

- ALEXANDER, MA., BHATT, US., WALSH, JE., TIMLIN, MS., MILLER, JS., SCOTT, DS., 2004: The atmospheric response to realistic Arctic sea ice anomalies in an AGCM during winter. *Journal of Climate*, **17**, 890-905
- ALHEIT, J., MÖLLMANN, C., DUTZ, J., KORNILOVS, G., LOEWE, P., MOHRHOLZ, V., WASMUND, N., (2005): Synchronous ecological regime shifts in the central Baltic and the North Sea in the late 1980's, *Journal of Marine Science*, **62**, 1205-1215
- AMBAUM, M.H.P., HOSKINS, B., STEPHENSON, D.B., 2001: Arctic Oscillation or North Atlantic Oscillation? *J. Climate*, **14**, 3495-3507.
- ANGELL, J. K., KORSHOVER, J., 1983: Comparison of stratospheric warming following Agung and Chichon. *Mon. Weather Rev.*, **111**, 2129-2135.
- ANGSTRÖM, A., 1935: Teleconnections of climatic changes in present time. *Geogr. Ann.*, **17**, 242-258.
- APPENZELLER, C., STOCKER, T.F., ANKLIN, M., 1998: North Atlantic oscillation dynamics recorded in Greenland ice cores. *Science*, **282**, 446-449.
- APPENZELLER, Ch., STOCKER, T. F., SCHMITTNER, A., 2000: Natural Climate Variability and climate change in the North Atlantic European Region: Change for surprise? *Integrated Assessment*, **1**, 301-306.
- BADER, J., LATIF, M., 2003: The impact of decadal-scale Indian Ocean sea surface temperature anomalies on Sahelian rainfall and the North Atlantic Oscillation. *Geophysical Research Letters*, **30** (22), 2169-2172
- BALDWIN, M.P., CHENG, X., DUNKERTON, T.J., 1994: Observed correlations between winter mean tropospheric and stratospheric circulation anomalies, *Geophys. Res. Lett.*, **21**, 1141-1144.
- BALDWIN, M.P., DUNKERTON, T.J., 1999: Propagation of the Arctic Oscillation from the stratosphere to the troposphere. *J. Geophys. Res.*, **104**, 30937-30946.
- BALDWIN, M.P., T. J. DUNKERTON, 2001: Stratospheric harbingers of anomalous weather regimes. *Science*, **244**, 581-584.
- BALDWIN, M.P., STEVENSON, D.B., THOMPSON, D.W.J., DUNKERTON, T.J., CHARLTON, A.J., O'NEILL, A., 2003: Stratospheric memory and skill of extended-range weather forecasts. *Science*, **301**, 636- 640.
- BARNSTON, A.G., LIVEZEY, R.E., 1987: Classification, seasonality and persistence of low frequency atmospheric circulation patterns. *Mon. Wea. Rev.*, **115**, 1083-1126.
- BARSUGLI, J.J., BATTISTI, D.S., 1998. The basic effects of atmosphere-ocean thermal coupling on middle-latitude variability. *Journal of the Atmospheric Sciences*, **55**, 477-493
- BEAUGRAND, G., REID, P.C., IBANEZ, F., J.A.LINDLEY, J.A., EDWARDS, M., (2002): Reorganization of North Atlantic Marine Copepod Biodiversity and Climate, *Science*, **296**, 1692-1694
- BENEDICT, J. J., LEE, S., FELDSTEIN, S.B., 2004: A synoptic view of the North Atlantic Oscillation. *J. Atmos. Sci.*, **61**, 121-144.
- BERGANT, K.L., KAJFEZ-BOGA, Z., CREPINSEK (2002): The Use of EOF Analysis for Preparing the Phenological and Climatological Data for Statistical Downscaling-Case Study: The Beginning of Flowering of the Dandelion (*Taraxacum officinale*) in Slovenia, in: Developments in Statistics Andrej Mrvar and Anuska Ferligoj (Editors) *Metodološki zvezki*, **17**, Ljubljana
- BJERKNES, J., 1964: Atlantic air-sea interaction. *Adv. Geophys.* **10**, 1-82.
- BLESSING, S., FRAEDRICH, K., JUNGE, M., KUNZ, T., LUNKEIT, F., 2005: Daily North-Atlantic Oscillation (NAO) index: Statistics and its stratospheric polar vortex dependence. *Meteorol. Zeitschrift*, **14**, 763-769.
- BÖHM, R., AUER, I., BRUNETTI, M., MAUGERI, M., NANNI, T., SCHÖNER, W., 2001: Regional temperature variability in the European Alps: 1760-1998 from homogenized instrumental series. *Int. J. Climatol.*, **21**, 1779-1801.

- BOVILE, B.A., 1984: The influence of the polar night jet on the tropospheric circulation in a GCM. *J. Atmos. Sci.* **41**, 1132-1142.
- BRADLEY, R.S., 1988: The Explosive Volcanic-Eruption Signal in Northern Hemisphere Continental Temperature Records, *Climatic Change*, **12** (3), 221-243.
- BRAESICKE, P., BRÜHL, C., DAMERIS, M., DECKERT, R., EYRING, V., GIORGETTA, M.A., MANCINI, E., MANZINI, E., PITARI, G., PYLE, J.A., STEIL, B., 2007: A model intercomparison analysing the link between ozone and geopotential height anomalies in January, *Atmos. Chem. Phys. Discuss.*, **7**, 15409-15451,
- BRAZDIL, R., PFISTER, C., WANNER, H., VON STORCH, H., LUTERBACHER, J., 2005: Historical Climatology In Europe – The State Of The Art. *Clim. Change*, **70**, 363-430, DOI: 10.1007/s10584-005-5924-1.
- BRÖNNIMANN, S., HOOD, L. L., 2003: Frequency of low-ozone events over north-western Europe in 1952–1963 and 1990–2000. *Geophys. Res. Lett.*, **30**, 2118, DOI: 10.1029/2003GL018431
- BRÖNNIMANN, S., LUTERBACHER, J., SCHMUTZ, C., WANNER, H., STAEHELIN, J., 2000: Variability of total ozone at Arosa, Switzerland, since 1931 related to atmospheric circulation indices. *Geophys. Res. Lett.*, **27**, 2213-2216.
- BRÖNNIMANN, S., FREI, F., 2008: Defant's work on North Atlantic climate variability revisited. *Meteorol. Z.* (im Druck).
- BÜNTGEN, U., ESPER, J., FRANK, D.C., NICOLUSSI, K., SCHMIDHALTER, M., 2005: A 1052-year tree-ring proxy for Alpine summer temperatures. *Clim. Dyn.*, **25**, 141-153.
- CASSOU, C., TERRAY, L., HURRELL, J.W., DESER, C., 2004: North Atlantic winter climate regimes: Spatial asymmetry, stationarity with time, and oceanic forcing. *Journal of Climate*, **17**, 1055-1068
- CASSOU, C., DESER, C., ALEXANDER, M.A., 2007. Investigating the Impact of reemerging Sea Surface Temperature Anomalies on the Winter Atmospheric Circulation over the North Atlantic. *Journal of Climate*, **20**, 3510-3526
- CASTY, C., RAIBLE, C.C., STOCKER, T.F., WANNER, H., LUTERBACHER, J., 2007: A European pattern climatology 1766-2000, *Clim. Dyn.*, **29**, 791-805, DOI: 10.1007/s00382-007-0257-6
- CAYAN, D.R., 1992a: Latent and sensible heat flux anomalies over the Northern Oceans: Driving the sea surface temperature. *J. Phys. Ocean.*, **22**, 859–881.
- CAYAN, D.R., 1992b: Latent and sensible heat flux anomalies over the Northern Oceans: The connection to monthly atmospheric circulation. *J. Climate*, **5**, 354–369.
- CHARNEY, J.G., DRAZIN, P.G., 1961: Propagation of planetary-scale disturbances from the low into the upper atmosphere. *J. Geophys. Res.*, **66**, 83-109.
- CHEN, M., MARQUIS, K.B., AVERYT, M., TIGNOR, MILLER, H.L., (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.
- CHRISTIANSEN, B., 2000: A model study of the dynamical connection between the Arctic Oscillation and stratospheric vacillations. *J. Geophys. Res.*, **105**, 29461 – 29474.
- CHRISTIANSEN, B., 2005: Downward propagation and statistical forecast of the near-surface weather. *J. Geophys. Res.*, **110**, D14104, doi:10.1029/2004JD005431.
- CHRISTOPH, M., ULBRICH, U., OBERHUBER, J.M., RÖCKNER, E., 2000. The Role of Ocean Dynamics for Low-Frequency Fluctuations of the NAO in a Coupled Ocean-Atmosphere GCM. *Journal of Climate*, **13**, 2536-2549
- COLLINS, M., BOTZET, M., CARRIL, A. F., DRANGE, H., JOUZEAU, A., LATIF, M., MASINA, S., OTTEERA, O., POHLMANN, H., SORTEBERG, A., SUTTON, R., TERRAY, L., 2006: Interannual to decadal climate predictability in the North Atlantic: *A multimodel-ensemble study.*, **19**, 1195-1203.
- CONIL, S., LI, L.Z.-X. 2005. Linearity of the atmospheric response to North Atlantic SST and sea ice anomalies. *Journal of Climate*, **18**, 1986-2003

