

SOETAERT Karline Elza Renée

Curriculum vitae

Nationality: Belgian

Born: Kortrijk, 19/03/1961, Belgium

Address: Heuvel 65, B-2920 Kalmthout, Belgium, tel: 00-32-3-6664756

Married to Carlo Heip (deceased), two children (Maarten Heip (°31-01-1989), Eva Heip (°14-06-1991))

University Studies:

- MSc. Zoology, University Ghent, Belgium, July 1983.
- PhD. Zoology, University Ghent, Belgium, December 1988.
Title: "Ecology and systematics of meiofauna and nematode assemblages in the western Mediterranean deep sea off Corsica."
- MSc. Computer science, University Ghent, Belgium, July 1985.
Title (translated from Dutch): "On the number of fuzzy functions of n fuzzy variables: an algorithm."

Jobs:

- Belgian national Fund for Scientific Research, University of Ghent, Research fellow, October 1984 - September 1988
- Belgian national Fund for Scientific Research, Free University of Brussels, Postdoctoral researcher, October 1989 - September 1991
- Netherlands Institute of Ecology, the Netherlands, Postdoctoral researcher October 1991 - March 1992
- University of Ghent, Belgium, Postdoctoral researcher, April 1992 - December 1992.
- Netherlands Institute of Ecology, the Netherlands, Postdoctoral researcher 1993 – 1997.
- Netherlands Institute of Ecology, the Netherlands senior researcher, 1999 – 2009.
- Netherlands Institute for Sea Research (NIOZ), head of the department Ecosystem Studies), 2009 – 2016
- Netherlands Institute for Sea Research (NIOZ), research leader, 2016 – now

Lecturer at Ghent University: Environmental modelling, 2001-now. Master Oceans and Lakes and master Global Change Biology.

(Co-)promotor of PhD thesis's

Successfully defended:

- Henrik Andersson, 2007. Respiration in Ocean Margin Sediments. Utrecht University.
- Cox Tom, 2008. Oxygen and primary production in the freshwater reaches of the Schelde estuary. Universiteit Antwerpen.
- Andreas Felix Hofmann, 2009. Quantifying the influences of biogeochemical processes on pH of natural waters. Utrecht University.
- Karel Van den Meersche, 2009. Carbon flows in the planktonic food web of temperate estuaries: a combined approach using stable isotopes, biomarkers and modeling. Ghent University.
- Van Engeland, Tom, 2010. Dissolved Inorganic Nitrogen Dynamics in coastal ecosystems. Utrecht University.
- Braeckman, Ulrike, 2011. Macrobenthos structuring the sea floor: importance of its functional biodiversity for the benthic ecosystem. Ghent University.
- Anna de Kluyver, 2013. Carbon flows in natural plankton communities in the Anthropocene. Utrecht University.
- Lara Pozzato, 2013. Prokaryotic, protozoan and metazoan processing of organic matter in sediments: a tracer approach. Utrecht University.
- Christina Mueller, 2014. The sum is more than its parts. Key species in the functioning of cold-water coral reef communities. Utrecht University.
- Lorenz Meire, 2016. Quantifying the influences of biogeochemical processes on pH dynamics in a subarctic fjord (Godthåbsfjord, Greenland). University Ghent.

Ongoing PhDs

- Sandra Maier, Ghent University. Deep-water corals – (NWO-funded)
- Tanja Stratmann, Ghent University. Deep-sea mining – (EU-funded)
- Justin C Tiano, Ghent University. Fisheries effects on ecosystem functioning in the Northsea – (EZ-funded)
- Emil de Borger, Ghent University. Modelling benthic-pelagic interactions in the Northsea (BELSPO-funded, Belgium).
- Chiu Cheng, Ghent University. The Influence of benthic fauna on sediment stability (NWO-funded)
- Jeff Wilson, Ghent University. Predicting environmental responses in coastal systems using a system-based hydrodynamic modeling approach (MARES-funded)
- Xiaoyu Fang, Ghent University. Identifying the role of past and current benthos activities for estuarine ecosystem functioning. (MARES-funded).
- Lindsay Geerts, University Antwerp. Biogeochemistry of European estuaries. (INTERREG-funded).

Memberships and editorships

Past:

- Member of the national Oceanographic Data Centre.
- Member of ESF working group in innovative modelling.
- Member of Generic Estuarine Model group (the Netherlands)
- Member of the Comité International d'Orientation et d'Evaluation Scientifique du Programme Seine-Aval.
- Member of Veni-commission 2005-2007, ALW.
- Member of Rubicon commission, 2010, ALW
- Member of vidi commission, 2014, ALW
- Member of FWO commission, 2007-2017, Belgium.

Current:

- Member of the scientific and technical advisory committee of the Copernicus marine environment modelling Service, CMEMS.
- Member of the ERC starting grant panel.
- Associate Editor of the journal of statistical software (impact factor 2015: 9,91)

Award

Honorary fellow of the European Society of Computational Methods in Science and Engineering. 2010.

Books

- K. Soetaert and P.M.J. Herman, 2009. A practical guide to ecological modelling – using R as a simulation platform. Springer, 372 pp. <http://www.springer.com/life+sciences/ecology/book/978-1-4020-8623-6>.
- K. Soetaert, J.R. Cash, F. Mazza, 2012. Solving differential equations in R. UseR, Springer, 248 pp. <http://www.springer.com/statistics/computational+statistics/book/978-3-642-28069-6>.

International publications

- Soetaert, K., C. Heip & M. Vincx, 1984. Meiofauna of a deep-sea transect off Corsica. *Ann. Soc. Roy. Belg. Zool.* 114 (2): 323-324.
- Soetaert, K. & M. Vincx, 1987. Six new Richtersia species (Nematoda, Selachinematidae) from the Mediterranean. *Zool. Scr.* 16 (2): 125-142.
- Soetaert, K. & M. Vincx, 1988. *Spirobololaimus bathyalis*, gen.nov., sp.nov. (Nematoda, Microlaimidae from the Mediterranean (Calvi). *Hydrobiologia* 164: 33-38.
- Soetaert, K. & W. Decraemer, 1989. Eight new *Tricoma* species (Nematoda, Desmoscolecidae) from a deep-sea transect off Calvi (Corsica, Mediterranean). *Hydrobiologia* 183: 223-247.
- Soetaert, K., 1989. The genus *Desmoscolex* (nematoda, desmoscolecidae) from a deep-sea transect off Calvi (Corsica, Mediterranean). *Hydrobiologia* 185: 127-143.

