

**A. Peer-reviewed scientific articles**

- [1] Kettunen, J. Mehtätalo, L., Tuittila, E.-S., Korrensalo, A., and **Vanhatalo, J.** (in press) Joint Species Distribution Modeling of Percentage Cover Data with Exclusive Competition for Space. *Environmetrics*
- [2] Santangeli, A., Weigel, B., Antão, L., Kaarlejärvi, E., Hällfors, M., Lehikoinen, A., Lindén, A., Salemaa, M., Tonteri, T., Merilä, P., Vuorio, K., Ovaskainen, O, **Vanhatalo, J.**, Roslin, T., and Saastamoinen, M. (2023). Mixed effects of a national protected area network on terrestrial and freshwater biodiversity. *Nature Communications*, .
- [3] Thorogood, R., Mustonen, V., Aleixo, A., Aphalo, P. J., Asiegu, F. O., Cabeza, M., Cairns, J., Candolin, Y., Cardoso, P., Eronen, J. T., Hällfors, M., Hovatta, I., Juslén A., Kovalchuk, A., Kulmuni, J., Kuula, L., Mäkipää, R., Ovaskainen, O., Pesonen, A.-K., Primmer, G. R., Saastamoinen, M., Schulman, A. H., Schulman, L., Strona, G., and **Vanhatalo, J.** (2023). Understanding and applying biological resilience, from genes to ecosystems. *npj Biodiversity*, .
- [4] Numminen, E. S., Jokinen M., Lindén, A. and **Vanhatalo, J.** (2023). Species ecology can bias population estimates. *Biological Conservation*, 110115.
- [5] Mäkinen J., Numminen, E. S., Niittynen, P., Luoto, M. and **Vanhatalo, J.** (2022). Spatial confounding in Bayesian species distribution modeling. *Ecography*, e06183.
- [6] Antão, L. H., Weigel, B., Strona, G., Hällfors, M., Kaarlejärvi, E., Dallas, T., Opedal Ø. H., Heliölä, J., Henttonen, H., Huitu, O., Korpimäki, E., Kuussaari, M., Lehikoinen, A., Leinonen, R., Lindén, Merilä, P., Pietiäinen, H., Pöyry, J., Salemaa, M., Tonteri, T., Vuorio, K., Ovaskainen, O., Saastamoinen, M., **Vanhatalo, J.**, Roslin, T. and Laine, A.-L. (2022). Climate change reshuffles northern species within their niches. *Nature Climate Change*, 12:587–592.
- [7] Bergström, M., Browne, T., Ehlers, S., Helle, I., Herrnring, H., Khan, F., Kubiczek, J., Kujala, P., Körgesaar, M., Leira, B. J., Parviainen, T., Polojärvi, A., Suominen, M., Taylor, R., Tuhkuri, J., **Vanhatalo, J.** and Veitch, B. (2022). A Comprehensive approach to scenario-based risk management for Arctic Waters. *Ship Technology Research - Schiffstechnik*,
- [8] **Vanhatalo, J.**, Foster, S. D. and Hosack, G. R. (2021). Spatiotemporal Clustering using Gaussian Processes Embedded in a Mixture Model. *Environmetrics*, 32:e2681
- [9] Weigel, B., Mäkinen, J., Kallasvuo, M. and **Vanhatalo, J.** (2021). Exposing changing phenology of fish larvae by modeling climate effects on temporal early life-stage shifts. *Marine Ecology Progress Series*, 666:135–148
- [10] Foster, S. D., **Vanhatalo, J.**, Trenkel, V. M., Schulz, T., Lawrence, E., Przeslawski, R. and Hosack, G. R. (2021). Effects of Ignoring Survey Design Information for Data Reuse. *Ecological Applications*, 31(6):e02360
- [11] **Vanhatalo, J.**, Huuhtanen, J., Bergström, M., Helle, I., Mäkinen, J. and Kujala, P. (2021). Probability of a ship becoming beset in ice along the Northern Sea Route – a Bayesian analysis of real-life data. *Cold Regions Science and Technology*, 184:103238.
- [12] Perälä, T., **Vanhatalo, J.** and Chrysafi, A. (2020). Calibrating expert assessments using hierarchical Gaussian process models. *Bayesian Analysis*, 15(4):1251–1280.
- [13] **Vanhatalo, J.**, Hartmann, M. and Veneranta, L. (2020). Additive multivariate Gaussian processes for joint species distribution modeling with heterogeneous data. *Bayesian Analysis*, 15(2):415–447.
- [14] Helle, I., Mäkinen, J., Nevalainen, M., Afenyo, M. and **Vanhatalo, J.** (2020). Impacts of oil spills on Arctic marine ecosystems: A quantitative and probabilistic risk assessment perspective. *Environmental Science & Technology*, 54(4):2112–2121.
- [15] Schulz, T., **Vanhatalo, J.** and Saastamoinen, M. (2020). Long-term demographic surveys reveal a consistent relationship between average occupancy and abundance within local populations of a butterfly metapopulation. *Ecography*, 43: 306-317.
- [16] Liu, J. and **Vanhatalo, J.** (2020). Bayesian model based spatio-temporal sampling designs and partially observed log Gaussian Cox process. *Spatial Statistics*, 35:100392

