

Záznamy vložené do ASEP za UI (1. 1 – 31. 1. 2025)

New ICS records in ASEP (1. 1. – 31. 1. 2025)

0603655 - ÚI 2025 NL eng J - Journal Article

Šumec, R. - Filip, P. - Vyhňálek, M. - [Katina, Stanislav](#) - Dorjee, D. - Hort, J. - Sheardová, K.
Present Mind in the Ageing Brain: Neural Associations of Dispositional Mindfulness in Cognitive Decline.

Mindfulness. Roč. 16, January 2025 (2025), s. 76-90. ISSN 1868-8527. E-ISSN 1868-8535

Institutional support: RVO:67985807

Keywords : Mindfulness * Default mode network * Cognition * Subjective cognitive decline * Mild cognitive impairment

Impact factor: 3.1, year: 2023 ; **AIS:** 1.055, rok: 2023

DOI: <https://doi.org/10.1007/s12671-024-02500-9>

Objective Patients at risk of dementia, such as those with subjective cognitive decline (SCD) and mild cognitive impairment (MCI), present with specific clinical symptoms, as well as functional and structural changes within the brain. Dispositional mindfulness (DM) has been linked to better cognition and is associated with activation and grey matter volume changes in specific brain regions in healthy adults. This study aimed to investigate how DM changes along the trajectory of cognitive decline in patients at risk for AD and to identify the brain structures that may be responsible for these changes in DM. Method In total, 79 older adults (SCD = 48, MCI = 31) underwent cognitive testing and brain MRI volumetry, resting-state functional MRI derived connectivity, and diffusion-weighted imaging. DM was assessed with the Breath Counting Task (BCT). Results Participants with MCI showed worse mean counting accuracy in the BCT compared to those with SCD (adjusted $p < 0.001$). Higher functional connectivity of the ventromedial prefrontal cortex predicted greater counting accuracy in MCI, but not in SCD. The difference between MCI and SCD in regression slope was also statistically significant for ventromedial prefrontal cortex functional connectivity (adjusted $p = 0.002$). No other statistically significant associations were found between DM, MRI indices, and neuropsychological variables in either group. Conclusion MCI and SCD were associated with distinctly different levels of DM, possibly due to more severe cognitive decline in MCI. Functional changes in ventromedial prefrontal cortex in MCI could play a key role in the worsening of DM in this population. Preregistration This study is not preregistered.

Permanent Link: <https://hdl.handle.net/11104/0360974>

0604019 - ÚI 2025 RIV CZ eng J - Journal Article

Purkrábková, Z. - Langr, M. - Hruběš, P. - [Brabec, Marek](#)

Data Governance in Traffic Data: Anomaly Detection with Generalized Additive Models.

Neural Network World. Roč. 34, č. 4 (2024), s. 203-218. ISSN 1210-0552

Institutional support: RVO:67985807

Keywords : traffic anomalies * data quality * data application * generalized additive model * data governance

OECD category: Statistics and probability

Impact factor: 0.7, year: 2023 ; **AIS:** 0.164, rok: 2023

Method of publishing: Open access

Result website: <https://doi.org/10.14311/NNW.2024.34.011>

DOI: <https://doi.org/10.14311/NNW.2024.34.011>

The primary objective of the presented research is to enhance an existing data quality control application by integrating advanced anomaly detection mechanisms based on generalized additive models. This approach targets time-series traffic data, where traditional methods may fall short in identifying complex, non-linear patterns of anomalies. In collaboration with Simplify s.r.o., we are extending their current data quality assessment tool to incorporate generalized additive models, providing a more robust and dynamic solution for monitoring and ensuring the reliability of traffic datasets. The integration of these models aims to improve the accuracy of anomaly detection, leading to more effective data management in transport systems and contributing to higher standards of data quality in the field of traffic informatics.

Permanent Link: <https://hdl.handle.net/11104/0361336>

0603585 - ÚI 2026 US eng J - Journal Article

Braunfeld, Samuel Walker

Decidability in geometric grid classes of permutations.