- Decraemer, W. & K. Soetaert, 1989. Peculiar new deep-sea Desmoscolecoid species of the genus *Protricomma* (Nematoda) from Corsica (Mediterranean). *Zool.Scr.* 18(2): 223-229.
- Soetaert, K. & C. Heip, 1989. The size structure of nematode assemblages along a Mediterranean deep-sea transect. *Deep-Sea Res* 36 (1): 93-102.
- Soetaert, K. & C. Heip, 1990. Sample-size dependence of diversity indices and the determination of sufficient sample size in a high-diversity deep-sea environment. *Mar. Ecol. Progr. Ser.* 59: 305-307.
- Soetaert, K., C. Heip & M. Vincx, 1991. The meiobenthos along a mediterranean deep-sea transect off Calvi (Corsica) and in an adjacent canyon. *Marine Ecology* 12 (3): 227-242.
- Soetaert, K., C. Heip & M. Vincx, 1991. Diversity of nematode assemblages along a mediterranean deep-sea transect. *Mar. Ecol. Progr. Ser.* 75: 275-282.
- Heip, C., D. Basford, J. Craeymeersch, J.M. Dewarumez, J. Dorjes, P. De Wilde, G. Duineveld, A. Eleftheriou, P.M.J. Herman, U. Niermann, P. Kingston, A. Kunitzer, E. Rachor, H. Rumohr, K. Soetaert, T. Soltwedel, 1992. Trends in biomass, density and diversity of North Sea Macrofauna. *ICES J. mar. Sci.* 49: 13-22.
- Huys, R., P.M.J. Herman, C.H.R. Heip & K. Soetaert, 1992. The meiobenthos of the North Sea: density, biomass trends and distribution of copepod communities. *ICES J. mar. Sci.* 49: 23-44.
- Soetaert, K. & P. Van Rijswijk, 1993. Spatial and temporal patterns of the zooplankton in the Westerschelde estuary. *Mar. Ecol. Progr. Ser.* 97: 47-59.
- Escaravage, V. & K. Soetaert, 1993. Estimating secondary production for the brackish Westerschelde copepod population *Eurytemora affinis* (Poppe) combining experimental data and field observations. *Cah. Biol. Mar.* 34: 201-214.
- Soetaert, K. & P.M.J. Herman, 1994. One foot in the grave: zooplankton drift into the Westerschelde estuary (the Netherlands). *Mar. Ecol. Progr. Ser.* 105: 19-29.
- Soetaert, K., M. Vincx, J. Wittoeck, M. Tulkens & D. Vangansbeke, 1994. Spatial patterns of Westerschelde meiobenthos. *Est. Coast. Shelf Sci.* 39: 367-388.
- Soetaert, K., P.M.J. Herman & J. Kromkamp, 1994. Living in the twilight: estimating phytoplankton growth in the Westerschelde estuary (the Netherlands) by means of the ecosystem model MOSES. *J. Plankt. Res.* 16: 1277-1301.
- Soetaert, K., Vincx, M., Wittoeck, J. & Tulkens, M., 1995. Meiobenthic distribution and nematode community structure in five European estuaries. *Hydrobiologia* 311 (1-3): 185-206.
- Soetaert, K. & P.M.J. Herman, 1995. Carbon flows in the Westerschelde estuary (the Netherlands) evaluated by means of an ecosystem model (MOSES). *Hydrobiologia* 311 (1-3): 247-266.
- Soetaert, K. & P.M.J. Herman, 1995. Nitrogen dynamics in the Westerschelde estuary (S.W. Netherlands) estimates by means of the ecosystem model MOSES. *Hydrobiologia* 311(1-3): 225-246.
- Soetaert, K. & P.M.J. Herman, 1995. Estimating estuarine residence times in the Westerschelde (the Netherlands) using a box model with fixed dispersion coefficients. *Hydrobiologia* 311 (1-3): 215-224.
- Escaravage, V. & K. Soetaert, 1995. Secondary production of the brackish copepod communities and their contribution to the carbon fluxes in the Westerschelde estuary (the Netherlands). *Hydrobiologia* 311 (1-3): 103-114.
- Soetaert, K. & C. Heip, 1995. Nematode assemblages of deep-sea and shelf break sites in the North Atlantic and Mediterranean sea. *Mar. Ecol. Progr. Ser.* 125: 171-183.
- Soetaert, K., Heip, C. & Vincx, M., 1995. Nematode community structure along a Mediterranean shelf-slope gradient. *Mar. Ecol.* 16(3): 189-206.
- Heip, C., N. Goosen, P.M.J. Herman, J. Kromkamp, J. Middelburg & K. Soetaert, 1995. Production and consumption of biological particles in temperate tidal estuaries. *Oceanogr. Mar. Biol. Ann. Rev.* 33: 1-149.
- Soetaert, K., P.M.J. Herman & J. Middelburg, 1996. A model of early diagenetic processes from the shelf to abyssal depths. *Geochim. Cosmochim. Acta* 60(6): 1019-1040.
- Middelburg, J.J., K. Soetaert, P.M.J. Herman & C. Heip, 1996. Denitrification in marine sediments: a model study. *Global Biogeochemical Cycles* 10(4): 661-673
- Middelburg, J.J., K. Soetaert & P.M.J. Herman, 1996. Empirical relationships for use in global diagenetic models. *Deep-Sea Res.* 44: 327-345.
- Soetaert, K., P.M.J. Herman, J.J. Middelburg, C. Heip, H. deStigter, T.E.W. van Weering, E. Epping & W. Helder, 1996. Modelling ²¹⁰Pb-derived mixing activity in ocean margin sediments: diffusive versus non-local mixing. *Journ. Mar. Res.* 54(6): 1207-1227.
- Soetaert, K., P.M.J. Herman & J.J. Middelburg, 1996. Dynamic response of deep-sea sediments to seasonal variation: a model. *Limnol. Oceanogr.* 41(8): 1651-1668.
- Middelburg, J.J., K. Soetaert & P.M.J. Herman, 1996. Evaluation of the nitrogen isotope pairing method to measure benthic denitrification: a simulation analysis. *Limnol. Oceanogr.* 41(8): 1839-1844.

- Middelburg, J.J., K. Soetaert & P.M.J. Herman, 1996. Reply to the comment of Nielsen et al. *Limnol. Oceanogr.* 41(8): 1846-1847.
- Muthumbi, A.W., K. Soetaert & M. Vincx, 1997. Deep-sea nematodes from the Indian Ocean: new and known species of the family Comesomatidae. *Hydrobiologia* 346: 25-57.
- Vanaverbeke, J., Soetaert, K., C. Heip, A. Vanreusel, 1997. The metazoan meiobenthos along the continental slope of the Goban Spur (NE Atlantic). *Journ. Sea Res.* 38: 93-108.
- Soetaert, K., Vanaverbeke, J., Heip, C., Herman, P.M.J., Middelburg, J.J., Sandee, A., Duineveld, G., 1997. Nematode distribution in ocean margin sediments of the Goban Spur (North-East Atlantic) in relation to sediment geochemistry. *Deep-Sea Res.* 44(9-10): 1671-1683.
- Soetaert, K., P.M.J. Herman, J. J. Middelburg, C. Heip, 1998. Assessing organic matter mineralization rate, degradability and mixing rate in an ocean margin sediment (North-East Atlantic) by diagenetic modelling. *Journ. Mar. Res.* 56: 519-534.
- Heip, C.H.R., P.M.J. Herman and K. Soetaert, 1998. Indices of diversity and evenness. *Oceanis* 24(4): 61-87.
- Soetaert, K., J. Middelburg, P.M.J. Herman, K. Buis, 2000. On the coupling of benthic and pelagic biogeochemical models. *Earth-Science reviews*, 51, 173-201.
- Soetaert, K., P.M.J. Herman, J.J. Middelburg, C. Heip, C.L. Smith, P. Tett & K.Wild-Allen, 2001. Numerical modelling the shelf break ecosystem: integrating pelagic and benthic field measurements. *Deep-Sea Res. II* 48: 3141-3177.
- Heip, C., G. Duineveld, E. Flach, W. Helder, P.M.J. Herman, M. Lavaleye, J.J. Middelburg, O. Pfannkuche, K. Soetaert, T. Soltwedel, H. de Stigter, L. Thomson, J. Vanaverbeke, P. de Wilde, 2001. The role of the benthic biota in sedimentary metabolism and sediment-water exchange processes in the Goban Spur area (N.E. Atlantic). *Deep-Sea Res. II* 48: 3223-3243
- Herman, P., K. Soetaert, J. J. Middelburg, C. Heip, L. Lohse, E. Epping, W. Helder, A. Antia and R. Peinert, 2001. The seafloor as the ultimate sediment trap - using sediment properties to constrain benthic-pelagic exchange processes at the Goban Spur. *Deep-Sea Res. II* 48: 3245-3264.
- Lamy, F., T. Sherwin, K. Soetaert, P.M.J. Herman, R. Torres, 2001. Estimates of vertical mixing during a Lagrangian experiment off the Galician coast. *Journ. Mar. Syst.* 30, 165-179.
- Soetaert, K., V. deClippele, P. Herman, 2002. Femme, a flexible environment for mathematically modelling the environment. *Ecol. Modell.* 151: 177-193.
- Epping, E.H.G., van der Zee, C., Soetaert, K. and W. Helder, 2002. On the mineralisation and burial of organic carbon in sediments of the Iberian margin and Nazare canyon (NE Atlantic). *Progr. Oceanogr.*, 52: 399-431.
- Wijsman J.W.M., Herman P.M.J., Middelburg J.J., Soetaert K. (2002). A model for early diagenetic processes in sediments of the continental shelf of the black sea. *Est. Coast. Shelf Sci.* 54: 403-421.
- Soetaert, K., Muthumbi, A., C. Heip, 2002. Size and shape of ocean margin nematodes: morphological diversity and depth-related patterns. *Mar. Ecol. Progr. Ser.* 242: 179-193.
- Appeltans, W., Hannouti, A., Van Damme, S., Soetaert, K., Vanthomme, R., Tackx, M. (2003) Zooplankton in the Schelde estuary (Belgium/the Netherlands): the distribution of *Eurytemora affinis*: effect of oxygen ? *Journ. Plankt. Res.* 25:1441-1445.
- Andersson, H., Wijsman, J., Herman, P., Middelburg, J., Soetaert, K., Heip, C., 2004. Respiration patterns in the deep ocean. *Geophysical Research Letters* 31, LO3304
- Van den Meersche, Karel, Jack J. Middelburg, Karline Soetaert, Pieter van Rijswijk, Henricus T. S. Boschker, and Carlo H. R. Heip. 2004. Carbon-nitrogen coupling and algal-bacterial interactions during an experimental bloom: Modeling a ¹³C tracer experiment. *Limnol. Oceanogr.* 49: 862-878.
- Vanaverbeke, J., Soetaert K., Vincx, M., 2004. Changes in morphometric characteristics of nematode communities during a spring bloom deposition. *Mar. Ecol. Progr. Ser.* 273: 139-146.
- Gregoire M, Soetaert K, Nezlin N, Kostianoy A, 2004. Modeling the nitrogen cycling and plankton productivity in the Black Sea using a three-dimensional interdisciplinary model. *Journ. Geophys. Res. – Oceans* 109 (C5): Art. No. C05007.
- Muthumbi, A.W., Vanreusel, A., Soetaert, K., Duineveld G., Vincx, M., 2004. Nematode community structure along the continental slope off the Kenyan coast, Western Indian Ocean. *International review in Hydrobiology* 89(2): 188-205.
- Soetaert, K, Hoffmann, M., Meire, P., Starink, M., van Oevelen, D, Van Regenmortel, S., Cox, T., 2004. Modeling growth and carbon allocation in two reed beds (*Phragmites australis*) in the Scheldt estuary (Belgium, The Netherlands) *Aquatic Botany* 79: 211-234.
- Vanaverbeke, J., Steyaert M., Soetaert K., Rousseau, V., Van Gansbeke D., Parent J-Y, Vincx, M. 2004. Changes in structural and functional diversity of nematode communities during a spring phytoplankton bloom in the Southern North Sea. *Journ. Sea Res.* 52: 281-292.