- [17] LaMere, K., Mäntyniemi, **Vanhatalo, J.** and Haapasaari, P. (2020). Making the Most of Mental Models: Advancing the Methodology for Mental Model Elicitation and Documentation with Expert Stakeholders. *Environmental Modelling and Software*, 124:104589
- [18] Woolley, S., Foster, S., Bax, N., Currie, J., Dunn, D., Hansen, C. Hill, N., O'Hara, T., Ovaskainen, O., Sayre, R., **Vanhatalo, J.** and Dunstan, P. (2020). Bioregions in marine environments: Combining Biological and Environmental Data for Management and Scientific Understanding. *BioScience*, 70(1):48-59.
- [19] Itter, M., **Vanhatalo, J.** and Finley, A. (2019). EcoMem: An R package for quantifying ecological memory. *Environmental Modelling & Software*, 119: 305–308.
- [20] **Vanhatalo, J.**, Li, Z. and Sillanpää, M. (2019). A Gaussian process model and Bayesian variable selection for mapping function-valued quantitative traits with incomplete phenotype data. *Bioinformatics*, 35(19):3684–3692.
- [21] Nevalainen, M., **Vanhatalo, J.** and Helle, I. (2019). Index-based approach for estimating vulnerability of Arctic biota to oil spills. *Ecosphere*, 10(6):e02766
- [22] Norberg, A., Abrego, N., Blanchet, F. G., Adler, F. R., Anderson, B. J., Anttila, J., Araújo, M. B., Dallas, T., Dunson, D., Elith, J., Foster, S. D., Fox, R., Franklin, J., Godsoe, W., Guisan, A., O'Hara, B., Hill, N. A., Holt, R. D., Hui, F. K. C., Husby, M., Kålås, J. A., Lehtinen, A., Luoto, M., Mod, H. K., Newell, G., Renner, I., Roslin, T., Soinen, J., Thuiller, W., **Vanhatalo, J.**, Warton, D., White, M., Zimmermann, N. E., Gravel, D., and Ovaskainen, O. (2019). A comprehensive evaluation of predictive performance of 33 species distribution models at species and community levels. *Ecological Monographs*, 89(3):e01370
- [23] Hartmann, M. and **Vanhatalo, J.** (2019). Laplace approximation and natural gradient for Gaussian process regression with heteroscedastic Student-t model. *Statistics and Computing*, 29:753–773
- [24] Kotta, J., **Vanhatalo, J.**, Jänes, H., Orav-Kotta, H., Rugiu, L., Jormalainen, V., Bobsien, I., Viitasalo, M., Virtanen, E., Nyström Sandman, A., Isaeus, M., Leidenberger, S., Jonsson, P., and Johannesson, K. (2019). Integrating experimental and distribution data to predict future species patterns. *Scientific Reports*, 9(1): 1821.
- [25] Bakka, H., **Vanhatalo, J.**, Illian, J., Simpson, D. and Rue, H. (2019). Non-stationary Gaussian models with physical barriers. *Spatial Statistics*, 29: 268–288
- [26] Mäkinen J. and **Vanhatalo, J.** (2018). Hierarchical Bayesian model reveals the distributional shifts of Arctic marine mammals. *Diversity and Distributions*, 24:1381–1394.
- [27] Nevalainen, M., Helle, I. and **Vanhatalo, J.** (2018). Estimating the acute impacts of Arctic marine oil spills using expert elicitation. *Marine Pollution Bulletin* 131:782–792
- [28] Siivola, E., Vehtari, A., Conzalez, J., **Vanhatalo, J.**, and Andersen M. R. (2018). Correcting Boundary Over-Exploration Deficiencies In Bayesian Optimization With Virtual Derivative Sign Observations. *IEEE 28th International Workshop on Machine Learning for Signal Processing (MLSP)*.
- [29] Kotilainen, M., **Vanhatalo, J.**, Suominen, M., and Kujala, P. (2018). Predicting Local Ice Loads on Ship Bow as a Function of Ice and Operational Conditions in the Southern Sea. *Ship Technology Research – Schiffstechnik*, 65(2):87–101.
- [30] Hartmann, M., Hosack, G.R., Hillary, R.M. and **Vanhatalo, J.** (2017). Gaussian processes framework for temporal dependence and discrepancy functions in Ricker-type population growth models. *Annals of Applied Statistics*, 11(3):1375–1402.
- [31] **Vanhatalo, J.**, Hosack, G.R. and Sweatman, H. (2017). Spatio-temporal modelling of crown-of-thorns starfish outbreaks on the Great Barrier Reef to inform control strategies. *Journal of Applied Ecology*, 54:188–197.
- [32] Rahikainen, M., Hoviniemi, K-M., Mäntyniemi, S., **Vanhatalo, J.**, Helle, I., Lehtiniemi, M., Pönni, J. and Kuikka, S. (2017). Impacts of eutrophication and oil spills on the Gulf of Finland herring stock. *Canadian Journal of Fisheries and Aquatic Sciences*, 74:1218–1232
- [33] Kallasvuo, M., **Vanhatalo, J.** and Veneranta, L. (2017). Modeling the spatial distribution of larval fish abundance provides essential information for management. *Canadian Journal of Fisheries and Aquatic Sciences*, 74:636–649.
- [34] Kotilainen, M., **Vanhatalo, J.**, Suominen, M., and Kujala, P. (2017). Predicting ice-induced load amplitudes on ship bow conditional on ice thickness and ship speed in the Baltic Sea. *Cold Regions Science and Technology*, 135:116–126.

