Supplementary Table 1. Carbon (in VPDB) and oxygen (in VSMOW) isotopic values and available datings for ten extinct late Pleistocene vertebrate taxa from Sergipe, Brazil.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Sample number** | **δ13C (‰)** | ***BA*** | **δ18O (‰)** | **Lat (° S)** | **Localities** | **Age (yr)** |
| *E. laurillardi* | LPUFS 5699(1) | -4.0(d) | 0.61 | 28.0(d) | 09º46' | Faz. Charco, Poço Redondo | - |
|  | LPUFS 5700(1) | -5.8(d) | 0.85 | 27.4(d) | 09º46' | Faz. Charco, Poço Redondo | **-** |
|  | LPUFS 5703(1) | -5.0(d) | 0.75 | 23.4(d) | 09º46' | Faz. Charco, Poço Redondo | - |
|  | LPUFS 5701(1) | -3.9(d) | 0.59 | 28.5(d) | 09º46' | Faz. Charco, Poço Redondo | - |
|  | LPUFS 5693(1) | -6.0(d) | 0.88 | 29.4(d) | 09º55' | Faz. São José, Poço Redondo | **-** |
|  | UGAMS 09431(2) | -6.6(d) | 0.98 | 27.6(d) | 09º55' | Faz. São José, Poço Redondo | 10,140±40(I) |
|  | UGAMS 09431(2) | -7.3(b) | 0.93 | - | 09º55' | Faz. São José, Poço Redondo | 10,140±40(I) |
|  | UGAMS 09432(2) | -3.8(d) | 0.83 | 29.0(d) | 09º55' | Faz. São José, Poço Redondo | 22,440±50(I) |
|  | UGAMS 09432(2) | -3.3(b) | 0.74 | - | 09º55' | Faz. São José, Poço Redondo | 22,440±50(I) |
|  | UGAMS 09433(2) | -2.0(d) | 0.34 | 30.3(d) | 09º55' | Faz. São José, Poço Redondo | 11,540±40(I) |
|  | UGAMS 13539(2) | -7.7(d) | 0.99 | 29.7(d) | 09º55' | Faz. São José, Poço Redondo | 10,990±30(I) |
|  | UGAMS 13540(2) | -3.3(d) | 0.50 | 28.9(d) | 09º55' | Faz. São José, Poço Redondo | 11,010±30(I) |
|  | UGAMS 13541(2) | -6.0(d) | 0.87 | 29.7(d) | 09º55' | Faz. São José, Poço Redondo | 9,720±30(I) |
|  | UGAMS 13542(2) | -3.3(d) | 0.50 | 27.7(d) | 09º55' | Faz. São José, Poço Redondo | 9,730±30(I) |
|  | UGAMS 13543(2) | -4.7(d) | 0.70 | 29.7(d) | 09º55' | Faz. São José, Poço Redondo | 11,580±30(I) |
|  | UGAMS 14017(2) | -9.2(d) | 0.95 | 27.7(d) | 09º55' | Faz. São José, Poço Redondo | 10,740±30(I) |
|  | UGAMS 09434(2) | -2.9(d) | 0.45 | 28.9(d) | 10º00' | Faz. Elefante, Gararu | 11,540±40(I) |

**Labels.** (b) bone; (o) osteoderm; (d) dentine; (e) enamel. (I) 14C AMS dating; (II) Electron Spin Ressonance datings. (1)our data; (2)Dantas *et al.* (2017); (3)Dantas *et al.* (2011).