- Moodley, L., Middelburg, J.J., Soetaert, K., Boschker, H.T.S., Herman, P.M.J., Heip, C. 2005. Similar rapid response to phytodetritus deposition in shallow and deep-sea sediments. *Journ. Mar. Res.* 63: 457-469.
- Raick C., Delhez, EJM., Soetaert K. and Gregoire M., 2005. Study of the seasonal cycle of the biogeochemical processes in the Ligurian Sea using an 1D interdisciplinary model. *Journal of Marine Systems* 55 (3-4): 177-203.
- Maes, J., Tackx, M., Soetaert, K., 2005. The predation impact of juvenile herring and sprat on estuarine copepods. *Hydrobiologia* 540, 225-235.
- Tackx, M., Azémar, F., Boulétreau, S., De Pauw, N., Bakker, K., Sautour, B., Gasparini, S., Soetaert, K., Van Damme, S., & Meire, P., 2005. Zooplankton in the Schelde estuary, Belgium and the Netherlands. Long term trends in spring populations. *Hydrobiologia* 540, 275-278.
- Moodley, L., Middelburg, J.J., Herman, P.M.J., Soetaert, K., de Lange, G.J., 2005. Oxygenation and organic-matter preservation in marine sediments: Direct experimental evidence from ancient organic carbon-rich deposits. *Geology* 33 (11): 889-892.
- Soetaert, K., Middelburg, JJ, Heip, C, Meire, P., Van Damme, S., Maris, T., 2006. Long-term change in dissolved inorganic nutrients in the heterotrophic Scheldt estuary (Belgium, the Netherlands). *Limnol. Oceanogr.* 51: 409-423.
- van Oevelen, D, J. J. Middelburg, K. Soetaert, and L. Moodley, 2006. The fate of bacterial carbon in sediments: Modeling an in situ isotope tracer experiment. *Limnol. Oceanogr.* 51: 1302-1314.
- Kones, J.K., K. Soetaert, D. van Oevelen, J.O. Owino and K. Mavuti, 2006. Gaining insight into food webs reconstructed by the inverse method. *Journ. Mar. Syst.* 60: 153-160.
- Rabouille, S, Staal, M., Stal, L.J., Soetaert, K., 2006. Modeling the dynamic regulation of nitrogen fixation in the cyanobacterium *Trichodesmium* sp. *Appl and Env Microb* 72(5), 3217-3227.
- Raick, C., M. Gregoire, J-M Beckers and K. Soetaert, 2006. Can Principal component analysis be used to predict the dynamics of a strongly non-linear marine biogeochemical model ? *Ecol. Modell.* 196 (3-4), 345-364.
- Raick, C., K. Soetaert, M. Gregoire, 2006. Model complexity and performance: how far can we simplify? *Progress in Oceanography* 70(1), 27-57.
- van Oevelen D., Moodley, L., Soetaert, K. and Jack J. Middelburg, 2006. The trophic significance of bacterial carbon in a marine intertidal sediment: results of an in situ stable isotope labeling study. *Limnol. Oceanogr.* 51(5): 2349-2359.
- Andersson, H., J.J. Middelburg, K. Soetaert, 2006. Identifiability and uncertainty analysis of bio-irrigation rates. *Journ. Mar. Res.* 64: 406-429.
- van Oevelen, D., K. Soetaert, J.J. Middelburg, P.M.J. Herman, L. Moodley, I. Hamels. T. Moens, C.H.R. Heip, 2006. Carbon flows through a benthic food web: Integrating biomass, isotope and tracer data. *Journ. Mar. Res.* 64: 453-482.
- Cox T.J.S., T. Maris, P. de Vleeschouwer; T. De Mulder; K. Soetaert; P. Meire, 2006. Flood control areas as an opportunity to restore estuarine habitat, *Ecological Engineering* 28: 55-63.
- Raick C., Alvera-Azcarate A., Barth A., Brankart J.-M., Soetaert K., Gregoire M, 2007. Application of a SEEK filter to a 1D biogeochemical model of the Ligurian Sea: twin experiments and real data assimilation. *Journal of Marine Systems* 65(1-4): 561-583.
- Steyaert, M., L. Moodley, T. Nadong, T. Moens, K. Soetaert, M. Vincx, 2007. Responses of intertidal nematodes to short-term anoxic events. *Journal of Experimental Marine Biology and Ecology* 345:175-184.
- Soetaert, K., Hofmann, A.F., Middelburg, J., Meysman, F., Greenwood, J, 2007. The effect of biogeochemical processes on pH. *Mar. Chem.* 105: 30-51.
- Khalil, K., Rabouille, C., Gallinari, M., Soetaert, K., DeMaster, D.J. and Ragueneau, O., 2007. Constraining biogenic silica dissolution in marine sediments: a comparison between diagenetic models and experimental dissolution rates. *Marine Chemistry* 106: 223-238.
- Moriceau B, Gallinari M, Ragueneau O., Soetaert, K., 2007. Importance of particle formation to reconstructed water column biogenic silica fluxes. *Global Biogeochemical Cycles* 21, doi: 10.1029/2006GB002814
- Lenartz, F., Raick, C., Soetaert, K., Grégoire, M., 2007. Application of an Ensemble Kalman filter to a 1D coupled hydrodynamic–ecosystem model of the Ligurian Sea. *Journ. Mar. Syst.* 68, 327-348. doi:10.1016/j.jmarsys.2006.12.001
- K Dedieu, C Rabouille, F Gilbert, K Soetaert, E Metzger, C Simonucci, D Jézéquel, F Prévot, P Anschutz, S Hulth, S Ogier, V Mesnage. 2007. Coupling of carbon, nitrogen and oxygen cycles in sediments from a Mediterranean lagoon: a seasonal perspective. *Mar. Ecol. Prog. Ser.* 346: 45-59.
- Gypens, N., Lancelot, C. Soetaert, K, 2008. Simple parameterisations for describing N and P diagenetic processes: Application in the North Sea. *Progress in Oceanography* 76:89-110.

