Spatial assignment of test sample

November 24, 2016

Contents

Input

Website Identifier: 099-L

Isotope values of test sample

Table 1: Isotope values of test sample

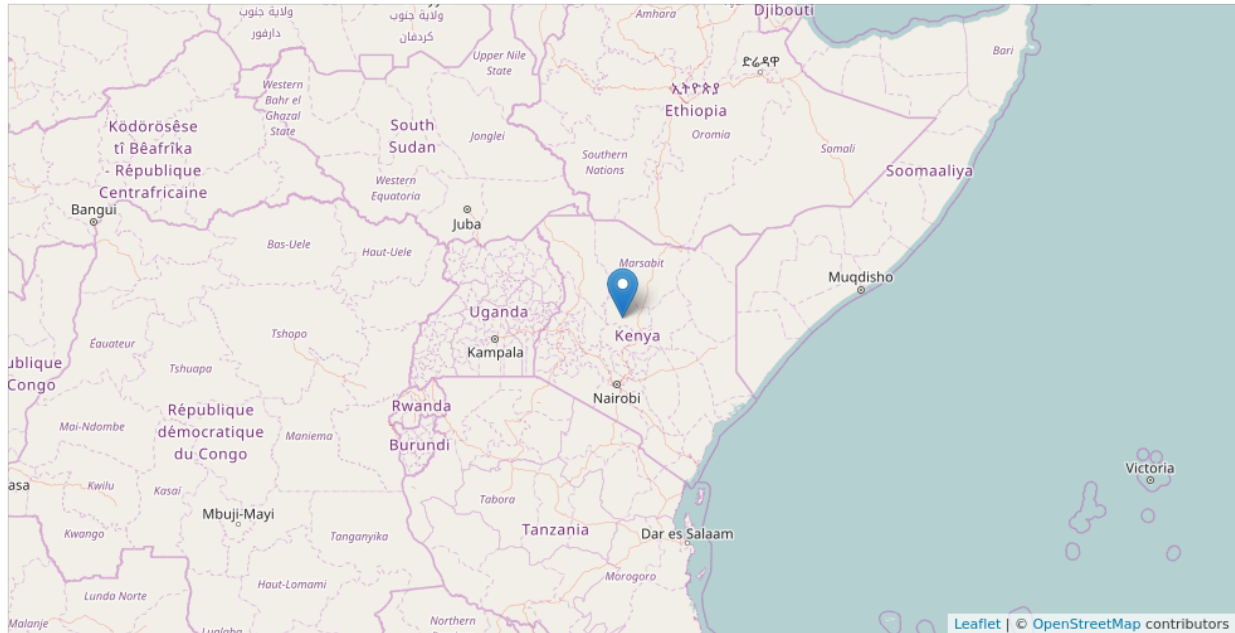| 13C/12C	15N/14N	18O/16O	2H/1H	34S/32S
-19	13	21.2	-23.4	6.2

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
```
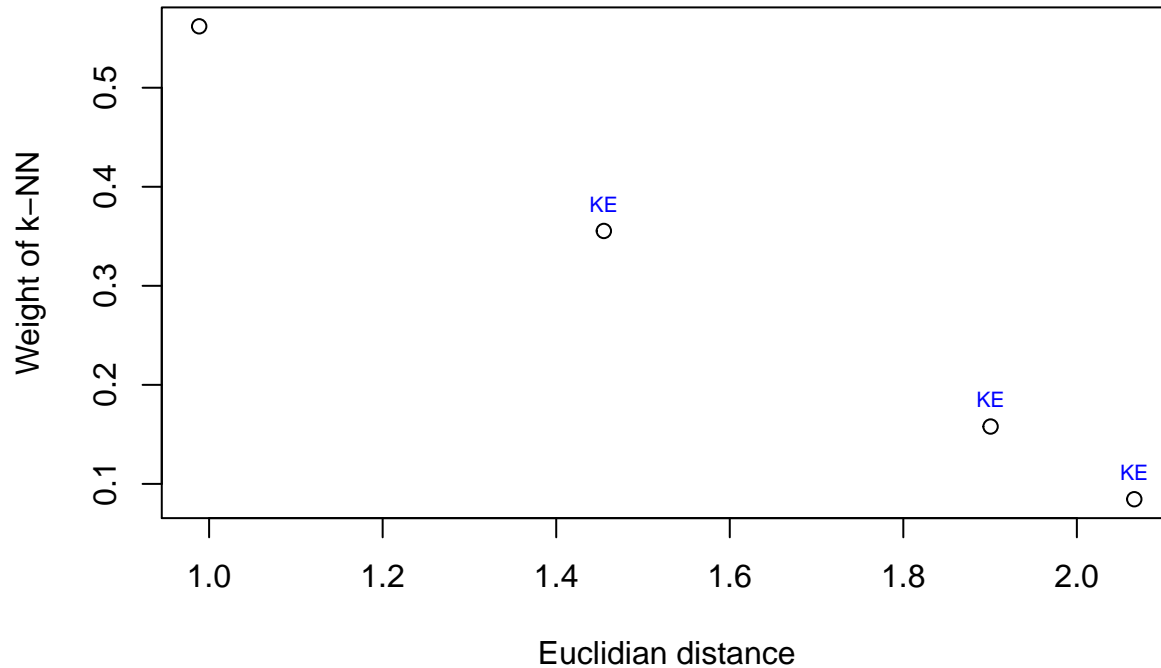
Classifier: **country_code**

Map of best fitted reference sample

Best fitted reference sample:

- Site: Kenya
- Country: KE
- Region: East Africa
- CITES: Appendix I
- Lat: 1
- Lon: 37

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
37.00	1.00		Kenya	-18.1	12.3	20.2	-22.1	8.3
37.00	0.00		Kenya	-18.2	12.0	19.7	-25.5	9.8
39.50	0.90	Kenya, Amala River or Lorian Swamp]	-19.6	14.7	18.3	-31.0	7.8
37.35	0.71		Kenya	-17.5	12.1	17.7	-29.2	4.8

Country of prediction: KE

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

"0.0932157, 0.0091146, 0.0003413, 0.0000096"

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: "**moderate fit**"