**Data title:** TRACKING ANIMAL MOVEMENTS USING BIOMARKERS IN TAIL HAIRS: A NOVEL APPROACH FOR ANIMAL GEOLOCATING FROM SULFUR ISOSCAPES

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**copyright agreements:** University of Glasgow

**Ethics approval and consent to participate:** N/A

**Dataset size:** 1.40 MB

**Period collected:**  nine (9) months; does not relate to the coverage

**Any restrictions of making data public:** No

**Link to manuscript:** 10.1186/s40462-020-00222-w

**File formats:** Excel spreadsheets

DATA DESCRIPTION

1. **Structure**

The dataset contains four different excel spreadsheets: **Grass\_Sulfur\_isotope, Cattle\_movement\_information, Cattle\_Sulfur\_isotope and Travel\_distances\_simulations**

1. **Attributes**

**Grass\_Sulfur\_isotope = Stable isotopes ratios of sulfur from grass samples**

**Cattle\_movement\_information = Movement information of sampled cattle as per Questionnaire reports from owners**

**Cattle\_Sulfur\_isotope = Stable isotopes ratios of sulfur from cattle tail hairs**

**Travel\_distances\_simulations = Simulated random pairs of points**

* 1. **Attributes 1.1**

**Grass\_Sulfur\_isotope spreadsheet**

UniqueID = Unique identification of entry

Samlpe.ID = Unique identification of grass sample

Plate = well cell plate number

Labelling = sample’s position in a well cell plate

Country = Country where grass was sampled

District = district where grass was sampled

Location = village where grass was sampled

Lat = latitude of a sampled grass

Long = longitude of a sampled grass

y\_proj = y\_coordinate of a sampled grass

x\_proj = x\_coordinate of a sampled grass

time = Date and time of grass sampling

Itime = Date and time of grass sampling

No..Clippings = Number of clippings for a sample from a plot

Comments = any other relevant information

S\_isotope = sulfur stable isotopes ratios result from lab

Altitude = altitude (in meters) above mean sea level where grass sample was taken

MAP = mean annual precipitation of where grass sample was taken

soil\_exchbases = soil cation exchange capacity of where grass sample was taken

elev = elevation of where grass sample was taken

geo = the underlying geology of where grass sample was taken

lithology = parent material of where grass sample was taken

chronostra = rock chronological unit

Mafic.volcanic\_dist = distance from Mafic.volcanic lithology to where grass sample was taken

Granitoids..mi\_dist = distance from granitoids-migmatite lithology to where grass sample was taken

Sandy..gravell\_dist = distance from sandy-gravell lithology to where grass sample was taken

Volcanic.lavas\_dist = distance from volcanic lavas lithology to where grass sample was taken

Volcanic.ashes\_dist = distance from volcanic ashes lithology to where grass sample was taken

Paragneisses..\_dist = distance from Paragneisses lithology to where grass sample was taken

Granitoids\_dist = distance from granitoids lithology to where grass sample was taken

Fine.coarse.cl\_dist = distance from fine-coarse lithology to where grass sample was taken

Pyroclastics..\_dist = distance from pyroclastics lithology to where grass sample was taken

**Cattle\_movement\_information spreadsheet**

Sample ID = Unique cattle identification

District = District where cattle was sampled

Village of sampling = Village where cattle was sampled

MOVEMENT PERIOD = Period that cattle was away from normal area of residency

DATE MOVED = A date that cattle was taken away from normal area of residency

SAMPLE COLLECTED = A date that cattle tail hair sample was taken

WHERE MOVED = Village that cattle were moved to

**Cattle\_Sulfur\_isotope spreadsheet**

UNIQUE.ID = Unique identification of entry

SAMPLE.ID = Unique identification of animal

segment no = specific segment of a specific ‘SAMPLE.ID’

Lat = Latitude of a sampled animal

Long = Longitude of a sampled animal

y\_proj = Y\_ coordinate of a sampled animal

x\_proj = X\_ coordinate of a sampled animal

S = sulfur isotope ratio for a specific segment measured in the laboratory

**Travel\_distances\_simulations spreadsheet**

x\_proj\_1= x\_coordinate for the first point

y\_proj\_1= Y\_coordinate for the second point

x\_proj\_2= x\_coordinate for the first point

y\_proj\_2= Y\_coordinate for the second point

dist\_btw\_points= Differences between two pairs of points

bearing= Angular location for each point

isotope\_val\_1= sulfur isotope reading for the first pair of points

isotope\_val\_2= sulfur isotope reading for the second pair of points

abs\_isotope\_dist= Differences in isotopes reading between two points