2008. *SDP 2.0 validation*. NWPSAF-KN-TR-006, EUMETSAT.

Vogelzang, J., A. Verhoef and A. Stoffelen, 2008. *AWDP 1.0 validation, version 1.0*. NWPSAF-KN-TR-020, EUMETSAT.

Vries, J.W. de, 2008. *Probability forecasts for water levels at the coast of the Netherlands*. *ECMWF Newsletter*, **114**, 23-29.

Wichers Schreur, B. and G. Geertsema, 2008. *Theory for a TKE based parameterization of wind gusts*. *HIRLAM newsletter*, 54, 177-188.

Zweers, N.C., 2008. *Atmosfeer-oceaan interactie bij extreem weer*. *Meteorologica*, **17**, 4.

## 2009

Barkmeijer, J., 2009. *Adjoint diagnostics for the atmosphere and ocean*. *Diagnosis of Forecasting and Data Assimilation Systems*, 20/11/2009, 2009, Reading (UK), ECMWF.

Barkmeijer, J., 2009. *Adjoint diagnostics for the atmosphere and ocean*. *Diagnosis of Forecasting and Data Assimilation Systems*, 7/9/2009-10/9/2009, 2009, Reading (UK), ECMWF.

Carbajal Henken, C.K., M.J. Schmeits, E.L.A. Wolters and R.A. Roebeling, 2009. *Detection of Cb and TCu clouds using MSG-SEVIRI cloud physical properties and weather radar observations*. *KNMI Scientific Report WR-2009-04*.

Dabas, A., A. Stoffelen, G.J. Marseille, J. de Kloe and D. Huber, 2009. *TN3.1b, Test results for the L2B processor, vo.1*. *ADM-Aeolus simulation and processing test results, vo.1*, ESA.

Egger, G. and M. Belmonte Rivas, 2009. *Post-EPSC Competing Scatterometer Designs: ASCAT versus RFSCAT*. *ARSI - Advanced RF Sensors and Remote Sensing Instruments*, 16/11/2009-18/11/2009, 2009, Noordwijk (The Netherlands), European Space Agency.

Geertsema, G.T. and B.G.L. Wichers Schreur, 2009. *Evaluation of diabatic initialization improvements in the numerical weather prediction model HIRLAM*. *AQ7: 7th international conference on Air Quality*, 24/3/2009-27/3/2009, 2009, Istanbul, AQ7, ISBN 978-1-905313-64-8, 747-750.

Kloe, J. de, A. Stoffelen, G.J. Marseille, D. Tan, L. Isaksen, C. Desportes, C. Payan, A. Dabas, D. Huber, O. Reitebuch, P. Flamant, H. Nett, O. le Rille and A.G. Straume, 2009. *ADM-Aeolus Ocean Surface Calibration and Level-2B Wind-Retrieval Processing*. *International Symposium on Tropospheric Profiling (ISTP2009)*, 19/10/2009-23/10/2009, 2009, Delft, RIVM, KNMI, TU-Delft, only published online ([www.istp2009.nl](http://www.istp2009.nl)), not on paper.

Kloe, J. de, G.J. Marseille and A. Stoffelen, 2009. *ADM-Aeolus, VAMP, Vertical Aeolus Measurement Positioning, TN3, vo.3*. *ADM-Aeolus VAMP quality control possibilities*, ESA.

Kloe, J. de and A. Stoffelen, 2009. *A SPONTANEOUS RAYLEIGH-BRILLOUIN SCATTERING EXPERIMENT FOR THE CHARACTERIZATION OF ATMOSPHERIC LIDAR BACKSCATTER (TN4 part 3)*. *ADM-Aeolus Brillouin project, TN4, part 3*, ESA.

Kloe, J. de, G.J. Marseille and A. Stoffelen, 2009. *ADM-Aeolus, VAMP, Task 4: Quantification of L2B HLOS wind accuracies for typical wind shear, aerosol and cloud conditions*. *VAMP TN3*, ESA.

Kok, K. and D. Vogelezang, 2009. *Warning system of extreme precipitation for the Dutch water boards*. *Proceedings of the Joint MAP D-PHASE Scientific Meeting - COST731 mid-term seminar. Challenges in hydrometeorological forecasting in complex terrain*, 19/5/2008-22/5/2008, Andrea Montani et al. (Eds.), 2009, Bologna, ARPA-SIM en COST, 22-27.

Marseille, G.J., A. Stoffelen, J. de Kloe, K. Houchi, H. Kornich, H. Schyberg, A.G. Straume and O. LeRille, 2009. *ADM-Aeolus vertical sampling scenarios*. *International Symposium on Tropospheric Profiling (ISTP)*, 19/10/2009-23/10/2009, 2009, Delft, KNMI - TU Delft - RIVM.

Marseille, G.J., A. Stoffelen, J. de Kloe, H. Schyberg, H. Kornich, A.G. Straume-Lindner, O. LeRille and K. Houchi, 2009. *ADM-Aeolus vertical sampling scenarios*. *ISTP - International Symposium on Tropospheric Profiling*, 19/10/2009-23/10/2009, 2009, Delft, KNMI/RIVM/TU-Delft.

- Masutani, M., Ad Stoffelen, G.-J. Marseille and et al., 2009. *Expanding collaboration in Joint ossees*. AMS 13th Conference on Integrated Observing and Assimilation Systems for the Atmosphere, Oceans, and Land Surface, 11/1/2009-15/1/2009, 2009, Phoenix AZ, AMS, 13.
- Placidi, S., D.P. Donovan, R. Roebeling and H.W.J. Russchenberg, 2009. *Organizing Committee of the 8<sup>th</sup> International Symposium on Tropospheric Profiling*. 8<sup>th</sup> ISTP, 19/10/2009, A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Eds.), 2009, Delft, Delft/KNMI/RIVM, Organizing Committee of the 8th International Symposium on Tropospheric Profiling, ISBN 978-90-6960-2.
- Overeem, A., I. Holleman and T.A. Buishand, 2009. *Neerslagklimatologie uit weerradar*. H<sub>2</sub>O, **42**, 8, 31-33.
- Roebeling, R.A., H. Deneke, W. Greuell and N.A.J. Schutgens, 2009. *Towards a Standard Procedure for Validation of Satellite Derived Cloud Properties with Ground-Based Observations*. Hyperspectral Imaging and Sounding of the Environment (HISE) Topical Meeting, 27/4/2009-30/4/2009, 2009, Vancouver, Canada, OSA.
- Stoffelen, A., 2009. *ADM-Aeolus Quasi Real-Time and Near Real-Time Wind Profiles*. 2009, EUMETSAT, EUMETSAT STG-SWG, 8p.
- Tan, D., E. Andersson, P. Poli, A. Dabas, J. de Kloe, G.J. Marseille and A. Stoffelen, 2009. *ADM-AEOLUS Level-2B Algorithm Theoretical Baseline Document, v2.2*. ADM-Aeolus Level-2B/2C Processor ATBD, v2.2, ESA.
- Verhoef, A. and A. Stoffelen, 2009. *Validation of ASCAT 12.5-km winds, version 1.1*. SAF/OSI/CDOP/KNMI/TEC/RP/147, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2009. *ASCAT Wind Product User Manual version 1.6*. SAF/OSI/CDOP/KNMI/TEC/MA/126, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2009. *Validation of ASCAT 12.5-km winds, version 1.2*. SAF/OSI/CDOP/KNMI/TEC/RP/147, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2009. *ASCAT Wind Product User Manual version 1.7*. SAF/OSI/CDOP/KNMI/TEC/MA/126, EUMETSAT.
- Verhoef, A. and A. Stoffelen, 2009. *SeaWinds Product User Manual version 1.6*. SAF/OSI/KNMI/TEC/MA/134, EUMETSAT.
- Verspeek, J.A. and A. Stoffelen, 2009. *ASCAT tandem coverage*. OSISAF, KNMI.
- Vogelzang, J., A. Stoffelen, M. Belmonte Rivas, A. Verhoef and J. Verspeek, 2009. *The quality of the ASCAT 12.5 km wind product*. EUMETSAT Meteorological Satellite Conference, 14/9/2009-18/9/2009, 2009, Bath, UK, EUMETSAT, EUMETSAT.
- Vu, V.T., G.J. Cats and A.A. Wolters, 2009. *Overlapping Communications With Calculations*. International Conference on Parallel and Distributed Processing Techniques and Applications Distributed Processing Techniques and Applications487-4, 7/2009-7/2009, 2009, PDPTA 2009, CSREA Press, 487-493.
- Wallbrink, H. and F.B. Koek, 2009. *Historical Maritime Wind Scales until 1947*. 2009, KNMI, HISKLIM, 20p.
- Wallbrink, H. and F.B. Koek, 2009. *Historical wind speed equivalents of the Beaufort scale, 1850-1950*. 2009, KNMI, HISKLIM, 29p.
- Wallbrink, H. and F.B. Koek, 2009. *HISKLIM-COADS, final report*. KNMI Publication PUBL-210, ISBN 90-369-2269-0, pp22.
- Wallbrink, H., F.B. Koek and T. Brandsma, 2009. *The US Maury Collection Metadata 1796-1861*. KNMI Publication PUBL-225, pp59.
- Woodruff, S.D., E. Freeman, C. Wilkinson, R. Allan, H. Anderson, P. Brohan, G. Compo, S. Claesson, F.B. Koek, S. Lubker, C. Marzin, T. Ross, M. Seiderman, D. Wheeler and S. Worley, 2009. *COADS Marine Data Rescue: Status and Future CDMR Priorities*.

# Publications

## Climate Observations

The Climate Observations division employs satellite observations to study the earth system. Current research topics are atmospheric composition in relation to climate, air quality and stratospheric ozone.

### Reviewed publications

#### 2007

- Balis, D., M. Kroon, M. Koukouli, E.J. Brinksma, G. Labow, J.P. Veefkind and R. McPeters, 2007. *Validation of Ozone Monitoring Instrument total ozone column measurements using Brewer and Dobson spectrophotometer groundbased observations*. *J. Geophys. Res.*, **112**.
- 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, 2007. *Near-real time retrieval of tropospheric NO<sub>2</sub> from OMI*. *Atm. Chem. Phys.*, 2013-2118.
- Carn, S.A., A.J. Krueger, N.A. Krotkov, K. Yang and P.F. Levelt, 2007. *Sulfur dioxide emissions from Peruvian copper smelters detected by the Ozone Monitoring Instrument*. *Geophys. Res. Lett.*, **34**.
- Hilsenrath, E., M.R. Schoeberl, A.R. Douglass, P.K. Bhartia, J. Barnett, R. Beer, J. Waters, M. Gunson, L. Froidevaux, J. Gille and P.F. Levelt, 2007. *Early data from Aura and continuity from UARS and TOMS. 2007*, *Solar Variability and Planetary Climates; Space science series of ISSI*, Springer, ISBN 978-0-387-48339-9.
- Kroon, M., M.R. Dobber, R. Dirksen, J.P. Veefkind, G.H.J. van den Oord and P.F. Levelt, 2007. *Ozone Monitoring Instrument Geolocation Verification*. *J. Geophys. Res.*
- Kroon, M., J.P. Veefkind, M. Sneep, R.D. McPeters, P.K. Bhartia and P.F. Levelt, 2007. *Comparing OMI-TOMS and OMI-DOAS total ozone column data*. *J. Geophys. Res.*
- Laat, A.T.J. de, 2007. *Mixing Politics and Science in Testing the Hypothesis that Greenhouse Warming is Causing a Global Increase in Hurricane Intensity*. *Bull. Amer. Meteor. Soc.*, **88**, 2, 251-252.
- Laat, A.T.J. de, J. Landgraf, O. Hasekamp, I. Aben and B. Bregman, 2007. *Validation of GOME ozone profiles and evaluation of stratospheric transport in a global chemistry-transport model*. *J. Geophys. Res.*, **112**.
- Laat, A.T.J. de, A.M.S. Gloudemans, I. Aben, J.F. Meirink, M. Krol, G. van der Werf and H. Schrijver, 2007. *SCIAMACHY carbon monoxide total columns: Statistical evaluation and comparison with CTM results*. *J. Geophys. Res.*, **112**.
- Laat, A.T.J. de et al., 2007. *correction to SCIAMACHY Carbon Monoxide total columns: Statistical evaluation and comparison with CTM results*. *J. Geophys. Res.*, **112**.
- Schoeberl, M.R., J.R. Ziemke, B. Bojkov, N. Livesey, P.F. Levelt, M. Allaart and H.M. Kelder, 2007. *A trajectory-based estimate of the tropospheric ozone column using the residual method*. *J. Geophys. Res.*, **112**.
- Shavrina, A.V., Y.V. Pavlenko, A. Veles, I. Syniavskiy and M. Kroon, 2007. *Ozone columns obtained by ground-based remote sensing in Kiev for Aura Ozone Measuring Instrument validation*. *J. Geophys. Res.*
- Teyssède, H., M. Michou, H.L. Clark, B. Josse, F. Karcher, D. Olivé, V.H. Peuch, D. Saint-Martin, D. Cariolle, J.L. Attié, P. Nédélec, P. Ricaud, V. Thouret, R.J. van der A and A. Volz-Thomas, 2007. *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. *Atm. Chem. Phys.*, **7**, 22, 5815-5860.

Tilstra, L.G. and P. Stammes, 2007. Earth reflectance and polarization intercomparison between SCIAMACHY on Envisat and POLDER on ADEOS-2. *J. Geophys. Res.*, **112**.

Wang, Y., M.B. McElroy, K.F. Boersma, H.J. Eskes and J.P. Veefkind, 2007. Traffic restrictions associated with the Sino-African summit: Reductions of NO<sub>x</sub> detected from space. *Geophys. Res. Lett.*, **34**, L08814.

## 2008

A, R.J. van der, H.J. Eskes, K.F. Boersma, T.P.C. van Noije, M. Van Roozendaal, I. De Smedt, D.H.M.U. Peters, J.J.P. Kuenen and E.W. Meijer, 2008. Identification of NO<sub>2</sub> sources and their trends from space using seasonal variability analyses. *J. Geophys. Res.*, **113**.

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, 2008. Validation of OMI tropospheric NO<sub>2</sub> observations during INTEx-B and application to constrain NO<sub>x</sub> emissions over the eastern United States and Mexico. *Atmos. Environ.*, **42**, 4480-4497.

Boersma, K.F., D.J. Jacob, H.J. Eskes, R.W. Pinder, J. Wang and R.J. van der A, 2008. Intercomparison of SCIAMACHY and OMI tropospheric NO<sub>2</sub> columns: observing the diurnal evolution of chemistry and emissions from space. *J. Geophys. Res.*, **113**, 1-14.

Boesche, E., P. Stammes, R. Preusker, R. Bennartz, W. Knap and J. Fischer, 2008. Polarization of skylight in the O<sub>2</sub>A band: effects of aerosol properties. *Appl. Optics*, **47**, 3467-3480.

Boesche, E., P. Stammes and R. Bennartz, 2008. Aerosol Influence on Polarization and Intensity in Near-Infrared O<sub>2</sub> and CO<sub>2</sub> Absorption Bands Observed from Space. *J. Quant. Spectros. Rad. Transf.*

Brinksma, E.J., G.J. Pinardi, R. Braak, H. Volten, A. Richter, R.J. Dirksen, T. Vlemmix, D.P.J. Swart, W.H. Knap, J.P. Veefkind, H.J. Eskes, M. Allaart, R. Rothe, A.J.M. Piters and P.F. Levelt, 2008. The 2005 and 2006 DANDELIONS NO<sub>2</sub> and Aerosol Intercomparison Campaigns. *J. Geophys. Res.*

Bucsela, E.J., A.E. Perring, R.C. Cohen, K.F. Boersma, E.A. Celarier, J.F. Gleason, M.O. Wenig, T.H. Bertram, P.J. Wooldridge, R. Dirksen and J.P. Veefkind, 2008. Comparison of tropospheric NO<sub>2</sub> from in situ aircraft measurements with near-real-time and standard product data from OMI. *J. Geophys. Res.*, **113**.

Celarier, E., E.J. Brinksma, J.P. Veefkind, D.P.J. Swart, H. Volten, M. Kroon and P.F. Levelt, 2008. Validation of Ozone Monitoring Instrument Nitrogen Dioxide Columns. *J. Geophys. Res.*, **113**.

Dobber, M., Q. Kleipool, R. Dirksen, P.F. Levelt, G. Jaross, S. Taylor, T. Kelly, L. Flynn, G. Leppelmeier and N. Rozemeijer, 2008. Validation of Ozone Monitoring Instrument level 1b data products. *J. Geophys. Res.*, **113**.

Dobber, M., R. Voors, R. Dirksen, Q. Kleipool and P. Levelt, 2008. The high-resolution solar reference spectrum between 250 and 550 nm and its application to measurements with the Ozone Monitoring Instrument. *Solar Physics*, **249**, 281-291.

Frankenberg, C., P. Bergamaschi, A. Butz, S. Houweling, J.F. Meirink, J. Notholt, A.K. Petersen, H. Schrijver, T. Warneke and I. Aben, 2008. Tropical methane emissions: A revised view from SCIAMACHY onboard ENVISAT. *Geophys. Res. Lett.*, **35**.

Ghude, S.D., S. Fadnavis, G. Beig, Y.K. Tiwari, R.J. van der A, S.D. Polade and S. Chau, 2008. Detection of surface emission hotspots, trends and seasonal cycle from satellite-retrieved NO<sub>2</sub> over India. *J. Geophys. Res.*, **113**.

Hassinen, S., J. Tamminen, A. Tanskanen, G. Leppelmeier, A. Mälkki, T. Koskela, J.M. Karhu, K. Lakkala, P. Veefkind, N. Krotkov and O. Aulamo, 2008. Description and validation of the OMI very fast delivery products. *J. Geophys. Res.*, **113**.

Ionov, D., Y.M. Timofeyev, V.P. Sinyakov, V.K. Semenov, F. Goutail, J.P. Pommereau, E.J. Bucsela, E.A. Celarier and M. Kroon, 2008. Ground-based validation of Eos-Aura OMI NO<sub>2</sub> vertical column data in the midlatitude mountain ranges of Tien Shan (Kyrgyzstan) and Alps (France). *J. Geophys. Res.*, **113**.

Kleipool, Q.L., M.R. Dobber, J.F. de Haan and P.F. Levelt, 2008. Earth surface reflectance climatology from 3 years of OMI data. *J. Geophys. Res.*, **113**.