Proceedings of the American Mathematical Society. Online 12 December 2024 (2024). ISSN 0002-9939. E-ISSN 1088-6826

Institutional support: RVO:67985807

Impact factor: 0.8, year: 2023 ; **AIS:** 0.719, rok: 2023

Method of publishing: Limited access

Result website:

<https://doi.org/10.1090/proc/17083>

DOI: <https://doi.org/10.1090/proc/17083>

We prove that the basis and the generating function of a geometric grid class of permutations $\text{Geom}(M)$ are computable from the matrix M , as well as some variations on this result. Our main tool is monadic second-order logic on permutations and words.

Permanent Link: <https://hdl.handle.net/11104/0360926>

0603919 - ÚI 2026 eng J - Journal Article

Böhm, A. - Segev, A. - Jajcay, Nikola - Krychtiuk, K. A. - Tavazzi, G. - Spartalis, M. - Kollárová, M. - Berta, I. - Janková, J. - Guerra, F. - Pogran, E. - Remak, A. - Jarakovic, M. - Jerigova, V. S. - Petříková, K. - Matetzky, S. - Skurk, C. - Huber, K. - Bezák, B.

Machine-learning based scoring system to predict cardiogenic shock in acute coronary syndrome.

European Heart Journal - Digital Health. 06 January 2025 (2025). ISSN 2634-3916. E-ISSN 2634-3916

Institutional support: RVO:67985807

Keywords : acute coronary syndrome * cardiogenic shock machine learning * risk prediction score

Impact factor: 4, year: 2023

Method of publishing: Open access

Result website:

<https://doi.org/10.1093/ehjdh/ztaf002>

DOI: <https://doi.org/10.1093/ehjdh/ztaf002>

Cardiogenic shock (CS) is a severe complication of acute coronary syndrome (ACS) with mortality rates approaching 50%. The ability to identify high-risk patients prior to the development of CS may allow for pre-emptive measures to prevent the development of CS. The objective was to derive and externally validate a simple, machine learning (ML) based scoring system using variables readily available at first medical contact to predict the risk of developing CS during hospitalisation in patients with ACS. Observational multicentre study on ACS patients hospitalized at intensive care units.

Derivation cohort included over 40,000 patients from Beth Israel Deaconess Medical Center, Boston, USA. Validation cohort included 5,123 patients from the Sheba Medical Center, Ramat Gan, Israel. The final derivation cohort consisted of 3,228 and the final validation cohort of 4,904 ACS patients without CS at hospital admission. Development of CS was adjudicated manually based on the patients' reports. From 9 ML models based on 13 variables (heart rate, respiratory rate, oxygen saturation, blood glucose level, systolic blood pressure, age, sex, shock index, heart rhythm, type of acute coronary syndrome, history of hypertension, congestive heart failure and hypercholesterolemia), logistic regression with elastic net regularization had the highest externally validated predictive performance (c-statistics: 0.844, 95% CI, 0.841–0.847). STOP SHOCK score is a simple ML based tool available at first medical contact showing high performance for prediction of developing CS during hospitalization in ACS patients. The web application is available at <https://stopshock.org/#calculator>.

Permanent Link: <https://hdl.handle.net/11104/0361216>

0603653 - ÚI 2025 RIV DE eng J - Journal Article

[Wannenburg, Johann Joubert](#) - [Raftery, J.G.](#)

Semilinear De Morgan monoids and epimorphisms.