**Supplementary Table 1 (continuation).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Sample number** | **δ13C (‰)** | ***BA*** | **δ18O (‰)** | **Lat (° S)** | **Localities** | **Age (yr)** |
| *C. cuvieri* | UGAMS 35324(1) | -3.4(b) | 0.38 | 30.2(d) | 09º46' | Faz. Charco, Poço Redondo | - |
| *P. brasiliense* | LPUFS 4799(1) | -6.6(o) | 0.93 | 28.7(o) | 09º46' | Faz. Charco, Poço Redondo | - |
| *H. paulacoutoi* | LPUFS 4924(1) | -6.0(o) | 0.74 | 30.3(o) | 09º55' | Faz. São José, Poço Redondo | - |
| *Glyptotherium* sp. | LPUFS 5005(1) | -1.8(o) | 0.32 | 26.4(o) | 09º55' | Faz. São José, Poço Redondo | - |
| *Panochthus* sp. | LPUFS 4922(1) | -5.9(o) | 0.86 | 29.7(o) | 09º55' | Faz. São José, Poço Redondo | - |
| *T. platensis* | UGAMS 09446(2) | -3.6(e) | 0.80 | 31.9(e) | 09º55' | Faz. São José, Poço Redondo | 10,050±30(I) |
|  | UGAMS 09446(2) | -3.2(d) | 0.74 | - | 09º55' | Faz. São José, Poço Redondo | 10,050±30(I) |
|  | UGAMS 35325(2) | -3.3(e) | 0.51 | 27.4(e) | 09º55' | Faz. São José, Poço Redondo | - |
|  | UGAMS 35321(2) | -3.4(e) | 0.52 | 32.2(e) | 09º46' | Faz. Charco, Poço Redondo | - |
|  | UGAMS 35322(2) | -3.4(e) | 0.51 | 34.2(e) | 09º46' | Faz. Charco, Poço Redondo | - |
|  | UGAMS 35323(2) | -9.8(e) | 0.89 | 30.1(e) | 09º46' | Faz. Charco, Poço Redondo | - |
|  | Amostra 5(3) | - | - | - | 09º55' | Faz. São José, Poço Redondo | 50,000(II) |
|  | Amostra 3(3) | - | - | - | 10º00' | Faz. Elefante, Gararu | 50,000(II) |
| *N. platensis* | UGAMS 09437(2) | 0.7(e) | 0.19 | 31.5(e) | 09º55' | Faz. São José, Poço Redondo | 13,950±40(I) |
|  | UGAMS 09437(2) | 0.1(d) | 0.31 | - | 09º55' | Faz. São José, Poço Redondo | 13,950±40(I) |
|  | UGAMS 13535(2) | -0.4(e) | 0.26 | 34.7(e) | 09º55' | Faz. São José, Poço Redondo | 13,380±35(I) |
|  | UGAMS 13536(2) | -0.2(e) | 0.24 | 33.4(e) | 09º55' | Faz. São José, Poço Redondo | 16,370±40(I) |
|  | UGAMS 13537(2) | -1.1(e) | 0.34 | 33.1(e) | 09º55' | Faz. São José, Poço Redondo | 10,440±30(I) |

**Labels.** (b) bone; (o) osteoderm; (d) dentine; (e) enamel. (I) 14C AMS dating; (II) Electron Spin Ressonance datings. (1)our data; (2)Dantas *et al.* (2017); (3)Dantas *et al.* (2011).

**Supplementary Table 1 (continuation).**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Species** | **Sample number** | **δ13C (‰)** | ***BA*** | **δ18O (‰)** | **Lat (° S)** | **Localities** | **Age (yr)** |
| *N. platensis* | UGAMS 13538(2) | 1.3(e) | 0.05 | 33.5(e) | 09º55' | Faz. São José, Poço Redondo | 13,760±35(I) |
|  | Unnumbered(2) | - | - | - | 09º55' | Faz. São José, Poço Redondo | 28,000±3,000(II) |
|  | Amostra 10(3) | - | - | - | 09º55' | Faz. São José, Poço Redondo | 42,000(II) |
|  | Amostra 2(3) | - | - | - | 10º00' | Faz. Elefante, Gararu | 50,000(II) |
|  | UGAMS 09439(3) | -1.8(e) | 0.66 | 29.1(e) | 10º00' | Sítios Novos, Canhoba | 17,910±50(I) |
|  | UGAMS 09439(3) | 1.0(d) | 0.14 | - | 10º00' | Sítios Novos, Canhoba | 17,910±50(I) |
|  | UGAMS 09439(3) | 1.4(b) | 0.08 | - | 10º00' | Sítios Novos, Canhoba | 17,910±50(I) |
| *P. major* | LPUFS 1866(1) | -7.3(b) | 0.90 | 31.9(b) | 09º46' | Faz. Charco, Poço Redondo | - |
|  | Amostra 6(3) | - | - | - | 09º46' | Faz. Charco, Poço Redondo | 38,000(II) |
| *E.* (*A.*) *neogeus* | UGAMS 35326(1) | -3.0(e) | 0.33 | 31.3(e) | 09º55' | Faz. São José, Poço Redondo | - |
| *S. populator* | LPUFS 5645(1) | -6.0(b) | 0.87 | 30.5(b) | 09º46' | Faz. Charco, Poço Redondo | - |
| *C. latirostris* | UGAMS 13544(4) | -3.0(e) | 0.45 | 31.4(e) | 09º55' | Faz. São José, Poço Redondo | 9,680±30(I) |