Krol, M.C., J.F. Meirink, P. Bergamaschi, J.E. Mak, D. Lowe, P. Joeckel, S. Houweling and T. Roeckmann, 2008. What can 14CO measurements tell us about OH?. *Atm. Chem. Phys.*, **8**, 5033-5044.

Kroon, M., M.R. Dobber, R. Dirksen, J.P. Veefkind, G.H.J. van den Oord and P.F. Levelt, 2008. Ozone Monitoring Instrument Geolocation Verification. *J. Geophys. Res.*, **113**.

Kroon, M., J.P. Veefkind, M. Sneep, R.D. McPeters, P.K. Bhartia and P.F. Levelt, 2008. Comparing OMI-TOMS and OMI-DOAS total ozone column data. *J. Geophys. Res.*, **113**.

Kroon, M., I. Petropavlovskikh, R. Shetter, S. Hall, K. Ullman, J.P. Veefkind, R.D. McPeters and P.F. Levelt, 2008. OMI total Ozone Column Validation with Aura-AVE CAFS Observations. *J. Geophys. Res.*, **113**.

Krotkov, N.A., B. McClure, R.R. Dickerson, S.A. Carn, C. Li, P.K. Bhartia, K. Yang, A.J. Krueger, Z. Li, P.F. Levelt, H. Chen, P. Wang and D. Lu, 2008. Validation of SO<sub>2</sub> retrievals from the Ozone Monitoring Instrument over NE China. *J. Geophys. Res.*, **113**.

- Kuipers Munneke, P., C.H. Reijmer, M.R. van den Broeke, G. Koenig-Langlo, P. Stammes and W.H. Knap, 2008. *Analysis of clear-sky Antarctic snow albedo using observations and radiative transfer modeling*. J. Geophys. Res., D1711, **113**.
- Laat, A.T.J. de, 2008. *Current climate impact of heating from energy usage*. EOS Transactions, **89**.
- McPeters, R.D., M. Kroon, G. Labow, E.J. Brinksma, D. Balis, I. Petropavlovskikh, J.P. Veefkind, P.K. Bhartia and P.F. Levelt, 2008. *Validation of the Aura Ozone Monitoring Instrument Total Column Ozone Product*. J. Geophys. Res., **113**.
- 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, 2008. *Four-dimensional variational data assimilation for inverse modelling of atmospheric methane emissions: Analysis of SCIAMACHY observations*. J. Geophys. Res., **113**.
- Meirink, J.F., P. Bergamaschi and M.C. Krol, 2008. *Four-dimensional variational data assimilation for inverse modelling of atmospheric methane emissions: Method and comparison with synthesis inversion*. Atm. Chem. Phys., **8**, 6341-6353.
- Migliorini, S., R. Brugge, A. O'Neill, M. Dobber, V. Fioletov, P.F. Levelt and R. MCPeters, 2008. *Evaluation of ozone total column measurements by the Ozone Monitoring Instrument using a data assimilation system*. J. Geophys. Res., **113**.
- Petropavlovskikh, I., L. Froidevaux, R. Shetter, S. Hall, K. Ullmann, P.K. Bhartia, M. Kroon and P.F. Levelt, 2008. *In-flight validation of Aura MLS ozone with CAFS partial ozone columns*. J. Geophys. Res., **113**.
- Schutgens, N.A.J., W. Greuell and R.A. Roebeling, 2008. *Effect of inhomogeneity on the validation of SEVIRI LWP*. International Radiation Symposium (IRS2008), 3/8/2008-8/8/2008, 2008, Iguacu Falls, Brazil, IRS.
- Smedt, I. De, J.F. Muller, T. Stavrou, R.J. van der A, H. Eskes and M. Van Roozendael, 2008. *Twelve years of global observation of formaldehyde in the troposphere using GOME and SCIAMACHY sensors*. Atm. Chem. Phys., **8**, 4947-4963.
- Sneep, M., J.F. de Haan, P. Stammes, P. Wang, C. Vanbauce, J. Joiner, A.P. Vasilkov and P.F. Levelt, 2008. *Three-way comparison between OMI and PARASOL cloud pressure products*. J. Geophys. Res., **113**.
- Spurr, R., J.F. de Haan, R. van Oss and A. Vasilkov, 2008. *Discrete Ordinate Radiative Transfer in a Stratified Medium with First Order Rotational Raman Scattering*. J. Quant. Spectros. Rad. Transf., **109**, 3, 404-425.
- Stajner, I., K. Wargan, S. Pawson, H. Hayashi, L. Chang, R.C. Hudman, L. Froidevaux, N. Livesey, P.F. Levelt, A.M. Thompson, D.W. Tarasick, R. Stübi and S.B. Andersen, 2008. *Assimilated ozone from EOS-Aura: Evaluation of the tropopause region and tropospheric columns*. J. Geophys. Res., **113**.
- Stammes, P., M. Sneep, J.F. de Haan, J.P. Veefkind, P. Wang and P. Levelt, 2008. *Effective cloud fractions from the Ozone Monitoring Instrument: Theoretical framework and validation*. J. Geophys. Res., **113**.
- Stavrou, T., J.F. Muller, K.F. Boersma, I. De Smedt and R.J. van der A, 2008. *Assessing the distribution and growth rates of NO<sub>x</sub> emission sources by inverting a 10-year record of NO<sub>2</sub> satellite columns*. Geophys. Res. Lett., **35**.
- Vasilkov, A., J. Joiner, R. Spurr, P.K. Bhartia, P.F. Levelt and G. Stephens, 2008. *Evaluation of the OMI Cloud Pressures Derived from Rotational Raman Scattering by Comparisons with Other Satellite Data and Radiative Transfer Simulations*. J. Geophys. Res., **113**.
- Wang, P., P. Stammes, R. van der A, G. Pinardi and M. van Roozendael, 2008. *FRESCO+: an improved O<sub>2</sub> A-band cloud retrieval algorithm for tropospheric trace gas retrievals*. Atm. Chem. Phys., **8**, 9697-9729.
- Wenig, M.O., A.M. Cede, E.J. Bucsela, E.A. Celarier, K.F. Boersma, J.P. Veefkind, E.J. Brinksma, J.F. Gleason and J.R. Herman, 2008. *Validation of OMI tropospheric NO<sub>2</sub> column densities using direct-sun mode Brewer measurements at NASA Goddard Space Flight Center*. J. Geophys. Res., **113**.
- Wolters, E.L.A., R.A. Roebeling and A.J. Feijt, 2008. *Evaluation of cloud phase retrieval methods for SEVIRI onboard METEOSAT-8 using ground-based lidar and cloud radar data*. J. Appl. Meteor., **47**, 6, 1723-1738.

## 2009

- Anton, M., M. Lopez, J.M. Vilaplana, M. Kroon, R.D. MCPeters, M. Banon and A. Serrano, 2009. *Validation of OMI-TOMS and OMI-DOAS total ozone column using five Brewer spectroradiometers at the Iberian peninsula*. J. Geophys. Res., **114**, 14307.
- Bergamaschi, P., C. Frankenberg, J.F. Meirink, M. Krol, M.G. Villani, S. Houweling, F. Dentener, E.J. Dlugokencky, J.B. Miller, L.V. Gatti, A. Engel and I. Levin, 2009. *Inverse modeling of global and regional CH<sub>4</sub> emissions using SCIAMACHY satellite retrievals*. J. Geophys. Res., **114**, D22301.
- Boersma, K.F., D.J. Jacob, M. Trainic, Y. Rudich, I. DeSmedt, R.J. Dirksen and H.J. Eskes, 2009. *Validation of urban NO<sub>2</sub> concentrations and their diurnal and seasonal variations observed from space (SCIAMACHY and OMI sensors) using in situ measurements in Israeli cities*. Atm. Chem. Phys., **9**, 3867-3879.
- Boesche, E., P. Stammes and R. Bennartz, 2009. *Aerosol Influence on Polarization and Intensity in Near-Infrared O<sub>2</sub> and CO<sub>2</sub> Absorption Bands Observed from Space*. J. Quant. Spectros. Rad. Transf., **110**, 3, 223-239.
- Bowman, K.W., D.B.A. Jones, J.A. Logan, H. Worden, K.F. Boersma and et al., 2009. *The zonal structure of tropical O<sub>3</sub> and CO as observed by the Tropospheric Emission Spectrometer in November 2004 - Part 2: Impact of surface emissions on O<sub>3</sub> and its precursors*. Atm. Chem. Phys., **9**, 3563-3582.

- Dirksen, R., F. Boersma, A.T.J. de Laat, P. Stammes, G. van der Werf and H. Kelder, 2009. *An aerosol boomerang: rapid around-the-world transport of smoke from December 2006 Australia forest fires observed from space*. J. Geophys. Res., **114**.
- Ghude, S.D., R.J. van der A, G. Beig, S. Fadnavis and S.D. Polade, 2009. *Satellite derived trends in NO<sub>2</sub> over the major global hotspot regions during the past decade and their inter-comparison*. Environmental Pollution, **157**, 6, 1873-1878.
- GlouDEMANS, A.M.S., A.T.J. de Laat, H. Schrijver, I. Aben, J.F. Meirink and G.R. van der Werf, 2009. *SCIAMACHY CO over land and oceans: 2003-2007 interannual variability*. Atm. Chem. Phys., **9**, 3799-3813.
- Greuell, W. and R.A. Roebeling, 2009. *Towards a standard procedure for validation of satellite-derived cloud liquid water path: a study with SEVIRI data*. J. Appl. Meteor., **48**, 8, 1575-1590.
- Laat, A.T.J. de, R.J. van der A and M. van Weele, 2009. *Evaluation of tropospheric ozone columns derived from assimilated GOME ozone profile observations*. Atm. Chem. Phys., **9**, 8105-8120.
- Laat, A.T.J. de et al., 2009. *Global evaluation of SCIAMACHY and MOPITT carbon monoxide column differences for 2004-2005*. J. Geophys. Res.
- Marmer, E., F. Dentener, J. van Aardenne, F. Cavalli, E. Vignati, K. Velchev, J. Hjorth, K.F. Boersma, G. Vinken, N. Mihalopoulos and F. Raes, 2009. *What can we learn about ship emission inventories from measurements of air pollutants over the Mediterranean Sea?* Atm. Chem. Phys., **9**, 6815-6831.
- Mijling, B., R.J. van der A, K.F. Boersma, M. Van Roozendaal, I. De Smedt and H.M. Kelder, 2009. *Reduction of NO<sub>2</sub> detected from space during the 2008 Beijing Olympic Games*. Geophys. Res. Lett., **36**.
- Peet, J.C.A. van, R.J. van der A, A.T.J. de Laat, O.N.E. Tuinder, G. Koenig-Langlo and J. Wittig, 2009. *Height resolved ozone hole structure as observed by the Global Ozone Monitoring Experiment-2*. Geophys. Res. Lett., **36**.
- Schulz, J., H. Deneke, R. Roebeling, E. Wolters and et al., 2009. *Operational climate monitoring from space: the EUMETSAT satellite application facility on climate monitoring (CM-SAF)*. Atm. Chem. Phys., **9**, 1-23.
- Stammes, P., L.G. Tilstra, R. Braak, M. de Graaf and I. Aben, 2009. *Estimate of solar radiative forcing by polluted clouds using OMI and SCIAMACHY satellite data*. International Radiation Symposium IRS2008, 3/8/2008-8/8/2008, T. Nakajima and M.A. Yamasoe (Ed), 2009, ICR/IAMAS, American Institute of Physics, ISBN 978-0-7354-0635-3, 577-580.
- Verma, S., J. Worden, B. Pierce, D.B.A. Jones, J. Al-Saadi, K.F. Boersma, K. Bowman, A. Eldering, B. Fisher, L. Jourdain, S. Kulawik and H. Worden, 2009. *Ozone production in boreal fire smoke plumes using observations from the Tropospheric Emission Spectrometer and the Ozone Monitoring Instrument*. J. Geophys. Res., **114**.
- Wang, P., W.H. Knap, P. Kuipers Munneke and P. Stammes, 2009. *Clear-sky shortwave radiative closure for the Cabauw Baseline Surface Radiation Network site, the Netherlands*. J. Geophys. Res., **114**.
- Wang, P., W.H. Knap, P. Kuipers Munneke and P. Stammes, 2009. *Clear sky atmospheric radiative transfer: a model intercomparison of shortwave irradiances*. International Radiation Symposium IRS2008, 3/8/2008-8/8/2008, T. Nakajima and M.A. Yamasoe (Ed), 2009, ICR/IAMAS, American Institute of Physics, ISBN 978-0-7354-0635-3, 125-128.
- Zyrichidou, I., M.E. Koukoulis, D.S. Balis, E. Katragkou, D. Melas, A. Poupkou, I. Kioutsoukis, R.J. van der A, K.F. Boersma, M. Van Roozendaal and A. Richter, 2009. *Satellite observations and model simulations of tropospheric NO<sub>2</sub> columns over south-eastern Europe*. Atm. Chem. Phys., **9**, 6119-6134.

## Other Publications

### 2007

- Brinksma, E.J., T. Vlemmix and P.F. Levelt, 2007. *Satellietvalidatie door scholieren*. Nederlands Tijdschrift voor Natuurkunde, maart, 73, 77.
- Claas, J.J., 2007. *PL-OMI-KNMI-870, Test Plan Reprocessing Readiness Test*. 2007, KNMI.
- Claas, J.J., 2007. *TN-OMI-KNMI-872 OMI Reprocessing Status*. 2007, KNMI.
- Deneke, H., R.A. Roebeling, E.L.A. Wolters and A.J. Feijt, 2007. *Globale stralingsmeting vanuit de ruimte*. Meteorologica, **16**, 3, 21-25.
- GlouDEMANS, A.M.S., A.T.J. de Laat, M. Krol, J.F. Meirink, I. Aben, G. van der Werf and J. Schrijver, 2007. *Evidence for long-range transport of carbon monoxide in the southern hemisphere from SCIAMACHY observations*. ESA ENVISAT symposium, 22/4/2007-27/4/2007, 2007, Montreux, Zwitserland.
- Kroon, M., E.J. Brinksma, J.P. Veefkind, R. McPeters, G. Labow, P.F. Levelt and P.K. Bhartia, 2007. *Validation from more than one year of data from the Ozone Monitoring Instrument*. Measuring Tropospheric Trace Species from Space - AT2 in 2005 -6, ACCENT-Troposat.

- Levelt, P.F., J.P. Veefkind, M. Kroon, E.J. Brinksma, R.D. McPeters, G. Labow, N. Krotkov, D. Ionov, E. Hilsenrath, A. Tanskanen, G.H.J. van den Oord and P.K. Bhartia, 2007. *Several First Year's Results of the Ozone Monitoring Instrument*. Conference Proceedings.
- Snoeij, P., A. Piters, H. Fischer, Y. Meijer, J.C. Lambert and T. Fehr, 2007. *Summary of the atmospheric chemistry instrument validation results as presented at the ACVE-3 workshop*. Third Workshop on Atmospheric Chemistry Validation of Envisat (ACVE-3), 4/12/2006-7/12/2006, 2007.
- Tilstra, L.G., M. de Graaf, I. Aben and P. Stammes, 2007. *Analysis of 5 years SCIAMACHY Absorbing Aerosol Index data*. Envisat Symposium, 23/4/2007-27/4/2007, 2007, Montreux (CH), ESA SP-636, ESA/ESTEC.
- Tilstra, L.G., M. de Graaf, S. Noel, E.A.A. Aben and P. Stammes, 2007. *SCIAMACHY's Absorbing Aerosol Index and the consequences of instrument degradation*. Third Workshop on the Atmospheric Chemistry Validation of ENVISAT (ACVE-3), 4/12/2006-7/12/2006, 2007.
- Vlemmix, T., E.J. Brinksma, J.P. de Vroom and P.F. Levelt, 2007. *Dutch Students Contribute to OMI Aerosol Validation*. The Earth Observer, **19**, 5, 7-9.
- Wang, P., P. Stammes and R. van der A, 2007. *The FRESKO+ cloud algorithm for GOME and SCIAMACHY: improvement and validation*. ENVISAT Symposium, 23/4/2007-27/4/2007, 2007, Montreux, Switzerland.
- Wang, P., P. Stammes and R. van der A, 2007. *The FRESKO+ cloud algorithm for GOME and SCIAMACHY: improvement and validation*. ENVISAT Symposium, 23/4/2007-27/4/2007, 2007, Montreux, Switzerland.
- Weele, M. van and R. van der A, 2007. *Spaceborne surface UV radiation products as available from TEMIS*. 18/9/2007-20/9/2007, J. Groebner (Ed), 2007, Davos, Zwitserland, PMOD, 175-176.
- Zhang, Y., P. Zhang, J. Kuenen, X. Zhang, X. Li, H. Qiu and W. Wang, 2007. *Variations of Carbon Monoxide and Nitrogen Dioxide column concentrations of China in 2003 using the TM<sub>5</sub> simulation results*. Remote Sensing Information, 6.

## 2008

- Claas, J.J., 2008. *Deriving attitude and ephemeris data: GBAD versus OMI ancillary data*. TN-OMIE-KNMI-908.
- Claas, J.J., 2008. *Impact of the AURA re-phasing on OMI*. TN-OMIE-KNMI-910.
- Claas, J.J., 2008. *Input NRB FMU Anomaly*. TN-OMIE-KNMI-905.
- Claas, J.J., 2008. *Minutes NRB FMU Anomaly*. TN-OMIE-KNMI-906.
- Claas, J.J., 2008. *OMI hardware vervanging*. LE-OMIE-KNMI-914.
- Claas, J.J., 2008. *Operational Remarks on OMI White Light Source (WLS)*. TN-OMIE-KNMI-912.
- Hoek, M. van, 2008. *Extension of Solar measurements*. TN-OMIE-909.
- Hoek, M. van, 2008. *Monitoring AURA Re-phasing*. KNMI Preprint PR, TN-OMIE-907.
- Piters, A., F. Wittrock, A. Richter, M. van Roozendaal and F. Goutail, 2008. *First demonstration of satellite validation for tropospheric NO<sub>2</sub>*. GEOMON Project deliverable M18.
- Piters, A.J.M., 2008. *The Development of Validation Strategies for Tropospheric Satellite Data Products using Existing Data: Activity Report: March 2006 to March 2007*. Annual Report ACCENT-Troposat 2.
- Wang, P., W.H. Knap, P. Kuipers Munneke and P. Stammes, 2008. *Clear-sky Atmospheric Radiative Transfer: A Model Inter-comparison for Shortwave Irradiances*. International Radiation Symposium (IRS-2008), 3/8/2008-8/8/2008, 2008, Brazil.
- Wolters, E.L.A., H.M. Deneke, J.F. Meirink and R.A. Roebeling, 2008. *Impact of broken and inhomogeneous clouds in satellite cloud-phase retrieval*. EUMETSAT Meteorological Satellite Conference, 8/9/2008-12/9/2008, 2008, Darmstadt, Germany, EUMETSAT.

