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Data Article

Water quality assessment for groundwater around a municipal waste dumpsite

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ABSTRACT

The dataset for this article contains geostatistical analysis of the level to which groundwater quality around a municipal waste dumpsite located in Oke-Afa, Oshodi/Isolo area of Lagos state, southwestern has been compromised for drinking. Groundwater samples were collected from eight hand-dug wells and two borehole wells around or near the dumpsite. The pH, turbidity, salinity, conductivity, total hydrocarbon, total dissolved solids (TDS), dissolved oxygen, chloride, Sulphate (SO_4), Nitrate (NO_3) and Phosphate (PO_4) were determined for the water samples and compared with World Health Organization (WHO) drinking water standard. Notably, the turbidity, TDS, chloride and conductivity of some of the samples were above the WHO acceptable limits. Also, high quantities of heavy metals such as Aluminum and Barium were also present as shown from the data. The dataset can provide insights into the health implications of the contaminants especially when the mean concentration levels of the contaminants are above the recommended WHO drinking water standard.

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Specification table

Subject area	Earth and Planetary science
More specific subject area	Environmental Science, geochemistry, geostatistics
Type of data	Table and Figure
How data was acquired	pH-conductivity-TDS meter (COMBO HI model 98130), DO-meter (HACH model), ultraviolet (UV)-Visible Spectrophotometer (Camspec model).
Data format	Raw, Analysed
Experimental factors	The mentioned parameters above, in the abstract section, were analyzed according to the WHO standards for drinking water
Experimental features	Determination of physical and chemical parameters that constitute the contaminations of the water near the dumpsites.
Data source location	Oke-afa, Oshodi/Isolo area of Lagos State, South-western Nigeria
Data accessibility	All the data are in this data article.

Value of the data

- The data could be used to determine the level of chemical contamination dumpsites, volcanic erupted areas, chemical wastes sites, oil spillage sites and others areas of interest.
- The data could be helpful for concerned authorities and policy makers in water quality management.
- Findings can be extended to other metal or non-metal elements not considered in this article.
- The data could be used in auditing water quality.

1. Data

The data contains geostatistical and geochemical analysis of groundwater samples collected from eight (8) hand-dug wells and some borehole wells around or near the dumpsite. The dumpsites are located in Oshodi/Isolo area of Lagos State, South-western Nigeria. The parameters investigated are:

Table 1
The physio-chemical characteristic of groundwater at the dumpsite.

Parameters	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
pH	6.55	5.15	6.35	6.26	6.59	6.17	6.26	6.25	6.89	6.17
DO mg/l	4.4	4.2	4.3	4.1	4.2	4.0	4.3	4.1	4.0	4.2
CC mg l	92	108	116	44	200	84	40	168	88	344
THC mg/l	200	140	236	240	228	188	120	164	652	428
Salinity mg l	0.18	0.22	0.23	0.09	0.40	0.17	0.08	0.34	0.18	0.69
SO_4 mg/l	0.07	0.09	1.21	1.27	1.01	0.06	0.08	0.05	2.09	2.12
NO_3 mg/l	1.20	2.30	2.50	2.60	1.90	2.20	1.76	1.24	3.50	2.90
PO_4 mg/l	0.09	0.06	1.20	0.10	0.70	0.05	2.10	1.70	3.20	3.00
Conduct mS/cm	952	454	954	1014	1151	994	1007	1120	1643	1123
TDS mg/l	480	211	388	249	573	496	504	561	822	399
Turbidity (NTU)	4.5	2.7	2.9	1.5	3.2	6.9	2.2	2.9	6.9	6.5
Temp (°C)	28.2	27.9	28.3	28.4	28.4	28.3	28.2	29.9	29.2	27.2
SWL m	8	N/A	6	8.6	13	5	6	N/A	2	4

W represents the sample (well and borehole), N.A means Not applicable, W2 and W8 are boreholes.

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