- COOK, E.R., D'ARRIGO, R.D., BRIFFA, K.R., 1998: The North Atlantic Oscillation and its expression in circum-Atlantic tree-ring chronologies from North America and Europe. *Holocene*, **8**, 9–17.
- COOK, E.R., D'ARRIGO, R.D., MANN, M.E., 2002: A Well-Verified, Multiproxy Reconstruction of the Winter North Atlantic Oscillation Index since A.D. 1400. *J. Climate*, **15**, 1754-1764.
- COOK, B.I., SMITH, T.M., MANN, M.E., (2005): The North Atlantic Oscillation and regional phenology prediction over Europe, *Global Change Biology*, **11**, 919-926, doi:10.1111/j.1365-2486.2005.00960.x
- COPPOLA, E., KUCHARSKI, F., GIORGI, F., MOLTENI, F., 2005: Bimodality of the North Atlantic Oscillation in simulations with greenhouse gas forcing. *Geophys. Res. Lett.*, **32**, DOI 10.129/2005GL024080.
- CRANTZ, D., 1765: The History of Greenland; including an Account of the Mission Carried on by the United Brethren in that Country'. London, Longman, Hurst, Rees, Orme and Brown, 1820, 2 volumes, xi, 359; vi, 323 Seiten.
- CUBASCH, U., BÜRGER, G., FAST, I., SPANGEL, T., WAGNER, S., 2005: The direct solar influence on climate: modeling the lower atmosphere. *Mem. Soc. Astron. It.*, **76**, 810- 818.
- CULLEN, H.M., D'ARRIGO, R., COOK, E.R., MANN, M.E., 2000: Multiproxy reconstructions of the North Atlantic Oscillation, *Paleoceanography*, **16**, 27–39.
- CURRY, R.G., MC CARTNEY, M.S., 2001. Ocean gyre circulation changes associated with the North Atlantic Circulation. *J. Phys. Oceanogr.*, **31**(12), 3374-3400.
- CZAJA, A., MARSHALL, J., 2000. On the interpretation of AGCMs responses to prescribed time-varying SST anomalies. *Geophysical Research Letters*, **27**, 1927-1930
- CZAJA, A., ROBERTSON, A. W., HUCK, T., 2003 : The role of Atlantic ocean-atmosphere coupling in affecting the North Atlantic Oscillation. In *The North Atlantic Oscillation: Climatic significance and environmental impact*. By Hurrell et al. , AGU.
- DANNMEYER, F., 1948: Zur Frage der Gegensätzlichkeit der kalten Winter in Grönland zu den warmen Wintern in Deutschland. *Polarforschung*, **2**, 29.
- DEFANT, A., 1924: Die Schwankungen der atmosphärischen Zirkulation über dem Nordatlantischen Ozean im 25-jährigen Zeitraum 1881-1905. *Geogr. Ann.*, **6**, 13-41.
- DELWORTH, T.L., MANABE, S., STOUFFER, R.J., 1993: Interdecadal variations of the thermohaline circulation in a coupled ocean-atmosphere model. *J. Climate*, **6**, 1993–2011.
- DESER, C., BLACKMON, M.L., 1993: Surface climate variations over the North Atlantic ocean during winter: 1900-1989. *J. Climate*, **6**, 1743-1753.
- DESER, C., 2000: On the teleconnectivity of the 'Arctic Oscillation. *Geophys. Res. Lett.*, **27**, 779-782.
- DESER, C., WLASH, J.E., TIMLIN, M.S., 2000. Arctic sea ice variability in the context of recent atmospheric circulation trends. *Journal of Climate*, **13**, 617-633
- DESER, C., MAGNUSDOTTIR, G., SARAVANAN, R., PHILLIPS, A., 2004. The effects of North Atlantic SST and sea ice anomalies on the winter circulation in CCM3. Part II: Direct and indirect components of the response. *Journal of Climate*, **17**, 877-889
- DESER, C., TOMAS, R.A., PENG, S., 2007. The transient atmospheric circulation response to North Atlantic SST and sea ice anomalies. *Journal of Climate*, **20**, 4751-4767
- DOBLAS-REYES, F.J., PAVAN, V., STEPHENSON, D.B., (2003). Multi-model seasonal hindcasts of the NAO. *Climate Dynamics*, **21**, 501-514.
- DOBSON, G.M.B., HARRISON, D.N., 1926: Observations of the amount of ozone in the Earth's atmosphere and its relation to other geophysical conditions, *Proc. Roy. Soc. Ser. A*, **110**, 660–693.

DOKULIL, M.T., JAGSCH, A., GEORGE, G.D., ANNEVILLE, O., JANKOWSKI, T., WAHL, B., LENHART, B., BLENCKNER, T., TEUBNER, K., (2006): Twenty years of spatially coherent deepwater warming in lakes across Europe related to the North Atlantic Oscillation, *Limnol.Oceanogr.*, **51**, 2006, 2787-2793

DORN, W., DETHLOFF, K., RINKE, A., ROECKNER, E., 2003: Competition of NAO regime changes and increasing greenhouse gases and aerosols with respect to Arctic climate projections. *Climate Dynamics*, **21**, 447-458.

DOVE, H.W., 1839: Über die geographische Verbreitung gleichartiger Witterungserscheinungen. Erste Abhandlung: Über die nicht periodischen Änderungen der Temperaturvertheilung auf der Oberfläche der Erde. *Abhandlungen der Königlichen Akademie der Wissenschaften in Berlin 1838*: Seiten 287-415.

DOVE, H.W., 1841: Über die nicht periodischen Änderungen der Temperaturvertheilung auf der Oberfläche der Erde. *Abhandlungen der Königlichen Akademie der Wissenschaften in Berlin 1839*: Seiten 305-440.

DRIJFHOUT, S.S., HAZELEGER, W., 2007: Detecting Atlantic MOC changes in an ensemble of climate change simulations. *J.Climate*, **20**, 1571-1582.

DRINKWATER, K.F., BELGRANO, A., BORJA, A., CONVERSI, A., EDWARDS, M., GREENE, C.H., OTTERSEN, G., PERSHING, A.J., WALKER, H., (2003): The Response of Marine Ecosystems to Climate Variability Associated With the North Atlantic Oscillation, in *The North Atlantic Oscillation: Climatic Significance and Environmental Impact Geophysical Monograph*, American Geophysical Union

DURANCE, I., ORMEROD, S.J., (2007): Climate change effects on upland stream macroinvertebrates over a 25-year period, *Global Change Biology*, **13**, 942-957, doi:10.1111/j.1365-2486.2007.01340.x

EDEN, C., GREATBATCH, R.J., 2003. A Damped Decadal Oscillation in the North Atlantic Climate System. *Journal of Climate*, **16**, 4043-4060

EDEN, C., WILLEBRAND, J., 2001. Mechanisms of interannual to decadal variability of the North Atlantic Circulation. *Journal of Climate*, **14**, 2266-2280

EDEN, C., JUNG, T., 2001. North Atlantic Interdecadal Variability: Oceanic Response to the North Atlantic Oscillation (1865-1997). *Journal of Climate*, **14**, 676-691

EGEDE, H., 1745: History of Greenland - A description of Greenland: shewing the natural history, situation, boundaries, and face of the country; the nature of the soil; the rise and progress of the old Norwegian colonies; the ancient and modern inhabitants; their genius and way of life, and produce of the soil; their plants, beasts, fishes, &c.' (translated from the Danish), *Pickering Bookseller, Picadilly, London*, 220 Seiten.

EXNER, F.M., 1913: Übermonatliche Witterungsanomalien auf der nördlichen Erdhälfte im Winter. *Sitzungsberichte d. Kaiserl. Akad. der Wissenschaften*, **122**, 1165-1241.

