Dear editor,

I am addressing this letter to you to explain the changes made at the manuscript: **Variability in sediment particle size, mineralogy, and Fe mode of occurrence across dust-source inland drainage basins: The case of the Lower Drâa Valley, Morocco.** At Atmospheric Chemistry and Physics, egusphere-2023-1120.

The changes are listed below:

* Column added to Table 2 from the manuscript. This change adds the nº of each sample in order to a better cross matching between results (all the table results have the nº of the sample).
* Table S1 is added to the supplementary material. Also, with this addition, more data is available directly in the manuscript/supplementary.
* Table S3 is added to the supplementary material. With this addition, three tables are available now at the supplementary and all the data is available in the manuscript/supplementary.

Best regards,

Adolfo González-Romero

Table 2. Mineral results from samples and type of sample. In T: type of samples, Nº: Nº of the sample, C: Crust, PS: Paved sediment, S: Sediment, D: Dune. In Loc (Location), ES: Erg Smar, LB: L’Bour, HL: High-lands. Sme: Smectite, Mca: Mica/Illite, Kln: Kaolinite, Chl: Chlorite, Plg: Palygorskite, Qtz: Quartz, Cal: Calcite, Dol: Dolomite, Hl: Halite, Gp: Gypsum, Mc: Microcline, Ab: Albite and anorthite, Hem: Hematite, Gt: Goethite. <0.1 indicates below limit of detection.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  | Feldspars | | Carbonates | | Clays | | | | | Salts | | Iron Oxides | |
| T | Nº | Loc | Qtz | Mc | Ab | Cal | Dol | Sme | Mca | Kln | Chl | Plg | Hl | Gp | Hem | Gt |
| C | 1 | ES | 55 | 2.6 | 4.8 | 20 | 3.3 | <0.1 | 11 | <0.1 | 1.2 | <0.1 | <0.1 | <0.1 | 1.2 | <0.1 |
| C | 2 | ES | 57 | 2.7 | 3.1 | 20 | 3.4 | <0.1 | 5.2 | <0.1 | 0.78 | 0.26 | 7.2 | <0.1 | 0.87 | <0.1 |
| C | 8 | ES | 36 | 2.2 | 10 | 21 | 2.7 | <0.1 | 15 | 10.0 | 1.4 | <0.1 | <0.1 | 0.20 | 1.2 | <0.1 |
| C | 11 | ES | 32 | 1.7 | 3.3 | 29 | 3.4 | <0.1 | 10 | 17 | 2.2 | 0.20 | <0.1 | <0.1 | 0.24 | 1.3 |
| C | 12 | ES | 38 | 3.7 | 4.7 | 18 | 6.2 | <0.1 | 14 | 9.0 | 1.3 | 0.14 | 3.5 | 0.14 | 0.95 | <0.1 |
| C | 14 | ES | 50 | 5.5 | 5.5 | 14 | 2.8 | <0.1 | 12 | 7.9 | 1.3 | <0.1 | <0.1 | <0.1 | 0.21 | 0.85 |