Algebra Universalis. Roč. 85, č. 1 (2024), č. článku 10. ISSN 0002-5240. E-ISSN 1420-8911

R&D Projects: GA MŠMT(CZ) EF18_053/0017594

Institutional support: RVO:67985807

Keywords : Epimorphism * Semilinear * Residuated lattice * De Morgan monoid * Dunn monoid * Substructural logic * Relevance logic * Beth definability

Impact factor: 0.6, year: 2023 ; **AIS:** 0.378, rok: 2023

Method of publishing: Open access

Result website:

<https://doi.org/10.1007/s00012-023-00837-1>

DOI: <https://doi.org/10.1007/s00012-023-00837-1>

A representation theorem is proved for De Morgan monoids that are (i) semilinear, i.e., subdirect products of totally ordered algebras, and (ii) negatively generated, i.e., generated by lower bounds of the neutral element. Using this theorem, we prove that the De Morgan monoids satisfying (i) and (ii) form a variety-in fact, a locally finite variety. We then prove that epimorphisms are surjective in every variety of negatively generated semilinear De Morgan monoids. In the process, epimorphism-surjectivity is established for several other classes as well, including the variety of all semilinear idempotent commutative residuated lattices and all varieties of negatively generated semilinear Dunn monoids. The results settle natural questions about Beth-style definability for a range of substructural logics.

Permanent Link: <https://hdl.handle.net/11104/0360973>

0603480 - ÚI 2026 GB eng J - Journal Article

[Hartman, David](#) - [Hons, T.](#) - [Nešetřil, J.](#)

Structural convergence and algebraic roots.

Combinatorics Probability & Computing. Online 23 December 2024 (2024). ISSN 0963-5483. E-ISSN 1469-2163

Institutional support: RVO:67985807

Keywords : Structural convergence * graph limits * rooting vertices * algebraic sets

Impact factor: 0.9, year: 2023 ; **AIS:** 0.995, rok: 2023

Method of publishing: Limited access

Result website:

<https://doi.org/10.1017/S0963548324000427>

DOI: <https://doi.org/10.1017/S0963548324000427>

Structural convergence is a framework for the convergence of graphs by Nešetřil and Ossona de

Mendez that unifies the dense (left) graph convergence and Benjamini-Schramm convergence. They posed a problem asking whether for a given sequence of graphs (G_n) converging to a limit L and a vertex r of L , it is possible to find a sequence of vertices (r_n), such that L rooted at r is the limit of the graphs G_n rooted at r_n . A counterexample was found by Christofides and Král', but they showed that the statement holds for almost all vertices r of L . We offer another perspective on the original problem by considering the size of definable sets to which the root r belongs. We prove that if r is an algebraic vertex (i.e. belongs to a finite definable set), the sequence of roots (r_n) always exists.

Permanent Link: <https://hdl.handle.net/11104/0360799>

0603493 - ÚI 2025 DE eng J - Journal Article

Mišík, L. - Porubský, Štefan

A generalisation of q -additive functions (ACCEPTED).

Mathematica Slovaca. Accepted December 2024 (2024). ISSN 0139-9918. E-ISSN 1337-2211

Impact factor: 0.9, year: 2023 ; **AI5:** 0.288, rok: 2023

A new concept of the K -additive arithmetical function is introduced, generalizing the notion of the q -additive function. Their properties and impact on the uniform distribution of sequences of the weighted sum-of-digits function of elements of sequences generated by K -additive arithmetical functions are studied

Permanent Link: <https://hdl.handle.net/11104/0360817>

0603600 - ÚI 2025 RIV EE eng C - Conference Paper (international conference)

Patíño, W. - Vlček, O. - Bauerová, P. - Belda, M. - Bureš, Martin - Eben, Kryštof - Fuka, V. - Geletič, Jan - Jareš, R. - Karel, J. - Keder, J. - Krč, Pavel - Radović, J. - Řezníček, Hynek - Šindelářová, A. - Resler, Jaroslav

Comparison of different dispersion modelling approaches in the surroundings of Legerova street canyon in the city of Prague.

HARMO 22 Proceedings and presentations. Tartu: Institute of Physics, University of Tartu, 2024, č. článku H22-098..