EXNER, F.M., 1924: Monatliche Luftdruck- und Temperaturanomalien auf der Erde. *Sitzungsberichte d. Kaiserl. Akad. der Wissenschaften*, **133**, 307-408.

FANG, Z., WALLACE, J.M., 1994. Arctic sea ice variability on a timescale from weeks and its relation to atmospheric forcing. *Journal of Climate*, **7**, 1897-1913

FELDSTEIN, S. B., 2000: The timescale, power spectra, and climate noise properties of teleconnection patterns. *J. Climate*, **13**, 4430-4440.

FELDSTEIN, S. B., 2003: The dynamics of NAO teleconnection pattern growth and decay. *Q. J. R. Meteorol. Soc.* **129**, 901-924.

FELDSTEIN, S.B., FRANZKE, C., 2006: Are the North Atlantic Oscillation and the Northern Annular Mode distinguishable? *J. Atmos. Sci.*, **63**, 2915-2930.

FISCHER, E.M., LUTERBACHER, J., ZORITA, E., TETT, S.F.B., CASTY, C., WANNER, H., 2007: European climate response to tropical volcanic eruptions over the last half millennium, *Geophys. Res. Lett.*, **34**, L05707, doi:10.1029/2006GL027992.

- FLETCHER, C.G., Saunders, M.A., 2006: Winter North Atlantic Oscillation hindcast skill: 1900-2001. *J. Clim.*, **19**, 5762-5776.
- FRAEDRICH, K., 1996: Das Lorenz-Modell: Ein Paradigma für Wetter- und Vorhersagbarkeit. *PROMET*, **25**, 62-79.
- FRAEDRICH, K., KIRK, E., LUKSCH, U., LUNKEIT, F., 2003: Ein Zirkulationsmodell für Forschung und Lehre. *Promet*, **29**, 34-48.
- FRANKIGNOUL, C., CZAJA, A., 2002: Observed impact of Atlantic SST on the North Atlantic Oscillation. *J. Clim.*, **15**, 606-623.
- FRANZKE, C., FRAEDRICH, K., LUNKEIT, F., 2000: Low frequency variability in a simplified atmospheric global circulation model: Storm track induced 'spatial resonance'. *Quart. J. Roy. Meteorol. Soc.*, **126**, 2691-2708.
- FRANZKE, C., FRAEDRICH, K., LUNKEIT, F., 2001: Teleconnections and low frequency variability in idealised experiments with two storm tracks. *Quart. J. Roy. Meteorol. Soc.*, **127**, 1321-1339.
- FRANZKE, C., LEE, S., FELDSTEIN, S.B., 2004: Is the North Atlantic Oscillation a breaking wave? *J. Atmos. Sci.*, **61**, 145-160.
- FRANZKE, C., FELDSTEIN, S.B., 2005: The continuum and dynamics of Northern Hemisphere teleconnection patterns. *J. Atmos. Sci.*, **62**, 3250-3267.
- FRISIUS, T., LUNKEIT, F., FRAEDRICH, K., JAMES, I.A., 1998: Storm-track organization and variability in a simplified atmospheric global circulation model (SGCM). *Quart. J. Roy. Meteorol. Soc.*, **124**, 1019-1043.
- FYFE, J.C., BOER, G.J., FLATO, G.M., 1999: The Arctic and Antarctic oscillations and their projected changes under global warming. *Geophys. Res. Lett.*, **26**, 1601-1604.
- GALTON, F., 1888: Co-relations and their Measurement, chiefly from Anthropometric Data. *Proceedings of the Royal Society of London*, **45**, 135-145.
- GERTEN, D., ADRIAN, R., (2000): Climate-driven changes in spring plankton dynamics and the sensitivity of shallow polymictic lakes to the North Atlantic Oscillation, *Limnol. Oceanogr.*, **45**, 1058-1066
- GILBERT, L.W., 1819: Physikalisch Geographische Nachrichten aus dem nördlichen Polarmeere. Als Anhang zu den Aufsätzen im vorigen Hefte. *Gilbert's Annalen (Annalender Physik)*, **62**, 137-166.
- GILLETT, N.P., 2005: Northern Hemisphere circulation. *Nature*, **437**, 496
- GILLETT, N.P., ALLEN, M.R., MC DONALD, R.E., SENIOR, C.A., SHINDELL, D.T., SCHMIDT, G.A., 2002: How linear is the Arctic Oscillation response to greenhouse gases. *J. Geophys. Res.*, **107**, D3, DOI:10.1029/2001 JD 000589.
- GILLETT, N.P., THOMPSON, D.W.J., 2003: Simulation of recent Southern Hemisphere climate change. *Science*, **302**, 273-275.
- GILLETT, N.P., ALLEN, M.R., WILLIAMS, K.D., 2002: The role of stratospheric resolution in simulating the Arctic Oscillation response to greenhouse gases. *Geophys. Res. Lett.*, **29**, doi:10.1029/2001GL014444.
- GLOWIENKA-HENSE, R., 1990: The North Atlantic Oscillation in the Atlantic-European SLP. *Tellus*, **42A**, 497-507.
- GLOWIENKA, R., (1985): Studies on the variability of Icelandic Low and Azores High between 1881 and 1983. *Beitr. Phys. Atmosph.*, **58**, 160 -170.
- GLUECK, M.F., STOCKTON, C.W., 2001: Reconstruction of the North Atlantic Oscillation. *Int. J. Climatol.*, **21**, 1453-1465.
- GONZALES-ROUCO, F.F., BELTRAMI, H., ZORITA, E., VON STORCH, H., 2006: Simulation and inversion of borehole temperature profiles in surrogate climates: Spatial distribution and surface coupling. *Geophys. Res. Lett.*, **33**, L01703, doi:10.1029/2005GL024693.

- GORMSEN, A.K., HENSE, A., TOLDAM-ANDERSEN, T.B., BRAUN, P., (2005): Large scale climate variability and its effects on mean temperature and flowering time of Prunus and Betulain Denmark, *Theor. Appl. Climatol.*, **82**, 41-50
- GRAF, H.F., 1992: Arctic radiation deficit and climate variability. *Climate Dyn.*, **7**, 19-28.
- GRAF, H.F., KIRCHNER, I., ROBOCK, A., SCHULT, I., 1993: Pinatubo eruption winter climate effects: model versus observations. *Clim. Dyn.*, **9**, 81-93.
- GREATBATCH, R.J., JUNG, T., 2007. Local versus Tropical Heating and Winter North Atlantic Oscillation. *Journal of Climate*, **20**, 2058-2075
- GROISMAN, P.Y., 1992: Possible Regional Climate Consequences of the Pinatubo Eruption - an Empirical-Approach, *Geophys. Res. Lett.*, **19** (15), 1603-1606.
- GRONAU, K.L., 1811: Das Klima der Polarländer, in H.F. Flörke. Repertorium des Neuesten und Wissenwürdigsten aus der gesamten Naturkunde. Berlin.
- HADJINICOLAOU, P., JRRAR, A., PYLE, J.A., BISHOP, L., 2002: The dynamically driven longterm trend in stratospheric ozone over northern middle latitudes, *Q. J. Royal Met. Soc.*, **128**, 1393-1412.
- HAIGH, J. D., 1999: A GCM study of climate change in response to the 11-year solar cycle, *Q. J. R. Meteorol. Soc.*, **125**, 871-892.
- HANN, J., 1890: Zur Witterungsgeschichte von Nord-Grönland, Westküste. *Meteor. Zeitschrift*, **7**, 109-115.
- HASTENRATH, S., 2006, Tropische Klimavorhersage, *PROMET*, **32**, 154-160.
- HELLAND-HANSEN, B., NANSEN, F., 1920: Temperature variations in the North Atlantic ocean and in the atmosphere. *Smithsonian Misc. Collections*, **70**, 406.
- HILDEBRANDSSON, H.H., 1897: Quelques recherches sur les centres d'action de l'atmosphère. *Kongl. Svenska Vetenskaps-akad. Handl.*, **29**, Fasc. 3.
- HILMER, M., 2001. A Model Study of Arctic Sea Ice Variability. *Berichte aus dem Institut für Meereskunde an der Christian-Albrechts-Universität Kiel*, Nr. **320**, 157 Seiten.
- HILMER, M., JUNG, T., 2000. Evidence for a recent change in the link between the North Atlantic Oscillation and Arctic sea ice export. *Geophysical Research Letters*, **27** (15), 989-992
- HOERLING, M.P., HURRELL, J.W., XU, T., 2001: Tropical origins for recent North Atlantic climatic change. *Science*, **292**, 90-92.
- HOERLING, M.P., HURRELL, J.W., XU, T., BATES, G.T., PHILLIPS, A.S., 2004: Twentieth century North Atlantic climate change. Part II: Understanding the effect of Indian Ocean warming. *Clim.Dyn.*, **23**, 391-405
- HOOD, L., ROSSI, S., BEULEN, M., 1999: Trends in lower stratospheric zonal winds, Rossby wave breaking behavior, and column ozone at northern midlatitudes. *J. Geophys. Res.*, **104** (D20), 24321- 24340.
- Hu, Z.Z., Wu, Z.H., 2004: The intensification and shift of the annual North Atlantic Oscillation in a global warming scenario simulation. *Tellus A*, **56**, 112-124.
- HUEBENER, H., CUBASCH, U., LANGEMATZ, U., SPANGEHL, T., NIEHÖRSTER, F., FAST, I., KUNZE, M., 2007: Ensemble climate simulations using a fully coupled ocean-troposphere- stratosphere general circulation model. *Phil.Trans.R.. Soc. A*, **365**, 2089-2101.
- HÜPPOP, O., Hüppop, K., (2003): North Atlantic Oscillation and timing of spring migration in birds, *Proc. R. Soc. Lond. B*, **270**, 233 240
- HURRELL, J.W., KUSHNIR, Y., VISBECK, M., OTTERSEN, G., 2003: An Overview of the North Atlantic Oscillation. - In Hurrell J., Y. Kushnir, G. Ottersen, M. Visbeck (Eds.), *The North Atlantic Oscillation. Climatic Significance and Environmental Impact. Geophysical Monograph Series*, **134**, 1-35.
- HURRELL, J.W., 1995: Decadal trends in the North Atlantic oscillation: Regional temperatures and precipitation. *Science*, **269**, 676-679.
- HURRELL, J.W., VAN LOON, H., 1997: Decadal variations in climate associated with the North Atlantic Oscillation. *Clim. Change*, **36**, 301-326.

