Research Reactor Center

University of Missouri-Columbia

Archaeometry Laboratory
Research Reactor Center
Columbia MO 65211

PHONE (573) 882-5270
FAX (573) 882-6360

June 4, 2005

Marisa Lazzari
500 West 122nd Street, Apt 3i
New York, NY 10027

Dear Marisa:

I apologize for the delay in reporting the data for the four basalt samples. I was very busy and because the samples were so few in number I could not figure out how the data should be interpreted. Your recent email reminded me that I needed to complete this work for you.

As a result, I decided to compare the data for your basalt sample with the nearest other basalt project. The data came from a project from the Tiwanaku, Bolivia area that we did several years ago for Martin Giesso. In this study source samples from the Querimita quarry and artifacts from Tiwanaku were analyzed. The results indicated two different compositional groups (i.e., Querimita and an unknown source group).

With this letter I have enclosed one bivariate plot of Lanthanum versus Iron showing the data for your four basalt samples compared to the two compositional groups of basalt from Bolivia. There are clear ly very large chemical differences. Most notably your samples are different from both the Querimita and the unknown source. In addition, three of your samples appear to group together and the fourth seems chemically different. It is possible that the single sample represents a different chemical group. Or, it could be an outlier (i.e., bad specimen for analysis). The latter is pure speculation based on having so few samples to examine.

Also, enclosed with this letter you will find a table listing the chemical data for your basalt samples. Let me know if there is anything else that I can do.

I hope that your dissertation work is going along well.

Sincerely,

Michael D. Glascock

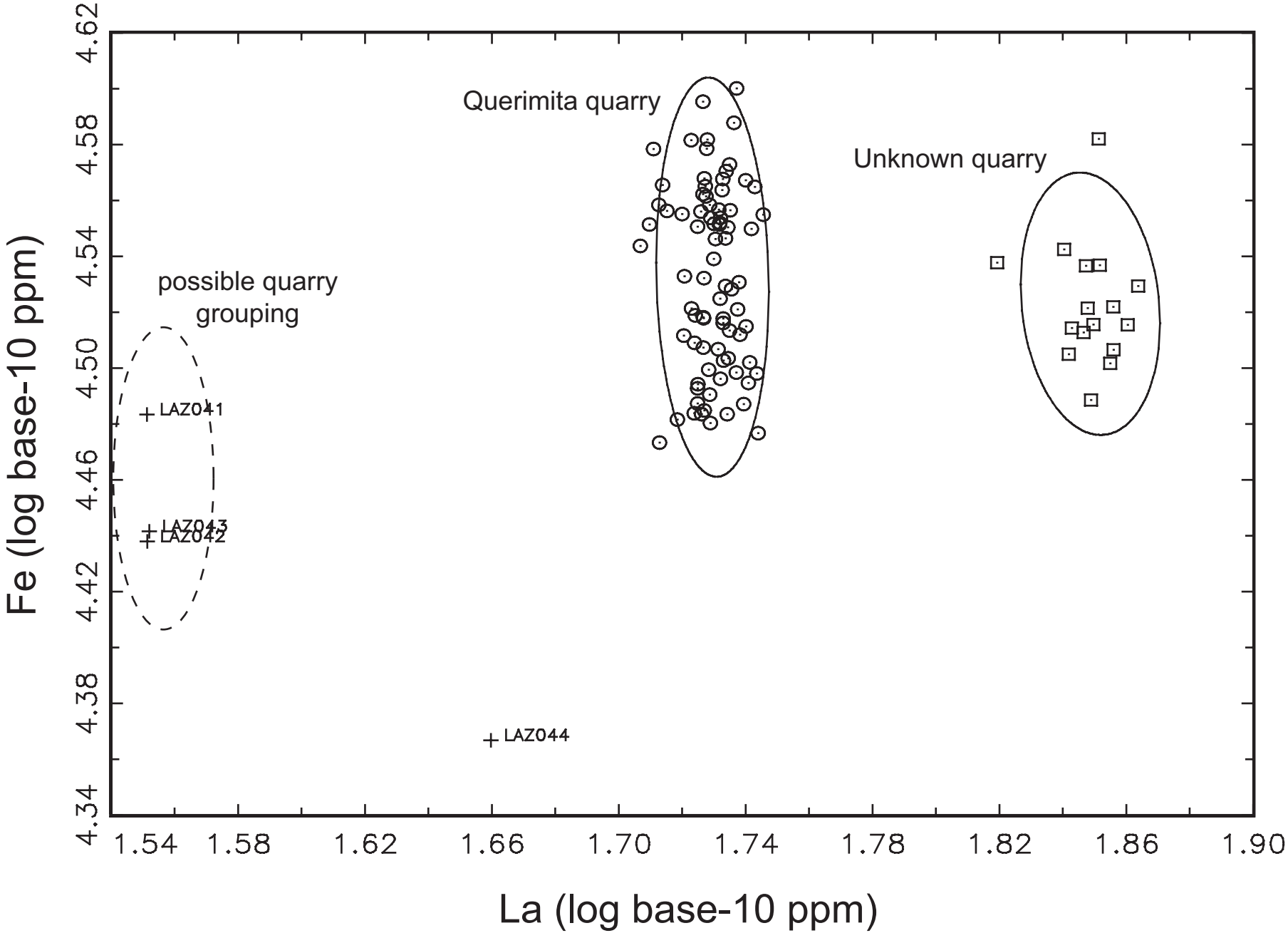
Querimita quarry
Unknown quarry
possible quarry grouping
LAZ041
LAZ043
LAZ042
LAZ044
Fe (log base-10 ppm)
La (log base-10 ppm)
4.62
4.58
4.54
4.50
4.46
4.42
4.38
4.34
1.54
1.58
1.62
1.66
1.70
1.74
1.78
1.82
1.86
1.90