[HARMO 24: International conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes /22./, Pärnu (EE), 10.06.2024-13.06.2024]

Institutional support: RVO:67985807

Keywords : urban pollution * dispersion modelling * particulate matter * wintertime inversion * low-cost sensors

Result website:

https://www.harmo.org/Conferences/Proceedings/P%C3%A4rnu/publishedSections/H22-098_William_Patino_T3.pdf

The dispersion of particulate matter (PM₁₀) was studied in the vicinity of one of the main boulevards connecting the north and south of Prague, Czech Republic. A wintertime episode characterized by a strong temperature inversion was selected to perform the intercomparison of three models with varying degree of complexity: the Gaussian dispersion model ATEM, the Graz Lagrangian model (GRAL), and the Large-eddy simulation model PALM. Results highlight the importance of implementing a thorough validation of the models including a temporal and spatial analysis of the outputs. While statistical metrics indicated that ATEM could reasonably predict measurements in the domain, further examination led to conclude that relevant information on the dispersion of pollutants along street canyons was overlooked. GRAL, on the other hand, provided a better representation of circulation patterns in built-up areas, but generally overpredicted concentrations. Although PALM offered the most accurate results, high-resolution input data and high computational costs may limit the practical application of the model. © 2024 22nd International Conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes, HARMO 2024. All rights reserved.

Permanent Link: <https://hdl.handle.net/11104/0360947>

0603599 - ÚI 2025 RIV EE eng C - Conference Paper (international conference)

Pikousová, T. - Eben, Kryštof - Vlček, O. - Resler, Jaroslav - Patiño, W.

Retrieval of air quality annual statistics from a limited number of profiles.

HARMO 22 Proceedings and presentations. Tartu: Institute of Physics, University of Tartu, 2024, č. článku H22-099..

[HARMO 24: International conference on Harmonisation within Atmospheric Dispersion Modelling for Regulatory Purposes /22./, Pärnu (EE), 10.06.2024-13.06.2024]

R&D Projects: GA TA ČR(CZ) TO01000219; GA TA ČR(CZ) SS02030031

Institutional support: RVO:67985807

Keywords : air quality * annual statistics * urban environment * k-medoids * clustering

Result website:

https://www.harmo.org/Conferences/Proceedings/_P%C3%A4rnu/publishedSections/H22-099_Tereza_Pikousova_T3.pdf

Annual air quality statistics in an urban environment are usually computed from data collected from a sparsely distributed network of monitoring stations. Complex numeric models may provide air quality simulations at the street level, these simulations, however, are not computationally feasible for large time periods like a year. We propose a method for identification of a limited number of 'typical' days, which, if simulated in microscale, guarantee a reasonable coverage of different scenarios during the year. Annual statistics then can then be estimated on street level from simulated fields. The identification method is based on k-medoids clustering. We also develop a means for validating the approach so as to add confidence in estimates derived in this manner.

Permanent Link: <https://hdl.handle.net/11104/0360938>

0604666 - ÚI 2025 RIV CZ cze K - Conference Paper (Czech conference)

Pikousová, T. - Eben, Kryštof - Vlček, O. - Resler, Jaroslav - Patiño, W. - Krč, Pavel - Belda, M. - Bureš, Martin - Fuka, V. - Geletič, Jan - Jareš, R. - Karel, J. - Radovič, J. - Řezníček, Hynek - Montero, P. C.

Metody odhadu imisních statistik z omezeného počtu mikroměřítkových simulací.

Ochrana ovzduší ve státní správě XVII. Sborník konference. Chrudim: Ekomonitor, 2024, s. 90-94. ISBN 978-80-88238-34-8.

[Ochrana ovzduší ve státní správě XVII, teorie a praxe. Kurdějov (CZ), 24.10.2024-25.10.2024]

R&D Projects: GA TA ČR(CZ) TO01000219; GA TA ČR(CZ) SS02030031

Institutional support: RVO:67985807

OECD category: 1.5. Earth and related environmental sciences

Result website:

<https://seminare.ekomonitor.cz/detail-publikace/ochrana-ovzdusi-ve-statni-sprave-xvii-1731572606>

Permanent Link: <https://hdl.handle.net/11104/0362168>

0604668 - ÚI 2025 RIV CZ cze K - Conference Paper (Czech conference)

Patiño, W. - Vlček, O. - Bauerová, P. - Belda, M. - Bureš, Martin - Eben, Kryštof - Fuka, V. - Geletič, Jan - Jareš, R. - Karel, J. - Keder, J. - Krč, Pavel - Radovič, J. - Řezníček, Hynek - Šindelářová, A. - Resler, Jaroslav

Porovnání různě komplexních mikroměřítkových modelů v městské zástavbě.