| C | 25 | LB | 50 | 13 | 5.1 | 12 | 3.6 | <0.1 | 8.1 | 5.7 | 0.46 | <0.1 | <0.1 | <0.1 | 0.92 | <0.1 |
| C | 31 | HL | 63 | 6.9 | 6.8 | 12 | 2.2 | <0.1 | 4.5 | 3.9 | 0.19 | <0.1 | <0.1 | <0.1 | 0.11 | 0.40 |
| C | 34 | ES | 45 | 3.7 | 3.2 | 26 | 3.2 | <0.1 | 11 | 5.4 | 1.8 | 0.21 | <0.1 | <0.1 | <0.1 | 0.18 |
| C | 40 | ES | 30 | 2.6 | 3.4 | 35 | 2.5 | 0.57 | 8.8 | 14 | 1.4 | 1.5 | 0.14 | <0.1 | 0.14 | 0.17 |
| C | 108 | HL | 60 | 3.7 | 5.5 | 11 | 0.98 | <0.1 | 5.7 | 3.4 | 0.97 | 0.19 | 8.1 | 0.21 | 0.41 | 0.60 |
| C | 109 | HL | 54 | 4.7 | 3.9 | 7.1 | 1.79 | <0.1 | 5.4 | 3.3 | 0.60 | <0.1 | 16 | 2.0 | 0.22 | 0.65 |
| S | 10 | ES | 35 | 1.8 | 4.1 | 24 | 5.6 | <0.1 | 17 | 8.3 | 2.2 | <0.1 | 1.1 | 0.19 | 1.1 | <0.1 |
| S | 15 | ES | 67 | 6.6 | 5.1 | 10 | 2.1 | <0.1 | 3.0 | 3.6 | 0.64 | <0.1 | 1.1 | <0.1 | 0.42 | 0.23 |
| S | 19 | LB | 51 | 4.6 | 7.9 | 15 | 4.2 | <0.1 | 8.9 | 6.6 | 0.89 | <0.1 | <0.1 | <0.1 | <0.1 | 0.82 |
| S | 27 | LB | 57 | 2.7 | 7.8 | 16 | 3.8 | <0.1 | 9.6 | 1.9 | 0.49 | <0.1 | <0.1 | <0.1 | 0.93 | <0.1 |
| S | 29 | LB | 57 | 3.4 | 5.4 | 18 | 3.2 | <0.1 | 6.5 | 3.5 | 2.1 | <0.1 | <0.1 | <0.1 | 0.33 | 0.60 |
| S | 32 | HL | 67 | 3.2 | 5.3 | 13 | 1.7 | 0.13 | 4.3 | 3.2 | 0.20 | 0.20 | <0.1 | <0.1 | <0.1 | 0.90 |
| S | 49 | LB | 51 | 3.4 | 5.1 | 21 | 3.3 | <0.1 | 8.5 | 4.5 | 2.2 | 0.15 | <0.1 | <0.1 | 0.66 | 0.50 |
| PS | 4 | ES | 44 | 3.0 | 5.7 | 15 | 3.1 | <0.1 | 16 | 11 | 1.5 | <0.1 | <0.1 | <0.1 | 0.35 | 0.64 |
| PS | 7 | ES | 44 | 2.2 | 5.4 | 22 | 4.7 | <0.1 | 13 | 6.8 | 0.54 | <0.1 | <0.1 | <0.1 | 1.1 | <0.1 |
| PS | 9 | ES | 55 | 2.3 | 5.4 | 24 | 3.6 | <0.1 | 7.8 | 0.84 | 0.28 | 0.17 | <0.1 | <0.1 | 0.98 | <0.1 |
| PS | 16 | ES | 40 | 5.3 | 4.7 | 20 | 4.3 | <0.1 | 13 | 10 | 1.1 | <0.1 | <0.1 | 0.29 | 0.77 | 0.23 |
| PS | 17 | ES | 67 | 8.8 | 8.7 | 8.9 | 1.8 | <0.1 | 3.1 | 0.38 | 0.30 | <0.1 | <0.1 | <0.1 | 0.30 | 0.29 |
| PS | 18 | LB | 48 | 5.5 | 4.0 | 16 | 4.3 | <0.1 | 11 | 8.7 | 1.3 | 0.13 | <0.1 | <0.1 | 1.1 | <0.1 |
| PS | 35 | ES | 61 | 3.5 | 6.3 | 12 | 3.6 | <0.1 | 7.9 | 3.6 | 0.78 | 0.16 | <0.1 | <0.1 | 0.41 | 0.33 |
| PS | 41 | ES | 46 | 9.1 | 9.0 | 14 | 3.3 | 0.29 | 6.6 | 8.8 | 1.0 | 0.42 | <0.1 | <0.1 | 0.42 | 0.69 |
| PS | 42 | ES | 48 | 2.3 | 7.3 | 22 | 3.7 | <0.1 | 8.1 | 6.3 | 1.3 | <0.1 | <0.1 | 0.16 | 0.17 | 1.1 |