**Labels.** (b) bone; (o) osteoderm; (d) dentine; (e) enamel. (I) 14C AMS dating; (II) Electron Spin Ressonance datings. (1)our data; (2)Dantas *et al.* (2017); (3)Dantas *et al.* (2011); (4)França *et al.* (2014).

**Supplementary Table 2.** Weight estimation for several taxa of Pleistocenic megafauna from Brazilian Intertropical Region.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Taxa | humerus | femur | Weight (Kg) | Localities |
| Sample | Circ. | Sample | Circ. |
| *E. laurillardi* | LPUFS 2101 | 350.00 |   |   |   | Monte Alegre/SE(1) |
|  |   |   | LPUFS | 740.00 |   | Monte Alegre/SE(1) |
|  |   |   | LPUFS 2264 | 658.00 |   | Poço Redondo/SE(1) |
| mean |  | 350.00 |   | 699.00 | 3,416.18 |  |
| *C. cuvieri* | MCL 22470/02 | 211.00 |   |   |   | Nova Redenção/BA(1) |
|  | MCL 22473 | 240.00 |   |   |   | Nova Redenção/BA(1) |
|  | MCL 22475 | 216.00 |   |   |   | Nova Redenção/BA(1) |
|  |   |   | MCL 22500 | 325.00 |   | Nova Redenção/BA(1) |
|  |   |   | MCL 22394/08 | 394.00 |   | Nova Redenção/BA(1) |
| mean |   | 222.33 |   | 359.50 | 777.73 |  |
| *P. brasiliense* | MCC 996-V | 59.66 |   |   |   | Baraúna/RN(2) |
|  |   |   | MCC 1133-V | 153.86 |   | Baraúna/RN(2) |
| mean |   | 59.66 |   | 153.86 | 38.03 |   |
| *Panochthus* sp. | UESB 318PV172 | 136.00 |   |   |   | Anagé/BA(1) |
|  | MN 2964-V | 120.26 |   |   |   | Taperoá/PB(3) |
|  |   |   | MN 2760-2V | 239.08 |   | Taperoá/PB(3) |
| mean |   | 128.13 |   | 239.08 | 783.99 |   |

**References.** (1) our data; (2) Porpino et al (2009); (3) Porpino & Bergqvist (2002).

**Supplementary Table 2 (continuation).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Taxa | humerus | femur | Weight (Kg) | Localities |
| Sample | Circ. | Sample | Circ. |
| *Glyptotherium* sp. | MCC 1087V | 102.05 |   |   |   | Baraúna/RN(2) |
|  |   |   | MCC 1560V | 252.30 |   | Baraúna/RN(2) |
| mean |   | 102.05 |   | 252.30 | 711.28 |   |
| *H. paulacoutoi* | MCL 501/02 | 123.00 |   |   |   | Jacobina/BA(1) |
|  |   |   | MCL 501/08 | 155.00 |   | Jacobina/BA(1) |
| mean |   | 123.00 |   | 155.00 | 120.64 |   |
| *N. platensis* | MHNT-VT 2035 | 523.16 |   |   |   | São Bento do Una/PE(4) |
|  | MHNT-VT 2036 | 386.95 |   |   |   | São Bento do Una/PE(4) |
|  | MHNT-VT 2037 | 338.78 |   |   |   | São Bento do Una/PE(4) |
|  |   |   | MHNT-VT 1138 | 510.44 |   | São Bento do Una/PE(4) |
|  |   |   | MHNT-VT 2031 | 325.08 |   | São Bento do Una/PE(4) |
|  |   |   | MHNT-VT 2032 | 274.40 |   | São Bento do Una/PE(4) |
| mean |   | 416.30 |   | 369.97 | 6,266.18 |  |
| *T. platensis* | LPUFS 2188 | 265.00 |   |   |   | Poço Redondo/SE(1) |
|  |   |   | LPUFS 5691 | 230.00 |   | Poço Redondo/SE(1) |
| mean |   | 265.00 |   | 230.00 | 1,771.60 |   |

