**Table S1.** REE contents of the Nea Peramos HM sands (in ppm). LREEs group includes the elements from La to Sm, and HREEs the elements from Eu to Lu and Y. Total REE includes lanthanides, Y and Sc.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Sample No.** | **NP115** | **NP116** | **NP117** | **NP117A** | **NP118** | **NP119** | **NP120** | **NP121** | **NP122** | **NP123** | **NP124** | **NP125** | **NP126** | **NP127** | **NP128** |
| La (ppm) | 182 | 231 | 391 | 82 | 194 | 999 | 27 | 555 | 612 | 2142 | 1890 | 1265 | 21 | 633 | 215 |
| Ce | 287 | 412 | 699 | 159 | 356 | 1754 | 58 | 1008 | 1106 | 3830 | 3310 | 2266 | 50 | 1122 | 392 |
| Pr | 29 | 40 | 70 | 17 | 36 | 172 | 8 | 101 | 111 | 376 | 321 | 226 | 6 | 111 | 41 |
| Nd | 91 | 128 | 222 | 51 | 108 | 522 | 22 | 322 | 355 | 1166 | 1010 | 713 | 18 | 360 | 133 |
| Sm | 11 | 15 | 25 | 6 | 13 | 57 | 3 | 38 | 41 | 131 | 115 | 82 | 3 | 71 | 6 |
| Eu | 3 | 3 | 5 | 2 | 3 | 9 | 2 | 7 | 8 | 21 | 18 | 13 | 2 | 1 | 1 |
| Gd | 12 | 17 | 27 | 7 | 14 | 67 | 3 | 42 | 45 | 147 | 131 | 93 | 3 | 6 | 5 |
| Tb | 1 | 1 | 2 | 1 | 1 | 5 | 0 | 3 | 4 | 12 | 10 | 7 | 0 | 0 | 0 |
| Dy | 4 | 5 | 8 | 2 | 4 | 17 | 1 | 13 | 14 | 38 | 34 | 25 | 1 | 2 | 2 |
| Ho | 1 | 1 | 1 | 0 | 1 | 3 | 0 | 2 | 3 | 7 | 6 | 4 | 0 | 0 | 0 |
| Er | 2 | 3 | 5 | 1 | 3 | 10 | 1 | 8 | 9 | 24 | 21 | 15 | 1 | 1 | 1 |
| Tm | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 3 | 2 | 2 | 0 | 0 | 0 |
| Yb | 3 | 3 | 5 | 2 | 3 | 8 | 2 | 7 | 7 | 18 | 16 | 12 | 2 | 1 | 1 |
| Lu | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 3 | 2 | 2 | 0 | 0 | 0 |
| Sc | 7 | 7 | 4 | 2 | 4 | 8 | 7 | 10 | 8 | 14 | 13 | 10 | 3 | 8 | 8 |
| Y | 21 | 28 | 43 | 12 | 22 | 83 | 9 | 63 | 68 | 192 | 169 | 122 | 6 | 65 | 37 |
| LREE | 607 | 833 | 1411 | 317 | 711 | 3512 | 125 | 2034 | 2233 | 7659 | 6659 | 4562 | 101 | 2305 | 795 |
| HREE | 47 | 93 | 140 | 39 | 74 | 286 | 32 | 213 | 228 | 650 | 573 | 414 | 22 | 148 | 91 |
| Total REE | 654 | 894 | 1509 | 344 | 762 | 3716 | 143 | 2181 | 2393 | 8124 | 7068 | 4857 | 116 | 2381 | 842 |
| Eu/Eu \* | 0.80 | 0.57 | 0.59 | 0.94 | 0.68 | 0.45 | 2.04 | 0.54 | 0.57 | 0.46 | 0.45 | 0.45 | 2.04 | 0.15 | 0.56 |
| Ce/Ce \* | 0.93 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 0.92 | 1.00 | 0.99 | 1.00 | 1.00 | 0.99 | 1.04 | 0.99 | 0.98 |

(\*) The magnitude of the Eu and Ce anomaly has been traditionally described by Eu/Eu \* and Ce/Ce \* respectively, where Eu \* and Ce \* are the theoretical Eu, Ce value derived from a chondrite normalized rare earth element (REE) pattern.