Ochrana ovzduší ve státní správě XVII. Sborník konference. Chrudim: Ekomonitor, 2024, s. 95-99. ISBN 978-80-88238-34-8.

[Ochrana ovzduší ve státní správě XVII, teorie a praxe. Kurdějov (CZ), 24.10.2024-25.10.2024]

R&D Projects: GA TA ČR(CZ) TO01000219; GA TA ČR(CZ) SS02030031; GA MŠMT(CZ)

EH22_008/0004605

Institutional support: RVO:67985807

OECD category: Meteorology and atmospheric sciences

Result website:

<https://seminare.ekomonitor.cz/detail-publikace/ochrana-ovzdusi-ve-statni-sprave-xvii-1731572606>

Permanent Link: <https://hdl.handle.net/11104/0362170>

0603595 - ÚI 2025 RIV GB eng G - Proceedings (international conference)

Ciabattoni, A. - Gabelaia, D. - Sedlár, Igor

Advances in Modal Logic, Volume 15.

London: College Publications, 2024. Advances in Modal Logic, Vol. 15. ISBN 978-1-84890-467-5.

[AiML 2024: Advances in Modal Logic /15./, Prague (CZ), 19.08.2024-22.08.2024]

Institutional support: RVO:67985807

Result website:

<https://www.collegepublications.co.uk/aiml/?00012>

Since ancient times, philosophers have recognised that truth comes in many 'modes', so that a proposition can be not only true or false, but also, for example, 'necessary' or 'possible'. These ideas led to the modern field of modal logic, a lively area of research at the interface of philosophy, mathematics and computer science. Nowadays, the term 'modal logic' is understood in a broad sense, allowing it to encompass logics for reasoning about seemingly unrelated phenomena such as knowledge, obligations, time, space, and proofs, among many others. Contemporary research in modal logic draws on techniques from many disciplines, including complexity theory, combinatorics, universal algebra, category theory, topology, and proof theory. These proceedings record the papers presented at Advances in Modal Logic 2024, the 15th in a series of biennial conferences that aim to report on important new developments in pure and applied modal logic. Topics in this issue include epistemic modal logic, constructive and many-valued modal logic, unification, algebraic and neighbourhood semantics, proof theory and complexity of modal logics, conditional and quantified modal logic.

Permanent Link: <https://hdl.handle.net/11104/0360935>

0603549 - ÚI 2025 US eng V - Research Report

Braunfeld, Samuel Walker - Laskowski, M.

Indiscernibles in monadically NIP theories.

Cornell: Cornell University, 2024. 21 s. arXiv.org e-Print archive, arXiv:2409.05223.

Institutional support: RVO:67985807

Result website:

<https://doi.org/10.48550/arXiv.2409.05223>

DOI: <https://doi.org/10.48550/arXiv.2409.05223>

We study the problem of when, given a homogeneous structure M and a space S of expansions of M , every $\text{Aut}(M)$ -invariant probability measure on S is exchangeable (i.e. Σ_0 -invariant). We define a condition of k -overlap closedness on M which implies exchangeability of random expansions by a class of structures whose finite substructures are all contained in a hereditary class with labelled growth-rate $O(en_k + \delta)$ for all $\delta > 0$. For example, the generic tetrahedron-free 3-hypergraph is 2-overlap closed and so all of its random expansions by graphs are exchangeable. Our more general results on k -overlap closedness for homogeneous structures imply the same for every finitely bounded homogeneous 3-hypergraph with free amalgamation. Our results extend and recover both the work of Angel, Kechris and Lyons on invariant random orderings of homogeneous structures and some of the work of Crane and Towsner, and Ackerman on relatively exchangeable structures. We also study conditions under which there are non-exchangeable invariant random expansions looking at the universal homogeneous k -graphs. In the second part of the paper we apply our results to study invariant Keisler measures in homogeneous structures. We prove that invariant Keisler measures can