**References.** (1) our data; (2) Porpino et al (2009); (4) Molena (2012).

**Supplementary Table 2 (continuation).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Taxa | humerus | femur | Weight (Kg) | Localities |
| Sample | Circ. | Sample | Circ. |
| *P. major* | UESB 318PV172 | 136.00 |   |   |   | Anagé/BA(1) |
|  |   |   | UESB 318PV173 | 117.00 |  | Anagé/BA(1) |
| Mean |   | 136.00 |   | 117.00 | 283.54 |   |
| *E.* (*A.*) *neogeus* | MCL 6212 | 140.00 |   |   |   | Ourolândia/BA(1) |
|  |   |   | MCL 6229 | 152.00 |  | Ourolândia/BA(1) |
| mean |   | 140.00 |   | 152.00 | 419.36 |  |
| *S. populator* | MCL 7187/48 | 137.00 |   |   |   | Campo Formoso/BA(1) |
|  | MCL 2998 | 151.00 |   |   |   | Ourolândia/BA(1) |
|  |   |   | MCL 7160 | 124.00 |   | Jacobina/BA(1) |
|  |   |   | MCL 7161 | 114.00 |   | Jacobina/BA(1) |
| mean |   | 144.00 |   | 119.00 | 315.19 |   |
| *M. tridactyla* | MCL 1602/06 | 72.00 |  |  |  | Morro do Chapéu/BA(1) |
|  | MCN-M 99 | 100.00 |  |  |  | Morro do Chapéu/BA(1) |
|  |  |  | MCL 1602/07 | 83.00 |  | Belo Horizonte (Zoo) (1) |
|  |  |  | MCN-M 99 | 74.00 |  | Belo Horizonte (Zoo) (1) |
| mean |  | 86.00 |  | 78.50 | 34.86 |  |

**References.** (1) our data.

**Supplementary Table 2 (continuation).**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *P. maximus* | MACN s/n | 98.91 |  |  |  | locality unavailable(5) |
|  |  |  | MACN s/n | 70.02 |  | locality unavailable(5) |
| mean |  | 98.91 |  | 70.02 | 43.12 |  |
| *T. tetradactyla* | LEG 0644 | 39.00 |  |  |  | Campo Formoso/BA(1) |
|  | LEG s/n | 44.00 |  |  |  | Ituaçu/BA(1) |
|  |  |  | LEG 0656 | 31.00 |  | Campo Formoso/BA(1) |
|  |  |  | LEG s/n | 39.00 |  | Ituaçu/BA(1) |
| mean |  | 41.50 |  | 35.00 | 4.57 |  |

**References.** (1) our data; (5) Fariña & Vizcaino (1997).

**Supplementary Table 3.** Estimatedcarbon (δ13C) diet-bioapatite enrichment (Ɛ\*diet-bioapatite) in herbivores from Africa and Sergipe.

|  |  |  |  |
| --- | --- | --- | --- |
| **Taxa** | **Weight (Kg)** | **Ɛ\*diet-bioapatite (‰)** | **Ɛ\*diet-bioapatite (‰)****used**  |
| *Pachyarmatherium brasiliense* | 38.03 | 12.4 | 12.0 |
| *Holmesina paulacoutoi* | 124.64 | 12.9 | 13.0 |
| *Oryx beisa* | 160.00 | 13.1 |
| *Kobus ellipsiprymnus* | 200.00 | 13.2 |
| *Connochaetes taurinus* | 220.00 | 13.2 |
| *Palaeolama major* | 285.00 | 13.3 |
| *Equus quagga* | 290.00 | 13.3 |
| *Equus* (*Amerhippus*) *neogeus* | 420.00 | 13.5 |
| *Catonyx cuvieri* | 777.73 | 13.8 | 14.0 |
| *Syncerus caffer* | 660.00 | 13.7 |
| *Glyptotherium* sp. | 710.00 | 13.7 |
| *Panochthus* sp. | 785.00 | 13.8 |
| *Diceros bicornis* | 1,000.00 | 13.9 |
| *Giraffa camelopardalis* | 1,200.00 | 14.0 |
| *Hippopotamus amphibius* | 1,400.00 | 14.1 |
| *Toxodon platensis* | 1,770.00 | 14.2 |
| *Ceratotherium simum* | 2,000.00 | 14.2 |
| *Eremotherium laurillardi* | 3,416.18 | 14.5 |
| *Loxodonta africana* | 5,000.00 | 14.7 | 15.0 |
| *Notiomastodon platensis* | 6,300.00 | 14.8 |

