

Package: fecalcanuga (via r-universe)

September 24, 2026

Title Non-Sewered Sanitation Containments, Canada and Uganda 2023-2024

Version 0.1.0

Description This data package contains data representing 5 months of field work from April - June 2023 (Canada) and January - February 2024 (Uganda) collecting household and commercial wastewater containment data and characterizing physical, chemical and greenhouse gas data for 22 non-sewered sanitation sites on southern Vancouver island and the southern gulf islands in British Columbia, Canada and 19 sites in Kampala, Uganda.

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BugReports <https://github.com/openwashdata/fecalcanuga/issues>

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containment	<i>containment: Technical Data for each Non-Sewered Sanitation Con- tainment</i>
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Description

This data set contains the technical data (containment size, volume, fecal sludge depth, etc.) for each non-sewered sanitation system containment that was sampled as a part of this field work.

Usage

containment

Format

A tibble with 41 rows and 10 variables

sample_id unique identifier for each sampling location in the format ##-Location-ddmmyyyy

location_id unique location identifier for each sampling day in the format of (#)-day of sampling
(a) - location in that day

date date of sampling

area surface area of liquid surface in containment m^2

sludge_depth depth in meters, of where from the top of the sludge the sample was taken

containment_depth depth in meters, from the top of the containment to the bottom of the contain-
ment

containment_volume total volume of the containment in m^3

fs_volume total volume of the sludge in containment in m^3

accumulation_rate the accumulation rate in litres/capita -year (based on total volume and number
of users)

scum_depth the depth of the top scum layer in centimeters

ghg	<i>ghg: Greenhouse Gas Mass Flux Rates for each Non-Sewered Sanitation Containment</i>
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Description

This data set contains the calculated mass flux rates from the measured point-source in situ GHG measurements and the observed person equivalents for each containment for the three key greenhouse gases (CH₄, CO₂ and N₂O).

Usage

ghg

Format

A tibble with 41 rows and 7 variables

sample_id unique identifier for each sampling location in the format ##-Location-ddmmyyyy

location_id unique location identifier for each sampling day in the format of (#)-day of sampling
(a) - location in that day

date date of sampling

users average number of users for the sanitation system that was sampled

flux_ch4 methane flux in grams/capita-day - based on number of users

flux_co2 carbon dioxide flux in gram/capita-day - based on number of users

flux_n2o nitrous oxide flux in gram/capita-day - based on number of users

household_survey	<i>household_survey: Demographic, Environmental and Technical Household / Institutional Data for each Non-Sewered Sanitation Containment</i>
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Description

This data set contains the collected household / institutional survey data for each location where a non-sewered sanitation containment was sampled. This includes demographic information, operational and maintenance information and some technical and environmental parameters.

Usage

household_survey

Format

A tibble with 41 rows and 39 variables

sample_id unique identifier for each sampling location in the format ##-Location-ddmmyyyy

location_id unique location identifier for each sampling day in the format of (#)-day of sampling
(a) - location in that day

date date of sampling

local_area_name community / area name that locals commonly use where samples were taken

establishment_type type of establishment where sampling occurred (household, commercial, school, office building, other)

users average number of users for the sanitation system that was sampled

last_emptied in years how long ago from sampling date the containment was last emptied

shared_toilet Is the toilet(s) connected to the sanitation containment shared or not?

rent_or_own Is the establishment where the containment is rented or owned by the head of household?

containment The type of containment (septic tank, pit latrine, treatment plant unit, etc.)

lining The type of containment lining (fully lined, unlined, don't know)

lining_material The material the lining is made of if it is lined (fiberglass, concrete, PVC, unlined, etc.)

change_in_liquid_level Is there a change in liquid level due to seasonal variation?

baffles Are there baffles in the containment?

outflow Is there an outflow for the containment?

outflow_location If there is an outflow, where is it located (i.e., leech field)

toilet_type What is the type of toilet connected to the sanitation system (cistern flush, pour-flush, etc.)

anal_cleansing_material What type of material is used for anal cleansing (water, paper, both)

paper Is paper used for anal cleansing?

water Is water used for anal cleansing?

additives Are there additives added to the containment?

frequency If additives are added, in what frequency?

chemicals What chemicals are added to the sanitation system?

wastewater_type What are the types of wastewater that the containment collects (toilet, kitchen, laundry, bathing)

toilet Does the containment collect toilet type of wastewater?

bathing Does the containment collect bathing type of wastewater?

laundry Does the containment collect laundry type of wastewater?

kitchen Does the containment collect kitchen type of wastewater?

water_connection Is there a water connection?

tap_inside_building Does the establishment have this type of water connection (Yes = 1 | No = 0)

standpipe Does the establishment have this type of water connection (Yes = 1 | No = 0)

containment_age What is the age (in years) of the containment system?

containment_constructed Who constructed the containment system (Technician, professional engineering, myself, don't know)?

containment_volume What (in m³) is the total volume of the containment?

fully_emptied When the system was last emptied was it emptied fully?

emptying_interval What is the average / typical emptying interval (in years) of the containment?

rainy_season Is it currently the rainy season?

solid_waste Does the containment contain solid waste (i.e., garbage)

type If there is solid waste, what type is it?

phys_chem_parameter	<i>phys_chem_parameter: Physio-Chemical Parameter Data for each Non-sewered Sanitation Containment</i>
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Description

This data set contains the measured in situ and analyzed in laboratory physical, chemical and biological parameters pertaining to each containment sampled as well as at different vertical locations in each containment (i.e., Top of containment, middle and bottom).

Usage

phys_chem_parameter

Format

A tibble with 119 rows and 29 variables

sample_id unique identifier for each sampling location in the format ##-Location-ddmmyyyy

location_id unique location identifier for each sampling day in the format of (#)-day of sampling
(a) - location in that day

date date of sampling

depth_id unique identifier for each sample indicating the location in the containment (T = top, M = middle, B = bottom)

sludge_depth depth in meters, of where from the top of the sludge the sample was taken

temperature Temperature of the sludge at the insitu sampling location (in degrees Celsius)

DO dissolved oxygen concentration in mg/L at the insitu sampling location

pH pH value at the insitu sampling location

ORP oxidation reduction potential, measured in millivolts, at the insitu sampling locations

EC electrical conductivity, measured in microSiemens, at the insitu sampling locations

COD Chemical oxygen demand, mg/L

soluble_COD Soluble chemical oxygen demand, mg/L

sulphide Sulphide, mg/L

total_nitrogen Total Nitrogen, mg/L

nitrite Nitrite, mg/L

nitrate Nitrate, mg/L

ammonia Ammonia, mg/L

TKN Total Kjeldahl Nitrogen, mg/L

ortho_phosphorous Ortho Phosphorous, mg/L

total_phosphorous Total Phosphorous, mg/L

BOD Biochemical oxygen demand, mg/L

TOC Total organic carbon, mg/L

ts Total solids, g/L

vs Volatile Solids, g/L

vs_percent Volatile Solids, % total solids

sand_content Sand content, g/L

tss Total suspended solids, g/L

vss Volatile suspended solids, g/L

vss_tss VSS/TSS (ratio)

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