- HURRELL, J.W., HOERLING, M.P., PHILLIPS, A.S., XU, T., 2004: Twentieth century north Atlantic climate change. Part I: assessing determinism. *Climate Dynamics*, **23** (3-4), 371-389
- IPCC, 2007: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z.
- JAMES, I.N., JAMES, P.M., 1989: Ultra-low-frequency variability in a simple atmospheric circulation model, *Nature*, **342**, 53–55..
- JONES, P.D., JONSSON, T., WHELLER, D., 1997: Extension to the North Atlantic Oscillation using early instrumental pressure observations from Gibraltar and south-west Iceland. *Int. J. Climatol.*, **17**, 1433–1450.
- JONES, P.D., OSBORN, T.J., BRIFFA, K.R., 2003: Pressure-based measures of the North Atlantic Oscillation (NAO): A comparison and an assessment of changes in the strength of the NAO and in its influence on surface climate parameters. In: The North Atlantic Oscillation. Climatic Significance and Environmental Impact (Eds. Hurrell, W. J., Kushnir, Y., Ottersen, G., and M., Visbeck). *Geophysical Monograph*, **134**, 51-62. AGU, Washington, DC.
- JUNG, T., HILMER, M., 2001. The link between the North Atlantic Oscillation and Arctic sea ice export through Fram Strait. *Journal of Climate*, **14**, 3932-3943
- JUNG, T., HILMER, M., RUPRECHT, E., KLEPPEK, S., GULEV, S.K., ZOLINA, O., 2003. Characteristics of the recent eastward shift of interannual NAO variability. *Journal of Climate*, **15**, 3371-3382
- KAPALA, A., MÄCHEL, H., 2001: Ein möglicher Einflussmechanismus auf die interannuelle Variabilität Nordatlantik Oszillation im Winter. In: *Österreichische Beiträge zu Meteorologie und Geophysik*, ISSN Heft Nr. 27/ Publ. Nr. 339 (DACH 2001).
- KEENLYSIDE, N., LATIF, M., JUNGCLAUS, J., KORNBLUEH, L., ROECKNER, E., 2007: Advancing Decadalscale climate projections in the North Atlantic Sector. *Nature* (submitted).
- KELLY, P.M., JONES, P.D., 1996: P.Q. JIA, 1996: The spatial response of the climate system to explosive volcanic eruptions, *Int. J. Climatol.*, **16** (5), 537-550.
- KETTLEWELL, P.S., SOTHERN, R., BAND, KOUKKARI, W.L., (1999) UK wheat quality and economic value are dependent on the North Atlantic Oscillation. *Journal of Cereal Science*, **29**, 205-209.
- KETTLEWELL, P.S., STEPHENSON, D.B., ATKINSON, DAND, M., HOLLINS, P.D., (2003) Summerrainfall and wheatgrainquality : relationships with the North Atlantic Oscillation. *Weather*, **58**, 155-163.
- KIEHL, J.T., GENT, P.R., 2004: The Community Climate System Model, version 2. *J. Climate*, **17**, 3666 – 3682.
- KINDEM, I.T., CHRISTIANSEN, B., 2001: Tropospheric response to stratospheric ozone loss. *Geophys. Res. Lett.*, **28**, 1547–1550.
- KING, M.P., KUCHARSKI, F., 2006: Observed low-frequency covariabilities between the tropical oceans and the North Atlantic Oscillation in the twentieth century. *Journal of Climate*, **19**, 1032-1041
- KLEIN, P., 1915: *Meteorologia ogolna*. Skad Glowny w Ksiegarni Gebethnera I Wolffa, translated by R. Merecki, Warszawa, 437 Seiten + 7 Seiten.
- KIRCHNER, I., STENCHIKOV, G.L., GRAF, H.F., ROBOCK, A., ANTUNA, J.C., 1999: Climate model simulation of winter warming and summer cooling following the 1991 Mount Pinatubo volcanic eruption, *J Geophys. Res.*, **104** (D16), 19039-19055.
- KITOH, A., KOIDE, H., KODERA, K., YUKIMOTO, S., NODA, A., 1996: Interannual variability in the stratospheric-tropospheric circulation in a coupled ocean-atmosphere GCM. *Geophys. Res. Lett.*, **23**, 543-546.

KOCH, G., WERNLI, H., SCHWIERZ, C., STAEHELIN, J., PETER, T., 2005: A composite study on the structure and formation of ozone miniholes and minihighs over central Europe, *Geophys. Res. Lett.*, **32**, L12810, doi:10.1029/2004GL022062.

KODERA, K., 1994: Influence of volcanic eruptions on the troposphere through stratospheric dynamical processes in the northern hemisphere winter. *J. Geophys. Res.*, **99**, 1273-1282.

KODERA, K., 2002: Solar cycle modulation of the North Atlantic Oscillation: Implication in the spatial structure of the NAO. *Geophys. Res. Lett.*, **29**, 1218, doi:10.1029/2001GL014557.

KODERA, K., KURODA, Y., 2002: Dynamical response to the solar cycle. *J. Geophys. Res.*, **107** (D24), 4749, doi:10.1029/2002JD002224.

KODERA, K., CHIBA, M., KOIDE, H., KITOH, A., NIKAIDOU, Y., 1996: Interannual variability of the winter stratosphere and troposphere in the Northern Hemisphere. *J. Meteor. Soc. Japan*, **74**, 365 – 382.

KODERA, K., KURODA, Y., 2004: Two teleconnection patterns involved in the North Atlantic/Arctic Oscillation, *Geophys. Res. Lett.*, **31**, L20201, doi:10.1029/2004GL020933

KRAHMANN, G., VISBECK, M., 2003: Arctic Ocean sea ice response to Northern Annular Mode-like wind forcing. *Geophysical Research Letters*, **30** (15), 1793, doi:10.1029/2003GL017354

KRAHMANN, G., VISBECK, M., REVERDIN, G., 2001. Formation and propagation of temperature anomalies along the North Atlantic Current. *Journal of Physical Oceanography*, **31**, 1287-1303

KUCHARSKI, F., MOLTENI, F., 2003. On linearities in a forced North Atlantic Oscillation. *Climate Dynamics*, **21**, 677-687

KUCHARSKI, F., MOLTENI, F., BRACCO, A., 2006: Decadal interactions between the western tropical Pacific and the North Atlantic Oscillation. *Climate Dynamics*, **26**, 79-91

KURODA, Y., KODERA, K., 2005: Solar cycle modulation of the Southern Annular Mode. *Geophys. Res. Lett.*, **32**, L13802, doi:10.1029/2005GL022516.