be viewed as a particular kind of invariant random expansion. Thus, we describe the spaces of invariant Keisler measures of various homogeneous structures, obtaining the first results of this kind since the work of Albert and Ensley. We also show there are $2\aleph_0$ supersimple homogeneous ternary structures for which there are non-forking formulas which are universally measure zero.

Permanent Link: <https://hdl.handle.net/11104/0360896>

Research data: [ArXiv.org](https://arxiv.org)

0603550 - ÚI 2025 US eng V - Research Report

Almazaydeh, A. I. - [Braunfeld, Samuel Walker](#) - Macpherson, D.

Omega-categorical limits of betweenness relations and D-sets.

Cornell: Cornell University, 2024. 21 s. arXiv.org e-Print archive, arXiv:2410.05832.

Institutional support: RVO:67985807

Result website:

<https://doi.org/10.48550/arXiv.2410.05832>

DOI: <https://doi.org/10.48550/arXiv.2410.05832>

We study the problem of when, given a homogeneous structure M and a space S of expansions of M , every $\text{Aut}(M)$ -invariant probability measure on S is exchangeable (i.e. S_∞ -invariant). We define a condition of k -overlap closedness on M which implies exchangeability of random expansions by a class of structures whose finite substructures are all contained in a hereditary class with labelled growth-rate $O(en_{k+\delta})$ for all $\delta > 0$. For example, the generic tetrahedron-free 3-hypergraph is 2-overlap closed and so all of its random expansions by graphs are exchangeable. Our more general results on k -overlap closedness for homogeneous structures imply the same for every finitely bounded homogeneous 3-hypergraph with free amalgamation. Our results extend and recover both the work of Angel, Kechris and Lyons on invariant random orderings of homogeneous structures and some of the work of Crane and Towsner, and Ackerman on relatively exchangeable structures. We also study conditions under which there are non-exchangeable invariant random expansions looking at the universal homogeneous k -graphs.

In the second part of the paper we apply our results to study invariant Keisler measures in homogeneous structures. We prove that invariant Keisler measures can be viewed as a particular kind of invariant random expansion. Thus, we describe the spaces of invariant Keisler measures of various homogeneous structures, obtaining the first results of this kind since the work of Albert and Ensley. We also show there are $2\aleph_0$ supersimple homogeneous ternary structures for which there are non-forking formulas which are universally measure zero.

Permanent Link: <https://hdl.handle.net/11104/0360898>

Research data: [ArXiv.org](https://arxiv.org)

Scientific data: [preprint at ArXiv.org](https://arxiv.org)

0603548 - ÚI 2025 US eng V - Research Report

[Braunfeld, Samuel Walker](#) - Jahel, C. - Marimon, P.

When invariance implies exchangeability (and applications to invariant Keisler measures).

Cornell: Cornell University, 2024. 55 s. arXiv.org e-Print archive, arXiv:2408.08370.

Institutional support: RVO:67985807

Result website:

<https://doi.org/10.48550/arXiv.2408.08370>

DOI: <https://doi.org/10.48550/arXiv.2408.08370>

We study the problem of when, given a homogeneous structure M and a space S of expansions of M , every $\text{Aut}(M)$ -invariant probability measure on S is exchangeable (i.e. S_∞ -invariant). We define a condition of k -overlap closedness on M which implies exchangeability of random expansions by a class

of structures whose finite substructures are all contained in a hereditary class with labelled growth-rate $O(nk+\delta)$ for all $\delta>0$. For example, the generic tetrahedron-free 3-hypergraph is 2-overlap closed and so all of its random expansions by graphs are exchangeable. Our more general results on k-overlap closedness for homogeneous structures imply the same for every finitely bounded homogeneous 3-hypergraph with free amalgamation. Our results extend and recover both the work of Angel, Kechris and Lyons on invariant random orderings of homogeneous structures and some of the work of Crane and Towsner, and Ackerman on relatively exchangeable structures. We also study conditions under which there are non-exchangeable invariant random expansions looking at the universal homogeneous k-graphs.