Table I. INAA results for basalt samples from Northwest Argentina in parts per million.

| anid | As | La | Lu | Nd | Sm | U | Yb | Ce | Co | Cr | Cs |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAZ041 | 1.541 | 35.6 | 0.232 | 26.6 | 4.941 | 4.21 | 1.359 | 67.8 | 15.47 | 140.7 | 7.85 |
| LAZ042 | 1.906 | 35.6 | 0.253 | 26.6 | 5.005 | 4.48 | 1.277 | 69.3 | 11.82 | 86.8 | 7.84 |
| LAZ043 | 2.050 | 35.6 | 0.221 | 26.3 | 4.978 | 4.54 | 1.237 | 68.2 | 12.29 | 97.0 | 7.90 |
| LAZ044 | 0.000 | 45.7 | 0.162 | 33.1 | 5.630 | 3.79 | 0.703 | 87.5 | 8.90 | 41.2 | 6.24 |

| anid | Eu | Fe | Hf | Ni | Rb | Sb | Sc | Sr | Ta | Tb | Th |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAZ041 | 0.951 | 30432 | 4.82 | 47.21 | 161.5 | 0.156 | 11.69 | 288.8 | 0.598 | 0.520 | 20.5 |
| LAZ042 | 0.920 | 27412 | 4.86 | 18.45 | 166.4 | 0.146 | 10.49 | 257.8 | 0.639 | 0.466 | 21.1 |
| LAZ043 | 0.935 | 27646 | 4.89 | 36.26 | 164.1 | 0.130 | 10.59 | 280.0 | 0.615 | 0.514 | 21.1 |
| LAZ044 | 1.013 | 23268 | 5.46 | 0.00 | 174.8 | 0.078 | 5.98 | 328.9 | 0.481 | 0.357 | 23.7 |

| anid | Zn | Zr | Al | Ba | Ca | Dy | K | Mn | Na | Ti | V |
|---|---|---|---|---|---|---|---|---|---|---|---|
| LAZ041 | 71.3 | 110.0 | 84231 | 328 | 26118 | 2.34 | 25595 | 530 | 25087 | 3064 | 88.0 |
| LAZ042 | 70.0 | 117.7 | 91196 | 434 | 25435 | 2.60 | 30394 | 501 | 25866 | 2614 | 91.4 |
| LAZ043 | 72.1 | 118.9 | 86367 | 424 | 26770 | 2.63 | 27157 | 483 | 25481 | 2251 | 90.8 |
| LAZ044 | 69.5 | 137.6 | 96312 | 470 | 22213 | 1.98 | 33380 | 351 | 26945 | 3650 | 74.5 |