Metadata describing the Kharaa Yeröö River Basin Water Quality Database

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Keywords
river, fluvial sediments, freshwater systems, nutrients, heavy metals, metalloids, groundwater, environmental monitoring, water chemistry, pollution

Short description of the dataset/summary

In the framework of the BMBF funded project on Integrated Water Resources Management in Central Asia (Model region Mongolia, MOMO project, www.iwrm-momo.de) the objectives focused on supplementing, validating and extending the existing surveillance monitoring to the entire river basin for the time series 2006-2017.

The MOMO monitoring programme was set up in order to observe seasonal variation in various water quality parameters along the main river course and its tributaries. A detailed sampling survey was carried out along the Kharaa River in the spring, summer and autumn of 2006 to 2017, extending from the headwaters in the Khentii Mountains to the outlet of the river basin. An additional continuous monthly monitoring programme for surface water quality was carried out upstream (Deed Guur) and downstream of Darkhan city (Buren Tolgoi) including the outlet of WWTP Darkhan in the
time between 2007 and 2017.

This strategy provides information for the efficient and effective design of future monitoring programmes with a focus on operational or investigative issues. The types of water sampling programmes included initial surveys as well as investigative and operational monitoring, point-source characterization, intensive surveys, fixed-station-network monitoring, groundwater monitoring, and special surveys involving chemical and biological monitoring. The water analyses have a focus on nutrients, heavy metals and metalloids, chloride, boron and the main physical water parameters. The dataset comprises also fluvial sediment analyses on heavy metals. In addition in 2017 a special hygienic monitoring (total coliforms, E. coli and fecal coliforms) has been carried out and was included in this database.

General information

dataset entry ID: FWM_14
name of the dataset: Kharaa Yeröö River Basin Water Quality Database
full name of the dataset: full name of the dataset: Kharaa Yeröö River Basin Water Quality Database
dataset short name: MoMo Water Quality Database
type of dataset: environmental characteristics database
data type: point data/observation data
science keywords according to GCMD:
topic: Terrestrial Hydrosphere
ISO topic category according to ISO 19115:
Environment, Inland Waters
INSPIRE keywords according to GEMET:
own science keywords: river, fluvial sediments, freshwater systems, nutrients, heavy metals, metalloids, groundwater, water chemistry, pollution
related project: Integrated Water Resources Management (IWRM) in Central Asia: Model Region Mongolia (MoMo)
funding: German Federal Ministry of Education and Research (BMBF project No. 033W016DN)

Technical and administrative specifications

data format: Access
others/details: PostgreSQL
operating system: all Windows systems
data language: English
current access level: web (public)
web address: https://nimbus.igb-berlin.de/index.php/s/Wi0Fd78izfYdYY2
currently available through GBIF: no
exchange planned: no
data in data repository: no
Do you plan to publish the data on the Freshwater Biodiversity Data Portal: no
update level: completed, update planned
documentation:
type: manual
language: English
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**Intellectual property rights and citation**

**dataset publisher:** MoMo consortium

**dataset creator (data compiler):**
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    - The dataset is publicly available (data portal, data archive) and can be used without restrictions, but must be acknowledged and cited correctly.

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criteria for using this part of the dataset:
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The dataset is publicly available (data portal, data archive) and can be used without restrictions, but must be acknowledged and cited correctly.

citation of this dataset:
author(s):
Hürdler, J., Batbayar, G., Heldt, S., Büttner, O. & Borchardt, D.

**title and journal (name, number, pages):**
Kharaa Yeröö River Basin Water Quality Database.

**year:**
2018

**citation of the metadata:**

**title and journal (name, number, pages):**
Metadata describing the Kharaa Yeröö River Basin Water Quality Database.
Freshwater Metadata Journal 36: 1-10

**year:**
2018

**doi:**
https://doi.org/10.15504/fmj.2018.36

**dataset related references:**

**reference 1:**

**author(s):**
Batbayar, G., Pfeiffer, M., von Tümpling, W., Kappas, M. & Karthe, D.

**title:**
Chemical water quality gradients of the sub catchments of the Mongolian Selenga River basin. Environmental Monitoring and Assessment 189: 420.