KUSHNIR, Y., ROBINSON, W.A., BLADE, I., HALL, N. M., PENG, S., SUTTON, R., 2002: Atmospheric GCM response to extratropical SST anomalies: Synthesis and Evaluation. *J. Clim.*, **15**, 2233 - 2256.

KUSHNIR, Y., WALLACE, J.M., 1989: Low-frequency variability in the Northern Hemisphere winter. *J. Atmos. Sci.*, **46**, 3122 – 3142.

KUTZBACH, J.E., 1970: Large-Scale Features of Monthly Mean Northern Hemisphere Anomaly Maps of Sea-Level Pressure. *Mon. Wea. Rev.*, **98**, 708-716.

KWOK, R., ROTHROCK, D.A., 1999. Variability of Fram Strait ice flux and the North Atlantic Oscillation. *Journal of Geophysical Research*, **104**, 5177-5189

LABITZKE, K., 1965: On the mutual relation between stratosphere and troposphere during periods of stratospheric warmings in winter. *J. Appl. Meteor.* **4**, 91-99.

LAMB, P.J., PEPPLER, R.A., 1987: North Atlantic Oscillation: Concept and application. *Bull. Amer. Meteor. Soc.*, **68**, 1217-1225.

LANGEMATZ, U., CLAUBNITZER, A., MATTHES, K., KUNZE, M., 2005: The Climate During the Maunder Minimum: A Simulation with the Freie Universität Berlin Climate Middle Atmosphere 34 Model (FUB-CMAM). *J. Atmos. Sol. Terr. Phys.*, **67**, 55–69.

LATIF, M., 2001: Tropical Pacific/Atlantic Interactions at multi-decadal timescales. *Geophys. Res. Let.*, **28**, 539-542.

LATIF, M., 2006: Das El Nino/Southern Oscillation Phänomen. *PROMET*, **32**, 123-129.

LATIF, M., COLLIN, M., POHLMANN, H., KEENLYSIDE, N., 2006: A review of predictability studies of Atlantic sector climate on decadal time scales. *J. Clim.*, **19**, 5971-5987.

LEAN, J.L., WANK, Y.M., SHEELEY JR., N.R., 2002: The effect of increasing solar activity on the Sun's total and open magnetic flux during multiple cycles: Implications for solar forcing of climate. *Geophys. Res. Lett.*, **29**, L2224, doi:10.1029/2002GL015880.



- LECKEBUSCH, G.C., ULBRICH, U., 2004: On the relationship between cyclones and extreme windstorm events over Europe under climate change. *Global and Planetary Change*, **44** (2004), 181–193.
- LECKEBUSCH, G.C., ULBRICH, U., FRÖHLICH, L., PINTO, J.G., 2007: Property loss potentials for European midlatitude storms in a changing climate. *Geophys. Res. Lett.*, **34**, L05703, doi:10.1029/2006GL027663.
- LEGUTKE, S., Voss, 1999: The Hamburg atmosphere-ocean coupled circulation model ECHO-G. *Technical report*, No. **18**, German Climate Computer Centre (DKRZ), Hamburg, Germany, 62 pp.
- LOEWE, F., 1937: A period of warm winters in Western Greenland and the temperature see-saw between Western Greenland and Central Europe. *Q. J. Roy. Meteorol. Soc.*, **63**, 365-371.
- LORENZ, E.N., 1951: Seasonal and irregular variations of the Northern Hemisphere sea-level pressure profile. *J. Meteorol.*, **8**, 52-59.
- LORENZ, E.N., 1967: The Nature and Theory of the General Circulation of the Atmosphere, World Meteorological Organization (WMO), Geneva.
- LUO, D., Gong, T., 2006: A possible mechanism for the eastward shift of the interannual NAO action centers in last three decades. *Geophys. Res. Lett.*, **33**, DOI:10.1029/2006GL027860.
- LUTERBACHER, J., XOPLAKI, E., DIETRICH, D., JONES, P.D., DAVIES, T.D., PORTIS, D., GONZALEZ-ROUCO, J.F., VON STORCH, H., GYALISTRAS, D., CASTY, C., WANNER, H., 2001: Extending NAO reconstructions back to 1500. *Atmos. Sci. Lett.*, **2**, 114 -124.
- MAAK, K., VON STORCH, H., (1997): Statistical downscaling of monthly mean air-temperature to the beginning of flowering of *Galanthus nivalis* L. in Northern Germany, *Intern. J. Biometeorology*, **45**, 5-12, doi10.1007/s004840050046
- MÄCHEL, H., KAPALA, A., FLOHN, H., 1998: Behaviour of the centres of action above the Atlantic since 1881. Part I: Characteristics of seasonal and interannual variability, *Int. J. Climatol.*, **18**, 1-22.
- MAGNUSDOTTIR, G., DESER, C., SARAVANAN, R., 2004: The effects of North Atlantic SST and sea ice anomalies on the winter circulation in CCM3. Part I: Main features and storm track characteristics of the response. *Journal of Climate*, **17**, 857-876
- MANGELLO, J.V., 2007: The influence of sea surface temperature anomalies on low frequency variability of the North Atlantic Oscillation. *Climate Dynamics*, DOI:10.1007/s00382-007-0312-3
- MAO, J., ROBOCK, A., 1998: Surface air temperature simulations by AMIP general circulation models: Volcanic and ENSO signals and systematic errors. *J. Climate.*, **11**, 1538-1552.
- MARSHALL, J., JOHNSON, H., GOODMAN, J., 2001. A Study of the Interaction of the North Atlantic Oscillation with Ocean Circulation. *Journal of Climate*, **14**, 1399-1421
- MARSHALL, J., Co-authors, 2001: North Atlantic climate variability: Phenomena, impacts and mechanisms. *Int. J. Climatol.*, **21**, 1863–1898
- MASS, C.F., PORTMAN, D.A., 1989: Major volcanic eruptions and climate: A critical evaluation. *J. Climate*, **2**, 566–593.
- MATSUNO, T., 1971: A Dynamical model of the stratospheric sudden warming. *J. Atmos. Sci.*, **28**, 1479–1494.
- MATTHES, K., KURODA, Y., KODERA, K., LANGEMATZ, U., 2006: Transfer of the Solar Signal from the Stratosphere to the Troposphere: Northern Winter. *J. Geophys. Res.*, **111**, D06108, doi:10.1029/2005JD006283.
- MC HUGH, M.J., ROGERS, J.C., 2005: Multi-model representation of the North Atlantic

- Oscillation in the 20th and 21st centuries. *Geophys. Res. Lett.*, **32**, DOI10.1029/2005GL023679.
- Meehl, G.A., Stocker, T.F., Collins, W.D., Friedlingstein, P., Gaye, A.T., Gregory, J.M., Kitoh, A., Knutti, R., Murphy, J.M., Noda, A., Raper, S.C.B., Watterson, I.G., Weaver, A.J., Zhao, Z.-C., (2007) Global Climate Projections. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. Solomon, S., Qin, D., Manning, M., Chen, Z., Marquis, M., Averyt, K.B., Tignor, M., Miller, H.L., (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA
- MEEHL, G.A., VAN LOON, H., 1979: The seesaw in winter temperatures between Greenland and Northern Europe. Part III: Teleconnections with lower latitudes. *Mon. Wea. Rev.*, **107**, 1095–1106.
- MEINARDUS, W., 1898: Der Zusammenhang des Winterklimas in Mittel- und Nordwest-Europa mit dem Golfstrom. *Z. d. Ges. f. Erdkunde in Berlin*, **23**, 183-200.
- MENZEL, A., SPARKS, T.H., ESTRELLA, N., ECKARDT, S., (2005): "SSW-NNE" North Atlantic Oscillation affects progress of seasons across Europe, *Global Change Biology*, **11**, 909-918, doi:10.1111/j.1365-2486.2005.00954.x
- MERECKI, R., 1914: *Klimatologia Ziemi Polskiej*. – Drukarnia i litografia Jana Cotty, Kapucynska 7, Warszawa, 313 Seiten.
- METHTA, V.M., SUAREZ, M.J., MANGANELLO, J.V., DELWORTH, T.L., 2000. Oceanic influence on the North Atlantic Oscillation and associated Northern Hemispheric climate variations: 1959-1993. *Geophysical Research Letters*, **27**, 121-124
- MILLER, R.L., SCHMIDT, G.A., SHINDELL, D.T., 2006: Forced annular variations in the 20th century Intergovernmental Panel of Climate Change Fourth Assessment Report models. *J. Geophys. Res.*, **111**, D18101, doi:10.1029/2005JD006323.
- MIN, S.K., LEGUTKE, S., HENSE, A., KWON, W.T., 2004: Internal variability in a 1000-yr control simulation with the coupled climate model ECHO-G – II. El Niño Southern Oscillation and North Atlantic Oscillation. *Tellus*, **57**, 622-640.
- MITCHELL, T.D., JONES, 2005: An improved method of constructing a data base of monthly climate observations and associated high resolution grids, *International Journal of Climatology*, **25**, 693-712, DOI:10.1002/joc.1181
- MÜLLER, W., BLENDER, R., FRAEDRICH, K., 2002: Low frequency variability in idealised GCM experiments with circumpolar and localised storm tracks. *Nonlinear Processes in Geophysics*, **9**, 37-49.
- MÜLLER, W.A., APPENZELLER, and SCHÄR, Ch., 2005: Probabilistic seasonal prediction of the winter North Atlantic Oscillation and its impact on near surface temperature. *Clim. Dyn.*, **24**, 213-226.
- MÜLLER, W.A., ROECKNER, E., 2005: ENSO impact on midlatitude circulation patterns in future climate change projections. *Geophys. Res. Lett.*, **33**.
- NAMIAS, J., 1950: The index cycle and its role in the general circulation. *J. Meteorol.*, **7**, 130-139.
- NEW, M., HULME, M., JONES, Ph., (2000): Representing Twentieth-Century Space-Time Climate Variability. Part II: Development of 1901-96 Monthly Grids of Terrestrial Surface Climate. *Journal of Climate*, **13**, 2217-2238.
- NEWHALL, CH. G., SELF, S., 1982: The volcanic explosivity index (VEI): An estimate of explosive 6 magnitude for historical volcanism. *J. Geophys. Res.* **87**, NO C2, 1231-1238.
- NORTON, W.A., 2003: Sensitivity of northern hemisphere surface climate to simulation of the stratospheric polar vortex. *Geophys. Res. Lett.*, **30**, 1627, doi:10.1029/2003GL016958.
- NOWOSAD, M., 2007: More examples of early 20th-century descriptions of teleconnection. *Meteorol. Zeitschrift*, **15**, 327-330.