- [35] Nevalainen, M., Helle, I. and **Vanhatalo, J.** (2017). Preparing for the unprecedented – towards quantitative oil risk assessment in the Arctic marine areas. *Marine Pollution Bulletin*, 114(1):90–101.
- [36] Mäkinen, J. and **Vanhatalo, J.** (2016). Hydrographic responses to regional covariates across the Kara Sea. *Journal of Geophysical Research – Oceans*, 121:8872–8887.
- [37] Veneranta, L., **Vanhatalo, J.** and Urho, L. (2016). Detailed temperature mapping - warming characterizes archipelago zones. *Estuarine, Coastal & Shelf science*, 182:123–135.
- [38] Kotilainen, M., **Vanhatalo, J.**, Suominen, S., and Kujala, P. (2016). Predicting ice loads as a function of ship speed and ice conditions based on ice load measurements taken on S.A. Agulhas II sailing in the Southern Sea. *International Conference on Ships and Offshore Structures (ICSOS) 2016*, Hamburg, Germany
- [39] **Vanhatalo, J.**, Hobday, J. A., Little, L. R. and Spillman, C. M. (2016). Downscaling and extrapolating dynamic seasonal marine forecasts for coastal ocean users. *Ocean Modelling*, 100:20–30.
- [40] Mølgaard, B., **Vanhatalo, J.**, Aalto, P., Prisle, N.L. and Hämeri, K. (2016). Notably improved inversion of differential mobility particle sizer data obtained under conditions of fluctuating particle number concentrations. *Atmospheric Measurement Techniques*, 9:741–751.
- [41] Mäntyniemi, S., Whitlock, R., Perälä, T., Blomstedt, P., **Vanhatalo, J.**, Rincon, M. M., Kuparinen, A., Pulkkinen, H., and Kuikka, S. (2015). General State-space Population Dynamics Model for Bayesian Stock Assessment *ICES Journal of Marine Sciences*, 72(8):2209–2222.
- [42] **Vanhatalo, J.**, Vetemaa, M., Herrero, A., Aho, T. and Tiilikainen, R. (2014). By-Catch of Grey Seals (*Halichoerus grypus*) in Baltic Fisheries - Bayesian Analysis of Interview Survey. *PLoS ONE*, 9(11):e113836.
- [43] Kuikka S., **Vanhatalo, J.**, Pulkkinen H., Mäntyniemi S. and Corander J. (2014). Experiences in Bayesian Inference in Baltic Salmon management. *Statistical Science*, 29(1):42–49.
- [44] Rahikainen, M., Helle, I., Haapasaari, P., Oinonen, S., Kuikka, S., **Vanhatalo, J.**, Mäntyniemi, S., Hoviniemi, K-M. (2014). Toward Integrative Management Advice of Water Quality, Oil Spills, and Fishery in the Gulf of Finland: A Bayesian Approach. *Ambio*, 43:115–123.