**Supplementary Table 4.** Carbon (δ13C) isotopic values used in one isotopic mathematical mixing model. Carbon values were corrected based on Ɛ\*diet-bioapatite x weight (*w*) of studied mammals.

|  |  |
| --- | --- |
| **Food resources** | **δ13C** |
| ***w* < 75 Kg** | **75 Kg < *w* < 600 Kg**  | **600 Kg < *w* < 3,500 Kg** | ***w* > 3,500 Kg** |
| **Leaves** | -17.0 | -16.0 | -15.0 | -14.0 |
| **Fruits** | -12.0 | -11.0 | -10.0 | -9.0 |
| **C4 grass** | -1.0 | 0.0 | 1.0 | 2.0 |

**Supplementary Table 5.** Weight (t), mean values of proportional contributions (*pi*) of food sources (C3 and C4), carbon isotopes (δ13C), standardized isotopic niche breadth (BA) and oxygen isotopes (δ18O) for extant meso-megamammals from Africa and Pleistocene of Sergipe. **References:** (1) Coe *et al.* (1976); (2) Our data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Taxa** | **weight (t)** | **N** | ***pi*** | **mean±s** |
| **C3** | **C4** | **δ13C (‰)** | ***BA*** | **δ18O (‰)** |
| **África** | ***La*** | 5.00(1) | 43 | 0.61 | 0.39 | -8.6±2.0 | 0.80±0.18 | 30.0±1.0 |
| ***Eq*** | 0.29(1) | 25 | - | 1.00 | -0.6±0.1 | 0.01±0.03 | 31.2±1.8 |
| ***Db*** | 1.00(1) | 30 | 0.65 | 0.35 | -10.1±1.8 | 0.78±0.26 | 29.5±1.3 |
| ***Cs*** | 2.00(1) | 03 | - | 1.00 | 0.3±0.2 | 0.00 | 35.2 |
| ***Ct*** | 0.22(1) | 08 | 0.01 | 0.99 | -0.1±1.3 | 0.01±0.03 | 33.3±0.9 |
| ***Sc*** | 0.66(1) | 28 | - | 1.00 | 0.9±1.3 | 0.00 | 30.6±1.4 |
| ***Ke*** | 0.20(1) | 12 | - | 1.00 | 1.0±1.0 | 0.00 | 33.4±0.9 |
| ***Ob*** | 0.16(1) | 05 | - | 1.00 | -0.7±1.0 | 0.00 | 33.4±1.7 |
| ***Gc*** | 1.20(1) | 15 | 0.75 | 0.25 | -11.3±1.9 | 0.59±0.29 | 37.0±1.5 |
| ***Ha*** | 1.40(1) | 16 | 0.23 | 0.77 | -4.1±1.5 | 0.54±0.27 | 26.9±1.5 |
| **Sergipe (Brazil)** | ***El*** | 3.42(2) | 15 | 0.44 | 0.56 | -5.1±1.9 | 0.65±0.26 | 28.4±1.6 |
| ***Cc*** | 0.78(2) | 01 | 0.32 | 0.68 | -3.4 | 0.77 | 30.2 |
| ***Hp*** | 0.12(2) | 01 | 0.43 | 0.57 | -6.0 | 0.96 | 30.3 |
| ***G*** | 0.71(2) | 01 | 0.21 | 0.79 | -1.8 | 0.49 | 26.4 |
| ***P*** | 0.78(2) | 01 | 0.49 | 0.51 | -5.9 | 1.00 | 29.7 |
| ***Tp*** | 1.77(2) | 05 | 0.40 | 0.60 | -4.5±2.9 | 0.69±0.10 | 31.2±2.5 |
| ***Np*** | 6.30(2) | 06 | 0.25 | 0.75 | -0.1±1.1 | 0.36±0.20 | 32.5±1.9 |
| ***Pm*** | 0.28(2) | 01 | 0.52 | 0.48 | -7.3 | 1.00 | 31.9 |
| ***En*** | 0.42(2) | 01 | 0.29 | 0.71 | -3.0 | 0.69 | 31.3 |