## 2009

- Aben, I. and P.F. Levelt, 2009. *De Aardatmosfeer gezien vanuit de ruimte*. Nederlands Tijdschrift voor Natuurkunde, **75**, 6, 193-198.
- Carbajal Henken, C.K., M.J. Schmeits, E.L.A. Wolters and R.A. Roebeling, 2009. *Detection of Cb and TCu clouds using MSG-SEVIRI cloud physical properties and weather radar observations*. KNMI Scientific Report WR-2009-04.
- Claas, J.J., 2009. *Overview OMI row anomaly*. TN-OMIE-KNMI-924.
- Claas, J.J., 2009. *Timing dark current measurements*. TN-OMIE-KNMI-920.
- Dirksen, R.J., K.F. Boersma, A.T.J. de Laat and P. Stammes, 2009. *Three dimensional OMI observations of rapid around the world transport of an aerosol plume released from the Australian forest fires on 14 December 2006*. 8th International Symposium on Tropospheric Profiling Registration, 19/10/2009-23/10/2009, A. Apituley, H.W.J. Russchenberg and W.A.A. Monna (Eds.), 2009, Delft, KNMI, RIVM, TU Delft, ISBN 978-90-6960-2.
- Hoexum, A.M., A. Apituley, M.A.F. Allaart and A.J.M. Piters, 2009. *Tropospheric Ozone Lidar for OMI validation*. ISTP 8, 19/10/2009-23/10/2009, 2009, Delft.

- Marmner, E., F. Dentener, J. van Aardenne, F. Cavalli, E. Vignati, K. Velchev, J. Hjorth, K.F. Boersma, G.C.M. Vinken, N. Milahopoulos and F. Raes, 2009. *What can we learn about ship emission inventories from measurements of air pollutants over the Mediterranean Sea?* *Atm. Chem. Phys. Disc.*, **9**, 7155-7211.
- Meirink, J.F., R.A. Roebeling and P. Stammes, 2009. *Atmospheric correction for the KNMI Cloud Physical Properties retrieval algorithm*. KNMI Technical Report TR-304, pp22.
- Piters, A.J.M., B. Buchmann, D. Brunner, R.C. Cohen, J.C. Lambert, G. de Leeuw, P. Stammes, M. van Weele and F. Wittrock, 2009. *Data quality and validation of satellite measurements of tropospheric composition*. In *The Remote Sensing of Trop. Composition from Space*, 2009, Springer.
- Sluis, W.W., M.A.F. Allaart and A.J.M. Piters, 2009. *Development of a Nitrogen Dioxide Sonde*. ISTRP 8, 19/10/2009-23/10/2009, 2009, Delft.
- Veeffkind, J.P., P.F. Levelt, B.J. Kerridge, R. Siddans, G. de Leeuw, J. Remedios and P.F. Coheur, 2009. *CAMELOT Final Report*. Final Report CAMELOT Study (ESA contract no: 21533/07/NL/HE), KNMI.
- Vlemmix, T., A.J.M. Piters, P. Stammes, P. Wang and P.F. Levelt, 2009. *MAX-DOAS AEROSOL CORRECTED TROPOSPHERIC VERTICAL COLUMNS OF NITROGEN DIOXIDE*. ISTRP 8, 19/10/2009-23/10/2009, 2009, Delft.
- Wang, P. and W.H. Knap, 2009. *Energy redistribution due to the cloud layer*. 8<sup>th</sup> International Symposium of Tropospheric Profiling, 19/10/2009-23/10/2009, 2009, Delft.
- Wolters, E.L.A., R.A. Roebeling, P. Stammes, P. Wang, A. Ali and G. Brissebrat, 2009. *Evaluation of SEVIRI-derived rain rates and accumulated rainfall with TRMM-TMI and rain gauge data over West-Africa*. Earth Observations and Water Cycle Science conference, 18/11/2009-20/11/2009, 2009, Frascati, Italie, ESA.
- Zhou, Y., D. Brunner, K.F. Boersma, R.J. Dirksen and P. Wang, 2009. *An improved tropospheric NO<sub>2</sub> retrieval for satellite observations in the vicinity of mountainous terrain*. *Atmos. Meas. Tech. Discuss.*, **2**, 781-824.
- Zyrichidou, I., M.E. Koukouli, D.S. Balis, E. Katragkou, D. Melas, A. Poupkou, I. Kioutsoukis, R.J. van der A, K.F. Boersma, M. Van Roozendaal and A. Richter, 2009. *Satellite NO<sub>2</sub> observations and model simulations of tropospheric columns over South-eastern Europe*. *Atm. Chem. Phys.*, **9**, 16, 6119-6134.

# Publications

## Global Climate

In the Global Climate division, large-scale climate variability is studied, including the effects of climate change. The research activities in the group focus on quantifying decadal to centennial climate variability, studying feedbacks in the earth system, development of global climate scenarios and development of monthly, seasonal and decadal predictions. The group maintains global climate models of intermediate complexity and develops a state-of-the-art earth system model (EC-EARTH) as research tool and as tool for developing climate scenarios. The group is internationally recognized in the fields of climate extremes, thermohaline circulation, tropical variability, atmospheric dynamics and land processes.

### Reviewed Publications

#### 2007

- Almeida, R.A.F. de, P. Nobre, R.J. Haarsma and E.J.D. Campos, 2007. *Negative ocean-atmosphere feedback in the South Atlantic Convergence Zone*. *Geophys. Res. Lett.*, **34**.
- Bierkens, M.P. and B.J.J.M. van den Hurk, 2007. *Groundwater convergence as a possible mechanism for multi-year persistence in rainfall*. *Geophys. Res. Lett.*, **34**.
- Bracco, A., F. Kucharski, F. Molteni, W. Hazeleger and C. Severijns, 2007. *A recipe for simulating the interannual variability of the Asian Summer Monsoon and its relation with ENSO*. *Clim. Dyn.*, **28**, 441-460.
- Breugem, W.P., W. Hazeleger and R.J. Haarsma, 2007. *Mechanisms of northern tropical Atlantic variability and response to CO<sub>2</sub> doubling*. *J. Climate*, **20**, 11, 2691-2705.
- Breugem, W.P., 2007. *The effective viscosity of a channel-type porous medium*. *Physics of Fluids*, **19**, 10.
- Drijfhout, S.S. and W. Hazeleger, 2007. *Detecting Atlantic MOC changes in an ensemble of climate change simulations*. *J. Climate*, **20**, 8, 1571-1582.
- Drijfhout, S.S. and L.R.M. Maas, 2007. *Impact of channel geometry and rotation on the trapping of internal tides*. *J. Phys. Oceanogr.*, **37**, 11, 2740-2763.
- Friocourt, Y., B. Levier, S. Speich, B. Blanke and S.S. Drijfhout, 2007. *A regional numerical ocean model of the circulation in the Bay of Biscay*. *J. Geophys. Res.*, **112**, 9.
- Haarsma, R.J. and W. Hazeleger, 2007. *Extra-tropical atmospheric response to equatorial Atlantic cold tongue anomalies*. *J. Climate*, **20**, 10, 2076-2091.
- Hurk, B.J.J.M. van den, A.M.G. Klein Tank, G. Lenderink, A. van Ulden, G.J. van Oldenborgh, C. Katsman, H. van den Brink, F. Keller, J. Bessembinder, G. Burgers, G. Komen, W. Hazeleger and S. Drijfhout, 2007. *New climate change scenarios for the Netherlands*. *Water Science and Technology*, **56**, 4, 27-33.
- Hurk, B.J.J.M. van den, 2007. *Interactie tussen Hemel en Aarde*. 2007, ISBN 978-90-393-4618-1, 24p.
- Jia, Y., A.C. Coward, B.A. de Cuevas, D.J. Webb and S.S. Drijfhout, 2007. *A model analysis of the behaviour of the Mediterranean water in the North Atlantic*. *J. Phys. Oceanogr.*, **37**, 3, 764-786.
- Leeuwenburgh, O., 2007. *Validation of an EnKF System for OGCM Initialization Assimilating Temperature, Salinity, and Surface Height Measurements*. *Mon. Wea. Rev.*, **135**, 125-139.

- Marsh, R., W. Hazeleger, A. Yool and E. Rohling, 2007. *Stability of the Thermohaline Circulation under Millennial CO<sub>2</sub> Forcing and Two Alternative Controls on Atlantic Salinity*. *Geophys. Res. Lett.*, **34**.
- McDougall, T.J., P.R. Gent and S.S. Drijfhout, 2007. *Comment on two papers by Canuto and Dubovikov*. *Ocean Mod.*, **17**, 163-171.
- Mohamed, Y., B.J.J.M. van den Hurk and H.H.G. Savenije, 2007. *Moisture recycling over the Nile basin*. *IAHS Red Book Series 317*, **317**, 18-23.
- Moolenaar, H.E., J. Grasman, F.M. Selten and M. de Gee, 2007. *Testing a method for analyzing the effect of parameter change in climate driven ecological systems*. *Boreal Environment Research*.
- Oldenborgh, G.J. van, 2007. *How unusual was autumn 2006 in Europe?* *Climate of the Past*, **3**, 659-668.
- Schrier, G. van der, S.S. Drijfhout, W. Hazeleger and L. Noulin, 2007. *Increasing the Atlantic subtropical jet cools the circum-North Atlantic*. *Meteor. Z.*, **16**, 6, 675-684.
- Shongwe, M.E., C.A.T. Ferro, C.A.S. Coelho and G.J. van Oldenborgh, 2007. *Predictability of cold spring seasons in Europe*. *Mon. Wea. Rev.*, **135**, 4185-4201.
- Sterl, A., G.J. van Oldenborgh, W. Hazeleger and G. Burgers, 2007. *On the robustness of ENSO teleconnections*. *Clim. Dyn.*
- Stone, D.A., M.R. Allen, F.M. Selten, M. Kliphuis and P.A. Stott, 2007. *The detection and attribution of climate change using an ensemble of opportunity*. *J. Climate*, **20**, 504-516.
- Swaluw, E. van der, S.S. Drijfhout and W. Hazeleger, 2007. *Bjerknes compensation at high Northern latitudes: The ocean forcing the atmosphere*. *J. Climate*, **20**, 24, 6023-6032.
- Wit, M.J.M. de, B. van den Hurk, P.M.M. Warmerdam, P.J.J.F. Torfs, E. Roulin and W.P.A. van Deursen, 2007. *Impact of climate change on low flows in the river Meuse*. *Climatic Change*.

## 2008

- Balsamo, G., P. Viterbo, A. Beljaars, B.J.J.M. van den Hurk, A. Betts and K. Scipal, 2008. *A revised hydrology for the ECMWF model: Verification from field site to terrestrial water storage and impact in the Integrated Forecast System*. *J. Hydrometeorol.*
- Breugem, W.P., P. Chang, C.J. Jang, J. Mignot and W. Hazeleger, 2008. *Barrier layers and tropical Atlantic SST biases in coupled GCMs*. *Tellus*, **60**, **5**.
- Chang, P., R. Zhang, W. Hazeleger, C. Wen, X. Wan, L. Ji, R. Haarsma, W.P. Breugem and H. Seidel, 2008. *An Oceanic Bridge Between Abrupt Changes in North Atlantic Climate and the African Monsoon*. *Nature Geoscience*, **1**, 444-448.
- Drijfhout, S.S., W. Hazeleger, F. Selten and R. Haarsma, 2008. *Future changes in internal Atlantic Meridional Overturning Circulation variability*. *Clim. Dyn.*, **30**, 4, 407-419.
- Drijfhout, S.S. and A. Naveira Garabato, 2008. *The Zonal Dimension of the Indian Ocean Meridional Overturning Circulation*. *J. Phys. Oceanogr.*, **38**, 2, 359-379.
- Friocourt, Y., B. Blanke, S.S. Drijfhout and S. Speich, 2008. *On the dynamics of the Slope Current system along the west European margin. Part II: Analytical calculations and numerical simulations with seasonal forcing*. *J. Phys. Oceanogr.*, **38**, 12, 2619-2638.
- Friocourt, Y., S.S. Drijfhout and B. Blanke, 2008. *On the dynamics of the slope current system along the West European margin. Part I: Steady-state analytical and numerical circulations*. *J. Phys. Oceanogr.*, **38**, 12, 2597-2618.
- Haarsma, R.J., E.J.D. Campos, W. Hazeleger and C.A. Severijns, 2008. *Influence of the Meridional Overturning Circulation on Tropical Atlantic Climate and Variability*. *J. Climate*, **21**, 1403-1416.
- Hurk, B.J.J.M. van den, J. Ettema and P. Viterbo, 2008. *Analysis of soil moisture changes in Europe during a single growing season in a new ECMWF soil moisture assimilation system*. *J. Hydrometeorol.*, **9**, 116-131.
- Jacobs, C.M.J., E.J. Moors, H. ter Maat, A.J. Teuling, G. Balsamo, K. Bergaoui, J. Ettema, M. Lange, B.J.J.M. van den Hurk, P. Viterbo and W. Wergen, 2008. *Validation of European Land Data Assimilation System (ELDAS) products using in situ observations*. *Tellus*, **60A**, 1023-1037.
- Katsman, C.A., W. Hazeleger, S.S. Drijfhout, G.J. van Oldenborgh and G.J.H. Burgers, 2008. *Climate scenarios of sea level rise for the northeast Atlantic Ocean: a study including the effects of ocean dynamics and gravity changes induced by ice melt*. *Climatic Change*.
- Leander, R., T.A. Buishand, B.J.J.M. van den Hurk and M.J.M. de Wit, 2008. *Estimated changes in flood quantiles of the river Meuse from resampling of regional climate model output*. *J. Hydrol.*, **351**, 331-343.
- McDougall, T.J., P.R. Gent and S.S. Drijfhout, 2008. *Comment on 2 papers by Dubovikov and Canuto*. *Geophys. and Astrophys. Fluid Dyn.*, **102**, 3, 249-256.
- Pasmanter, R.A. and H.W. Capel, 2008. *Mixing and coherent structures in two-dimensional viscous flows*. *Phys. Rev. E.*, **237**, 1993-1997.
- Sterl, A., C. Severijns, H. Dijkstra, W. Hazeleger, G.J. van Oldenborgh, M. van den Broeke, G. Burgers, B. van den Hurk, P.J. van Leeuwen and P. van Velthoven, 2008. *When can we expect extremely high surface temperatures?* *Geophys. Res. Lett.*, **35**, 14, L14703.

Van den Brink, H.W. and G.P. Konnen, 2008. *The statistical distribution of meteorological outliers*. Geophys. Res. Lett., **L2370**, 35, 1-5.

## 2009

- Balsamo, G., P. Viterbo, A. Beljaars, B.J.J.M. van den Hurk, A. Betts and K. Scipal, 2009. *A revised hydrology for the ECMWF model: Verification from field site to terrestrial water storage and impact in the Integrated Forecast System*. J. Hydrometeor., **10**, 623-643.
- Bencivenga, F., A. Cimadoribus, A. Gessini, M.G. Izzo and C. Masciovecchio, 2009. *Temperature and density dependence of the structural relaxation time in water by inelastic ultraviolet scattering*. J. Chem. Phys., **131**, 144502.
- Branstator, G. and F.M. Selten, 2009. *Modes of variability and climate change*. J. Climate, **22**, 2639-2658.
- Broeke, M. van den, J. Bamber, J. Ettema, E. Rignot, E. Schrama, W.J. van den Berg, E. van Meijgaard, I. Velicogna and B. Wouters, 2009. *Partitioning Recent Greenland Mass Loss*. Science, **326**, 984-986.
- Graversen, R.G. and M. Wang, 2009. *Polar amplification in a coupled climate model with locked albedo*. Clim. Dyn., **33**, 629-643.
- Griffies, S., W. Hazeleger, C. Severijns et al., 2009. *Coordinated Ocean-Ice Reference Experiments (cores)*. Ocean Mod., **26**, 1-2.
- Guillyardi, E., A. Wittenberg, A. Fedorov, M. Collins, C. Wang, A. Capotondi and G.J. van Oldenborgh, 2009. *Understanding El Niño in Ocean-Atmosphere General Circulation Models: progress and challenges*. Bull. Amer. Meteor. Soc., **90**, 325-340.
- Haarsma, R.J., F.M. Selten, B.J.J.M. van den Hurk, W. Hazeleger and X. Wang, 2009. *Drier Mediterranean Soils due to Greenhouse Warming bring easterly Winds over Summertime Central Europe*. Geophys. Res. Lett., **36**, L04705.
- Jong, F. de, S.S. Drijfhout, W. Hazeleger, H.M. van Aken and C.A. Severijns, 2009. *Simulations of hydrographic properties in the north western North Atlantic Ocean in Coupled Climate Models*. J. Climate, **22**, 7, 1767-1786.
- Koehler, P. and R. Bintanja, 2009. *The carbon cycle during the mid Pleistocene transition: the Southern Ocean decoupling hypothesis*. Climate of the Past, **4**, 311-332.
- Laurian, A., S. S. Drijfhout, W. Hazeleger and R. van Dorland, 2009. *Global surface cooling: the atmospheric fast feedback response to a collapse of the thermohaline circulation*. Geophys. Res. Lett., **36**.
- Oldenborgh, G.J. van, S.S. Drijfhout, A. van Ulden, R. Haarsma, A. Sterl, C. Severijns, W. Hazeleger and H. Dijkstra, 2009. *Western Europe is warming much faster than expected*. Climate of the Past, **5**, 1, 1-12.
- Oldenborgh, G.J. van, L.A. te Raa, H.A. Dijkstra and S.Y. Philip, 2009. *Frequency- or amplitude-dependent effects of the Atlantic meridional overturning on the tropical Pacific Ocean*. Ocean Science, **5**, 293-301.
- Pasmanter, R.A. and F.M. Selten, 2009. *Decomposing data sets into skewness modes*. Physica D.
- Pelt, S. van, P. Kabat, H. ter Maat, B.J.J.M. van den Hurk and A. Weerts, 2009. *Discharge simulations performed with a hydrological model using bias corrected regional climate model input*. Hydrology and Earth System Sciences, **13**, 2387-2397.
- Philip, S.Y. and G.J. van Oldenborgh, 2009. *Atmospheric properties and the ENSO cycle: models versus observations*. Clim. Dyn.
- Philip, S.Y. and G.J. van Oldenborgh, 2009. *Significant atmospheric nonlinearities in the ENSO cycle*. J. Climate, **22**, 14, 4014-4028.
- Philip, S.Y., 2009. *Exploring El Niño mechanisms in climate models*. Thesis, Universiteit Utrecht, 2009, De Bilt, 166p.
- Pitman, A.J., N. de Noblet, F.T. Cruz, E.L. Davin, G.B. Bonan, V. Brovkin, M. Claussen, C. Delire, V. Gayler, B.J.J.M. van den Hurk, P.J. Lawrence, M.K. van der Molen, C. Mueller, C.H. Reick and 3 co-authors, 2009. *Land use and climate via the LUCID intercomparison study: implications for experimental design in AR5*. Geophys. Res. Lett., **36**, L14814.
- Selten, F.M. and R.A. Pasmanter, 2009. *Skewness modes in Northern Hemisphere winter*. J. Climate.
- Shongwe, M.E., G.J. van Oldenborgh, B.J.J.M. van den Hurk, B. de Boer, C.A.S. Coelho and M.K. van Aalst, 2009. *Projected changes in extreme precipitation in Africa under global warming. Part 1: Southern Africa*. J. Climate, **22**, 3819-3837.
- Shongwe, M.E., R.G. Graversen, G.J. van Oldenborgh, B.J.J.M. van den Hurk and F.J. Doblas-Reyes, 2009. *Energy budget of the extreme Autumn 2006 in Europe*. Clim. Dyn.
- Sterl, A., H. van den Brink, H. de Vries, R. Haarsma and E. van Meijgaard, 2009. *An ensemble study of extreme North Sea storm surges in a changing climate*. Ocean Science, **5**, 369-378.
- Teuling, R., R. Uijlenhoet, B. van den Hurk and S. Seneviratne, 2009. *Parameter Sensitivity in LSMs: An Analysis Using Stochastic Soil Moisture Models and ELDAS Soil Parameters*. J. Hydrometeor., **10**, 751-765.
- Vautard, R., P. Yiou and G.J. van Oldenborgh, 2009. *The decline of fog, mist and haze in Europe during the last 30 years: a warming amplifier?* Nature Geoscience, **2**, 115-119.