- J.H. Andersson, Woulds, C., Schwartz, M., Cowie, G., Levein, L.A., Soetaert, K., Middelburg, J.J., 2008. Short-term fate of phytodetritus in sediments across the Arabian Sea Oxygen Minimum Zone. *Biogeosciences*, 5, 43-53.
- Gregoire M, Raick, C, Soetaert K, 2008. Numerical modeling of the central Black Sea ecosystem functioning during the eutrophication phase. *Progr Oceanogr.*, 76, 286-333.
- García, R., D. van Oevelen, K. Soetaert, L. Thomsen, H. C. De Stigter, E. Epping, 2008. Organic content, bioturbation and deposition rates in two contrasting submarine canyons. *Progress in Oceanography* 76, 192-215.
- A.F. Hofmann, F.J.R. Meysman, K. Soetaert, J.J. Middelburg, 2008. A step-by-step procedure for pH model construction in aquatic systems. *Biogeosciences* 5, 227-251.
- Moodley, L., Steyaert, M., Epping, E., Middelburg, J.J., Vincx, M., van Avesaath, P., Moens, T., Soetaert, K., 2008. Biomass-specific respiration rates of benthic meiofauna: Demonstrating a novel oxygen micro-respiration system. *Journal of Experimental marine biology and Ecology* 357: 41-47.
- Franco, MA., Soetaert, K, van Oevelen, D, Van Gansbeke, D, Costa, MJ, Vincx,M, Vanaverbeke,J, 2008. Density, vertical distribution and trophic responses of metazoan meiobenthos to phytoplankton deposition in contrasting sediment types. *Marine Ecology Progress Series* 358: 51-62.
- Van den Meersche, K., Soetaert, K., Middelburg, J., 2008. A Bayesian compositional estimator for microbial taxonomy based on biomarkers. *Limnol. Oceanogr. Methods* 6, 190-199.
- Hofmann, A.F, K. Soetaert, and J. Middelburg, 2008. Present nitrogen and carbon dynamics in the Scheldt estuary using a novel 1-D model. *Biogeosciences*, 5, 981-1006.
- Franco, MA., Soetaert, K, Costa, MJ, Vincx,M, Vanaverbeke,J, 2008. Uptake of phytodetritus by meiobenthos using ¹³C labelled diatoms and Phaeocystis in two contrasting sediments from the North Sea. *Journal of Experimental Marine Biology and Ecology* 362, 1-8.
- Greenwood, J.E., Soetaert, K., 2008. Interannual variability in the seasonal cycle of chlorophyll in the Leeuwin Current off the southwest Western Australian coast. *Journ. Mar. Syst.* **66 (3)**, 373-390.
- Van den Meersche, K., van Rijswijk, P., Soetaert, K., and J.J. Middelburg, 2009. Autochthonous and allochthonous contributions to mesozooplankton diet in a tidal river and estuary: Integrating carbon isotope and fatty acid constraints. *Limnol. Oceanogr.* 54(1): 62-74.
- Kones, J, Soetaert, K., van Oevelen, D. and J., Owino, 2009. Are network indices robust estimators of food web functioning ? a monte carlo approach. *Ecol. Modelling.* 220:370-382.
doi:10.1016/j.ecolmodel.2008.10.012
- Soetaert, K., van Oevelen, D., 2009. Modeling food web interactions in benthic deep-sea ecosystems: a practical guide. *Oceanography* (22) 1: 130-145.
- Nyunja, J. M., Ntiba, J., Onyari, Mavuti K., Soetaert K., and S. Bouillon, 2009. Carbon sources supporting a diverse fish community in a tropical coastal ecosystem (Gazi bay, Kenya). *Est. Coast. Shelf Sci.* **83 (3)**: 333-341 , doi: 10.1016/j.ecss.2009.01.009.
- Van Oevelen, D., Soetaert, K., Franco, M.A., Moodley, L., van Ijzerloo, L., Vincx, M., Vanaverbeke, J., 2009. Organic matter input and processing in two contrasting North Sea sediments: insights from macrobenthic biomass and stable isotope data. *Mar. Ecol. Progr. Ser.* 380, 19-32.
- Van den Meersche, K., Soetaert, K., Van Oevelen, D., 2009. xsample: an R function for sampling over- and underdetermined linear inverse problems. *Journal of Statistical Software, Code Snippets* 30(1), 1-15. URL <http://www.jstatsoft.org/v30/c01/>.
- De Laender, Frederik; Van Oevelen, Dick; Middelburg, Jack; Soetaert, Karlina, 2009. Incorporating ecological data and associated uncertainty in bioaccumulation modelling: methodology development and case study. *Environmental Science & Technology* 43(7): 2620-2626.
- Soetaert, K. & J.J. Middelburg, 2009. Modeling eutrophication and oligotrophication of shallow-water marine systems: the importance of sediments and stratification. *Hydrobiologia*, 629, 239-254. DOI 10.1007/s10750-009-9777-x
- Vandewiele, Sandra, Greg Cowie, Karlina Soetaert and Jack J. Middelburg. 2009. Amino Acid Biogeochemistry and Organic Matter Degradation State across the Arabian Sea Oxygen Minimum Zone. *Deep-Sea Research, II*, 56,318-334.
- Hofmann A., Meysman, F., Soetaert, K. and J. Middelburg, 2009. pH modelling in aquatic systems with time-variable acid-base dissociation constants applied to the turbid, tidal Scheldt estuary. *Biogeosciences* 6 (8), 1539–1561.
- Van Oevelen, D., G. Duineveld, M. Lavaleye, F. Mienis, K. Soetaert, C.H.R. Heip, 2009. The cold-water coral community as a hotspot of carbon cycling on continental margins: a food web analysis from Rockall Bank (northeast Atlantic). *Limnology and Oceanography* 54:1829-1844.

- Soetaert, K., Franco, M., Lampadariou, N., Muthumbi, A., Steyaert, M., Vandepitte, L., vanden Berghe, E., Vanaverbeke, J., 2009. Factors affecting nematode biomass, length and width from the shelf to the deep sea. *Mar. Ecol. Progr. Ser.* 392: 123–132.
- Obade, P., Koedam, N., Soetaert, K., Neukermans, G., Bogaert, J., Nyssen, E., van Nederveelde, F., U. Berger, F. Dahdouh-Guebas, 2009. Impact of anthropogenic disturbance on a mangrove forest assessed by a 1D-cellular automaton model using Lotka-Volterra type competition. *International Journal of Design & Nature and Ecodynamics*, 3 (4): 1-25
- Cook, P. L. M., Van Oevelen, D., Soetaert, K. and J. J. Middelburg, 2009. Carbon and Nitrogen cycling on intertidal mudflats in a temperate 1 Australian estuary. IV: An inverse model analysis and synthesis. *Mar. Ecol. Progr. Ser.* 394:35-48.
- T. J. S. Cox, T. Maris, K. Soetaert, D. J. Conley, S. Van Damme, P. Meire, J. J. Middelburg, M. Vos and E. Struyf, 2009. A macro-tidal freshwater ecosystem recovering from hypereutrophication: the Schelde case study. *Biogeosciences* 6, 2935-2948.
- Franco, M.A., Vanaverbeke, J., van Oevelen, D., Soetaert, K., Costa, M.J., Vincx, M., Moens, T., 2009. Respiration partitioning in contrasting subtidal sediments: seasonality and response to a spring phytoplankton deposition. *Marine Ecology* 31, 276-290. DOI: 10.1111/j.1439-0485.2009.00319.x
- Van Oevelen D, Van den Meersche K, Meysman FJR, Soetaert K, Middelburg JJ, Vézina AF. 2010 Quantifying Food Web Flows Using Linear Inverse Models. *Ecosystems* 13, 32-45. DOI: 10.1007/s10021-009-9297-6.
- De Laender, F., Van Oevelen, D, K Soetaert and JJ. Middelburg, 2010. Carbon transfer in herbivore-dominated and a microbial loop-dominated pelagic food webs in the southern Barents Sea during spring and summer. *Mar. Ecol. Progr. Ser.* 398: 93-107.
- De Laender F, Van Oevelen D, Frantzen S, Middelburg JJ, Soetaert K, 2010. Seasonal PCB bioaccumulation in an Arctic marine ecosystem: a model analysis incorporating lipid dynamics, food-web productivity and migration. *Environmental Sci. Tech.* 44 (1), 356-361.
- Soetaert, K. and T. Petzoldt, 2010. Inverse modelling, sensitivity and Monte Carlo analysis in R using package FME. *Journal of Statistical Software* 33 (3), 1-28.
- Braeckman, U., Provoost, P., Gribsholt, B., van Gansbeke, D., Middelburg, J, Soetaert K., Vincx, M. and Vanaverbeke, J., 2010. Role of macrofauna functional traits and density in biogeochemical fluxes and bioturbation. *Mar. Ecol. Progr. Ser.* 399: 173–186,
- De Laender, F., van Oevelen, D, Middelburg, JJ and K. Soetaert, 2010. Uncertainties in ecological, chemical and physiological parameters of a bioaccumulation model: implications for internal concentrations and tissue based risk quotients. *Ecotoxicology and Environmental Safety* 73, 240-246.
- De Laender F, Soetaert K, De Schamphelaere KA, Middelburg JJ, Janssen CR (2010) Ecological significance of hazardous concentrations in a planktonic food web. *Ecotoxicology and Environmental Safety* 73, 247-253.
- Soetaert, K., Petzoldt, T. and R.W. Setzer, 2010. Solving Differential Equations in R: Package deSolve, *Journal of Statistical Software* 33(9), 1-25.
- Eid, E.M., Shaltout, K. H. Al-Sodany, Y-M, Soetaert, K and Jensen, K., 2010. Modeling growth, carbon and nutrient cycling of *Phragmites australis* in Lake Burullus, Egypt. *Wetlands* 30: 240-251. DOI 10.1007/s13157-010-0023-0
- De Laender, F., Soetaert, K. and J. J. Middelburg, 2010. Inferring chemical effects on carbon flows in aquatic food webs: Methodology and case study. *Environmental. Pollution* 158: 1775-1782.
- A.F. Hofmann, K. Soetaert, J.J. Middelburg, F.J.R. Meysman, 2010. AquaEnv - an Aquatic acid-base modelling Environment in R. *Aquatic Geochemistry* 16: 507-546.
- Garcia, R. Thomsen, L., de Stigter, H.C., Epping, E., Soetaert, K., Koning, E., Mendes, P.A. de Jesus, 2010. Sediment bioavailable organic matter, deposition rates and mixing intensity in the Setubal-Lisbon canyon and adjacent slope (Western Iberian Margin). *Deep-Sea Res. I*, 57, 1012:1026 doi:10.1016/j.dsr.2010.03.013 |
- Guillini, K., Van Oevelen, D., Soetaert, K., Middelburg, J.J., and Vanreusel, A., 2010. Nutritional importance of benthic bacteria for deep-sea nematodes from the Arctic ice margin: Results of an isotope tracer experiment. *Limnol. Oceanogr.* 55(5), 1977-1989.
- Van Frausum, Johan, Jack J. Middelburg Karline Soetaert and Filip J. R. Meysman, 2010. Different proxies for the reactivity of aquatic sediments towards oxygen: a model assessment. *Ecological Modelling* 221, 17, 2054-2067.
- T. Van Engeland, T., Soetaert, K., Knuijt, A., Laane, R. W. P. M. and J. J. Middelburg, 2010. Dissolved Organic Nitrogen Dynamics in the North Sea: a time series analysis (1995-2005). *Estuarine, Coastal and Shelf Science* 89, 31-42.

