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THE PROBLEM OF A LARGE VOLUME OF STATISTICAL DATA IN REGIONAL ENVIRONMENTAL MONITORING

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The digital age has opened up new opportunities for data-driven research. This article discusses the problems of big data in environmental monitoring and analyzes the use of statistical methods to solve these problems to improve the quality of life in cities. This paper provides an overview of big data such as volume, speed, variety, value, and reliability. The paper also analyzes the problems associated with big data in the context of environmental monitoring at the city level and considers the use of statistical methods such as land use regression (LUR) and spatial simulation annealing (SSA) as two promising ways to solve big data problems.

Keywords: air quality, large amount of data, land use regression, optimal location, smart city, monitoring, analysis.

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1.   2018 [   ]. —   : crowd.mos.ru/projects/smart_city2030/book.html
(: 02.04.2020).
2.   ,   . .   :   /   . .   ,   . .   ,
. .   . —   .:   , 2019. — 30 c.
3.   ,   . .   : [.   ] /   . .   ,   . .   ;   -
.   ,   .   . -   . — 2-   .,   .   . —   :   -   . -   , 2015. — 148   .
4.   [   ]. —   : aggregate.tibbo.com/ru/solutions/network-
management/application-service-monitoring.html (: 02.04.2020).
5.   ,   . .   :   /   . .   -
.   —   :   , 2016. — 375 c.
6.   [   ] //   —   : science.wikia.org/ru/wiki/   _(_
) (: 02.04.2020).
7.   [   ]. —   -
: citforum.ru/nets/optimize/locnop_ 09.shtml (02.04.2020).
8.   ,   . .   :   -
/   . .   . —   .:   , 2018. — 376   .
9.   [   ] //   +. —   : https://plus.rbc.ru/news/
595ad6647a8aa9147f3f62b5 (02.04.2020).
10.   . .   Y   /   . .   ,
. .   [   ] //   -   «   ». — 2016. —   . 26. —
. 226–230. —   : e-koncept.ru/2016/46446.htm (02.04.2020).

SPISOK LITERATURY

1. Proyekt umnyy gorod 2018 [Elektronnyy resurs]. — Rezhim dostupa: crowd.mos.ru/projects/smart_city2030/book.html (data obrashcheniya: 02.04.2020).

2. Tikhonova, I.O. Ekologicheskiy monitoring atmosfery: Uchebnoye posobiye / I.O. Tikhonova, V.V. Tarasov, N.Ye. Kruchinina. — M.: Forum, 2019. — 30 c.

3. Polyakova, V.V. Osnovy teorii statistiki: [ucheb. posobiye] / V.V. Polyakova, N.V. Shabrova; M-vo obrazovaniya i nauki Ros. Federatsii, Ural. feder. un-t. — 2-ye izd., ispr. i dop. — Yekaterinburg: Izd-vo Ural. un-ta, 2015. — 148 s.

4. Monitoring i upravleniye setyami [Elektronnyy resurs]. — Rezhim dostupa: aggregate.tibbo.com/ru/solutions/network-management/application-service-monitoring.html (data obrashcheniya: 02.04.2020).

5. Latyshenko, K.P. Ekologicheskiy monitoring: Uchebnik i praktikum dlya prikladnogo bakalavriata / K.P. Latyshenko. — Lyubertsy: Yurayt, 2016. — 375 c.

6. Regressiya v statistike [Elektronnyy resurs] // Nauka — Rezhim dostupa: science.wikia.org/ru/wiki/Regressiya_(v_statistike) (data obrashcheniya: 02.04.2020).

7. Ispol'zovaniye modelirovaniya dlya optimizatsii proizvoditel'nosti seti [Elektronnyy resurs]. — Rezhim dostupa: citforum.ru/nets/optimize/locnop_ 09.shtml (data obrashcheniya 02.04.2020).

8. Vasil'yeva, N.V. Osnovy zemlepol'zovaniya i zemleustroystva: uchebnik i praktikum dlya akademicheskogo bakalavriata / N.V. Vasil'yeva. — M.: Izdatel'stvo Yurayt, 2018. — 376 s.

270

9. Partnerskiye proyekty [Elektronnyy resurs] // RBK+. — Rezhim dostupa: https://plus.rbc.ru/news/595ad6647a8aa9147f3f62b5 (data obrashcheniya 02.04.2020).

10. Bur'yanova N.V. Spetsifika potrebitel'skogo povedeniya pokoleniya Y v usloviyakh globalizatsii / N.V. Bur'yanova, S.S. Zubareva [Elektronnyy resurs] // Nauchno-metodicheskiy elektronnyy zhurnal «Kontsept». — 2016. — T. 26. — S. 226–230. — Rezhim dostupa: e-koncept.ru/2016/46446.htm (data obrashcheniya 02.04.2020).