- [45] Ehlers, S., Kujala, P., Veitch, B., Khan, F., and **Vanhatalo, J.** (2014). Scenario based risk management for Arctic shipping and operations. In *ASME 2014 33rd International Conference on Ocean, Offshore and Arctic Engineering: Polar and Arctic Science and Technology*, 10(33).
- [46] **Vanhatalo, J.**, Riihimäki J., Hartikainen J., Jylänki, P., Tolvanen, V. and Vehtari A. (2013). GPstuff: Bayesian Modeling with Gaussian Processes. *Journal of Machine Learning Research*, 14:1175–1179.
- [47] Veneranta, L., Hudd, R. and **Vanhatalo, J.** (2013). Reproduction areas of sea-spawning Coregonids reflect the environment in shallow coastal waters. *Marine Ecology Progress Series*, 477:231–250.
- [48] **Vanhatalo, J.**, Tuomi, L., Inkala, A., Helle, I. and Pitkänen, H. (2013). Probabilistic Ecosystem Model for Predicting the Nutrient Concentrations in the Gulf of Finland under Diverse Management Actions. *Environmental Science & Technology*, 47(1):334–341.
- [49] Ahtiainen H. and **Vanhatalo, J.** (2012). The Value of Reducing Eutrophication in European Marine Areas - A Bayesian Meta Analysis. *Ecological Economics*, 83:1–10.
- [50] **Vanhatalo, J.**, Veneranta L. and Hudd R. (2012). Species Distribution Modelling with Gaussian Processes: a Case Study with the Youngest Stages of Sea Spawning Whitefish (*Coregonus lavaretus L. s.l.*) Larvae. *Ecological Modelling*, 228:49–58.
- [51] Juntunen T., **Vanhatalo, J.**, Peltonen H. and Mäntyniemi S. (2012). Bayesian Spatial Multispecies Modeling to Assess Pelagic Fish Stocks from Acoustic and Trawl Survey Data. *ICES Journal of Marine Science*, 69:95–104
- [52] Jylänki P., **Vanhatalo, J.** and Vehtari A. (2011). Robust Gaussian Process Regression with a Student-*t* Likelihood. *Journal of Machine Learning Research*, 12:3227–3257
- [53] **Vanhatalo, J.**, Mäkelä P. and Vehtari A. (2010). Alkoholikuolleisuuden alueelliset erot Suomessa 2000-luvun alussa *Yhteiskuntapolitiikka* 75(3):265-273.
- [54] **Vanhatalo, J.**, Pietiläinen V. and Vehtari A. (2010). Approximate Inference for Disease Mapping With Sparse Gaussian Processes. *Statistics in Medicine*, 29(15):1580–1607.