- Gregoire M, Soetaert K, 2010. Carbon, nitrogen, oxygen and sulfide budgets in the Black Sea: A biogeochemical model of the whole water column coupling the oxic and anoxic parts. *Ecological Modelling* 221: 2287-2301.
- Evrard V, Soetaert K, Heip CHR, Huettel M, Xenopoulos MA, Middelburg JJ, 2010. Carbon and nitrogen flows through the benthic food web of a photic subtidal sandy sediment. *Mar. Ecol. Progr. Ser.* 416: 1-16.
- AF Hofmann, JJ Middelburg; K Soetaert; DA Wolf Gladrow; FJR Meysman, 2010, Proton cycling, buffering, and reaction stoichiometry in natural waters, *Marine chemistry* 121(1-4), 246-255.
- Cox, T., K. Soetaert, VanderBorgh, J.P., J. Kromkamp and P. Meire, 2010. Modelling photosynthesis-irradiance curves: effects of temperature, dissolved silica depletion and changing community assemblage on community photosynthesis. *Limnology and Oceanography methods* 8:424-440.
- Anna de Kluijver, Karline Soetaert, Kai G. Schulz, Ulf Riebesell, Richard G.J. Bellerby, and Jack J. Middelburg, 2010. Phytoplankton-bacteria coupling under elevated CO₂ levels: a stable isotope labelling study. *Biogeosciences* 7, 3783–3797
- P. Provoost, S. van Heuven, K. Soetaert, R. Laane, J. J. Middelburg , 2010. Seasonal and long-term changes in pH in the Dutch coastal zone. *Biogeosciences* 7, 3869–3878
- Soetaert, K., Petzoldt, T. and R.W. Setzer, 2010. Solving Differential Equations in R. *The R Journal* Vol. 2/2, 5:15. ISSN 2073-4859
- Soetaert, K., Petzoldt, T, 2011. Solving ODEs, DAEs, DDEs and PDEs in R. *Journal of Numerical Analysis, Industrial and Applied Mathematics* 6(1-2), pp 51-65. ISSN 1790-8140. url: http://jnaiam.org/uploads/jnaiam_6_4.pdf
- Braeckman, U, Van Colen, C., Soetaert, K., Vincx, M., Vanaverbeke, J, 2011. Contrasting macrobenthic activities differentially affect nematode density and diversity in a shallow subtidal marine sediment. *Mar. Ecol. Progr. Ser.* 422: 179-191
- Moodley, L., R. Nigam, B. Ingole, C. Prakash Babu, R. Panchang, M. Nanajkar, S. Sivasdas, P. van Breugel, L. van Ijzerloo, R. Rutgers, C.H.R. Heip, K. Soetaert, J.J. Middelburg, 2011. Oxygen minimum seafloor ecological (mal) functioning. *Journal of Experimental Marine Biology and Ecology* 398, 91-100.
- Joassin, P., Delille B., Soetaert K., Harley, J., Borges, A.V., Chou, L., Riebesell, U., Suykens, K. and Gregoire, M., 2011. Carbon and nitrogen flows during a bloom of the coccolithophore *Emiliania huxleyi*: modelling a mesocosm experiment. *Journal of marine systems* 85: 71-85.
- Braeckman, U., Provoost, P., Moens, T., Soetaert, K., Middelburg, J.J., Vincx, M., Vanaverbeke, J., 2011. Biological vs. physical mixing effects on benthic food web dynamics. *PLoS ONE* 6(3): 1-12. <http://www.plosone.org/article/related/info%3Adoi%2F10.1371%2Fjournal.pone.0018078>
- Soetaert, K. and M.L. Gregoire, (2011). Data assimilation of the carbonate pH system – a kalman filter tested. *Ecol. Modelling* 222, 1929-1942.
- Van den Meersche, K., Soetaert, K., J.J. Middelburg (2011). Plankton dynamics in an estuarine plume” a ¹³C and ¹⁵N tracer study. *Marine Ecology Progress Series* 429, 29-43.
- Pastor, L, Cathalot, C., Deflandre, B., Soetaert, K., Meysman, F., Ulses, C., Metzger, E., Viollier, E. & Rabouille, C. (2011). Modeling biogeochemical processes in sediments from the Rhône River prodelta area (NW Mediterranean Sea). *Biogeosciences* 8, 1351-1366.
- T. Van Engeland, T.J. Bouma, E.P. Morris, F.G. Brun, G. Peralta, M. Lara, I.E. Hendriks, K. Soetaert, J.J. Middelburg (2011). Potential uptake of dissolved organic matter by seagrasses and macroalgae. *Marine Ecology Progress Series* 427, 71-81.
- Oevelen, D. van, Bergmann, M., Soetaert, K.E.R., Bauerfeind, E., Hasemann, C., Klages, M., Schewe, I., Soltwedel, T. & Budaeva, N. E. (2011). Carbon flows in the benthic food web at the deep-sea observatory HAUSGARTEN (Fram Strait). *Deep-Sea Research Part I-Oceanographic Research Papers* 58, 1069-1083.
- Gontikaki, E.; Dick van Oevelen; Karline Soetaert; Ursula Witte (2011). Food web flows through a sub-arctic deep-sea benthic community. *Progress in Oceanography*. vol 91, pp. 245-259.
- De Laender, Frederik; Hammer, Jort; Hendriks, Jan; Soetaert, Karline; Janssen, Colin, 2011. Combining Monitoring Data and Modeling Identifies PAHs as Emerging Contaminants in the Arctic. *Environmental Science & Technology* 45 (20), pp 9024–9029
- Oevelen, D. van, Soetaert, K.E.R., García, R., Stigter, H.C. De, Cunha, M. da, Pusceddu, A. & Danovaro, R. 2011. Canyon conditions impact carbon flows in food webs of three sections of the Nazare canyon. *Deep-Sea Research Part II-Topical Studies in Oceanography* 58, 2461,2476.
- Soetaert, K. and F. Meysman, 2012. Reactive transport in aquatic ecosystems: rapid model prototyping in the open source software R *Environmental modelling and software* 32, 49-60.
- Mazzia, F., Cash, J.R. and K. Soetaert, 2012. : A Test Set for Stiff Initial Value Problem Solvers in the open source software R: package detestset. *Journal of Computational and Applied Mathematics* 236: 4119-4131 DOI information: 10.1016/j.cam.2012.03.014