- OGI, M., YAMAZAKI, K., TACHIBANA, Y., 2004: The summertime annular mode in the Northern Hemisphere and its linkage to the winter mode. *J. Geophys. Res.*, **109**, D20114, doi: 10.1029/2004JD004514.
- OSBORN, T.J., 2004: Simulating the winter North Atlantic Oscillation: the roles of internal variability and greenhouse gas forcing. *Climate Dynamics*, **22**, 605-623.
- OTTERSEN, G., PLANQUE, B., BELGRANO, A., POST, E., REID, P.C., STENSETH, N.C., (2001): Ecological effects of the North Atlantic Oscillation, *Oecologia*, **128**, 1-14 DOI10.1007/s004420100655
- PAETH, H., RAUTHE, M., MIN, S.K., 2008: Multi-model Bayesian assessment of climate change in the northern annular mode. *Global and Planetary Change*, **60**, 193-206.
- PAETH, H., HENSE, A., GLOWIENKA-HENSE, R., VOSS, R., CUBASCH, U., (1999): The North Atlantic Oscillation as an indicator for greenhousegas induced climate change. *Climate Dynamics*, **15**, 953-960.
- PALMER, T., CO-AUTHORS. 2004: Development of a European multi-model ensemble system for seasonal-to-interannual prediction (DEMETER). *Bull. Am. Meteorol. Soc.*, **85**, 853–872.
- PENG, S., ROBINSON, W.A., LI, S., 2003. Mechanisms for the NAO Responses to the North Atlantic SST Tripole. *Journal of Climate*, **16**, 1987-2004
- PERLWITZ, J., GRAF, H.-F., 1995: The statistical connection between tropospheric and stratospheric circulation of the Northern hemisphere in winter. *J. Climate*, **8**, 2281-2295.
- PETTERSSON, O., 1896: Über die Beziehungen zwischen hydrographischen und meteorologischen Phänomenen., *Meteorol. Z.*, **13**, 285-321.
- PFISTER C., 1999: Wetternachhersage. Haupt, Bern Stuttgart Wien
- PINTO, J.G., ULBRICH, U., LECKEBUSCH, G.C., SPANGEHL, T., REYERS, M., ZACHARIAS, S., 2007: Changes in storm track and cyclone activity in three SRES ensemble experiments with the ECHAM5/MPI-OM1 GCM. *Climate Dynamics*, **29**, 195-210.
- PINTO, J.G., ZACHARIAS, S., FINK, A.H., LECKEBUSCH, G.C., ULBRICH, U., 2008: Factors contributing to the development of extreme North Atlantic cyclones and their relationship with the NAO. *Climate Dynamics* im Druck doi: 10.1007/s00382-008-0396-4
- POHLMANN, H., SIENZ, F., Latif, M., 2006: Influence of the multidecadal Atlantic meridional overturning circulation variability on European climate. *J. Clim.*, **19**, 6062-6067.
- POLVANI, L.M., KUSHNER, P.J., 2002: Tropospheric response to stratospheric perturbations in a relatively simple general circulation model. *Geophys. Res. Lett.*, **29**, doi:10.1029/2001GL014284.
- PORTIS, D.H., WALSH, J.E., EL HAMLY, M., LAMB, P.J., 2001: Seasonality of the North Atlantic Oscillation. *J. Climate*, **14**, 2069–2078.
- QIAN, B.D., SAUNDERS, M.A., (2003): Summer UK temperature and its link stop receding Eurasian snow cover, Northatlantic SSTs and the NAO. *J.Clim.*, **16**, 4108-4120.
- QUIROZ, R.S., 1977: The tropospheric-stratospheric polar vortex breakdown of January 1977. *Geophys. Res. Lett.*, **4**, 151-154.
- QUIROZ, R.S., 1980: Variations in zonal mean and planetary wave properties of the stratosphere and links with the troposphere. *Pageoph.*, **118**, 416-427.
- RAIBLE, C.C., STOCKER, T.F., YOSHIMORI, M., RENOLD, M., BEYERLE, U., CASTY, C., LUTERBACHER, J., 2005: Northern Hemispheric trends of pressure indices and atmospheric circulation patterns in observations, reconstructions, and coupled GCM simulations. *J. Climate*, **18**, 3968–3982.
- RAIBLE, C.C., CASTY, C., ESPER, J., LUTERBACHER, J., PAULING, A., RÖSCH, A.C., SCHÄR, C., TSCHUCK, P., VIDALE, P.-L., WILD, M., WANNER, H., 2006: Climate variability-observations, reconstructions, and model simulations for the Atlantic-European and Alpine region from 1500–2100. *Clim. Change*, **79**, 9-29. doi:10.1007/s10584–006-9061-2

RAIBLE, C.C., YOSHIMORI, M., STOCKER, T.F., CASTY, C., 2007: Extreme midlatitude cyclones and their implications to precipitation and wind speed extremes in simulations of the Maunder Minimum versus present day conditions, *Clim. Dyn.*, **28**, 409– 423.

RAMACHANDRAN, S., RAMASWAMY, V., STENCHIKOV, G.L., ROBOCK, A., 2000: Radiative impact of the Pinatubo volcanic eruption: Lower stratospheric response, *J. Geophys. Res.*, **105**, 24409- 24429.

RAUTHE, M., PAETH, H., 2004: Relative importance of northern hemisphere circulation modes in predicting regional climate change. *J. Climate*, **17**, 4180-4189.

RAUTHE, M., HENSE, A., PAETH, H., 2004: A model intercomparison study of climate change signals in extratropical circulation. *Int. J. Climatology*, **24**, 643-662.

RAYNER, N.A., PARKER, D.E., HORTON, E.B., FOLLAND, C.K., ALEXANDER, L.V., ROWELL, D.P., KENT, E.C., KAPLAN, A., (2003): Global analyses of sea-surface temperature, sea-ice , and night-marine air-temperature since the late nineteenth century *J. Geophys. Res. Vol.*, **108**, No.D14,4407DOI10.1029/2002JD002670

RIND, D., SHINDELL, D., PERLWITZ, J., LERNER, J., LONERGAN, P., LEAN, J., MC LINDEN, C., 2004: The relative importance of solar and anthropogenic forcing of climate change between the Maunder Minimum and the present. *J. Climate*, **17**, 906-929.

ROBOCK, A., MAO, J., 1992: Winter warming from large volcanic eruption. *Geophys. Res. Lett.*, **19**, 2405-2408.

ROBOCK, A., 2000: Volcanic eruptions and climate, *Rev. Geophys.*, **38**, 191-218.