- [55] **Vanhatalo, J.** and Vehtari A. (2010). Speeding up the binary Gaussian process classification. In P. Grünwald and P. Spirtes (Editors) *Proceedings of the 26th Conference on Uncertainty in Artificial Intelligence*, pp. 623–631, AUAI Press.
- [56] **Vanhatalo, J.**, Jylänki P. and Vehtari A. (2009) Gaussian process regression with Student-*t* likelihood. In Y. Bengio et al. (Editors) *Advances in Neural Information Processing Systems 22*, pp. 1910–1918, NIPS foundation.
- [57] **Vanhatalo, J.** and Vehtari A. (2008). Modelling local and global phenomena with sparse Gaussian processes. In D. McAllester and P. Myllymäki (Editors) *Proceedings of the 24th Conference on Uncertainty in Artificial Intelligence*, pp. 571–578, AUAI Press.
- [58] **Vanhatalo, J.** and Vehtari A. (2007). Sparse Log Gaussian Processes via MCMC for Spatial Epidemiology. *Journal of Machine Learning Research: Workshop and Conference Proceedings 1*:73–89.

#### **B. Non-refereed scientific articles**

- [59] Bergström, M., Browne, T., Ehlers, S., Helle, I., Herrnring, H., Khan, F., Kubiczek, J., Kujala, P., Körgesaar, M., Leira, B. J., Parviainen, T., Polojärvi, A., Suominen, M., Taylor, R., Tuhkuri, J., **Vanhatalo, J.** and Veitch, B. (2022). Scenario-Based Risk Management for Arctic Waters. *Proceedings of the ASME 2022 41st International Conference on Ocean, Offshore and Arctic Engineering*. Volume 6: Polar and Arctic Sciences and Technology. Hamburg, Germany. June 5–10, 2022. V006T07A004. ASME.
- [60] Kujala, P., Veitch, B., Ehlers, S., Leira, B., Khan, F. and **Vanhatalo, J.** (2015). Education of maritime doctoral students as part of international university network. *Education & Professional Development of Engineers in the Maritime Industry*, The Royal Institution of Naval Architects.
- [61] Helle, I., **Vanhatalo, J.**, Rahikainen, M., Mäntyniemi, S. and Kuikka, S. (2012). Integrated Bayesian risk analysis of ecosystem management in the Gulf of Finland, the Baltic Sea - How to do it?. *ICES Annual Science Conference 2012*, I:04
- [62] **Vanhatalo, J.**, Juntunen, T., Peltonen, H. and Mäntyniemi, S. (2011). Assessing pelagic fish stocks from acoustic and trawl survey data in the Baltic Sea. *ICES Annual Science Conference 2011*, M:05
- [63] **Vanhatalo, J.**, Veneranta, L. and Hudd, R. (2011). Additive Gaussian process model to predict the spatial presence of the youngest stages of sea spawning whitefish (*Coregonus lavaretus L. s.l.*) larvae, *ICES Annual Science Conference 2011*, G:02
- [64] Vehtari A. and **Vanhatalo, J.** (2011). Discussion to 'Riemann manifold Langevin and Hamiltonian Monte Carlo methods' by Mark Girolami and Ben Calderhead *Journal of the Royal Statistical Society, Series B (Statistical Methodology)*, 73(2):201.
- [65] **Vanhatalo, J.** and Vehtari A. (2009). Discussion to 'Approximate Bayesian inference for latent Gaussian models by using integrated nested Laplace approximations' by Hävard Rue, Sara Martino and Nicolas Chopin. *Journal of the Royal Statistical Society, Series B (Statistical Methodology)*, 71(2):383-384.