- Braeckman U., Provoost, P., Sabbe, K., Soetaert, K., Middelburg, J.J., Vincx, M. and Vanaverbeke, J., 2012. Temporal dynamics in macrobenthic diet as inferred from fatty acid biomarkers. *Journal of Sea Research*. 68.
- Evrard, V., Huettel, M., Cook, P.L.M., Soetaert, K, Heip, C.H.R. and Middelburg, J.J., 2012.
- Importance of phytodetritus deposition and microphytobenthos for heterotrophs in a shallow subtidal sandy sediment. *Marine Ecology Progress Series* 455, 13-31.
- Dick van Oevelen, Karline Soetaert and Carlo Heip, 2012. Carbon flows in the benthic food web of the Porcupine Abyssal Plain: The (un)importance of labile detritus in supporting microbial and faunal carbon demands. *Limnol. Oceanogr.* 57, 645-664.
- Dahnke, K., A. Moneta, B. Veuger, K. Soetaert, and J. J. Middelburg. 2012. Balance of assimilative and dissimilative nitrogen processes in a diatom-rich tidal flat sediment. *Biogeosciences* 9:4059-4070.
- Soetaert, K., van Oevelen, D. and Sommer, S, 2012. Modelling the impact of Siboglinids on the biogeochemistry of the Captain Arutyunov mud volcano (Gulf of Cadiz). *Biogeosciences* 9, Issue 6, 2012, pp.6683-6714.
- Koho, KA, Nierop, KGJ, Moodley, L, Middelburg, JJ, Pozzato, L, Soetaert, K, van der Plicht, J., and Reichart, G-J., 2013. Microbial bioavailability regulates organic matter preservation in marine sediments. *Biogeosciences* 10, 1131-1141.
- Braeckman, U., Vanaverbeke, J., Vincx, M., van Oevelen, D. and K Soetaert, 2013. Meiofauna Metabolism in Suboxic Sediments: Currently Overestimated. *PloS one* 8 (3), e59289
- Provoost, P., Braeckman, U., Van Gansbeke, D., Moodley, L., Soetaert, K., Middelburg, J.J. and J. Vanaverbeke, 2013. Modelling benthic oxygen consumption and benthic-pelagic coupling at a shallow station in the southern North Sea. *Estuarine, Coastal and Shelf Science* 120, 1:11.
- Pozzato, L., van Oevelen, D., Moodley, L., Soetaert, K., JJ Middelburg. 2013. Carbon processing at the deep-sea floor of the Arabian Sea oxygen minimum zone: A tracer approach. *Journal of Sea Research* 78, 45-58. <http://dx.doi.org/10.1016/j.seares.2013.01.002>.
- Krumins, JA, van Oevelen, D, Bezemer, TM, De Deyn, GB, Hol, WHG, van Donk, E, de boer, W., de Rooter, P.C., Middelburg, J.J., Monroy, F., Soetaert, K., Thebault E., van de Koppel, J., van Veen, J.A., Viketoft, M and van der Putten. W.H., 2013. Soil and freshwater and marine sediment food webs: their structure and function. *BioScience* 63 (1), 35-42.
- Van Engeland, T, Bouma, TJ, Morris, EP, Brun, FG, Peralta, G, Lara, M., Hendriks. IE, van Rijswijk, P., Veuger, B., Soetaert, K and Middelburg, J.J., 2013. Dissolved organic matter uptake in a temperate seagrass ecosystem. *Marine Ecology - Progress Series* 478, 87-100.
- Meire, L., Soetaert, KER, Meysman, FJR, 2013. Impact of global change on coastal hypoxia. *Biogeosciences* 10, 2633-2653.
- de Kluijver, A.; Soetaert, K.; Czerny, J, Schulz, K.G., Boxhammer, T., Riebesell, U. and J. J. Middelburg, 2013. A C-13 labelling study on carbon fluxes in Arctic plankton communities under elevated CO2 levels. *BIOGEOSCIENCES* Volume: 10 Issue: 3 Pages: 1425-1440 DOI: 10.5194/bg-10-1425-2013
- Tecchio S, Van Oevelen D, Soetaert K, Navarro J, Ramirez-Llodra E (2013) Trophic dynamics of deep-sea megabenthos are mediated by surface productivity. *PLOS ONE* 8(5) e63796 DOI: 10.1371/journal.pone.0063796
- Pape E, Van Oevelen D, Moodley L, Soetaert K, Vanreusel A (2013) Nematode feeding strategies and the fate of dissolved organic matter carbon in different deep-sea sedimentary environments. *Deep-Sea Research I* 80: 94–110
- Pozzato L, Van Oevelen D, Moodley L, Soetaert K., Middelburg JJ, 2013. Sink or link? The bacterial role in benthic carbon cycling in the Arabian sea oxygen minimum zone. *Biogeosciences* 10, 6879-6891. www.biogeosciences.net/10/6879/2013/ doi:10.5194/bg-10-6879-2013
- Morris, E.P., Peralta, G., Van Engeland, T., Bouma, T.J., Brun, F.G., Lara, L., Hendriks, I.E., Benavente, J., Soetaert, K., Middelburg J.J., and J. L. Perez-Llorens. 2014. The role of hydrodynamics in structuring in situ ammonium uptake within a submerged macrophyte community. *Limnology & Oceanography Fluids and Environments* Vol. 3, p. 210–224. DOI 10.1215/21573689-2397024.
- Braeckman, U., Yazdani Foshtomi, M., Van Gansbeke, D., Meysman, F., Soetaert, K., Vincx, M., Vanaverbeke, J. 2014. Variable importance of macrofaunal functional biodiversity for biogeochemical cycling in temperate coastal sediments. *Ecosystems*, DOI: 10.1007/s10021-014-9755-7
- Christian Mohn, Anna Rengstorf, Martin White, Gerard Duineveld, Furu Mienis, Karline Soetaert, Anthony Grehan, 2014. Linking benthic hydrodynamics and cold-water coral occurrences: A high-resolution model study at three cold-water coral provinces in the NE Atlantic. *Progress in Oceanography* 122, 92–104.
- Alessia Moneta, Veuger B., van Rijswijk, P., Meysman, F, Soetaert, K and JJ. Middelburg, 2014. Dissolved inorganic and organic nitrogen uptake in the coastal North Sea: a seasonal study. *Estuarine and Coastal Shelf Science*, 147, 78-86.