## Other publications

### 2007

- Boer, B. de, 2007. *The impact of climate change on rainfall extremes over Northeast Africa*. WR Scientific Report WR-2007-03, pp46.
- Boscolo, R. and W. Hazeleger, 2007. *CLIVAR Implementation Panel: 8<sup>th</sup> session*. Clivar Exchanges, **12**, 26-27.
- Dijkstra, H., W. Hazeleger, A. Sterl and G.J. van Oldenborgh, 2007. *Gevolgen versterkte broeikaseffect in 2030 overal in Europa merkbaar*. Weer Magazine, **3**, 26-29.
- Endalew, G., 2007. *Changes in the frequency and intensity of extremes over Northeast Africa*. KNMI Scientific Report WR-2007, pp46.
- Hazeleger, W. and EC-EARTH consortium, 2007. *EC-EARTH Science and Implementation Plan*. -217, pp22.
- Hurk, B.J.J.M. van den and G. Komen, 2007. *Droge zomers in zicht*. Geografie, **1**, **16**, 9-12.
- Katsman, C.A., R. van Dorland, W. Hazeleger, B. Strengers, T. Kram, W. Ligtoet and B. Eickhout, 2007. *Zeespiegel rijst, maar niet de pan uit*. NRC Handelsblad opiniepagina 19 januari.
- Oldenborgh, G.J. van, 2007. *De zachte winter van 2007*. WR Kenniscentrum.
- Oldenborgh, G.J. van, 2007. *Extraordinarily mild Europe autumn 2006 due to global warming?* IGBP Newsletter, **67**, 18-20.
- Oldenborgh, G.J. van, 2007. *How unusual was autumn 2006 in Europe?* Climate of the Past Disc., **3**, 811-837.
- Oldenborgh, G.J. van, 2007. *Lente 2007: al weer een temperatuurrecord*. KNMI Kenniscentrum.
- Oldenborgh, G.J. van, 2007. *Summer in April - a very unlikely event?* KNMI Kenniscentrum.
- Oldenborgh, G.J. van, 2007. *The mild winter of 2007: what were the causes?* KNMI Kenniscentrum.
- Oldenborgh, G.J. van, 2007. *Zomer in april: hoe zeldzaam is dit?* KNMI Kenniscentrum.
- Pasmanter, R.A. and H.W. Capel, 2007. *Mixing and coherent structures in two-dimensional viscous flows*. Euler Equation 250, 18/6/2007-22/6/2007, U. Frisch (Ed.), 2007, Aussois, Frankrijk, CNRS, Academie des Sciences, Observatoire de la Cote d'Azur, Elsevier, Physica D.
- Pater, F. de and C.A. Katsman, 2007. *Zeespiegelstijging Nederland 'slechts' twee meter als Groenland smelt*. H<sub>2</sub>O, **40**, 4-5.
- Sterl, A., 2007. *Het Argo-programma / The Argo Program*. Meteorologisch Informatiebulletin Maritiem, 12-14.
- Sterl, A., R. Haarsma, F. Selten and H. Dijkstra, 2007. *The essence project – the power of a large model ensemble*. In Biennial Scientific Report 2005-2006, W. Monna (Ed), 2007, De Bilt, KNMI, p114-118.
- The DRACKAR Group, W. Hazeleger and C. Severijns, 2007. *Eddy-permitting Ocean Circulation Hindcasts of Past Decades*. Clivar Exchanges, **12**, 3, 8-10.

### 2008

- Bessembinder, J., C. Katsman, W. Hazeleger, S. Drijfhout, H. van den Brink, G. Lenderink, E. Meijgaard, M. de Wit, H. Buiteveld and W. van Deursen, 2008. *Extreme klimaatverandering en waterveiligheid in Nederland*. KNMI Publication.
- Drijfhout, S.S., 2008. *Changes in the Atlantic Meridional Overturning Circulation*. KNMI Biennial Report 2005-2006.
- Drijfhout, S.S., 2008. *Veranderingen in de Warme Golfstroom*. Meteorologisch Informatiebulletin Maritiem, **Jan.**, 6-12.
- Hazeleger, W., 2008. *Ocean and Climate Studies: Linking Physical, Biogeochemical and Ecosystems Research*. Eos, **89**, 25, 227-227.
- Hurk, B.J.J.M. van den and D. Jacob, 2008. *The art of predicting climate variability and change*. In Climate Change and Adaptation in the Water sector, P. Kabat and H. v Schaik (Eds.), 2008, Earthscan.
- Hurk, B.J.J.M. van den and E.M. Blyth, 2008. *WATCH/LoCo workshop report*. Gewex newsletter, 12-14.
- Hurk, B.J.J.M. van den, R. Haarsma, F. Selten and S. Seneviratne, 2008. *Soil moisture influence on European Atmospheric circulation*. ECMWF Seminar Physical Parameterizations, 1/9/2008-5/9/2008, 2008, Reading, ECMWF.
- Jacob, D. and B.J.J.M. van den Hurk, 2008. *Climate Change Scenarios at the global and local scale*. In Climate Change and Adaptation in the Water sector, P. Kabat and H. v Schaik (Ed.), 2008, Earthscan.
- Kabat (Red.), P., W. Hazeleger, C. Katsman, A. Sterl, J. Beersma, A. Klein Tank, P. Vellinga, R. Hutjes and R. Swart, 2008. *Toelichting op door de Deltacommissie gebruikte klimaatscenario's - Bijlage 3 van 'Samen werken met water'*. In: Samen werken met water, Deltacommissie 2008 (Ed), 2008, ISBN 978-90-9023484-7, p106-117.
- Katsman, C.A., 2008. *Noordpool in 2013 ijsvrij?* Weer Magazine, **1**, 17.
- Meijgaard, E. van, L.H. van Ulft, W.J. van de Berg, F.C. Bosveld, B.J.J.M. van den Hurk, G. Lenderink and A.P. Siebesma, 2008. *The KNMI regional atmospheric climate model RACMO, version 2.1*. KNMI Technical Report TR-302, pp43.
- Oldenborgh, G.J. van and R. Haarsma, 2008. *Stijging wereldgemiddelde temperatuur - de langjarige trend gaat door*. KNMI Kenniscentrum.
- Oldenborgh, G.J. van, 2008. *How unusual was autumn 2006 in Europe?* PAGES News, **16**, 26-28.
- Oldenborgh, G.J. van, 2008. *Wereldgemiddelde temperatuur januari 2008*. KNMI Kenniscentrum.

- Oldenborgh, G.J. van, C.A.S. Coelho and F.J. Doblas-Reyes, 2008. *Exploratory analysis and verification of seasonal forecasts with the KNMI Climate Explorer*. ECMWF Newsletter, **116**, 4-5.
- Oldenborgh, G.J. van, S.S. Drijfhout, A. Sterl and A. van Ulden, 2008. *Nederland warmer sneller op dan verwacht*. De toestand van het klimaat in Nederland 2008, 16-23.
- Sterl, A., G.J. van Oldenborgh, W. Hazeleger and H. Dijkstra, 2008. *Extreme maximumtemperatures in de toekomst*. Meteorologica, **17**, 3, 4-7.
- Vellinga, P., C.A. Katsman, A. Sterl and J.J. Beersma (Eds.), 2008. *Onderzoek naar bovengrensscenario's voor klimaatverandering voor overstromingsbescherming van Nederland: een internationale wetenschappelijke beoordeling*. Publicatie van KNMI en Wageningen UR (Alterra, Earth System Science and Climate Change Group), pp178.
- Wallbrink, H. and T. Brandsma, 2008. *DIGISTAD: Disclosure of the hourly meteorological observations of the Amsterdam City Water Office 1784-1963*. KNMI Preprint PR-220, Hisklim 9, pp26.
- Wallbrink, H. and T. Brandsma, 2008. *DIGISTAD: Disclosure of the hourly meteorological observations of the Amsterdam City Water Office 1784-1963*. KNMI Publication PUBL-220, pp26.

## 2009

- Bintanja, R., 2009. *IJstijden: hoe, wat, waar en waarom*. Zenit.
- Gelderloos, R., C.A. Katsman and S.S. Drijfhout, 2009. *De rol van drie soorten wervels in het restratificeren van het Labrador Zee*. Meteorologica.
- Hazeleger, W., 2009. *EC-Earth: a seamless prediction approach to earth system modelling*. SOLAS Newsletter, **9**, 12-12.
- Hurk, B. van den, 2009. *SMOS satelliet gelanceerd*. Meteorologica, **4**, 13-14.
- Hurk, B. van den, E. Dutra, B. Smith, M. Brandt, M. Weiss, R. Haarsma, W. Hazeleger, G. Balsamo and M. van der Molen, 2009. *The EC-Earth modelling challenges*. ECMWF/GLASS workshop, 9/11/2009-12/11/2009, Beljaars (Ed.), 2009, Reading, ECMWF.
- Hurk, B. van den, E. van Meijgaard and G. Lenderink, 2009. *Climate Research Netherlands - Research Highlights*. KvR international newsletter, 6-12.
- Hurk, B.J.J.M. van den, 2009. *De feiten liegen niet, de zee stijgt*. Volkskrant 7 jan, 11.
- Kabat, P., L.O. Fresco, M.J.F. Stive, C.P. Veerman, J.S.L.J. van Alphen, B.W.A.H. Parmet, W. Hazeleger and C.A. Katsman, 2009. *Dutch coasts in transition*. Nature Geoscience, **2**, 7, 450-452.
- Koehler, P. and R. Bintanja, 2009. *The carbon cycle during the Mid Pleistocene Transition: the Southern Ocean decoupling hypothesis*. Climate of the Past Discussions, **4**, 809-858.
- Oldenborgh, G.J. van, R. Vautard and P. Yiou, 2009. *Mist en nevel zijn de afgelopen 30 jaar sterk afgenomen*. Weer Magazine, **2**, 39-41.
- Roemmich, D., the Argo Steering Team, among others: and A. Sterl, 2009. *Argo - The challenge of continuing 10 years of progress*. Oceanography, **22**, 46-55.
- Sterl, A. and C. Severijns, 2009. *NEMO + LIM + IFS + OASIS = EC-Earth*. OASIS user meeting 2009, 25/5/2009-26/5/2009, S. Valcke (Ed.), 2009, Toulouse, France, CERFACS.
- Sterl, A., 2009. *Float of the month - March 2009: Caught in the Agulhas Current*. <http://wo.jcommops.org/>.
- Sterl, A., H. van den Brink, H. de Vries, R. Haarsma and E. van Meijgaard, 2009. *An ensemble study of extreme North Sea storm surges in a changing climate*. Ocean Science Disc., **6**, 1131-1159.
- Sterl, A., H. van den Brink, R. Haarsma, H. de Vries and E. van Meijgaard, 2009. *Stormklimaat en hoogwaters*. Meteorologica, **18**, 2, 10-11.
- Vellinga, P., C.A. Katsman, A. Sterl and J.J. Beersma (Eds.), 2009. *Exploring high-end climate change scenarios for flood protection of the Netherlands*. International Scientific Assessment carried out at the request of the Delta Committee. KNMI Scientific Report WR-2009-05.
- Wallbrink, H., F.B. Koek and T. Brandsma, 2009. *The us Maury Collection Metadata 1796-1861*. KNMI Publication PUBL-225, pp59.

# Publications

## Regional Climate

The Regional Climate division combines model development, observations and fundamental research to address current issues in climate research on the regional scale. Current model development and application centres around the regional climate model RACMO-2, which is used for the national climate scenarios, IPCC Assessments and various research projects. An extensive groundbased observation programme is carried-out at the Cabauw Experimental Site for Atmospheric Research (CESAR), serving atmospheric research, model validation and climate monitoring. The main research topics of the division are clouds, radiation, aerosols and boundary layer physics.

### Reviewed Publications

#### 2007

- Ekström, M., P.D. Jones, H.J. Fowler, G. Lenderink, T.A. Buishand and D. Conway, 2007. *Regional climate model data used within the SWURVE project 1: projected changes in seasonal patterns and estimation of P<sub>ET</sub>*. Hydrology and Earth System Sciences, **11**, 3, 1069-1083.
- Graaf, M. de, P. Stammes and E.A.A. Aben, 2007. *Analysis of reflectance spectra of uv-absorbing aerosol scenes measured by SCIAMACHY*. J. Geophys. Res., **112**.
- Held, A., R. Niessner, F. Bosveld, T. Wrzesinsky and O. Klemm, 2007. *Evaluation and Application of an Electrical Low Pressure Impactor in Disjunct Eddy Covariance Aerosol Flux Measurements*. Aerosol Science and Technology, **41**, 510-519.
- Heymsfield, A.J., G.J. van Zadelhoff, D.P. Donovan, F. Fabry, R.J. Hogan and A.J. Illingworth, 2007. *Refinements to Ice Particle Mass Dimensional and Terminal Velocity Relationships for Ice Clouds. Part II: Evaluation and Parameterizations of Ensemble Ice Particle Sedimentation Velocities*. J. Atmos. Sci., **64**, 4, 1068-1088.
- Hinssen, Y.B.L. and W.H. Knap, 2007. *Comparison of pyranometric and pyrliometric methods for the determination of sunshine duration*. J. Atm. Oceanic Technol., **24**, 5, 835-846.
- Illingworth, A.J., R.J. Hogan, E.J. O'Connor, D. Bouniol, M.E. Brooks, J. Delanoe, D.P. Donovan, N. Gaussiat, J.W.F. Goddard, M. Haefelin, H. Klein Baltink, O.A. Krasnov, J. Pelon, J.M. Piriou and G.J. van Zadelhoff, 2007. *Cloudnet - continuous evaluation of cloud profiles in seven operational models using ground-based observations*. Bull. Amer. Meteor. Soc., **88**, 6, 883-898.
- Jacob, D., L. Barring, O.B. Christensen, J.H. Christensen, M. de Castro, M. Deque, F. Giorgi, S. Hagemann, M. Hirschi, R. Jones, E. Kjellstrom, G. Lenderink, B. Rockel, A.P. van Ulden and B.J.J.M. van den Hurk, 2007. *An inter-comparison of regional climate models for Europe: model performance in present-day climate*. Climatic Change.
- Jacobs, C.M.J., A.F.G. Jacobs, F.C. Bosveld, D.M.D. Hendriks, A. Hensen, P.S. Kroon, E.J. Moors, L. Nol, A. Schrier-Uijl and E.M. Veenendaal, 2007. *Variability of annual CO<sub>2</sub> Exchange from Dutch Grasslands*. Biogeosciences, **4**, 803-816.
- Kjellström, E., L. Barring, D. Jacob, R.J. Jones, G. Lenderink and C. Schär, 2007. *Modelling daily temperature extremes: Recent climate and future changes over Europe*. Climatic Change.
- Kohsiek, W., C. Liebenthal, T. Foken, R. Vogt, S.P. Oncley, C. Bernhofer and H.A.R. de Bruin, 2007. *The energy balance experiment EBEX-2000. Part III: Behaviour and quality of the radiation measurements*. Bound.-Layer Meteorol., **123**, 55-75.