#### **D. Publications intended for professional communities**

- [66] Eliassen, K., Jackson, D., Koed, A., Revie, C., Swanson, H. A., Turnbull, J., Vanhatalo, J. and Visser, A. (2021). An evaluation of the Scientific Basis of the Traffic Light System for Norwegian Salmonid Aquaculture. The Research Council of Norway.
- [67] Revie, C., Eliassen, K., Jackson, D., Koed, A., Swanson, H. A., Turnbull, J., Vanhatalo, J. and Visser, A. (2021). Interim Note by the Committee tasked with An Evaluation of the Scientific Basis of the Traffic Light System for Norwegian Salmonid Aquaculture. The Research Council of Norway.
- [68] Kenchington, E., Callery, O., Davidson, F., Grehan, A., Morato, T., Appiott, J., Davis A., Dunstan P., Du Preez, C., Finney, J., González-Irusta, J.M., Howell, K., Knudby, A., Lacharité, M., Lee, J., Murillo, F. J., Beazley, L., Roberts, J.M., Roberts, M., Rooper, C., Rowden, A., Rubidge, E., Stanley, R., Stirling, D., Tanaka, K.R., **Vanhatalo, J.**, Weigel, B., Woolley, S. and Yesson C. (2019). Use of species distribution modeling in the deep sea. Canadian technical report of fisheries and aquatic sciences no. 3296

- [69] Lignell, R., Miettunen, E., Tuomi, L., Ropponen, J., Kuosa, H., Attila, J., Puttonen, I., Lukkari, K., Peltonen, H., Lehtoranta, J., Huttunen, M., Korppoo, M., Tikka, K., Mäyrä, J., Heiskanen, A.-S., Gustafsson, B., Gustafsson, E., Hänninen, J., Thingstad, F., Kaurila, K., Vanhatalo, J., Westerlund, A., Siiriä, A.-M. (2018). Rannikon (Suomenlahti, Saaristomeri, Selkämeri) kokonaiskuormitusmalli: ravinnepäästöjen vaikutus veden tilaan – Kehityshankkeen loppuraportti (XI 2015–VI2018). Suomen ympäristökeskus, 31.7.2018, Helsinki, Finland, 84 pp.
- [70] ICES (2016). Interim Report of the Working Group on Risks of Maritime Activities in the Baltic Sea (WGMABS), 14-16 April 2015, Helsinki, Finland. ICES CM 2015/SSGEPI:11. 32 pp.
- [71] Blomstedt, P., **Vanhatalo, J.**, Ulmestrand, M., Gårdmark, A. and Mäntyniemi, S. (2015). A Bayesian length-based population dynamics model for northern shrimp (*Pandalus borealis*). *arXiv:1509.08774*
- [72] Veneranta L, Hudd R. and **Vanhatalo, J.** (2013). Siiat tarvitsevat puhtaita matalikkoja. Suomen Kalastuslehti 4/2013:8-10.
- [73] Veneranta L, Hudd R. and **Vanhatalo, J.** (2013). Merikituksen siian ja muikun poikastuotantoalueet. RKTL:n työraportteja 8/2013, Riista- ja kalatalouden tutkimuslaitos.
- [74] Hudd R., Veneranta L and **Vanhatalo, J.** (2013). Havslekande sikens och siklångens yngelproduktionsområden. Vilt- och fiskeriforskningsinstitutets arbetsrapporter 7/2013, Vilt- och fiskeriforskningsinstitutet.
- [75] **Vanhatalo, J.**, Riihimäki, J., Hartikainen, J., Jylänki, P., Tolvanen, V. and Vehtari, A. (2012). Bayesian Modeling with Gaussian Processes using the MATLAB Toolbox GPstuff (v3.3). *arXiv:1206.5754*.
- [76] **Vanhatalo, J.**, Mäkelä P. and Vehtari A. (2010). Regional differences in alcohol mortality in Finland in the early 2000s. Report A20, Aalto University, Department of Biomedical Engineering and Computational Science.