- Maugendre, L.; Gattuso, J-P; Louis, J.; de Kluijver, A.; Marro, S.; Soetaert, K.; Gazeau, F., 2014. Effect of ocean warming and acidification on a plankton community in the NW Mediterranean Sea. *ICES Journal of Marine Science*; doi:10.1093/icesjms/fsu161.
- Braeckman U, Van Colen C, Guilini K, Van Gansbeke D, Soetaert K, Vincx M, Vanaverbeke J, 2014. Empirical evidence reveals seasonally dependent reduction in nitrification in coastal sediments subjected to near future ocean acidification. *PLoS ONE*, 9(10): e180153 doi:10.1371/journal.pone.0108153
- Mazzia, F., Cash, J.R. and K. Soetaert, 2014. : Solving boundary value problems in the open source software R: package *bvpSolve*. *Opuscula Mathematica* 34(2): 387-403 DOI information: <http://dx.doi.org/10.7494/OpMath.2014.34.2.3>
- Meire, L., D. H. Sogaard, J. Mortensen, F. J. R. Meysman, K. Soetaert, K. E. Arendt, T. Juul-Pedersen, M. E. Blicher, and S. Rysgaard, 2015. Glacial meltwater and primary production are drivers of strong CO₂ uptake in fjord and coastal waters adjacent to the Greenland Ice Sheet . *Biogeosciences*, 12, 2347-2363, doi:10.5194/bg-12-2347-2015.
- Cox, T., Maris T., Soetaert, K., J.C. Kromkamp, Meire, P. and F. Meysman. 2015. Estimating primary production from oxygen time series: a novel approach in the frequency domain. *Limnology Oceanography methods*. doi: 10.1002/lom3.10046
- Le Guitton, M.; Soetaert, K; Sinninghe Damsté, JS; Middelburg, JJ. 2015. Biogeochemical consequences of vertical and lateral transport of particulate organic matter in the southern North Sea: a multiproxy approach. *Estuarine and Coastal Shelf Sciences*, 165, 117-127.
- Braeckman, U.; Provoost, P.; Sabbe, K.; Soetaert, K.; Middelburg, J.J.; Vincx, M.; Vanaverbeke, J. 2015. Temporal dynamics in a shallow coastal benthic food web: Insights from fatty acid biomarkers and their stable isotopes. *Mar. Environ. Res.* 108: 55-68. hdl.handle.net/10.1016/j.marenvres.2015.04.010,
- De Smet, B, Braeckman, U.; Soetaert, K; Vincx, M; Vanaverbeke, J. 2016. Predator effects on the feeding and bioirrigation activity of ecosystem-engineered *Lanice conchilega* reefs, *Journal of Experimental Marine Biology and Ecology* 475, 31-37.
- Capet, A., Meysman, F.J.; Akoumianaki, I; Soetaert, K.; Grégoire, M, 2016. Integrating sediment biogeochemistry into 3D oceanic models: a study of benthic-pelagic coupling in the Black Sea. *Ocean Modelling* 101, 83-100.
- De Smet, B., van Oevelen, D., Vincx, M., Vanaverbeke, J. and K. Soetaert, 2016, *Lanice conchilega* structures carbon flows in soft-bottom intertidal areas. *Marine Ecology Progress Series* 552, 47-60.
- Ulses, C., Auger P-A, Soetaert K, Marsaleix, P, Diaz, F, Copploa, L, Herrmann, M, Kessouri, F, Estournel, C, 2016. Budget of organic carbon in the North-Western Mediterranean Open Sea over the period 2004-2008 using 3D coupled physical-biogeochemical modeling. *Journal of Geophysical Research – Oceans*. 08/2016; DOI:10.1002/2016JC011818.
- Mariela Yevenes, Karlina Soetaert and Chris M. Mannaerts, 2016. Tracing nitrate sources and modifications in a stream impacted by various land uses, South Portugal. *Water* 2016, 8, 385; doi:10.3390/w8090385.
- Soetaert, K., Mohn, C., Rengstorf, A, Grehan, A. and D. van Oevelen, 2016. Ecosystem engineering creates a direct nutritional link between 600-m deep cold-water coral mounds and surface productivity. *Sci. Rep.* 6, 35057; doi: 10.1038/srep35057
- Maugendre, L; Gattuso, J-P; De Kluijver, A.; Soetaert, K.; van Oevelen, D; Middelburg, JJ; Gazeau, F, 2017. Carbon-13 labelling studies show no effect of ocean acidification on carbon transfer in Mediterranean plankton communities, *Estuarine, Coastal and Shelf Sciences* 186, 100:111. doi:10.1016/j.ecss.2015.12.018
- Le Guitton, M, Soetaert, K., Sinninghe Damsté, J, Middelburg, J.2017. A seasonal study of particulate organic matter composition and quality along an offshore transect in the Southern North Sea. *Estuarine, Coastal and Shelf Sciences*, 188: 1-11.
- Johnna M. Holding, Carlos M. Duarte, Antonio Delgado-Huertas, Karlina Soetaert, Jorien Vonk, Susana Agustí , Paul Wassmann, Jack Middelburg, 2017. Autochthonous and allochthonous contributions of organic carbon to microbial food webs in Svalbard Fjords. *Limnol. Oceanogr.*, doi 10.1002/lno.10526.
- Geerts L., Cox T.J.S., Maris T., Wolfstein K., Meire P., Soetaert K, 2017. Substrate origin and morphology differentially determine oxygen dynamics in two major European estuaries, the Elbe and the Schelde. *Estuarine, Coastal and Shelf Sciences*, in press.
- Christian Schwarz, Tom Cox, Tom van Engeland, Dick van Oevelen, Johan van de Koppel, Karlina Soetaert, Tjeerd Bouma, Patrick Meire and Stijn Temmerman, 2017. Field estimates of settling velocities in a tidal creek: limiting assumptions and applications. *Estuarine and Coastal Shelf Sciences*. In press

Publications in books

- Heip, C., P.M.J. Herman & K. Soetaert, 1988. Data Processing, Evaluation and Analysis. In: H.Thiel & R. Higgins, eds. Introduction to the study of Meiofauna. pp 197-231.
- Soetaert, K., J. Middelburg, J. Wijsman, P. Herman and C. Heip, 2002. Ocean margin early diagenetic processes and models. In: G. Wefer, D. Billett, D. Hebbeln, B.B. Jørgensen, Tj. Van Weering (eds.) Ocean Margin Systems. Springer Verlag, Berlin. 157-177
- Rogers, A., Billett, D., Berger, W., Flach, E., Freiwald, A., Gage, J., Hebbeln D., Heip, C., Pfannkuche, O., Ramirez-Liodra, E., Medlin, L., Sibuet, M., Soetaert, K., Tendal, O., Vanreusel, A., Wlodarski-Kowalczyk, M., 2002. Life at the edge: achieving prediction from environmental variability and biological variety. In: G. Wefer, D. Billett, D. Hebbeln, B.B. Jørgensen, Tj. Van Weering (eds.) Ocean Margin Systems. Springer Verlag, Berlin. 387-404.
- Middelburg, J.J., K. Soetaert, P.M.J. Herman, H.T.S. Boschker, C. Heip, 2004. Burial of nutrients in coastal sediments: the role of primary producers. In: Nielsen, S., G. Banta, M. Pedersen (eds). Estuarine nutrient cycling: the influence of primary producers. Kluwer, the Netherlands. 217-230.
- Middelburg, J.J., K. Soetaert, 2005. The role of sediments in shelf ecosystem dynamics. Chapter 11, in: The Sea, Vol. 13, eds. Robinson and Brink, Harvard University Press, pp. 353-373.
- Heip, CHR, Herman, PMJ, Middelburg, JJ, Moodley, L, Soetaert, K, Ysebaert, T. 2005. The ecology of estuarine intertidal flats – the example of the Westerschelde. In: JamesG. Wilson, ed. The intertidal ecosystem: the value of Ireland’s shores, 159-175. Dublin, Royal Irish Academy.
- Vanaverbeke J., Franco M., van Oevelen D., Moodley L., Provoost P., Steyaert M., Soetaert K. and M. Vincx. 2008. Benthic responses to sedimentation of phytoplankton on the Belgian Continental Shelf. In: Current Status of Eutrophication in the Belgian Coastal Zone. Edited by Rousseau V., Lancelot C. and D. Cox, chapter 5. pp. 73-90.
- Niquil, N., Soetaert, K.E.R., Johnson, G.A., Oevelen, D. van, Bacher, C., Saint-Béat, B. & Vézina, A.F. (2011). Inverse modelling in modern ecology and application to coastal ecosystems. In Estuarine and Coastal Ecosystem Modelling (Treatise on Estuarine and Coastal Science). Oxford: Elsevier.

Software packages.