**year:**
2017

**doi:**
https://doi.org/10.1007/s10661-017-6123-z

**reference 2:**

**author(s):**
Hofmann, J., Watson, V. & Scharaw, B.

**title:**

**year:**
2015

**doi:**
https://doi.org/10.1007/s12665-014-3148-2

**reference 3:**

**author(s):**
Pfeiffer, M., Batbayar, G., Hofmann, J., Siegfried, K., Karthe, D. & Hahn-Tomer, S.

**title:**

**year:**
2015

**doi:**
https://doi.org/0.1007/s12665-013-3029-0

**reference 4:**

**author(s):**
Kaus, A., Schäffer, M., Karthe, D., Büttner, O., von Tümpling, W. & Borchardt, D.

**title:**
Regional patterns of heavy metal concentrations in water, sediment and five consumed fish species of the Kharaa River basin, Mongolia. Regional Environmental Change 17(7): 2023-2037.

**year:**
2017

**doi:**
https://doi.org/10.1007/s10113-016-0969-4

**reference 5:**

**author(s):**
Hofmann, J., Karthe, D., Ibisch, R., Schäffer, M., Kaus, A., Avlyush, S. & Heldt, S.

**title:**

**year:**
2015
General data specifications

regional coverage of the dataset: catchment
continents: Asia
spatial extent (bounding coordinates):
southernmost latitude [°]: 46.8761
northernmost latitude [°]: 50.2525
westernmost longitude [°]: 102.1911
easternmost longitude [°]: 107.4601
minimum altitude: 599 metres
maximum altitude: 1478 metres
countries: Asia: Mongolia

world climatic regions according to Köppen:
Group B: dry (arid and semiarid) climates
Group D: continental/microthermal climate

countries:

freshwater ecoregions of the world (FEOW) according to WWF:
Asia: Lake Baikal

ecosystem type: rivers, lakes/ponds, groundwater, general freshwater

covered timeframe: 2006 - 2017

Site specifications

coordinate system/grid data: latitude/longitude, format: DD
datum (e.g. WGS84): WGS84
grid data available: no

site coding:
site coding available: yes, alphanumerical
number of digits: 12
example: Sel_Kh01_001

number of sites:
exact number of sites: 246

Climate and environmental data

climate related data: no climate data available
spatial resolution of the data (if not catchment/site related):
others/specify

comments: The Kharaa Yeröö River basin belongs partly to cold semi-arid climates (BSk) and sub-alpine/boreal climate (Dwc) according to the Köppen classification scheme.

environmental data: no environmental data per catchment available
physico-chemical data: total P, nitrate, nitrite, total N, ammonium, sulphate, chloride, sodium, magnesium, labile aluminium, calcium, TOC (total organic carbon), water temperature, pH, conductivity, suspended solids
other physico-chemical parameters:

- air temperature
- antimony
- arsenic
- barium
- beryllium
- bismuth
- boron
- bromide
- cadmium
- chromium
- chromium(VI)
- cobalt
- copper
- cyanide
- diphosphorus pentoxide
- dissolved inorganic carbon
- dissolved inorganic nitrogen
- dissolved nitrogen
- dissolved organic carbon
- dissolved organic nitrogen
- Eschericha coli
- fecal coliforms
- fluoride
- iron
- lead
- lithium
- manganese
- mercury
- molybdenum
- nickel
- organic matter in suspended solids
- oxygen concentration
- oxygen saturation
- phosphate
- potassium
- rubidium
- silicic acid
- silver
- soluble reactive phosphorus
- strontium
- thallium
- tin
- titanium
- total dissolved solids
- total hardness
- total coliforms
- turbidity
- uranium
- vanadium
- water quality index
- zinc

availability of physico-chemical data, if there is more than one sample per site:

- per sample

stressors influencing the sites:

<table>
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<th>stressor gradient available</th>
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<tr>
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<td>yes</td>
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</table>

Other specifications

GIS layers, shape files related to the dataset:

- hydrological information (as HydroBASINS)
- catchments, river-sub-basins
- land use
- protected areas
- population density
- environmental variables (freshwater or terrestrial)

availability of photos: yes
availability of maps: yes

quality control procedures:

quality control protocols and comments:

The quality of data resulting from water and wastewater sampling surveys included the following six major activities: (a) formulating the particular objectives of the water sampling program, (b) collecting representative water samples, (c) maintaining the integrity of the water samples through proper handling and preservation, (d) adhering to adequate chain-of-custody and sample identification procedures, (e) practicing quality assurance in the field by using, and (f) properly analyzing the pollutants in the water samples. These areas were equally important for insuring that environmental data are of the highest validity and quality.
Acknowledgements
This research was financially supported by the German Federal Ministry of Education and Research (BMBF project No. 033W016DN)

References


Appendix
Figure 1: Spatial distribution of all measuring points and sample locations in the Kharaa Yeröö River Basin Water Quality Database