#### **E. Publications intended for the general public, linked to the authors's research**

- [77] **Vanhatalo, J.** (2023). As Industrial Activity and Shipping Traffic Grow, We Need Firm Regulations to Protect Arctic Waters. The Circle, 2.2023.
- [78] **Vanhatalo, J.** (2020). Perusasioiden ulkoaopettelu on välttämätöntä luovuudelle. Mielipidepalsta, Helsingin sanomat, 26.11.2020.
- [79] Laine, A-L. and **Vanhatalo, J.** (2020). Monimuotoisuus suojaa ihmistä myös viruksilta. Vieraskynä, Helsingin sanomat, 9.5.2020.
- [80] Hardwick, B., Antão L., Forsblom V., Hyttinen P., Hällfors M., Itter M., Kaarlejärvi E., Laine, A-L., Opedal Ø., Ovaskainen O., Saastamoinen M., **Vanhatalo, J.**, Weigel B., Roslin T. (2019). Monimuotoisuutta tutkimassa. A series of 10 short educational videos on biodiversity and environmental change for Finnish schools. Funding from the Nessling Foundation. <https://bit.ly/2kWgei3>
- [81] Ahola, M., Jounela, P., Kauhala, K. and **Vanhatalo, J.** (2014). Vain ongelmayksilöihin kohdistuva hylkeenmetsästys vähentää kalavahinkoja Mielipidepalsta, Turun sanomat, 20.12.2014.
- [82] **Vanhatalo, J.**, Helle, I. and Mäntyniemi S. (2012). Itämeren suojelussa tarvitaan numeroita. Mielipidepalsta, Helsingin sanomat, 9.2.2012.

#### **G. Theses**

- [83] **Vanhatalo, J.** (2010). *Speeding up the inference in Gaussian process models*. Dissertation for the degree of Doctor of Science in Technology, Aalto University, Department of Biomedical engineering and Computational Science.
- [84] **Vanhatalo, J.** (2006). *Sparse Log Gaussian Process in Spatial Epidemiology*. MSc. thesis, Helsinki University of Technology, Laboratory of Computational Engineering.

#### **I. Software**

- [85] **Vanhatalo, J.**, Scott Foster and Geoffrey R. Hosack (2021). SpatClustMixtures: Spatiotemporal Clustering using Gaussian Processes Embedded in a Mixture Model. <https://github.com/jpvanhat/SpatClustMixtures>

- [86] **Vanhatalo, J.** and Li., Z. and Sillanpää, M. (2019). GPQTLmapping: A Gaussian process model and Bayesian variable selection for mapping function-valued quantitative traits with incomplete phenotype data. <https://github.com/jpvanhat/GPQTLmapping>
- [87] Itter, M., **Vanhatalo, J.** and Finley, A. (2019). EcoMem: An R package for quantifying ecological memory. <https://github.com/msitter/EcoMem>
- [88] **Vanhatalo, J.**, Riihimäki, J., Hartikainen, J., Jylänki, P., Tolvanen, V. and Vehtari, A. (2012). MATLAB Toolbox GPstuff for Bayesian modelling with Gaussian processes (free software). <http://becs.aalto.fi/en/research/bayes/gpstuff/>.
- [89] **Vanhatalo, J.**, and Vehtari A. (2006). MATLAB Toolbox MCMCstuff for Bayesian modelling with MLP neural networks and Gaussian processes (free software). <http://becs.aalto.fi/en/research/bayes/mcmcstuff/>.

### **Preprints**

- [90] Itter, M., Kaarlejärvi, E., Laine, A.-L., Hamberg, L., Tonteri, T., and **Vanhatalo, J.** (2023) Bayesian joint species distribution model selection for community-level prediction bioRxiv, <https://doi.org/10.1101/2022.05.03.490480>
- [91] Kaurila, K. Kuningas, S., Lappalainen, A., and **Vanhatalo, J.** (2022) Species Distribution Modeling with Expert Elicitation and Bayesian Calibration arXiv, doi: <https://doi.org/10.48550/arXiv.2206.08817>
- [92] Schulz, T. Saastamoinen, M. and **Vanhatalo, J.** (2021) Doors and corners of variance partitioning in statistical ecology bioRxiv, doi: 10.1101/2021.10.17.464682