| PS | 46 | LB | 61 | 4.0 | 8.1 | 13 | 3.3 | <0.1 | 4.3 | 4.2 | 1.2 | <0.1 | <0.1 | <0.1 | 0.16 | 0.64 |
| PS | 50 | LB | 51 | 3.6 | 4.4 | 22 | 3.1 | <0.1 | 8.5 | 4.3 | 2.0 | 0.17 | <0.1 | <0.1 | 0.68 | 0.53 |
| D | 5 | ES | 80 | 7.1 | 7.0 | 3.1 | 0.69 | <0.1 | 1.4 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.38 |
| D | 6 | ES | 65 | 14 | 8.3 | 4.1 | 0.90 | <0.1 | 4.8 | 1.9 | <0.1 | <0.1 | <0.1 | <0.1 | <0.1 | 0.37 |
| D | 26 | LB | 73 | 7.0 | 11 | 6.6 | 0.31 | <0.1 | 1.2 | 0.19 | 0.23 | <0.1 | <0.1 | <0.1 | 0.11 | 0.32 |
| D | 33 | ES | 89 | 2.5 | 3.0 | 2.0 | <0.1 | <0.1 | 0.69 | 1.4 | <0.1 | <0.1 | <0.1 | <0.1 | 0.45 | 0.65 |
| D | 36 | ES | 65 | 12 | 5.4 | 11 | 1.3 | 0.13 | 2.7 | 2.1 | 0.38 | <0.1 | <0.1 | <0.1 | 0.12 | 0.32 |
| D | 43 | LB | 64 | 5.0 | 6.8 | 10 | 5.0 | <0.1 | 3.1 | 4.3 | 0.50 | <0.1 | <0.1 | <0.1 | <0.1 | 0.61 |
| D | 44 | LB | 76 | 4.1 | 6.7 | 6.6 | 0.52 | <0.1 | 2.6 | 2.2 | 0.21 | <0.1 | 0.28 | <0.1 | 0.25 | 0.21 |
| D | 47 | LB | 77 | 3.9 | 6.7 | 7.5 | 0.53 | 0.26 | 1.5 | 1.6 | 0.49 | <0.1 | 0.34 | <0.1 | 0.13 | 0.50 |
| D | 48 | LB | 57 | 11 | 14 | 7.5 | 1.8 | <0.1 | 3.4 | 3.0 | 0.74 | <0.1 | <0.1 | <0.1 | 0.16 | 0.37 |
| D | 103 | HL | 85 | 4.8 | 4.0 | 3.7 | 0.33 | <0.1 | 1.1 | 0.22 | 0.51 | <0.1 | <0.1 | <0.1 | <0.1 | 0.69 |
| D | 104 | HL | 82 | 9.2 | 3.3 | 2.8 | 0.17 | 0.15 | 1.2 | 0.67 | <0.1 | <0.1 | <0.1 | <0.1 | 0.20 | 0.29 |
| D | 107 | HL | 77 | 6.9 | 7.3 | 4.5 | 0.34 | <0.1 | 1.7 | 1.3 | 0.39 | <0.1 | <0.1 | <0.1 | <0.1 | 0.41 |

Table S1. Sample summarize of MDPSD and FDPSD. Nº is the nº of sample, Coord. Are the coordinates of the samples, ES: Erg Smar, LB: L’Bour and HL: High-lands, MDPSD: Minimally dispersed particle size distribution and FDPSD: Fully dispersed particle size distribution.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Nº** | **Coord.** | **Coord.** | **Type** | **Location** | **MDPSD (µm)** | **FDPSD (µm)** |
| 1 | 29º42'800'' | 6º01,972' | CRUST | ES | 85 | 9.0 |
| 2 | 29º42'801'' | 6º01,975' | CRUST | ES | 84 | 8.5 |
| 8 | 29º43'607'' | 6º04,964' | CRUST | ES | 147 | 5.2 |
| 11 | 29º43'603'' | 6º04,966' | CRUST | ES | 21 | 2.9 |
| 12 | 29º43'604'' | 6º04,963' | CRUST | ES | 110 | 6.1 |