In the second part of the paper we apply our results to study invariant Keisler measures in homogeneous structures. We prove that invariant Keisler measures can be viewed as a particular kind of invariant random expansion. Thus, we describe the spaces of invariant Keisler measures of various homogeneous structures, obtaining the first results of this kind since the work of Albert and Ensley. We also show there are 2^{\aleph_0} supersimple homogeneous ternary structures for which there are non-forking formulas which are universally measure zero.

Permanent Link: <https://hdl.handle.net/11104/0360894>

Research data: [ArXiv.org](https://arxiv.org)

0605184 - ÚI 2025 CZ cze V - Research Report

[Kaksa, V.](#)

Spolupráce dvou systémů EC 1040: Úvodní studie.

Praha: CVS ČSAV, 1977. 19 s. Výzkumná zpráva, V-8.

Permanent Link: <https://hdl.handle.net/11104/0362857>

0604658 - ÚI 2025 RIV DE eng A - Abstract

Pikousová, T. - [Eben, Kryštof](#) - [Viček, O.](#) - [Resler, Jaroslav](#) - [Patiño, W.](#) - [Montero, P. C.](#) - [Krč, Pavel](#)

Retrieval of Annual Air Quality Statistics from a Limited Number of LES Model Simulations.

PMC 24 Book of Abstracts. Offenbach: Leibniz University Hannover (LUH) and the German Weather Service (DWD), 2024. s. 7-7.

[PMC 24: PALM Model Conference 2024. 17.09.2024-20.09.2024, Offenbach]

Institutional support: RVO:67985807

OECD category: Meteorology and atmospheric sciences

Result website:

https://palm.muk.uni-hannover.de/trac/raw-attachment/wiki/conference/pmc24_book_of_abstracts.pdf

Legislative air quality limits are based on annual statistics, like annual mean or n-th highest hourly or daily concentration. Complex CFD models may provide air quality simulations at the street level. However, these simulations are computationally too expensive for large time periods like a year. For RANS models this is usually solved by calculation of steady-state concentration fields for different wind directions, which are then scaled by the wind speed to provide concentrations for a particular hour. However this approach is not suitable for the LES models, which count for time-evolving resolved turbulence. With these models usually several periods of time extent of days are calculated. Annual statistics have to be constructed from a limited number of 'typical' days, which guarantee a reasonable coverage of different scenarios during the year. We propose a method for identification of 'typical' days based on k-medoids clustering. The method was validated on monitoring stations. We also demonstrate its performance on pilot PALM simulations. Target of this pilot experiment is to prove the potential to retrieve the fields of annual statistics from LES models.

Permanent Link: <https://hdl.handle.net/11104/0362153>

0604092 - ÚI 2025 GB eng A - Abstract

Řasová, K. - Miznerová, B. - Raková, M. - Herynkova, A. - Rodina, L. - Tom, P. - Hlinovská, J. - Štětkářová, I. - Vasa, L. - Frank, J. - [Rydlo, Jan](#) - [Tintera, Jaroslav](#)

Physiotherapy on principles of neuroproprioceptive 'facilitation, inhibition' using virtual reality leads to different brain activity changes.

Multiple Sclerosis. vol 30, supplement 2S, s. 66-66. ISSN 1352-4585. E-ISSN 1477-0970.

[RIMS: 29th Annual Rehabilitation in Multiple Sclerosis Conference /29./, 27.06.2024-29.06.2024, Hasselt]

Institutional support: RVO:67985807

Permanent Link: <https://hdl.handle.net/11104/0361428>