- Löhnert, U., E. van Meijgaard, H. Klein Baltink, S. Groß and R. Boers, 2007. *Accuracy assessment of an integrated profiling technique for operationally deriving profiles of temperature, humidity and cloud liquid water*. J. Geophys. Res., **112**.
- Lenderink, G., A. van Ulden, B. van den Hurk and E. van Meijgaard, 2007. *Summertime inter-annual temperature variability in an ensemble of regional model simulations: analysis of the surface energy budget*. Climatic Change.
- Lenderink, G., T.A. Buishand and W.P.A. van Deursen, 2007. *Estimates of future discharges of the river Rhine using two climate scenario methodologies: direct versus delta approach*. Hydrology and Earth System Sciences, **11**, 3, 1145-1159.
- Lenderink, G., A. van Ulden, B. van den Hurk and F. Keller, 2007. *A study on combining global and regional climate model results for generating climate scenarios of temperature and precipitation for the Netherlands*. Clim. Dyn., **29**, 2, 157-176.
- Rauber, R.M., B. Stevens, H.T. Ochs III and A.P. Siebesma, 2007. *Rain in Shallow Cumulus over the Ocean; The rico Campaign*. Bull. Amer. Meteor. Soc., **12**, **88**, 1912-1937.
- Roode, S.R. de, 2007. *The role of eddy diffusivity profiles on stratocumulus liquid water path biases*. Mon. Wea. Rev., **135**, 7, 2786-2793.
- Roode, S.R. de and Q. Wang, 2007. *Do stratocumulus clouds detrain? FIRE I data revisited.. Bound.-Layer Meteorol.*, **122**, 479-491.
- Siebesma, A.P., P.M.M. Soares and J. Teixeira, 2007. *A Combined Eddy-Diffusivity Mass-Flux Approach for the Convective Boundary Layer*. J. Atmos. Sci., **64**, 1230-1248.
- Ulden, A.P. van, G. Lenderink, B. van den Hurk and E. van Meijgaard, 2007. *Circulation statistics and climate change in Central Europe: PRUDENCE simulations and observations*. Climatic Change, **81**, 179-192.
- Wyant, M.C., C.S. Bretherton, A. Chlond, B.M. Griffin, H. Kitagawa, C.L. Lappen, V.E. Larson, A. Lock, S. Park, S.R. de Roode, M. Zhao and A.S. Ackerman, 2007. *A single-column model intercomparison of a heavily drizzling stratocumulus topped boundary layer*. J. Geophys. Res., **112**.
- Zadelhoff, G.J. van, E. van Meijgaard, D.P. Donovan, W.H. Knap and R. Boers, 2007. *Sensitivity of the shortwave radiative budget to the parameterization of ice crystal effective radius*. J. Geophys. Res., **112**, 1-11.
- Zadelhoff, G.J. van, A.J. Heymsfield, D.P. Donovan and M.J. McGill, 2007. *Evaluating lidar-radar microphysics retrieval using in-situ measurements*. J. Geophys. Res., **112**.

## 2008

- Baas, P., S.R. de Roode and G. Lenderink, 2008. *The Sclaing Behaviour of a Turbulent Kinetic Energy Closure Model for Stably Stratified Conditions*. Bound.-Layer Meteorol.
- Boesche, E., P. Stammes, R. Preusker, R. Bennartz, W. Knap and J. Fischer, 2008. *Polarization of skylight in the O<sub>2</sub> A band: effects of aerosol properties*. Appl. Optics, **47**, 3467-3480.
- Boesche, E., P. Stammes and R. Bennartz, 2008. *Aerosol Influence on Polarization and Intensity in Near-Infrared O<sub>2</sub> and CO<sub>2</sub> Absorption Bands Observed from Space*. J. Quant. Spectros. Rad. Transf., **110**, 223-239.
- Brinksma, E.J., G.J. Pinardi, R. Braak, H. Volten, A. Richter, R.J. Dirksen, T. Vlemmix, D.P.J. Swart, W.H. Knap, J.P. Veefkind, H.J. Eskes, M. Allaart, R. Rothe, A.J.M. Pijters and P.F. Levelt, 2008. *The 2005 and 2006 DANDELIONS NO<sub>2</sub> and Aerosol Intercomparison Campaigns*. J. Geophys. Res.
- Casso-Torralba, P., J. Vila`-Guerau de Arellano, F.C. Bosveld, M.R. Soler, A. Vermeulen, C. Werner and E. Moors, 2008. *Diurnal and vertical variability of the sensible heat and carbon dioxide budgets in the atmospheric surface layer*. J. Geophys. Res., **113**.
- Deneke, H.M., A.J. Feijt and R.A. Roebeling, 2008. *Estimating surface solar irradiance from METEOSAT SEVIRI-derived cloud properties*. Remote Sens. Environ., **112**, 3131-3141.
- Deneke, H., R.A. Roebeling, E. Wolters, A. Feijt and C. Simmer, 2008. *On the Sensitivity of Satellite-Derived Cloud Properties to Sensor Resolution and Broken Clouds*. International Radiation Symposium (IRS2008), 3/8/2008-8/8/2008, 2008, Iguacu Falls, Brazil, IRS.
- Helsen, M.M., M.R. van den Broeke, R.S.W. van de Wal, W.J. van de Berg, E. van Meijgaard, C.H. Davis, Y. Li and I. Goodwin, 2008. *Elevation Changes in Antarctica Mainly Determined by Accumulation Variability*. Science, **320**, 1626-1629.
- Heus, T., G. van Dijk, H.J.J. Jonker and H.E.A. van den Akker, 2008. *Mixing in shallow cumulus clouds studied by Lagrangian particle tracking*. J. Atmos. Sci., **65**, 2581-2597.
- Heus, T., H.J.J. Jonker, H.E.A. van den Akker, E.J. Griffith, M. Koutek and F.H. Post, 2008. *A statistical approach to the life-cycle analysis of cumulus clouds selected in a Virtual Reality Environment*. J. Geophys. Res.
- Heus, T., 2008. *On the edge of a cloud*. Thesis, tu Delft, 2008, Delft, 141 p.
- Hurk, B.J.J.M. van den, J. Ettema and P. Viterbo, 2008. *Analysis of soil moisture changes in Europe during a single growing season in a new ECMWF soil moisture assimilation system*. J. Hydrometeorol., **9**, 116-131.

- Jacobs, C.M.J., E.J. Moors, H. ter Maat, A.J. Teuling, G. Balsamo, K. Bergaoui, J. Ettema, M. Lange, B.J.J.M. van den Hurk, P. Viterbo and W. Wergen, 2008. *Validation of European Land Data Assimilation System (ELDAS) products using in situ observations*. *Tellus*, **60A**, 1023-1037.
- Kuipers Munneke, P., C.H. Reijmer, M.R. van den Broeke, G. Koenig-Langlo, P. Stammes and W.H. Knap, 2008. *Analysis of clear-sky Antarctic snow albedo using observations and radiative transfer modeling*. *J. Geophys. Res.*, D1711, **113**.
- Lenderink, G. and E. van Meijgaard, 2008. *Increase in hourly precipitation extremes beyond expectations from temperature changes*. *Nature Geoscience*, **1**, 8, 511-514.
- Rignot, E., J.L. Bamber, M.R. van den Broeke, C. Davis, Y. Li, W.J. van de Berg and E. van Meijgaard, 2008. *Recent Antarctic ice mass loss from radar interferometry and regional climate modelling*. *Nature Geoscience*, **1**, 2, 106-110.
- Teixeira, J., B. Stevens, C.S. Bretherton, R. Cederwall, J.D. Doyle, J.C. Golaz, A.A.M. Holtslag, S.A. Klein, J.K. Lundquist, D.A. Randall, A.P. Siebesma and P.M.M. Soares, 2008. *Parameterization of the Atmospheric Boundary Layer: A view from just above the inversion*. *Bull. Amer. Meteor. Soc.*, **89**, 4, 453-458.

## 2009

- Apituley, A., K.M. Wilson, C. Potma, H. Volten and M. de Graaf, 2009. *Performance Assessment and Application of Caeli - A high-performance Raman lidar for diurnal profiling of Water Vapour, Aerosols and Clouds*. 8<sup>th</sup> International Symposium on Tropospheric Profiling, 19/10/2009-23/10/2009, A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Eds.), 2009, Delft, Proceedings of the 8<sup>th</sup> International Symposium on Tropospheric Profiling, ISBN 978-90-6960-233-2.
- Baas, P., 2009. *Turbulence and Low-Level Jets in the Stable Boundary Layer*. Thesis, Wageningen University, 2009, Wageningen, 152p.
- Baas, P., F.C. Bosveld, H. Klein Baltink and A.A.M. Holtslag, 2009. *A climatology of nocturnal low-level jets at Cabauw*. *J. Appl. Meteor.*, **48**, 8, 1627-1642.
- Boesche, E., G.J. van Zadelhoff and D.P. Donovan, 2009. *Microphysical properties of cirrus clouds as derived from CloudSat/CALIPSO*. 8<sup>th</sup> ISTP, 19/10/2009-23/10/2009, A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Ed.), 2009, Delft, Delft/KNMI/RIVM, Organizing Committee of the 8<sup>th</sup> International Symposium on Tropospheric Profiling, ISBN 978-90-6960-233-2.
- Boesche, E., P. Stammes and R. Bennartz, 2009. *Aerosol Influence on Polarization and Intensity in Near-Infrared O<sub>2</sub> and CO<sub>2</sub> Absorption Bands Observed from Space*. *J. Quant. Spectros. Rad. Transf.*, **110**, 3, 223-239.
- Broeke, M. van den, J. Bamber, J. Ettema, E. Rignot, E. Schrama, W.J. van den Berg, E. van Meijgaard, I. Velicogna and B. Wouters, 2009. *Partitioning Recent Greenland Mass Loss*. *Science*, **326**, 5955, 984-986.
- Cheinet, S. and A.P. Siebesma, 2009. *Variability of Local Structure Parameters in the Convective Boundary Layer*. *J. Atmos. Sci.*, **66**, 1002-1017.
- Deneke, H.M., W.H. Knap and C. Simmer, 2009. *Multiresolution Analysis of the Temporal Variance and Correlation of Transmittance and Reflectance of an Atmospheric Column*. *J. Geophys. Res.*
- Donovan, D.P. and G.J. van Zadelhoff, 2009. *An Optimal-Estimation based hybrid Rayleigh-Mie Extinction and Backscatter retrieval Method for HSRL lidars*. 8<sup>th</sup> ISTP, 16/10/2009, 2009, Delft, Delft/KNMI/RIVM, The Organizing Committee of the 8<sup>th</sup> International Symposium on Tropospheric Profiling, ISBN 978-90-6960-233-2.
- Ettema, J., M.R. van den Broeke, E. van Meijgaard, W.J. van de Berg, J.L. Bamber, J.E. Box and R.C. Bales, 2009. *Higher surface mass balance of the Greenland ice sheet revealed by high-resolution climate modeling*. *Geophys. Res. Lett.*, **36**.
- Graaf, M. De, D.P. Donovan and A. Apituley, 2009. *Aerosol microphysical properties from inversion of tropospheric optical Raman lidar data*. 8<sup>th</sup> International Symposium on Tropospheric Profiling, 19/10/2009, Edited by A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Eds.), 2009, Delft, The Netherlands, Delft/RIVM/KNMI, Organizing Committee of the 8<sup>th</sup> International Symposium on Tropospheric Profiling, ISBN ISBN 978-90-6960-2.
- Klein, S.A. et al., 2009. *Intercomparison of model simulations of mixed-phase clouds observed during the ARM Mixed-Phase Arctic Cloud Experiment. I: Single-layer cloud*. *Quart. J. Royal Meteor. Soc.*, **135**, 979-1002.
- Lenderink, G. and E. van Meijgaard, 2009. *Reply: Unexpected rise in extreme precipitation caused by a shift in rain type?* *Nature Geoscience*, **2**, 6, 373.
- Lenderink, G., E. van Meijgaard and F. Selten, 2009. *Intense coastal rainfall in the Netherlands in response to high sea surface temperatures: analysis of the event of August 2006 from the perspective of a changing climate*. *Clim. Dyn.*, **32**, 19-33.
- Neggers, R.A.J., 2009. *A dual mass flux framework for boundary layer convection. Part II: Clouds*. *J. Atmos. Sci.*, **66**, 6, 1489-1506.
- Neggers, R.A.J., M. Koehler and A.C.M. Beljaars, 2009. *A dual mass flux framework for boundary layer convection. Part I: Transport*. *J. Atmos. Sci.*, **66**, 1465-1487.
- Nuijens, L., B. Stevens and A.P. Siebesma, 2009. *The Environment of Precipitating Shallow Cumulus Convection*. *J. Atmos. Sci.*, **66**, 1962-1979.

- Ronda, R.J. and F.C. Bosveld, 2009. *Deriving the surface soil heat flux from observed soil temperature and soil heat flux profiles using a variational data-assimilation approach..* J. Appl. Meteor., **48**, 3, 644-656.
- Schulz, J., H. Deneke, R. Roebeling, E. Wolters and et al., 2009. *Operational climate monitoring from space: the EUMETSAT satellite application facility on climate monitoring (CM-SAF).* Atm. Chem. Phys., 9, 1-23.
- Siebesma, A.P., 2009. *Cloud-Controlling Factors.* In Clouds in the Perturbed Climate System, Heintzenberg and Charlson (Eds.), 2009, Cambridge Massachusetts, MIT Press, ISBN 978-0-262-01287-4, p269-290.
- Stammes, P., L.G. Tilstra, R. Braak, M. de Graaf and I. Aben, 2009. *Estimate of solar radiative forcing by polluted clouds using OMI and SCIAMACHY satellite data.* International Radiation Symposium IRS2008, 3/8/2008-8/8/2008, T. Nakajima and M.A. Yamasoe (Eds.), 2009, IRC/IAMAS, American Institute of Physics, ISBN 978-0-7354-0635-3, 577-580.
- Sterl, A., H. van den Brink, H. de Vries, R. Haarsma and E. van Meijgaard, 2009. *An ensemble study of extreme North Sea storm surges in a changing climate.* Ocean Science, **5**, 369-378.
- Su, Z., F.C. Bosveld, H. Klein Baltink, R. Rothe and et al., 2009. *EAGLE 2006 – multi-purpose, multi-angle and multi-sensor in-situ, airborne and space borne campaigns over grassland and forest.* Hydrology and Earth System Sciences, 13, 833-845.
- Wang, P., W.H. Knap, P. Kuipers Munneke and P. Stammes, 2009. *Clear-sky shortwave radiative closure for the Cabauw Baseline Surface Radiation Network site, the Netherlands.* J. Geophys. Res., **114**.
- Wang, P., W.H. Knap, P. Kuipers Munneke and P. Stammes, 2009. *Clear sky atmospheric radiative transfer: a model intercomparison of shortwave irradiances.* International Radiation Symposium IRS2008, 3/8/2008-8/8/2008, T. Nakajima and M.A. Yamasoe (Eds.), 2009, IRC/IAMAS, American Institute of Physics, ISBN 978-0-7354-0635-3, 125-128.
- Zadelhoff, G.J. van and D.P. Donovan, 2009. *A potential FeatureMask algorithm for the EarthCARE lidar.* 8<sup>th</sup> ISTP, 19/10/2009, A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Eds.), 2009, Delft, Delft/KNMI/RIVM, Organizing Committee of the 8<sup>th</sup> International Symposium on Tropospheric Profiling, ISBN 978-90-6960-233-2.

## Other publications

### 2007

- Beyrich, F., W. Adam, F.C. Bosveld, J. Poutiainen and T. Savunen, 2007. *The contribution of the BALTEX In-situ reference sites to CEOR.* Fith Study Conference on BALTEX, 4/6/2007-8/6/2007, H.-J. Isemer (Ed.), 2007, Kuressaare, Estonia, International BALTEX Secretariat.
- de Haij, M.J., W.M.F. Wauben and H. Klein Baltink, 2007. *Continuous mixing layer height determination using the LD-40 ceilometer: a feasibility study.* KNMI Scientific Report WR-2007-01.
- Deneke, H.M., S. Johnston, M. Reuter, R.A. Roebeling, A. Tetzlaff, W. Thomas, E.L.A. Wolters and K.G. Karlsson, 2007. *Final validation of CM-SAF cloud products derived from MSG/SEVIRI data.* Validatierapportage voor CM-SAF wolkenproducten afgeleid uit SEVIRI-data, EUMETSAT.
- Roode, S.R. de, 2007. *Thermodynamics of cumulus clouds.* In monographical issue Fisica de la Tierra, C. Yague (Ed.), 2007.
- Tilstra, L.G., M. de Graaf, I. Aben and P. Stammes, 2007. *Analysis of 5 years SCIAMACHY Absorbing Aerosol Index data.* Envisat Symposium, 23/4/2007-27/4/2007, 2007, Montreux (CH), ESA SP-636, ESA/ESTEC.
- Tilstra, L.G., M. de Graaf, S. Noel, E.A.A. Aben and P. Stammes, 2007. *SCIAMACHY'S Absorbing Aerosol Index and the consequences of instrument degradation.* Third Workshop on the Atmospheric Chemistry Validation of ENVISAT (ACVE-3), 4/12/2006-7/12/2006, 2007.
- Wolters, E.L.A., H.M. Deneke, R.A. Roebeling and A.J. Feijt, 2007. *Comparison of sevirI and modis cloud phase determination over mid-latitude regions.* Joint 2007 EUMETSAT Meteorological Satellite Conference and the 15<sup>th</sup> AMS Satellite Meteorology and Oceanography Conference, 24/9/2007-28/9/2007, 2007.

### 2008

- Apituley, A., H. Russchenberg, R. Boers, F. Bosveld, H. ten Brink and G. de Leeuw, 2008. *Fijn stof ook een klimaatprobleem.* Tijdschrift Lucht, **6**, 19-22.
- Baas, P., F.C. Bosveld and H. Klein Baltink, 2008. *Low-level jets boven Cabauw.* Meteorologica.
- Bessembinder, J., C. Katsman, W. Hazeleger, S. Drijfhout, H. van den Brink, G. Lenderink, E. Meijgaard, M. de Wit, H. Buiteveld and W. van Deursen, 2008. *Extreme klimaatverandering en waterveiligheid in Nederland.* KNMI Publication.
- Boers, R. and G. van Zadelhoff, 2008. *IMPACT: Intensive Observation Period at CESAR Tower.* EUCAARI 2007 Annual Meeting, 19/11/2007-23/11/2007, Prof. Markku Kulmala (Ed.), 2008, Helsinki, University of Helsinki.
- Boesche, E., 2008. *Influence of aerosols on polarization of skylight in gaseous absorption bands.* KNMI Scientific Report WR-2008-04.