RODRIGO, F.S., et al., 2001: A reconstruction of the winter North Atlantic Oscillation Index back to A.D. 1501 using documentary data in Southern Spain. *J. Geophys. Res.*, **106**, 14805–14818.

RODWELL, M.J., FOLLAND, C.K., 2002. Atlantic air-sea interaction and seasonal predictability. *Quart. Jour. R. Met. Soc.*, **128**, 1413-1443

RODWELL, M.J., ROWELL, D.P., FOLLAND, C.K., 1999. Oceanic forcing of the wintertime North Atlantic Oscillation and European climate. *Nature*, **398**, 320-323

ROECKNER, E., BROKOPF, R., ESCH, M., GIORGETTA, M., HAGEMANN, S., KORNBLUEH, L., MANZINI, E., SCHLESE, U., SCHUZWAIDA, U., 2006: Sensitivity of simulated climate to horizontal and vertical resolution in the ECHAM5 atmosphere model. *J. Climate*, **19**, 3771-3791.

ROGERS, J.C., VAN LOON, H., 1979: The sea-saw in winter temperature between Greenland and Northern Europe. Part II: Some oceanic and atmospheric effects in-middle and high latitudes. *Mon. Wea. Rev.*, **107**, 509-519.

ROGERS, J.C., 1984: The association between the North Atlantic Oscillation and the Southern Oscillation in the Northern Hemisphere. *Mon. Wea. Rev.*, **112**, 1999-2015.

ROSSBY, C.-G., MITARBEITER, 1939: Relations between variations in the intensity of the zonal circulation of the atmosphere and the displacements of the semi-permanent centers of action. *J. Mar. Res.*, **3**, 38-55.

ROSSBY, C.G., WILLETT, H.C., 1948: The circulation of the upper troposphere and lower stratosphere., *Science*, **108**, 643-652.

SANTER, B., GRAF, H.F., 2006: Climate impacts of volcanic eruptions in the IPCC AR4 climate models. *J. Geophys. Res.*, **111**, D07107, doi:10.1029/2005JD006286.

SANTOS, J.A., CORTE-REAL, J., ULBRICH, U., PALUTIKOF, J., 2007. European winter precipitation extremes and large-scale circulation: A coupled model and its scenarios. *Theoretical and Applied Climatology*, **87**, 85-102.

Scaife, A.A., Folland, C.K., Alexander, L.V., Moberg, A., Knight, J.R., 2008: European Climate Extremes and the North Atlantic Oscillation. *J. Climate*, **21**, 72-83.

SCAIFE, A.A., KNIGHT, J.R., VALLIS, G.K., FOLLAND, C.K., 2005: A stratospheric influence on the winter NAO and North Atlantic surface climate. *Geophys. Res. Let.*, **32**, L18715, DOI:10.1029/2005GL023226.

SCHNADT, C., DAMERIS, M., PONATER, M., HEIN, R., GREWE, V., STEIL, B., 2002: Interaction of atmospheric chemistry and climate and its impact on stratospheric ozone. *Climate Dynamics*, **18**, 501-517.

SCHNEIDER, E.K., BENGTSSON, L., HU, Z.Z., (2003) Forcing of Northern Hemisphere climate trends. *J. Atmos. Sci.*, **60**, 1504-1521.

SCHNEIDEREIT, A., BLENDER, R., FRAEDRICH, K., LUNKEIT, F., 2007: Iceland climate and North Atlantic cyclones in ERA40 reanalyses. *Meteorol. Zeitschrift*, **16**, 17-23.

SCHWIERZ, C., APPENZELLER, CH., DAVIES, H.C., LINIGER, M.A., MÜLLER, W.A., STOCKER, T.F., YOSHIMORI, M., 2006: Challenges posed and approaches to the study of seasonal-to-decadal climate variability. *Clim. Change*, **79**, 31-63.

SHINDELL, D.T., SCHMIDT, G.A., MILLER, R.L., MANN, M.E., 2003: Volcanic and solar forcing of climate changeduring the preindustrial era. *J. Climate*, **16**, 4094-4107.

SHINDELL, D.T., RIND, D., BALACHANDRAN, N.K., LEAN, J., LONERGAN, P., 1999: Solar variability, ozone and climate, *Science*, **284**, 305-308.

SHINDELL, D.T., SCHMIDT, G.A., MILLER, L., RIND, D., 2001: Northern Hemisphere winter climate response to greenhouse gas, ozone, solar, and volcanic forcing. *J. Geophys. Res.*, **106**, 7193-7210.

SIENZ, F., BORDI, I., FRAEDRICH, K., SCHNEIDEREIT, A., 2007: Extreme dry and wet events in Iceland: observations, simulations and scenarios. *Meteorol. Zeitschrift*, **16**, 9-16.

SONG, H., ZHANG, M., 2007: Changes in the boreal winter Hadley Circulation in the NCEP-NCAR and ECMWF Reanalyses: A comparative study. *J. Climate*, **20**, 5191-5200, DOI:10.1175/JCLI4260.1.

STEINBRECHT, W., CLAUDE, H., KÖHLER, U., HOINKA, K.P., 1998: Correlations between tropopause height and total ozone: implications for long-term changes. *J. Geophys. Res.*, **103**, 19183– 19192.

STENCHIKOV, G., HAMILTON, K., STOUFFER, R.J., ROBOCK, A., RAMASWAMY, V., SUTTON, R., HODSON, D., 2003: Influence of the ocean on North Atlantic climate variability 1871-1999. *J. Clim.*, **16**, 3296-3313.

STENCHIKOV, G., HAMILTON, K., STOUFFER, R.J., ROBOCK, A., RAMASWAMY, V., SANTER, B., GRAF, H.-F., 2006: Climate impacts of volcanic eruptions in the IPCC AR4 climate 40 models. *J. Geophys. Res.* **111**, D07107, doi: 10.1029/2005JD006286.

STENDEL, M., MOGENSEN, I.A., CHRISTENSEN, J.H., 2006: Influence of various forcings on global climate in historical times using a coupled atmosphere-ocean general circulation model. *Clim. Dyn.*, **26**, 1-15, DOI: 10.1007/s00382-005-0041-04.

STEPHENSON, D., WANNER, H., BRÖNNIMANN, S., LUTERBACHER, J., 2003: The history of scientific research on the North Atlantic Oscillation. - In Hurrell J., Y. Kushnir, G. Ottersen, M. Visbeck (Eds.), *The North Atlantic Oscillation. Climatic Significance and Environmental Impact. Geophysical Monograph Series*, **134**, 37-50.

STEPHENSON, D.B., PAVAN, V., 2003. The North Atlantic Oscillation in coupled climate models: a CMIP1 evaluation. *Climate Dynamics*, **20**, 381-399

STEPHENSON, D.B., PAVAN, V., COLLINS, M., JUNGE, M.M., QUADRELLI, R., 2006: North Atlantic Oscillation response to transient greenhouse gas forcing and the impact on European climate: a CMIP2 multi-model assessment. *Climate Dynamics*, **27**, 401-420.

SUTTON, R.T., NORTON, W.A., JEWSON, S.P., 2001. The North Atlantic Oscillation - What Role for the Ocean? *Atmospheric Science Letters*, doi:10.1006/asle.2000.0018.

TEISSERENC DE BORT, L.P., 1883: Etude sur l'hiver de 1879-80 et recherches sur l'influence de la position des grands centres d'action de l'atmosphère dans les hivers anormaux. *Ann. de la Soc. Météor. de France*, **31**, 70-79.

TETT, S.F.B., BETTS, R., CROWLEY, T.J., GREGORY, J., JOHNS, T.C., JONES, A., OSBORN, T.J., ÖSTRÖM, E., ROBERTS, D.L., WOODAGE, M.J., 2007: The impact of natural and anthropogenic forcings on climate and hydrology since 1550. *Clim. Dyn.* 283-234, DOI 10.1007/s00382-006-0165-1.

THOMPSON, D.W.J., WALLACE, J.M., 1998: The Arctic Oscillation signature in the wintertime geopotential height and temperature fields. *Geophys. Res. Lett.*, **25**, 1297-1300.

THOMPSON, D.W.J., LEE, S., BALDWIN, M.P., 2003: Atmospheric Processes Governing the Northern Hemisphere Annular Mode/North Atlantic Oscillation. in "The North Atlantic Oscillation" edited by J. Hurrell, Y. Kushnir, G. Ottersen and M. Visbeck, *American Geophysical Union monograph*, **134**, American Geophysical Union, Washington,

THOMPSON, D.W. J., SOLOMON, S., 2002: Interpretation of recent Southern Hemisphere climate change, *Science*, **296**, 895– 899.