1. Karlina Soetaert, Thomas Petzoldt and R. Woodrow Setzer (2014). deSolve: General solvers for ordinary differential equations (ODE) and for differential algebraic equations (DAE). R package version 1.10. <http://cran.r-project.org/package=deSolve>. Role: *Author*
2. Karlina Soetaert, Jeff Cash and Francesca Mazzia (2013). bvpSolve: Solvers for boundary value problems of ordinary differential equations. R package version 1.2.4. <http://cran.r-project.org/package=bvpSolve>. Role: *Author, maintainer*.
3. Karlina Soetaert, Jeff Cash and Francesca Mazzia (2013). deTestSet: Testset for differential equations. R package version 1.1.1. <http://cran.r-project.org/package=deTestSet>. Role: *Author, maintainer*.
4. Karlina Soetaert (2013). rootSolve: Nonlinear root finding, equilibrium and steady-state analysis of ordinary differential equations. R package version 1.6. <http://cran.r-project.org/package=rootSolve>. Role: *Author, maintainer*.
5. Karlina Soetaert and Filip Meysman (2013). ReacTran: Reactive transport modelling in 1D, 2D and 3D. R package version 1.4.1. <http://cran.r-project.org/package=ReacTran>. Role: *Author, maintainer*.
6. Karlina Soetaert, Karel Van den Meersche and Dick van Oevelen (2013). limSolve: Solving linear inverse models. R package version 1.5.5. <http://cran.r-project.org/package=limSolve>. Role: *Author, maintainer*.
7. Karlina Soetaert and Dick van Oevelen (2013). LIM: Linear Inverse Model examples and solution methods.. R package version 1.4.5. <http://cran.r-project.org/package=LIM>. Role: *Author, maintainer*.
8. Karlina Soetaert and Julius K Kones (2014). NetIndices: a package of network indices. R package version 1.4.3. <http://cran.r-project.org/package=NetIndices>. Role: *Author, maintainer*.
9. Karlina Soetaert (2014). shape: Functions for plotting graphical shapes, colors. R package version 1.4.1. <http://cran.r-project.org/package=shape>. Role: *Author, maintainer*.
10. Karlina Soetaert (2014). diagram: Functions for visualising simple graphs (networks), plotting flow diagrams. R package version 1.6.2. <http://cran.r-project.org/package=diagram>, Role: *Author, maintainer*.
11. Karlina Soetaert and Peter MJ Herman (2014). ecolMod: "A practical guide to ecological modelling - using R as a simulation platform". The scripts to make the figures in the book. R package version 1.2.5 <http://cran.r-project.org/package=ecolMod>. Role: *Author, maintainer*.
12. Karel Van den Meersche and Karlina Soetaert (2013). BCE: Bayesian composition estimator: estimating sample (taxonomic) composition from biomarker data. R package version 1.4. <http://cran.r-project.org/package=BCE>. Role: *Author, maintainer*.
13. Karlina Soetaert, Thomas Petzoldt and Filip Meysman (2014). marelac: Tools for Aquatic Sciences. R package version 2.01.3. <http://CRAN.R-project.org/package=marelac>. Role: *Author, maintainer*.

14. Karline Soetaert and Thomas Petzoldt (2009). FME: A Flexible Modelling Environment for inverse modelling, sensitivity, identifiability, Monte Carlo analysis.. R package version 1.1. <http://cran.r-project.org/package=FME>. Role: *Author, maintainer*.
15. Andreas F. Hofmann, Karline Soetaert, Jack J. Middelburg and Filip J. R. Meysman, 2012. AquaEnv – an integrated development toolbox for aquatic chemical model generation. R-package version 1.0-3 <http://cran.r-project.org/package=AquaEnv>. Role: *Author, maintainer*.
16. Karline Soetaert (2013). diffEq, Functions from the book Solving Differential Equations in R <http://cran.r-project.org/package=diffEq>. Role: *Author, maintainer*.
17. Karline Soetaert (2014). Plot3D: plotting multidimensional data. R package version 1. 0. <http://cran.r-project.org/package=plot3D>. Role: *Author, maintainer*.
18. Karline Soetaert (2014). Plot3Drgl: plotting multidimensional data – using rgl. R package version 1. 0. <http://cran.r-project.org/package=plot3Drgl>. Role: *Author, maintainer*.
19. Karline Soetaert (2014). OceanView: Visualisation of Oceanographic Data and Model Output. R package version 1. 0. <http://cran.r-project.org/package=OceanView>. Role: *Author, maintainer*.

Invited events last 4 years

- Solving differential equations in R. Use R conference, Los Angeles, July 2014. Plenary talk
- Open-source software development. International conference on numerical analysis and applied mathematics, Rhodos, 22-26 September 2014. Plenary talk
- Regime shifts in tidal estuaries: biogeochemical implications, workshop Hamburg, 4-5 September 2014. Invited
- Modeling Benthic-Pelagic coupling. 8th European Conference on Ecological Modelling. Beyond boundaries: next generation modelling. October 27-30, 2014, Marrakech, MOROCCO. Plenary talk.
- SCOR workshop on benthic processes. Naples. September 2015. Invited.
- Workshop on multiparametric boundary value problems. Februari 2016. Bari, workshop, invited.
- Member of scientific commission of the North Sea Open Science Conference, Oostende, November 2016. (<http://www.northseaconference.be/en/>)
- useR conference Brussels, July 2017. Tutorial: Environmental modelling using R: from local to global applications. With Thomas Petzoldt, invited.

Ongoing projects

- PULS – effects of pulse fishing on biogeochemistry of the Northsea. EU-project, NIOZ.
- SANDBOX – Smart and sustainable design for offshore operations in a sandy seabed. NWO project, NIOZ.
- EMODnet biology. EU-project, NIOZ
- Face-It. Functional biodiversity in a Changing sedimentary Environment: Implications for biogeochemistry and food webs in a managerial setting. Belspo project Ghent University.
- PERSUADE. Experimental research towards sustainable management of artificial hard substrates in the North Sea. (Experimenteel onderzoek naar een toekomstig duurzaam gebruik van artificiele harde substraten in de Noordzee). Belspo project, Ghent University.
- The role of microbial biodiversity in the functioning of marine tidal flat sediments (BIO-Tide) Proposal BiodivERsA3-2015-124. Biodiversa project, Ghent University.

Statistics.

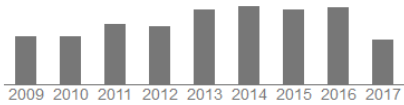
Scientific output in terms of papers

Based on Google scholar and ResearchGate (5-07-2017)

Google Scholar

karline soetaert

Citation indices	All	Since 2012
Citations	9500	4827
h-index	54	36
i10-index	152	131



RG Score [⊙]
42.23



- Breakdown:
- 99.91% Publications
 - 0.00% Questions
 - 0.00% Answers
 - 0.09% Followers

Percentile:
Your score is higher than 97.5% of ResearchGate members'.

h-index [⊙]
52

h-index
49
excluding self-citations

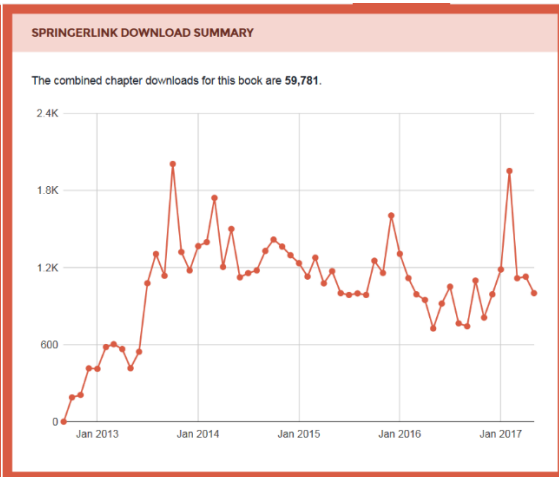
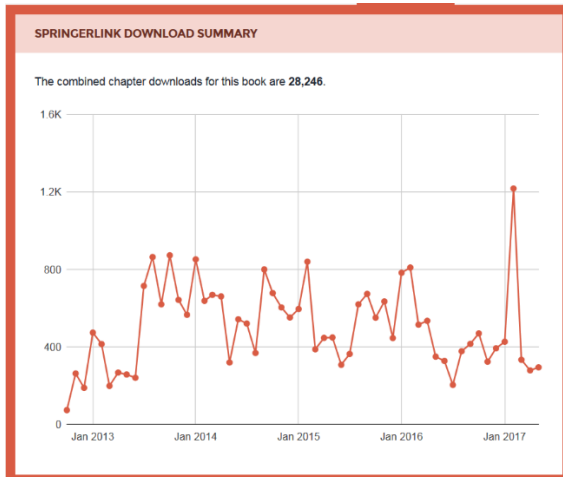
Top h cited research:
Solving Differential Equations in R: Package deSolve
Article · Feb 2010 · Journal of statistical software

Books – downloads per month

As from Springer website, 5-07-2017

Left: Soetaert and Herman, 2009. A practical guide to ecological modelling)

Right: Soetaert, Cash and Mazzia, 2012. Solving differential equations in R



R-packages - installations per day.

Summed number of installations since 2013 > 1 million.