- Braam, M., 2008. *Determination of the surface sensible heat flux from the structure parameter of temperature at 60 m height*. KNMI Technical Report TR-303.
- Brandau, C., H.W.J. Russchenberg and W.H. Knap, 2008. *Retrieval of water cloud properties using ground-based remote sensing measurements*. International Conference on Clouds and Precipitation ICCP-2008, 7/7/2008-11/7/2008, 2008, Cancun, Mexico.
- De Martino, G., B. van Ulft, H. ten Brink, M. Schaap, E. van Meijgaard and R. Boers, 2008. *An aerosol-cloud module for inclusion in the KNMI regional climate model RACMO2*. KNMI Scientific Report WR-2008-05.
- Donovan, D.P., 2008. *ALGORITHM THEORETICAL BASIS DOCUMENT (ATBD) FOR A-Extinction-KNMI*. Lidar extinction retrieval ATBD for the Casper project, Deimos Space S.L.
- Donovan, D.P., G.J. van Zadelhoff and et al., 2008. *CASPER Products and Algorithms Requirements Document (PARD)*. Products and Algorithms Requirements Document Casper project, Deimos Space S.L.
- Donovan, D.P., G.J. van Zadelhoff and et al., 2008. *CASPER Product Definition Document (PDD)*. The Product Definition Document for the Casper project, Deimos Space S.L.
- Donovan, D.P., J.R. Acaretta, J.J. Ramos and G.J. van Zadelhoff, 2008. *End-to-END Mission/System Performance Simulation*. ECSIM Simulator Interface Control Document. EarthCARE simulator interface document, Deimos Space S.L.
- Donovan, D.P., R.H. Voors, G.J. van Zadelhoff and J.R. Acaretta, 2008. *ECSIM Model and Algorithms Document*. Technisch Rapport EarthCare Simulator, Deimos Space S.L.
- Graaf, M. de, D.P. Donovan and A. Apituley, 2008. *Refractive index and integral aerosol properties retrieval from Raman lidar data using principle component analysis*. 24th International Laser Radar Conference, 23/6/2008-27/6/2008, 2008, Boulder, Co., Organizing Committee of the 24th International Laser Radar Conference, ISBN 978-0-615-21489-4, 11-14.
- Leijnse, H., R. Uijlenhoet, J. Bokhorst, H. Stricker, H. Russchenberg, F.C. Bosveld, W. Knap, R. Boers, H. ten Brink, G. de Leeuw and A. Apituley, 2008. *Klimaat Observaties in Cabauw*. Geografie.
- Lenderink, G. and J. Beersma, 2008. *Kustneerslag en zomerdroogte*. De toestand van het klimaat in Nederland 2008.
- Meijgaard, E. van, L.H. van Ulft, W.J. van de Berg, F.C. Bosveld, B.J.J.M. van den Hurk, G. Lenderink and A.P. Siebesma, 2008. *The KNMI regional atmospheric climate model RACMO, version 2.1*. KNMI Technical Report TR-302, pp43.
- Oldenborgh, G.J. van, S.S. Drijfhout, A. Sterl and A. van Ulden, 2008. *Nederland warmer sneller op dan verwacht*. De toestand van het klimaat in Nederland 2008, 16-23.
- Ramos, J.J., J.R. Acaretta and D.P. Donovan, 2008. *End-to-END Mission/System Performance Simulation*. ECSIM SYSTEM USER'S Manual. 2008, Deimos Space S.L., 121p.
- Siebesma, A.P., 2008. *Advances in modelling and Observing Clouds and Convection Highlighted at the 4<sup>th</sup> PAN-GCCS meeting*. GEWEX News Letter, **18**, 4, 8-10.
- Teixeira, J., S. Cardoso and A.P. Siebesma, 2008. *Results from the first 2 years of the GCCS Pacific Cross Section Intercomparison*. GEWEX News Letter, **18**, 1-4.
- Zadelhoff, G.J. van, 2008. *ALGORITHM THEORETICAL BASIS DOCUMENT (ATBD) FOR A-FeatureMask-KNMI*. Lidar featuremask ATBD for the Casper project, Deimos Space S.L.

## 2009

- Christensen, J.H., M. Rummukainen and G. Lenderink, 2009. *Formulation of very-high-resolution regional climate model ensembles for Europe*. Chapter in Summary of research and results from the ENSEMBLES project, Met Office Hadley Centre.
- Engelbart, D.A.M., W.A.A. Monna, J. Nash and C. Mätzler, (Eds.) 2009. *Integrated Ground-Based Remote-Sensing Stations for Atmospheric Profiling*. Final Report cost Action 720, Publication Office of the European Union, Luxemburg, ISBN 978-92-898-0050-1, doi: 10.2831/10752.
- Graaf, M. de, D.P. Donovan and A. Apituley, 2009. *Aerosol microphysical properties from inversion of tropospheric optical Raman lidar data*. 8<sup>th</sup> International Symposium on Tropospheric Profiling, 19/10/2009-23/10/2009, A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Eds.), 2009, Delft, Proceedings of the 8th International Symposium on Tropospheric Profiling, ISBN 978-90-6960-233-2.
- Klein Baltink, H., B. Wilkens, M. Savenije and F.C. Bosveld, 2009. *Webaccess to the CESAR data: the CESAR DATABASE SYSTEM portal*. 8<sup>th</sup> International Symposium on Tropospheric Profiling, 19/10/2009-23/10/2009, A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Eds.), 2009, Delft, ISBN 978-90-6960-233-2.
- Klein Tank, A., G. Lenderink, B. Overbeek and J. Bessembinder, 2009. *Klimaat Nederland verandert sterk*. Weer Magazine, **5**, 20-23.
- Meijgaard, E. van, L. Wipfler, B.J.J.M. van den Hurk, K. Metselaar, J. van Dam, R. Feddes, L.H. van Ulft, S. Zwart and W. Bastiaanssen, 2009. *Evaluation of the land surface scheme HTESSEL with satellite derived surface energy fluxes at the seasonal*

- time scale*. 2<sup>nd</sup> International Lund rcm Workshop, 4/5/2009-8/5/2009, 2009, Lund, Zweden, Lund University, Zweden; Baltex Secretariat, Geeshacht, Germany, Int. Baltex Secretariat Publication, ISBN ISSN 1681-6471, 105-106.
- Monna, W.A.A. et al., 2009. *Climate Change Monitoring in the Netherlands; A proposal based on the gcos Implementation Plan in Support of the UNFCCC*. Rapport van WAB project 500102011. WAB 500102011, Netherlands Environmental Assessment Agency PBL, PO Box 303, 3720 AH Bilthoven, NL.
- Ulden, A. van, G.J. van Oldenborgh and G. van der Schrier, 2009. *The Construction of a Central Netherlands Temperature*. KNMI Scientific Report WR-2009-03, pp15.
- Wang, P. and W.H. Knap, 2009. *Energy redistribution due to the cloud layer*. 8<sup>th</sup> International Symposium of Tropospheric Profiling, 19/10/2009-23/10/2009, 2009, Delft.
- Williams, J.E., G.J. van Zadelhoff and M.P. Scheele, 2009. *The effect of updating scavenging and conversion rates on cloud droplets and ice particles in the TM global chemistry transport model*. KNMI Technical Report TR-308, pp45.

# Publications

## Chemistry and Climate

The mission of the Chemistry and Climate division is to quantify, understand and predict anthropogenic and natural changes in atmospheric composition and their consequences for climate, air quality and ultraviolet radiation. The main activity is the improvement of models of the life cycles of non-CO<sub>2</sub> greenhouse gases, air pollutants, aerosols and their precursors in order to produce accurate short-term air quality forecasts, long-term scenarios for the future and reconstructions of palaeoclimates.

### Reviewed Publications

#### 2007

- Blond, N., K.F. Boersma, H.J. Eskes, R.J. van der A, M. Van Roozendael, I. De Smedt, G. Bergametti and R. Vautard, 2007. *Intercomparison of SCIAMACHY nitrogen dioxide observations, in situ measurements and air quality modeling results over Western Europe*. *J. Geophys. Res.*, **112**.
- Denman, K.L., G. Brasseur, T. van Noije (contributing author) and co-authors, 2007. *Couplings between changes in the climate system and biogeochemistry*. In *Climate Change 2007: The Physical Science Basis*, S. Solomon, D. Qin, et al. (Ed), 2007, Cambridge, United Kingdom and New York, NY, USA, Cambridge University Press, p499-587.
- Driesschaert, E., T. Fichefet, H. Goosse, P. Huybrechts, I. Janssens, A. Mouchet, V. Brovkin, G. Munhoven and S.L. Weber, 2007. *Modeling the influence of the Greenland ice sheet melting on the Atlantic MOC during the next millennia*. *Geophys. Res. Lett.*, **34**.
- Ebinghaus, R., F. Slemr, C.A.M. Brenninkmeijer, P. van Velthoven, A. Zahn, M. Hermann, D.A. O'Sullivan and D.E. Oram, 2007. *Emissions of gaseous mercury from biomass burning in South America in 2005 observed during CARIBIC flights*. *Geophys. Res. Lett.*, **34**, L08813.
- Eyring, V., D.S. Stevenson, A. Lauer, F.J. Dentener, T.P.C. van Noije and co-authors, 2007. *Multi-model simulations of the impact of international shipping on Atmospheric Chemistry and Climate in 2000 and 2030*. *Atm. Chem. Phys.*, **7**, 757-780.
- Fortuin, J.P.F., C.R. Becker, M. Fujiwara, F. Immler, H.M. Kelder, M.P. Scheele, O. Schrems and G.H.L. Verver, 2007. *Origin and transport of tropical cirrus clouds observed over Paramaribo, Suriname (5.8 N, 55.2 W)*. *J. Geophys. Res.*, **112**.
- Guillaume, B., C. Lioussse, R. Rosset, H. Cachier, P. van Velthoven, B. Bessagnet and N. Poisson, 2007. *ORISAM-TM4: a new global sectional multi-component aerosol model including soA formation - Focus on carbonaceous BC and OC aerosols*. *Tellus, B*, **59**, 2, 283-302.
- Haklander, A.J., P.C. Siegmund and H.M. Kelder, 2007. *Interannual variability of the stratospheric wave driving during northern winter*. *Atm. Chem. Phys.*, **7**, 2575-2584.
- Juckes, M.N., M.R. Allen, K.R. Briffa, J. Esper, G.C. Hegerl, A. Moberg, T.J. Osborn and S.L. Weber, 2007. *Millennial temperature reconstruction intercomparison and evaluation*. *Climate of the Past*, **3**, 591-609.
- Krijger, J.M., M. van Weele, I. Aben and R. Frey, 2007. *Technical Note: The effect of sensor resolution on the number of cloud-free observations from space*. *Atm. Chem. Phys.*, **7**, 2881-2891.

- Otto-Bliesner, B.L., C.D. Hewitt, T.M. Marchitto, E. radu, A. Abe-Ouchi, M. Crucifix, S. Murakami and S.L. Weber, 2007. *Last Glacial Maximum ocean thermohaline circulation: PMIP2 model intercomparisons and data constraints*. *Geophys. Res. Lett.*, **34**.
- Roche, D.M., H. Renssen, S.L. Weber and H. Goosse, 2007. *Could meltwater pulses have been sneaked unnoticed into the deep ocean during the last glacial?* *Geophys. Res. Lett.*, **34**.
- Roche, D.M., T.M. Dokken, H. Goosse, H. Renssen and S.L. Weber, 2007. *Climate of the Last Glacial Maximum: sensitivity studies and model-data comparison with the LOVECLIM coupled model*. *Climate of the Past*, **3**, 205-224.
- Tuenter, E., S.L. Weber, F.J. Hilgen and L.J. Lourens, 2007. *Simulating sub-Milankovitch climate variations associated with vegetation dynamics*. *Climate of the Past*, **3**, 169-180.
- Wang, Y., M.B. McElroy, K.F. Boersma, H.J. Eskes and J.P. Veefkind, 2007. *Traffic restrictions associated with the Sino-African summit: Reductions of NO<sub>x</sub> detected from space*. *Geophys. Res. Lett.*, **34**, L08814.
- Weber, S.L., S.S. Drijfhout, A. Abe-Ouchi, M. Crucifix, M. Eby, A. Ganopolski, S. Murakami, B. Otto-Bliesner and W.R. Peltier, 2007. *The modern and glacial overturning circulation in the Atlantic ocean in PMIP coupled model simulations*. *Climate of the Past*, **3**, 51-64.
- Weber, S.L. and S.S. Drijfhout, 2007. *Stability of the Atlantic meridional Overturning Circulation in the Last Glacial maximum climate*. *Geophys. Res. Lett.*, **34**.
- 2008**
- A, R.J. van der, H.J. Eskes, K.F. Boersma, T.P.C. van Noije, M. Van Roozendaal, I. De Smedt, D.H.M.U. Peters, J.J.P. Kuenen and E.W. Meijer, 2008. *Identification of NO<sub>2</sub> sources and their trends from space using seasonal variability analyses*. *J. Geophys. Res.*, **113**.
- Bintanja, R. and R.S.W. van de Wal, 2008. *North American ice-sheet dynamics and the onset of the 100,000-year glacial cycles*. *Nature*, **454**, 869-872.
- Bonisch, H., P. Hoor, C. Gurk, W. Feng, M. Chipperfield, A. Engel and B. Bregman, 2008. *Model evaluation of CO<sub>2</sub> and SF<sub>6</sub> in the extratropical UTLS region*. *J. Geophys. Res.*, **113**.
- Engvall, A.-C., R. Krejci, J. Ström, R. Treffeisen, R. Scheele, O. Hermansen and J. Paatero, 2008. *Changes in aerosol properties during spring-summer period in the Arctic troposphere*. *Atm. Chem. Phys.*, **8**, 3, 445-462.
- Haklander, A.J., P.C. Siegmund, M. Sigmond and H.M. Kelder, 2008. *How does the northern-winter wave driving of the Brewer-Dobson circulation increase in an enhanced-CO<sub>2</sub> climate simulation?* *Geophys. Res. Lett.*, **35**.
- Haklander, A., 2008. *The Brewer-Dobson circulation: Interannual variability and climate change*. Thesis, Technische Universiteit Eindhoven, 2008, Eindhoven, 97p.
- Hermann, M., C.A.M. Brenninkmeijer, F. Slemr, J. Heintzenberg, B.G. Martinsson, H. Schlager, P.F.J. van Velthoven, A. Wiedensohler, A. Zahn and H. Ziereis, 2008. *Submicrometer aerosol particle distributions in the upper troposphere over the mid-latitude North Atlantic results from the third route of CARIBIC*. *Tellus*, **60**, **1**, 106-117.
- Nguyen, H.N., B.G. Martinsson, J.B. Wagner, E. Carlemalm, M. Ebert, C.A.M. Brenninkmeijer, J. Heintzenberg, M. Hermann, P.F.J. van Velthoven and A. Zahn, 2008. *Chemical Composition and Morphology of Individual Aerosol Particles from a CARIBIC Flight at 10 km Altitude between 50 N and 30 S*. *J. Geophys. Res.*, **113**.
- Slemr, F., R. Ebinghaus, C.A.M. Brenninkmeijer, M. Hermann, H.H. Kock, B. Martinsson, T. Schuck, D. Sprung, P.F.J. van Velthoven, A. Zahn and H. Ziereis, 2008. *Gaseous mercury distribution in the upper troposphere and lower stratosphere here observed onboard the CARIBIC passenger aircraft*. *Atm. Chem. Phys.*, **8**, 18651-18688.
- Smedt, I. De, J.F. Muller, T. Stavrou, R.J. van der A, H. Eskes and M. Van Roozendaal, 2008. *Twelve years of global observation of formaldehyde in the troposphere using GOME and SCIAMACHY sensors*. *Atm. Chem. Phys.*, **8**, 16, 4947-4963.
- Weber, S.L., 2008. *Can you step twice into the same river? Climate change through time*. *Netherlands Journal of Geosciences*, **87**, **3**, 231-239.
- Wohlfahrt, J., S.P. Harrison, P. Braconnot, C.D. Hewitt, A. Kitoh, U. Mikolajewicz, B. Otto-Bliesner and S.L. Weber, 2008. *Evaluation of coupled ocean-atmosphere simulations of the mid-Holocene using palaeovegetation data from the northern hemisphere extratropics*. *Clim. Dyn.*, **31**, 871-890.

**2009**

- Brunner, D. and P. Siegmund, 2009. *The scout-O3 Darwin Aircraft Campaign: rationale and meteorology*. *Atm. Chem. Phys.*, **9**, 93-117.
- Flemming, J., A. Inness, H. Flentje, V. Huijnen, P. Moinat, M.G. Schultz and O. Stein, 2009. *Coupling global chemistry transport models to ECMWF's integrated forecast system*. *Geoscientific Model Development*, **2**, 253-265.
- Hoor, P., J. Borken-Kleefeld, D. Caro, O. Dessens, O. Endresen, M. Gauss, V. Grewe, D. Hauglustaine, I.S.A. Isaksen, P. Jockel,

- J. Lelieveld, E. Meijer, D. Olivie, P.F.J. van Velthoven and et al., 2009. *The impact of traffic emissions on atmospheric ozone and OH: results from QUANTIFY*. *Atm. Chem. Phys.*, **9**, 3113-3136.
- Koppe, M., M. Hermann, C.A.M. Brenninkmeijer, J. Heintzenberg, H. Schlager, T. Schuck, F. Slemr, D. Sprung, P.F.J. van Velthoven, A. Wiedensohler, A. Zahn and H. Ziereis, 2009. *Origin of aerosol particles in the mid-latitude and subtropical upper troposphere and lowermost stratosphere from cluster analysis of CARIBIC data*. *Atm. Chem. Phys.*, **9**, 8413-8430.
- Martinsson, B.G., C.A.M. Brenninkmeijer, S.A. Carn, M. Hermann, K.P. Heue, P.F.J. van Velthoven and A. Zahn, 2009. *Influence of the 2008 Kasatochi Volcanic Eruption on Sulfurous and Carbonaceous Aerosol Constituents in the Lower Stratosphere*. *Geophys. Res. Lett.*, **36**, 1-5.
- Otto-Bliesner, B., R. Schneider, E. Brady, ...and S.L. Weber, 2009. *A comparison of PM<sub>10</sub> model simulations and the MARGO proxy reconstruction for tropical sea surface temperatures at last glacial maximum*. *Clim. Dyn.*, **32**, 799-815.
- Schnadt Poberaj, C., J. Staehelin, R. Bintanja, P.F.J. van Velthoven, O. Dessens, M. Gauss, I.S.A. Isaksen, V. Grewe, P. Jockel, P. Hoor, B. Koffi, D. Hauglustaine and D. Olivie, 2009. *QUANTIFY model evaluation of global chemistry models: carbon monoxide*. Transport, Atmosphere and Climate Conference (TAC-2), 10/6/2009-25/6/2009, R. Sausen (Ed.), 2009, Aken-Maastricht, DLR, KNMI.
- Slemr, F., R. Ebinghaus, C.A.M. Brenninkmeijer, M. Hermann, H.H. Kock, B. Martinsson, T. Schuck, D. Sprung, P.F.J. van Velthoven, A. Zahn and H. Ziereis, 2009. *Gaseous mercury distribution in the upper troposphere and lower stratosphere observed onboard the CARIBIC passenger aircraft*. *Atm. Chem. Phys.*, **9**, 6, 1957-1969.
- Weigelt, A., M. Hermann, P.F.J. van Velthoven, C.A.M. Brenninkmeijer, G. Schlaf, A. Zahn and A. Wiedensohler, 2009. *Influence of clouds on aerosol particle number concentrations in the upper troposphere*. *J. Geophys. Res.*, **114**.
- Williams, J.E., M.P. Scheele, P.F.J. van Velthoven, J.P. Cammas, V. Thouret, C. Gacy-Lacaux and A. Volz-Thomas, 2009. *The influence of biogenic emissions from Africa on tropical tropospheric ozone during 2006: a global modeling study*. *Atm. Chem. Phys.*, **9**, 10367-10427.