THOMPSON, D.W.J., WALLACE, J.M., 2000: Annular modes in the extratropical circulation. Part I: Month-to-month variability. *J. Climate*, **13**, 1000-1016.

THOMPSON, D.W.J., BALDWIN, M.P., WALLACE, J.M., 2002: Stratospheric connection to Northern Hemisphere wintertime weather: Implications for prediction, *J. Clim.*, **15**, 1421-1428.

THORNCROFT, C. D., HOSKINS, B.J., MCINTYRE, M.E., 1993: Two paradigms of baroclinic wave life-cycle behavior. *Quart. J. Roy. Meteorol. Soc.*, **119**, 17-55.

TIMMERMANN, A., LATIF, M., VOSS, R., GROTZNER, A., 1998. Northern Hemispheric Interdecadal Variability: a coupled air-sea mode. *Journal of Climate*, **11**, 1906-1931

TORRENCE, C., COMPO, G.P., (1998) A practical guide to wavelet analysis. *Bull. Amer. Meteorol. Soc.*, **79**, 61–78.

TRENBERTH, K.E., PAOLINO, D.A., 1980: The Northern Hemisphere sea level pressure data set: Trends, errors and discontinuities. *Mon. Wea. Rev.*, **108**, 855-872.

ULBRICH, U., CHRISTOPH, M., 1999. A shift of the NAO and increasing storm track activity over Europe due to anthropogenic greenhouse gas forcing. *Climate Dynamics*, **15**, 551-559

Ulbrich, U., Pinto, J.G., Kupfer, H., Leckebusch, G.C., Spanghel, T., Reyers, M., 2008: Changing Northern Hemisphere Storm Tracks in an Ensemble of IPCC Climate Change Simulations. *J. Climate*, **21**, 1669–1679.

VÄHÄTALO, A.V., RAINIO, K., LEHIKOINEN, A., LEHIKOINEN, E., (2004): Spring arrival of birds depends on the North Atlantic Oscillation, *J. of Avian Biology*, **35**, 210-216

VAN LOON, H., ROGERS, J.C., 1978: The seesaw in winter temperatures between Greenland and northern Europe. Part I: General descriptions. *Mon. Wea. Rev.*, **106**, 296-310.

VINJE, T., NORDLUND, N., KVAMBEK, A., 1998. Monitoring ice thickness in Fram Strait. *Journal of Geophysical Research*, **103**, 10437-10449

VINTHER, B.M., ANDERSEN, K.K., HANSEN, A.W., SCHMITH, T., JONES, P.D., 2003: Improving the Gibraltar/Reykjavik NAO Index. *Geophys. Res. Lett.*, **30**, 2222.

VINTHER, B.M., ANDERSEN, K.K., JONES, P.D., BRIFFA, K. R., CAPPELEN, J., 2006: Extending Greenland temperature records into the late eighteenth century. *J. Geophys. Res.*, **111**, D11105.

VISBECK, M., 2002. The Ocean's Role in Atlantic Climate Variability. *Science*, **297**, 2223-2224

VISBECK, M., CHASSIGNET, E.P., CURRY, R.G., DELWORTH, T.L., DICKSON, R.R.,

- KRAHMANN, G., 2003. The Ocean's Response to North Atlantic Oscillation Variability. in *The North Atlantic Oscillation: Climatic Significance and Environmental Impact. Geophysical Monograph*, **134**, AGU.
- VOLODIN, E.M., GALIN, V.Y., 1999: Interpretation of winter warming on Northern Hemisphere continents in 1977–94. *J. Climate*, **12**, 2947–2955.
- WALKER, G.T., 1909: Correlation in seasonal variation of climate., *Mem. Ind. Met. Dept.*, **20**, 122.
- WALKER, G.T., 1923: Correlation in seasonal variation of weather, VIII, a preliminary study of world weather. *Mem. Ind. Met. Dept.*, **24**, 75-131.
- WALKER, G.T., 1924: Correlation in seasonal variation of weather, IX. *Mem. Ind. Met. Dept.*, **25**, 275-332.
- WALKER, G.T., BLISS, E.W., 1932: World Weather V. *Mem. Roy. Met. Soc.*, **4**, 53-84.
- WALLACE, J.M., and D.S.GUTZLER, 1981: Teleconnections in the geopotential height field during the Northern Hemisphere winter. *Mon. Wea. Rev.*, **109**, 784-812.
- WALLACE, J.M., 2000: North Atlantic Oscillation/annular mode: Two paradigms - one phenomenon. *Q. J. Roy. Meteorol. Soc.*, **126**, 791-805.
- WALSH, J.E., JOHNSON, C.M., 1979: An analysis of Arctic sea ice fluctuations, 1953-77. *Journal of Physical Oceanography*, **9**, 580-591.
- WALTER, K., GRAF, H.F., 2006: Life cycles of the North Atlantic Teleconnections under strong and weak polar vortex conditions. *Q.J.R. Meteorol. Soc.*, **132**, 467-483, doi:10.1256/qj.05.25.
- WANG, X.L.L., ZWIERS, F.W., SWAIL, V.R., 2004: North Atlantic wave climate change Scenarios for the twenty-first century. *J. Climate*, **17**, 2368-2383
- WANNER, H., 2001: Extending NAO reconstructions back to 1500. *Atmos. Sci. Lett.*, **2**, 114-124.
- WANNER, H., RICKLI, R., SALVISBERT, E., SCHMUTZ, C., SCHÜEPP, M., 1997: Global climate change and variability and its influence on Alpine climate-concepts and observations. *Theor. Appl. Climatol.*, **58**, 221-243.
- WANNER, H., BRÖNNIMANN, S., CASTY, C., GYALISTRAS, D., LUTERBACHER, J., SCHMUTZ, C., STEPHENSON, D., XOPLAKI, E., 2001: North Atlantic Oscillation-concept and studies. *Surv. Geophys.*, **22**, 321-381.
- WATANABE, M., KIMOTO, M., 2000: Atmosphere-ocean thermal coupling in the North Atlantic: A positive feedback. *Quart. Jour. R. Met. Soc.*, **126**, 3343-3369
- WEYHENMEYER, G.A., BLENNCKNER, T., PETTERSSON K., (1999): Changes of the plankton springout burst related to the North Atlantic Oscillation, *Limnol.Oceanogr.*, **44**,1788-1792
- WEYHENMEYER, G., ADRIAN, A.R., GAEDKE, U., LIVINGSTONE, D.M., MABERLY, S.C., (2002): Response of phytoplankton in European lakes to a change in the North Atlantic Oscillation, *Verh. Internat. Verein.Limnol.*, **28**, 1436-1439
- WHITE, J.W.C., GORODETZKY, D., COOK, E.R., BARLOW, L.K., 1996: Frequency analysis of an annually resolved, 700 year paleoclimate record from the GISP2 ice core, In: *R.S. Bradley et al. (eds), Climate Variations and Forcing Mechanisms of the Last 2000 Years, Springer-Verlag, New York. Seiten 193–213.*
- WOODRUFF, S.D., SLUTZ, R.J., JENNE, R.L., STEURER, P.M., 1987: A comprehensive oceanatmosphere data set. *Bull. Amer. Meteor. Soc.*, **68**, 1239-1250.
- WORLD METEOROLOGICAL ORGANISATION (WMO), 2003: Scientific Assessment of Ozone Depletion: 2002, *Global Ozone Research and Monitoring Project, Report No. 47*, Geneva, ISBN 92-807-2261-1.
- WORLD METEOROLOGICAL ORGANISATION (WMO), 2007: Scientific Assessment of Ozone Depletion: 2006, *Global Ozone Research and Monitoring Project, Report No.*, **50**, Geneva.

WUNSCH, C., 1999: The interpretation of short climate records, with comments on the North Atlantic and Southern Oscillations. *Bull. Amer. Meteor. Soc.*, **80**, 245–255.

YOSHIMORI, M., STOCKER, T.F., RAIBLE, C.C., RENOLD, M., 2005: Externally-forced and internal variability in ensemble climate simulations of the Maunder Minimum, *J. Climate*, **18**, 4253-4270.

ZORITA, E., VON STORCH, H., GONZALES-ROUCO, F., CUBASCH, U., LUTERBACHER, J., LEGUTKE, S., FISCHER-BRUNS I., SCHLESE, U., 2004: Climate evolution in the last five centuries simulated by an atmosphere-ocean model: global temperatures, the North Atlantic Oscillation and the Late Maunder Minimum. *Meteorologische Zeitschrift*, **13**, 271-289.