

Spatial assignment of test sample

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Input

Website Identifier: 089-TC

Isotope values of test sample

Table 1: Isotope values of test sample

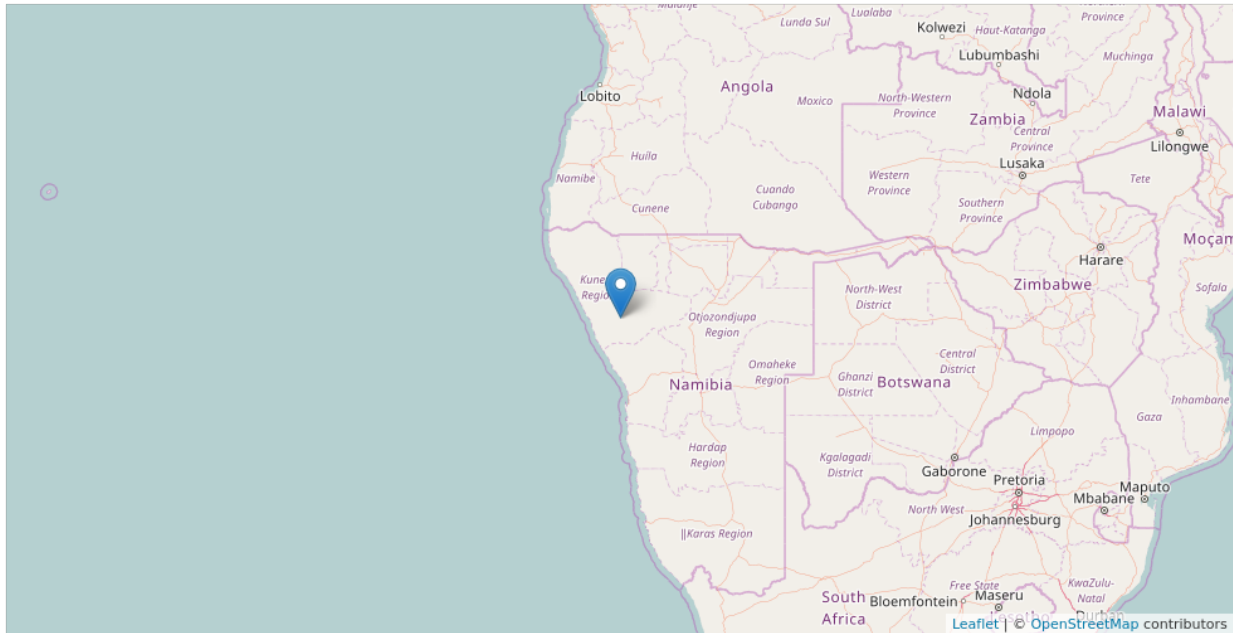
13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-19.3	16.4	19.4	-13.8	13.1

Output

Model

```
##
## Call:
## train.kknn(formula = fmla, data = ivory.train, kmax = 15, distance = 2, kernel = knl)
##
## Type of response variable: nominal
## Minimal misclassification: 0.3765867
## Best kernel: triangular
## Best k: 15
Classifier: country_code
```

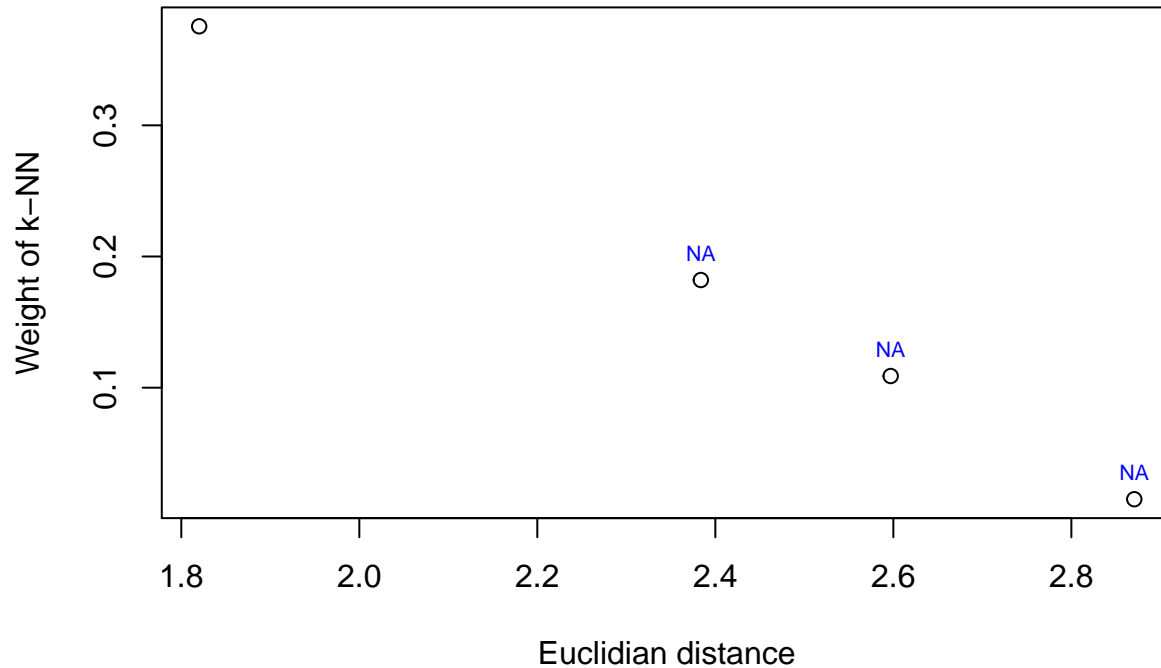
Map of best fitted reference sample



Best fitted reference sample:

- Site: Uibasen, Northwest Namibia
- Country: NA
- Region: Southern Africa
- CITES: Appendix I
- Lat: -20.170283
- Lon: 14.257168

Assignment of test sample to nearest neighbours



Best fitted reference entries

Table 2: Details of best fitted reference entry (row 1) and other fitted entries within best classifier

lon	lat	location	13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
14.26	-20.17	Uibasen, Northwest Namibia	-18.8	14.7	19.7	-30.4	14.1
13.84	-18.05	Opuwo District, Northwest Namibia	-18.1	13.1	22.1	-20.5	15.1
14.74	-19.58	Berg Persi, Northwest Namibia	-19.9	11.7	18.7	-22.9	14.5
14.40	-20.99	Damaraland, Northwest Namibia	-18.8	13.0	19.7	-38.2	13.5

Country of prediction: NA

Testing robustness of assignment: Wilcoxon signed rank test

If p -value > 0.05 , the test concludes that the isotope signature of the test sample is similar to the respective nearest neighbour reference sample.

P-values for the k nearest neighbours in Wilcoxon Test

“0.000001160, 0.000000490, 0.000000026, 0.000000026”

Goodness of fit of test sample:

- good fit: if $p > 0.05$ for at least two tested nearest neighbour reference samples;

- moderate fit: if $p > 0.05$ for at least one tested nearest neighbour reference samples;
- uncertain: if $p > 0.05$ for none of the tested nearest neighbour reference samples.

Assumption: At least two nearest reference samples are available.

Overall goodness of fit of test sample: “**uncertain**”