## Other publications

### 2007

- Bintanja, R., 2007. *Ice-atmosphere interactions and near-surface processes*. In *Encyclopedia Antarctica*, B. Riffenburgh (Ed.), 2007, New York, Routledge, p498-500.
- Brenninkmeijer, C.A.M., P.F.J. van Velthoven and et al., 2007. *The CARIBIC aircraft system for detailed, long-term, global-scale measurement of trace gases and aerosol in a changing atmosphere*. *IGActivities Newsletter*, **37**, 2-9.
- Dalsoren, S.B., T. Pulles, D. Panasiuk, M. Schultz, S. Rast, S. Schroder, T. van Noije and S. Szopa, 2007. *RETRO report on analysis of past and present policy response to trends in European air pollution*.
- Hilaire, J., 2007. *Modelling of Birch pollen concentrations using an atmospheric transport model*. 2007, KNMI, 77p.
- Noije, T. van, 2007. *Interactive comment on "Medium-range mid-tropospheric transport of ozone and precursors over Africa: two numerical case-studies in dry and wet seasons" by B. Sauvage et al.* *Atm. Chem. Phys. Disc.*, **7**, S1463-S1471.
- Polavarapu, S., H.J. Eskes and T.G. Shepherd, 2007. *Report on the SPARC Data Assimilation Workshop*. *SPARC/WCRP Newsletter*, **28**, 1285-19.
- Schultz, M.G., T. van Noije, P. van Velthoven and co-authors, 2007. *REanalysis of the TROpospheric chemical composition over the past 40 years (RETRO) - A long-term global modeling study of tropospheric chemistry*. Final Report, Forschungszentrum Jülich GmbH.
- Siegmund, P., 2007. *Wat beweegt de atmosfeer?* *Nederlands Tijdschrift voor Natuurkunde*, **73**, 7, 240-242.
- Siegmund, P., H. Slaper, G. Velders, H. De Backer, R. van der A, M. van Weele, P. Veefkind, M. Allaart, D. Swart and P. den Outer, 2007. *Bescherming ozonlaag: 20 jaar effectief beleid - een welkome waarheid*. Folder.
- Siegmund, P.C., 2007. *IPCC AR4, WG1, Chapter 3: Observations: Surface and atmospheric climate change (contributing author)*. In *Climate Change: The Physical Science Basis*, 2007, Cambridge University Press.
- Siegmund, P.C., 2007. *Waarom zijn de tropen zo roud en de polen zo warm?* *Nederlands Tijdschrift voor Natuurkunde*, **73**, 5, 153.
- Siegmund, P.C., H. Slaper and G. Velders, 2007. *Bescherming ozonlaag: 20 jaar effectief beleid - een welkome waarheid*. *Weer Magazine*, **5**, 38.
- Szopa, S., D.A. Hauglustaine, M. Schultz, T. van Noije, S. Rast, N.H. Savage and S. Dalsoren, 2007. *RETRO report on analysis of sensitivity of model trends and interannual variability to emissions, chemistry and dynamics*.
- Szopa, S., M.G. Schultz, D.A. Hauglustaine, S. Dalsoren, T. van Noije, S. Rast and N.H. Savage, 2007. *RETRO report on the reanalysis simulations*.

Velthoven, P.F.J. van and M. van Weele, 2007. *HYMN First Periodic Activity Report*. HYMN First Periodic Activity Report, KNMI.

Velthoven, P.F.J. van and P. Bousquet, 2007. *HYMN: HYdrogen, Me thane and Nitrous oxide*. Workshop on Atmospheric monitoring and inverse modelling for verification of national and EU bottom-up GHG inventories, 8/3/2007-9/3/2007, P.Bergamaschi (Ed.), 2007, Ispra, Italy, Climate Change Committee Working Group I, EC-JRC, ISBN ISSN 1018-5593, 33-34.

Verver, G.H.L., 2007. *The role of the tropics in climate*. tijdschrift 'Interactie', AdeK Univ. Suriname, **8**.

Verver, G.H.L., J.P.F. Fortuin, F. Immler, C. Becker, M. DeMaziere, B. Dix, J. Notholt, S. Naipal, O. Schrems and M. Fujiwara, 2007. *Recent tropical field campaigns in Paramaribo, Suriname*. International symposium on the Tropical Stratosphere - Upper Troposphere, 5/11/2007-9/11/2007, 2007, Saint Gilles, Ile de la Reunion, SPARC - SCOUT- NDACC - CNRS.

Weber, S.L., L.J. Lourens and W.Z. Hoek, 2007. *Het klimaat en de mens*. Geo Brief (Nieuwsbrief KNGMG, ALW en KTFG), 2, 20-21.

Weele, M. van and R. van der A, 2007. *Spaceborne surface UV radiation products as available from TEMIS*. 18/9/2007-20/9/2007, J. Groebner (Ed.), 2007, Davos, Zwitserland, PMOD, 175-176.

Weele, M. van, 2007. *CAMELOT Preparation of Geophysical Scenarios for Simulations: Trace Gas Concentration Fields (Task 1.5)*. Eind(deel-)rapport CAMELOT: Trace gas concentration scenarios, KNMI.

## 2008

Huijnen, V., 2008. *Model Documentation of TMS, with focus on GEMS settings*. GEMS-GRG project.

Huijnen, V., H. Eskes, J. Marshall, D. Ceburnis, A. Gross, M. Schulz, P. Agnew, S. Kinne and A. Ghelli, 2008. *Scoring approaches for the GEMS project*. Document on scoring approaches in GEMS.

Leeuw, G. de, M. van Weele, H. Jaervinen and T. Mielonen, 2008. *CAMELOT Geophysical scenarios for simulations*. CAMELOT Geophysical scenarios for simulations.

Noije, T. van, 2008. *Ozon, luchtkwaliteit en klimaatverandering*. Tijdschrift Lucht, **6**, 12-15.

Noije, T. van, H. Eskes, G. Verver and R. van der A, 2008. *Troposferisch ozon en het klimaat*. De toestand van het klimaat in Nederland 2008, pp47.

Velthoven, P.F.J. van, 2008. *HYMN Second Periodic Management Report*. Report to EU.

Weber, S.L., 2008. *Kan men twee keer in dezelfde rivier stappen?* klimaatverandering door de tijd. Oratie, Universiteit Utrecht, 1-25.

Weber, S.L., 2008. *Kan men twee keer in dezelfde rivier stappen?* Meteorologica, **17**, 3, 7-11.

Weber, S.L., 2008. *The discovery of global warming*. Geobrief, **5**, 14-15.

Weber, S.L., 2008. *Ups en downs van het klimaat sinds 1000 AD*. Stator, 4-9.

Williams, J.E. and T.P.C. van Noije, 2008. *On the upgrading of the modified Carbon Bond Mechanism IV for use in global Chemistry Transport Models*. KNMI Scientific Report WR-2008-02, pp64.

## 2009

Aarssen, S. and N. Weber, 2009. *1000 jaar vulkaanuitbarstingen en de temperatuur in de lage landen*. Meteorologica, **18**, 3, 11-15.

Eskes, H., 2009. *Luchtkwaliteitsverwachtingen (LuKwa): Productspecificatie en datastomen*. 2009, KNMI.

Huijnen, V., 2009. *Consistency of reactive trace gases in the integrated reanalysis and forecast run within the GEMS system*. GEMS report.

Piters, A.J.M., B. Buchmann, D. Brunner, R.C. Cohen, J.C. Lambert, G. de Leeuw, P. Stammes, M. van Weele and F. Wittrock, 2009. *Data quality and validation of satellite measurements of tropospheric composition*. In The Remote Sensing of Trop. Composition from Space, 2009, Springer.

Ruyter de Wildt, M.S. de, H.J. Eskes and P.F.J. van Velthoven, 2009. *Lotos-Euros versie 1.4: bias-correctie voor PM10*. 2009, KNMI, 4p.

Ruyter de Wildt, M.S. de, H.J. Eskes and P.F.J. van Velthoven, 2009. *Lotos-euros verwachting van fijn stof: vergelijking met metingen en optimalisatie*. 2009, KNMI, 11p.

Williams, J.E., G.J. van Zadelhoff and M.P. Scheele, 2009. *The effect of updating scavenging and conversion rates on cloud droplets and ice particles in the TM global chemistry transport model*. KNMI Technical Report TR-308, pp45.

# Publications

## Climate Services

The Climate Services division provides knowledge and information on past, current and future climate to professional users and the general public.

### Reviewed Publications

#### 2007

- Beersma, J.J. and T.A. Buishand, 2007. *Drought in the Netherlands - Regional frequency analysis versus time series simulation*. J. Hydrol., **347**, 332-346.
- Beersma, J.J., 2007. *Extreme hydro-meteorological events and their probabilities*. Thesis, Wageningen Universiteit, 2007, Wageningen, 157p.
- Buishand, T.A., 2007. *Estimation of a large quantile of the distribution of multi-day seasonal maximum rainfall: the value of stochastic simulation of long-duration sequences*. Climate Research, **34**, 3, 185-194.
- Hingray, B., A. Mezghani and T.A. Buishand, 2007. *Development of probability distributions for regional climate change from uncertain global mean warming and an uncertain scaling relationship*. Hydrology and Earth System Sciences, **11**, 3, 1097-1114.
- Leander, R. and T.A. Buishand, 2007. *Resampling of regional climate model output for the simulation of extreme river flows*. J. Hydrol., **332**, 487-496.
- Mölg, T., D.R. Hardy, G. Kaser, E.J. Klok and N.J. Cullen, 2007. *Mass balance of a slope glacier on Kilimanjaro and its sensitivity to climate*. Int. J. Climatology.
- Trenberth, K.E., P.D. Jones, P. Ambenje, R. Bojariu, D. Easterling, A. Klein Tank, D. Parker, F. Rahimzadeh, J.A. Renwick, M. Rusticucci, B. Soden and P. Zhai, 2007. *Observations: Surface and Atmospheric Climate Change*. In Climate Change 2007: The Physical Science Basis, Solomon, S. et al. (Eds.), 2007, Cambridge, Cambridge University Press, ISBN 978 0521 88009-1, p235-336.

#### 2008

- Begert, M., E. Zenkussen, C. Haerberli, C. Appenzeller and L. Klok, 2008. *An automated homogenization procedure; performance assessment and application to a large European climate dataset*. Meteor. Z., **17**, 5, 663-672.
- Brandsma, T. and J.P. van der Meulen, 2008. *Thermometer Screen Intercomparison in De Bilt (the Netherlands), Part II: Description and modeling of mean temperature differences and extremes*. Int. J. Climatology, **1**, **28**, 3, 389-400.
- Buishand, T.A., L. de Haan and C. Zhou, 2008. *On spatial extremes: with application to a rainfall problem*. Ann. Applied Statistics, **2**, 2, 624-642.
- Deneke, H.M., A.J. Feijt and R.A. Roebeling, 2008. *Estimating surface solar irradiance from METEOSAT SEVIRI-derived cloud properties*. Remote Sens. Environ., **112**, 3131-3141.
- Deneke, H., R.A. Roebeling, E. Wolters, A. Feijt and C. Simmer, 2008. *On the Sensitivity of Satellite-Derived Cloud Properties To Sensor Resolution and Broken Clouds*. International Radiation Symposium (IRS2008), 3/8/2008-8/8/2008, 2008, Iguacu Falls, Brazil, IRS.

- Dorland, R. van, B. Jansen and W. Dubelaar-Versluis, 2008. *De Staat van het Klimaat 2007*. 2008, De Bilt/Wageningen, PCCC.
- Haylock, M.R., N. Hofstra, A.M.G. Klein Tank, E.J. Klok, P.D. Jones and M. New, 2008. *A European daily high-resolution gridded dataset of surface temperature and precipitation for 1950-2006*. *J. Geophys. Res.*, **113**.
- Klok, E.J. and A.M.G. Klein Tank, 2008. *Updated and extended European dataset of daily climate observations*. *Int. J. Climatology*.
- Leander, R., T.A. Buishand, B.J.J.M. van den Hurk and M.J.M. de Wit, 2008. *Estimated changes in flood quantiles of the river Meuse from resampling of regional climate model output*. *J. Hydrol.*, **351**, 331-343.
- Schrier, G. van der and P.D. Jones, 2008. *Storminess and Cold Air Outbreaks in NE America during AD 1790-1820*. *Geophys. Res. Lett.*, **35**, L02713.
- Schrier, G. van der and P.D. Jones, 2008. *Daily temperature and pressure series for Salem, Massachusetts (1786-1829)*. *Climatic Change*, **87**, 3, 499-515.
- Wolters, E.L.A., R.A. Roebeling and A.J. Feijt, 2008. *Evaluation of cloud phase retrieval methods for SEVIRI onboard METEOSAT-8 using ground-based lidar and cloud radar data*. *J. Appl. Meteor.*, **47**, 6, 1723-1738.

## 2009

- Briffa, K.R., G. van der Schrier and P.D. Jones, 2009. *Wet and sry summers in Europe since 1750: evidence of increasing drought*. *Int. J. Climatology*, **29**, 1894-1905.
- Hanel, M., T.A. Buishand and C.A.T. Ferro, 2009. *A non-stationary index-flood model for precipitation extremes in transient Regional Climate Model simulations*. *J. Geophys. Res.*, **114**, D15107.
- Wever, N., M. Lehning, A. Clifton, J.D. Ruedi, K. Nishimura, M. Nemoto, S. Yamaguchi and A. Sato, 2009. *Verification of moisture budgets during drifting snow conditions in a cold wind tunnel*. *Water Resour. Res.*, **45**, W07423.
- Zaiki, M., G.P. Können, K. Kimura, T. Mikami and T. Tsukahara, 2009. *Reconstruction of historical pressure patterns over Japan using two-point pressure-temperature datasets since the 19<sup>th</sup> century*. *Climatic Change*, **95**, 231-248.
- Van den Brink, H.W. and G.P. Können, 2009. *Estimating 10000-year return values from short time series*. *Int. J. Climatology*.

## Other publications

### 2007

- Bakker, A. and J. Bessembinder, 2007. *Neerslagreeksen voor de KNMI'06 scenario's*. *H<sub>2</sub>O*, **22**, 45-47.
- Bakker, A.M.R., 2007. *Gevolgen klimaatverandering voor windenergie*. *Meteorologica*, **4**, 26-27.
- Bessembinder, J. et al., 2007. *Klimaat-effectschetsboek Zuid-Holland*. *DHV*.
- Brandsma, T., 2007. *Vergelijking van thermometerhutten*. *Meteorologica*, **16**, 2, 21-25.
- Buishand, T.A. and J.B. Wijngaard, 2007. *Statistiek van extreme neerslag voor korte neerslagduren*. *KNMI Technical Report TR-295*, pp19.
- Deneke, H., R.A. Roebeling, E.L.A. Wolters and A.J. Feijt, 2007. *Globale stralingsmeting vanuit de ruimte*. *Meteorologica*, **16**, 3, 21-25.
- Kattenberg, A., 2007. *De menselijke invloed op het klimaat is onmiskenbaar*. Brochure i.s.m. *WEER* magazine.
- Monna, W.A.A., 2007. *GCOS National Report: the Netherlands*. *GCOS Steering Committee, fifteenth Session, 16/10/2007-19/10/2007, 2007, Parijs, Frankrijk, GCOS*.
- Schrier, G. van der and R. Groenland, 2007. *De zomerstorm van 1674*. *Meteorologica*, **2**, 4-9.
- Schrier, G. van der, H. Wallbrink and C. Wilkinson, 2007. *Major James Rennell's current charts digitally available*. *History of Oceanography Newsletter*, **19**.
- Sluijter, R.J.C.F., 2007. *De Bosatlas van Nederland*. In *De Bosatlas van Nederland, 2007*, Groningen, Wolters Noordhoff.
- Sluijter, R.J.C.F., 2007. *Seizoenoverzicht lente 2007*. *Weer Magazine*.
- Sluijter, R.J.C.F., 2007. *Seizoenoverzicht zomer 2007*. *Weer Magazine*.
- Stuyt, L., J. Bessembinder and A. Idenburg, 2007. *Klimaat-schetsboeken en eerste generatie geodatabank in de provinciale planvorming*. *H<sub>2</sub>O*, **22**, 30-32.
- Wit, M. de and T.A. Buishand, 2007. *Generator of Rainfall And Discharge Extremes (GRADE) for the Rhine and Meuse basins*. 2007, Rijkswaterstaat RIZA, Report 2007.027, ISBN 9789036914062, 76p.
- Wolters, E.L.A., H.M. Deneke, R.A. Roebeling and A.J. Feijt, 2007. *COMPARISON OF SEVIRI AND MODIS CLOUD PHASE DETERMINATION OVER MID-LATITUDE REGIONS*. *Joint 2007 EUMETSAT Meteorological Satellite Conference and the 15th AMS Satellite Meteorology and Oceanography Conference, 24/9/2007-28/9/2007, 2007*.