| 14 | 29º45'592 | 5º59,585' | CRUST | ES | 104 | 10 |
| 25 | 29º49,674' | 5º52,436' | CRUST | LB | 20 | 17 |
| 31 | 29º49,631' | 5º57,335' | CRUST | HL | 99 | 80 |
| 34 | 29º41,505' | 6º02,872' | CRUST | ES | 181 | 9.1 |
| 40 | 29º42,933 | 6º01,990 | CRUST | ES | 320 | 2.7 |
| 108 | 29º56,604 | 6º23,267 | CRUST | HL | 89 | 20 |
| 109 | 29º51,590 | 6º29,762 | CRUST | HL | 93 | 272 |
| 10 | 29º43'604'' | 6º04,964' | SEDIMENT | ES | 147 | 5.8 |
| 15 | 29º45'592 | 5º59,585' | SEDIMENT | ES | 83 | 39 |
| 19 | 29º49,670' | 5º52,434' | SEDIMENT | LB | 20 | 13 |
| 27 | 29º49,674' | 5º52,436' | SEDIMENT | LB | 23 | 18 |
| 29 | 29º49,649' | 5º52,382' | SEDIMENT | LB | 68 | 16 |
| 32 | 29º49,631' | 5º57,335' | SEDIMENT | HL | 97 | 12 |
| 49 | 29°49'31.53" | °52'26.09" | SEDIMENT | LB | 49 | 16 |
| 4 | 29º42'800'' | 6º01,972' | PAVED SED | ES | 25 | 12 |
| 7 | 29º42'542'' | 6º02,053' | PAVED SED | ES | 19 | 8.3 |
| 9 | 29º43'604'' | 6º04,964' | PAVED SED | ES | 74 | 5.9 |
| 16 | 29º45'592 | 5º59,585' | PAVED SED | ES | 105 | 7.5 |
| 17 | 29º45'592 | 5º59,585' | PAVED SED | ES | 94 | 78 |
| 18 | 29º49,670' | 5º52,434' | PAVED SED | LB | 152 | 5.3 |
| 35 | 29º41,505' | 6º02,872' | PAVED SED | ES | 48 | 19 |
| 41 | 29º42,933 | 6º01,990 | PAVED SED | ES | 148 | 6.8 |
| 42 | 29º42,933 | 6º01,990 | PAVED SED | ES | 31 | 8.1 |
| 46 | 29º47,196 | 5º56,724 | PAVED SED | LB | 89 | 67 |
| 50 | 29°49'31.53" | °52'26.09" | PAVED SED | LB | 29 | 14 |
| 5 | 29º43'203'' | 6º02,171' | DUNE | ES | 282 | 263 |
| 6 | 29º43'203'' | 6º02,171' | DUNE | ES | 263 | 243 |
| 26 | 29º49,674' | 5º52,436' | DUNE | LB | 132 | 138 |
| 33 | 29º41,505' | 6º02,872' | DUNE | ES | 244 | 239 |
| 36 | 29º41,532' | 6º02,900 | DUNE | ES | 355 | 308 |
| 43 | 29º47,196 | 5º56,724 | DUNE | LB | 159 | 128 |
| 44 | 29º47,196 | 5º56,724 | DUNE | LB | 143 | 132 |
| 47 | 29º50,049 | 5º52,002 | DUNE | LB | 192 | 159 |
| 48 | 29º49,870 | 5º48,318 | DUNE | LB | 244 | 272 |
| 103 | 29º50,927 | 6º2,591 | DUNE | HL | 195 | 169 |
| 104 | 29º50,927 | 6º2,591 | DUNE | HL | 197 | 268 |
| 107 | 29º50,791 | 6º12,274 | DUNE | HL | 243 | 312 |