## 2008

- Arts, I., A. Klein Tank and G. van der Schrier, 2008. *Structural time series analysis of meteorological data: in search of weekly cycles in Europe*. KNMI Preprint PR, afstudeerverslag.
- Bakker, A.M.R. and A. te Linde, 2008. *Scenario voor de piekafvoeren van de Rijn bij Lobith*. Geografie, 12-14.
- Besselaar, E.J.M. van den, 2008. *ENSEMBLES gridded observational dataset (E-Obs)*. Baltex Newsletter, 12, 16-17.
- Besseminder, J., C. Katsman, W. Hazeleger, S. Drijfhout, H. van den Brink, G. Lenderink, E. Meijgaard, M. de Wit, H. Buiteveld and W. van Deursen, 2008. *Extreme klimaatverandering en waterveiligheid in Nederland*. KNMI Publication.
- Besseminder, J.J.E., 2008. *Aandacht voor veiligheid*. KNMI Publication PUBL-221.
- Brandsma, T. and A. van Ulden, 2008. *Temperatuurreksen*. KNMI Preprint PR, De toestand van het klimaat in Nederland, pp47.
- Brandsma, T., 2008. *Data rescue and digitization: tips and tricks resulting from the Dutch experience*. International Workshop on Rescue and Digitization of Climate Records in the Mediterranean Basin, 28/11/2007-30/11/2007, Manola Brunet and Franz Kuglitsch (Eds.), 2008, Geneva, Switzerland, World Meteorological Organization, WMO, WCDMP No. 67, WMO-TD No.1432, 47-54.
- Buishand, T.A. and J.B. Wijngaard, 2008. *Statistiek van extreme neerslag voor het stedelijk waterbeheer*. H<sub>2</sub>O, 41, 8, 28-30.
- Buishand, T.A., J.J. Beersma, R. Sluiter and T. Kroon, 2008. *Definitiestudie raterdata meteorologie*. rapport, KNMI en RWS Waterdienst.
- Dorland, R. van, 2008. *Maandelijks weerpagina*. Zenit.
- Dorland, R. van, 2008. *Waarom is Poznan belangrijk voor het klimaat?* Trouw, 27 november 2008.
- Groen, G., 2008. *Factsheet Zware storm*. KNMI Preprint PR.
- Groen, G., 2008. *Metten is weten? Over mistdruppels op spinrag voor de zichtmeter*. Meteorologica, 17, 1, 28.
- Hanel, M. and T.A. Buishand, 2008. *Preliminary evaluation of precipitation extremes in RCM data for the Rhine basin*. ENSEMBLES deliverable D5.21.
- Kabat (Red.), P., W. Hazeleger, C. Katsman, A. Sterl, J. Beersma, A. Klein Tank, P. Vellinga, R. Hutjes and R. Swart, 2008. *Toelichting op door de Deltacommissie gebruikte klimaatscenario's - Bijlage 3 van 'Samen werken met water'*. In Samen werken met water, Deltacommissie 2008 (Ed.), 2008, ISBN 978-90-9023484-7, p106-117.
- Lablans, W. and G. van der Schrier, 2008. *De voorspelbaarheid van het weer van Lavoisier tot Lorenz. 2. Het tijdperk van de numerieke verwachtingen*. Meteorologica, 17, 1, 9-14.
- Leander, R. and T.A. Buishand, 2008. *Rainfall generator for the Meuse basin; Description of 20000-year simulations*. -196-IV, pp15.
- Lubczynska, M., G. van der Schrier and A. Klein Tank, 2008. *Feedback between soil moisture and spells of warm summer weather in Europe*. KNMI Preprint PR, afstudeerverslag.
- Overeem, A., I. Holleman and A. Buishand, 2008. *A 10-year Radar-based Climatology of Rainfall*. ERAD 5, 30/6/2008-4/7/2008, 2008, Helsinki.
- Petersen, A., B. Eickhout, B. Strengers and R. van Dorland, 2008. *Wetenschappers te zeker over invloed van de zon: afkoeling deze eeuw is zeer onwaarschijnlijk*. Financieel Dagblad.
- Vellinga, P., C.A. Katsman, A. Sterl and J.J. Beersma (Eds.), 2008. *Onderzoek naar bovengrensscenario's voor klimaatverandering voor overstromingsbescherming van Nederland: een internationale wetenschappelijke beoordeling*. Publicatie van KNMI en Wageningen UR (Alterra, Earth System Science and Climate Change Group), pp178.
- Vellinga, P., R. van Dorland and P. Kabat, 2008. *Goede vragen vereisen goede antwoorden: kritiek op gangbaar klimaatonderzoek weersproken*. Spil, 2/3, 30-33.
- Wever, N., 2008. *Effectieve temperatuur en graaddagen, klimatologie en klimaatscenario's*. KNMI Publication PUBL-219.
- Wit, M. de, H. Buiteveld, W. van Deursen, F. Keller and J. Besseminder, 2008. *Klimaatverandering en de afvoer van de Rijn en Maas*. Stromingen, 14, 1, 13-24.
- Wit, M.J.M. de and T.A. Buishand, 2008. *Extreme afvoeren voor Rijn en Maas gebundeld in GRADE*. H<sub>2</sub>O, 41, 1, 8-9.

## 2009

- Aarssen, S. and N. Weber, 2009. *1000 jaar vulkaanuitbarstingen en de temperatuur in de lage landen*. Meteorologica, 18, 3, 11-15.
- Bakker, A.M.R., J.J.E. Besseminder, T. Kroon and B.J.J.M. van den Hurk, 2009. *Klimatologisch standaardjaar op dagbasis voor heden en toekomst*. 2009, KNMI, 64p.
- Besseminder (ed), J. et al., 2009. *Klimaatschetsboek Nederland: het huidige en toekomstige klimaat*. KNMI Preprint, KNMI report 223, pp84.

- Brandsma, T., 2009. *Understanding inter-site temperature differences at the KNMI terrain in De Bilt (the Netherlands)*. Joint 6<sup>th</sup> Seminar for homogenization and quality control in climatological databases and the COST-HOME meeting, 26/5/2008-30/5/2008, Hungarian Met Office (Ed.), 2009.
- Buishand, T.A., 2009. *Basisgegevens neerslaggenerator Maasstroombgebied*. Basisgegevens neerslaggenerator Maasstroombgebied.
- Buishand, T.A., R. Jilderda and J.B. Wijngaard, 2009. *Regionale verschillen in extreme neerslag*. KNMI Scientific Report WR-2009-01, pp47.
- Caires, S., H. de Waal, G. Groen, N. Wever and C. Geerse, 2009. *Assessing the uncertainties of using land-based wind observations for determining extreme open-water winds*. Deltarees 1200264-005, Deltares.
- Dorland, R. van en W. Dubelaar-Versluis. *De Staat van het Klimaat 2008*. Actueel onderzoek en beleid nader verklaard, PCCC, verschenen 2009.
- Dorland, R. van, B.J. Strengers, H. Dolman, R. Haarsma, C. Katsman, G.J. van Oldenborgh, A. Sluijs and R.S.W. van de Wal, 2009. *News in Climate Science since IPCC 2007, Topics of interest in the scientific basis of climate change*. KNMI Scientific Report.
- Dorland, R. van. Maandlijks populair wetenschappelijk artikel in Zenit.
- Groen, G., 2009. *Discussie NVBM over het rapport van de Deltacommissie*. Meteorologica, 2.
- Groen, G., 2009. *Gevoelstemperatuur in de winter, invoering JAG/TI-methode*. Meteorologica.
- Groen, G., 2009. *Gevoelstemperatuur in de winter, invoering JAG/TI-methode*. Meteorologica, 18-21.
- Groen, G., 2009. *Maandoverzicht juli 2009*. KNMI Preprint PR, Maandoverzicht juli 2009.
- Groen, G., 2009. *Storm 25 januari 1990, vergelijking potentiële wind*. WT1-2011, faserapport 1b Deltares, Deltares.
- Groen, G., 2009. *Wind chill equivalente temperatuur (WCET), KNMI implementatie JAG/TI-methode voor de gevoelstemperatuur in de winter*. 2009, KNMI, TR, 27p.
- Groen, G., 2009. *Wind chill equivalente temperatuur*. 2009, KNMI, 27p.
- Groen, G., 2009. *Windchill equivalent temperature (WCET) climatology and scenarios for Schiphol Airport*. 2009, KNMI, TR, 17p.
- Hanel, M., T.A. Buishand and C.A.T. Ferro, 2009. *A non-stationary index-flood model for precipitation extremes in transient Regional Climate Model simulations*. ENSEMBLES deliverable D5.2.2.
- Klein Tank, A. and G. Lenderink, 2009. *Klimaatverandering in Nederland: Aanvullingen op de KNMI'06 scenario's*. Scenario brochure 2009, pp36.
- Klein Tank, A., 2009. *IPCC report, KNMI scenarios and the Delta Committee*. Meteorologica, 2, 7-8.
- Klein Tank, A., G. Lenderink, B. Overbeek and J. Bessembinder, 2009. *Klimaat Nederland verandert sterk*. Weer Magazine, 5, 20-23.
- Klein Tank, A.M.G., F.W. Zwiers and X. Zhang, 2009. *Guidelines on analysis of extremes in a changing climate in support of informed decisions for adaptation*. WMO-TD No. 1500, WMO, Geneva.
- Schrier, G. van der and R. Groenland, 2009. *De najaarsstorm van 1-2 oktober 1697*. Meteorologica, 1, 4-6.
- Schrier, G. van der and R. Groenland, 2009. *De najaarsstorm van 1-2 oktober 1697*. Meteorologica.
- Schrier, G. van der and R. Groenland, 2009. *De najaarsstorm van 1-2 oktober 1697*. Meteorologica, 1.
- Ulden, A. van, G.J. van Oldenborgh and G. van der Schrier, 2009. *The Construction of a Central Netherlands Temperature*. KNMI Scientific Report WR-2009-03, pp15.
- Vellinga, P., C.A. Katsman, A. Sterl and J.J. Beersma (Eds.), 2009. *Exploring high-end climate change scenarios for flood protection of the Netherlands*. International Scientific Assessment carried out at the request of the Delta Committee. KNMI Scientific Report WR-2009-05.
- Wever, N. and G. Groen, 2009. *Improving potential wind for extreme wind statistics*. 20/1/2009, 2009.
- Wever, N. and G. Groen, 2009. *Improving potential wind for extreme wind statistics*. KNMI Scientific Report WR-2009-02, pp114.
- Wever, N. and G. Groen, 2009. *Preliminary investigations into the curvature problem in extreme wind statistics*. Preliminary investigations into the curvature problem in extreme wind statistics sbw-Belastingen: Phase 1b of subproject, Deltares.
- Wever, N., 2009. *Windstotenklimatologie Nederland*. 2009, KNMI, 49p.
- Zwiers, F., A. Klein Tank and H. Cattle, 2009. *CLIVAR/CCL/ICOMM Expert Team on Climate Change Detection and Indices*. Exchanges, 14, 2, 30-31.

# Publications Seismology

The Seismology division is a knowledge-based research centre and observatory for earthquakes and related events. On the basis of seismological and other geophysical observations like infrasound, the Seismology division is active in fundamental and applied research in the field of seismology and furthermore hosts the European centre for exchange and coordination of seismological data (ORFEUS).

## Reviewed Publications

### 2007

- Dost, B. and H.W. Haak, 2007. *Natural and Induced Seismicity*. In *Geology of the Netherlands*, Th.E. Wong & J. de Jager ((Eds.), 2007, Amsterdam, Royal Netherlands Academy of Arts and Sciences, ISBN 978-90-6984-481-7, p223-239.
- Evers, L.G., L. Ceranna, H.W. Haak, A.L. Pichon and R.W. Whitaker, 2007. *A seismoacoustic analysis of the gas-pipeline explosion near Ghislenghien in Belgium*. *Bulletin of the Seismological Society of America*, **97**, 2, 417-425.
- Evers, L.G. and H.W. Haak, 2007. *Infrasonic forerunners: exceptionally fast acoustic phases*. *Geophys. Res. Lett.*, **34**.

### 2008

- Assink, J.D., L.G. Evers, I. Holleman and H. Paulssen, 2008. *Characterization of infrasound from lightning*. *Geophys. Res. Lett.*, **35**, L15802.
- Evers, L.G., 2008. *The inaudible symphony: on the detection and source identification of atmospheric infrasound*. Thesis, TU Delft, 2008, Delft, ISBN 978-90-71382-55-0, 170p.
- Ottmoller, L. and L.G. Evers, 2008. *Seismo-acoustic analysis of the Buncefield oil depot explosion in the UK, 2005*. *Geophys. J. Int.*, **172**, 3, 1123-1134.
- Suarez, G., T. van Eck, D. Giardini, T. Ahern, R. Butler and S. Tsuboi, 2008. *The International Federation of Digital Seismograph Networks (FDSN): An Integrated system of Seismological Observatories*. *IEEE Systems Journal*, **2**, 3, 431-438.

### 2009

- Evers, L.G. and H.W. Haak, 2009. *The characteristics of infrasound, its propagation and some early history*. In *Infrasound monitoring for atmospheric studies*, A. Le Pichon (Ed.), 2009, Dordrecht, Springer.
- Evers, L.G. and P. Siegmund, 2009. *The infrasonic signature of the 2009 major Sudden Stratospheric Warming*. *Geophys. Res. Lett.*, **36**.
- Evers, L.G., 2009. *Imaging of the atmosphere with infrasound*. *Internoise 2009, 23/8/2009-26/8/2009*, 2009, Ottawa, Canada, 1-9.
- Green, D., A. Le Pichon, L. Ceranna and L.G. Evers, 2009. *Ground Truth Events: Assessing the Capability of Infrasound Networks Using High Resolution Data Analysis*. In: *Infrasound monitoring for atmospheric studies*, A. Le Pichon (Ed.), 2009, Springer, Dordrecht .

- Pichon, A. Le, J. Vergoz, E. Blanc, J. Guilbert, L. Ceranna, L.G. Evers and N. Brachet, 2009. *Assessing the performance of the International Monitoring System infrasound network: Geographical coverage and temporal variabilities*. J. Geophys. Res., **114**.
- Pichon, A. Le, K. Antier, Y. Cansi, B. Hernandez, E. Minaya, B. Burgoa, D. Drob, L.G. Evers and J. Vaubailon, 2009. *Evidence of a meteoritic origin of the September 15<sup>th</sup>, 2007 Carancas crater*. Meteoritics & Planetary Science, **43**, 11, 1797-1809.
- Zon, T. van, L.G. Evers, R. van Vossen and M. Ainslie, 2009. *Direction of Arrival estimates with vector sensors: First results of an atmospheric infrasound array in the Netherlands*. Underwater acoustic measurements, Technologies & Results, 21/6/2009-26/6/2009, 2009, Nafplion, Greece, FORTH, 1-6.

## Other publications

### 2007

- Douet, V., S. Rives and A. Spinuso, 2007. *Portal and networking infrastructures*. Report NA9-D1, Neries project.
- Eck, T. van et al., 2007. *NERIES project Annual Report to the EC. period: 01 June 2006 - 31 May 2007*.
- Eck, T. van, 2007. *Editor. Orfeus Electronic Newsletter*, **7**, 1.
- Eck, T. van, 2007. *Editor. Orfeus Electronic Newsletter*, **7**, 2.
- Eck, T. van, A. Spinuso, V. Douet and R. Bossu, 2007. *Portal concept and strategy Report*. Report NA7-D1, Neries project.
- Eck, T. van, F.H. Goutbeek and B. Dost, 2007. *Site specific hazard estimates for the NUON energy plant in the Eemshaven*. KNMI Internal Report IR-2007-02, pp17.
- Sleeman, R., 2007. *Ambient Earth noise and insrumental noise*. Bijdrage biennial 2005-2006.

### 2008

- Bossu, R., T. van Eck and J. Davila, 2008. *EERWEM final report*. EERWEM final report to the EC.
- Eck, T. van and NERIES Consortium, 2008. *NERIES; Second Annual Report*. Annual report EC-project NERIES.
- Eck, T. van, F.H. Goutbeek and B. Dost, 2008. *Site specific hazard estimates for the LNG energy plant in the Europoort area*. KNMI Internal Report IR-2008-01, pp16.
- Evers, L.G., J. de Plaa and D.G. Simons, 2008. *Listening to inaudible sound: towards acoustic remote sensing with atmospheric infrasound*. Leonardo Times, **12**, 1, 12-13.
- Evers, L.G., 2008. *Het hoe, wat en waarom van infrageluid metingen*. Meteorologica.
- Giardini, D., T. van Eck, R. Bossu and S. Wiemer, 2008. *Networking Research Infrastructures for Earthquake Seismology*. EOS, **89**, 219.
- Hazel, G.J. van den, 2008. *Detection and processing 3C signal from a small scale seismic array*. MSc thesis Utrecht University.

### 2009

- Evers, L.G. and J. Schweitzer, 2009. *A climatology of infrasound observations at the ARCI array in Norway*. 2009, NORSAR, Scientific Report, 13p.
- Evers, L.G., 2009. *Het hoe, wat en waarom van infrageluid metingen*. Meteorologica, **18**, 1, 24-26.
- Evers, L.G., 2009. *De onhoorbare symfonie*. Nederlands Tijdschrift voor Natuurkunde, **75**, 5, 156-159.

# Publications

## R&D Information and Observation Technology

The Information and observation technology research aims at innovating KNMI's ICT infrastructure and observation technology.

### Reviewed publications

#### 2007

-

#### 2008

-

#### 2009

Som de Cerff, W.J., M. Petitdidier, A. Gemünd, L. Horstink and H. Schwichtenberg, 2009. *Earth science test suites to evaluate grid tools and middleware - examples for grid data access tools*. *Earth Science Informatics*, **2**, 117-131.

### Other publications

#### 2007

Hajj, M.J. de, 2007. *Automated discrimination of precipitation type using the FD12P present weather sensor: evaluation and opportunities*. KNMI Technical Report TR-297, pp73.

Hajj, M.J. de, W.M.F. Wauben and H. Klein Baltink, 2007. *Continuous mixing layer height determination using the LD-40 ceilometer: a feasibility study*. KNMI Scientific Report WR-2007-01.

#### 2008

Beekhuis, H. and I. Holleman, 2008. *From Pulse to Product: Highlights of the digital-IF upgrade of the Dutch national radar network*. ERAD 5. 30/6/2008-4/7/2008, Helsinki.

Hajj, M.J. de, 2008. *Assessment of automated quality control of MOR measurements by the FD12P sensor*. KNMI Technical Report TR-298, 37pp.

#### 2009

Hajj, M.J. de, 2009. *Automatische validatie van druk- en windwaarnemingen op het KNMI - een verkenning*. KNMI publication IR-2009-03, 80pp.

Hajj, M.J. de, W.M.F. Wauben, H. Klein Baltink and A. Apituley, 2009. *Determination of the mixing layer height by a ceilometer*. 8<sup>th</sup> International Symposium on Tropospheric Profiling, 19/10/2009-23/10/2009, A. Apituley, H.W.J. Russchenberg, W.A.A. Monna (Eds.), Delft, ISBN 978-90-6960-2.