Table S3. Summary of Fe mode of occurrence in weight %. Abbreviations are Nº is the number of the sample, ES: Erg Smar, LB: L’Bour, HL: Highland, FeT: total Fe, FeD: Dithionite Fe, FeA: Ascorbate Fe and FeS: structural Fe.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Nº** | **Type** | **Location** | **FeT** | **FeD** | **FeA** | **FeS** |
| 1 | CRUST | ES | 3.8 | 1.2 | 0.08 | 2.5 |
| 2 | CRUST | ES | 3.0 | 0.87 | 0.04 | 2.1 |
| 8 | CRUST | ES | 4.1 | 1.2 | 0.12 | 2.7 |
| 11 | CRUST | ES | 4.7 | 1.5 | 0.09 | 3.1 |
| 12 | CRUST | ES | 3.5 | 0.96 | 0.07 | 2.4 |
| 14 | CRUST | ES | 3.4 | 1.1 | 0.09 | 2.3 |
| 25 | CRUST | LB | 3.3 | 0.93 | 0.03 | 2.3 |
| 31 | CRUST | HL | 3.2 | 0.98 | 0.04 | 2.2 |
| 34 | CRUST | ES | 3.9 | 1.2 | 0.07 | 2.7 |
| 40 | CRUST | ES | 5.0 | 1.6 | 0.10 | 3.3 |
| 108 | CRUST | HL | 2.8 | 1.0 | 0.04 | 1.8 |
| 109 | CRUST | HL | 2.8 | 0.88 | 0.06 | 1.8 |
| 4 | PAVED SEDIMENT | ES | 3.5 | 0.99 | 0.04 | 2.4 |
| 7 | PAVED SEDIMENT | ES | 3.7 | 1.1 | 0.06 | 2.6 |
| 9 | PAVED SEDIMENT | ES | 3.6 | 0.98 | 0.09 | 2.5 |
| 16 | PAVED SEDIMENT | ES | 3.7 | 1.0 | 0.10 | 2.6 |
| 17 | PAVED SEDIMENT | ES | 2.4 | 0.59 | 0.03 | 1.8 |
| 18 | PAVED SEDIMENT | LB | 3.6 | 1.1 | 0.07 | 2.4 |
| 35 | PAVED SEDIMENT | ES | 2.9 | 0.74 | 0.03 | 2.2 |
| 41 | PAVED SEDIMENT | ES | 3.7 | 1.1 | 0.06 | 2.5 |
| 42 | PAVED SEDIMENT | ES | 3.9 | 1.2 | 0.06 | 2.6 |
| 46 | PAVED SEDIMENT | LB | 2.7 | 0.80 | 0.05 | 1.8 |
| 50 | PAVED SEDIMENT | LB | 3.3 | 1.2 | 0.03 | 2.1 |
| 10 | SEDIMENT | ES | 3.9 | 1.1 | 0.10 | 2.7 |
| 15 | SEDIMENT | ES | 2.4 | 0.65 | 0.04 | 1.7 |
| 19 | SEDIMENT | LB | 3.2 | 0.89 | 0.04 | 2.3 |
| 27 | SEDIMENT | LB | 3.1 | 0.94 | 0.04 | 2.1 |
| 29 | SEDIMENT | LB | 3.2 | 0.93 | 0.03 | 2.2 |
| 32 | SEDIMENT | HL | 3.2 | 1.1 | 0.03 | 2.1 |
| 49 | SEDIMENT | LB | 3.2 | 1.1 | 0.03 | 2.1 |
| 5 | DUNE | ES | 1.9 | 0.43 | 0.02 | 1.5 |
| 6 | DUNE | ES | 2.0 | 0.45 | 0.02 | 1.5 |
| 26 | DUNE | LB | 1.6 | 0.43 | 0.02 | 1.2 |
| 33 | DUNE | ES | 1.8 | 0.31 | 0.02 | 1.5 |
| 36 | DUNE | ES | 2.8 | 0.43 | 0.02 | 2.3 |
| 43 | DUNE | LB | 2.3 | 0.63 | 0.04 | 1.6 |
| 44 | DUNE | LB | 1.9 | 0.46 | 0.03 | 1.4 |
| 47 | DUNE | LB | 2.0 | 0.63 | 0.04 | 1.3 |
| 48 | DUNE | LB | 2.2 | 0.52 | 0.01 | 1.6 |
| 103 | DUNE | HL | 2.1 | 0.74 | 0.01 | 1.3 |
| 104 | DUNE | HL | 1.6 | 0.48 | 0.01 | 1.1 |
| 107 | DUNE | HL | 1.7 | 0.46 | 0.01 | 1.2 |