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Multiplicative compositional combinations as an alternative to analyze the compositions of Mercury soils

J.A. Martín-Fernández (1), **C. Barceló-Vidal** (1), H. Lammer (2) and P. Wurz (3)

(1) Department for Computer Science and Applied Mathematics, University of Girona, Spain, (2) Space Research Institute, Austrian Academy of Sciences, Graz, Austria, (3) Physikalisches Institut, Universität Bern, Switzerland (jamf@ima.udg.edu)

Because of the relative nature of compositional data (CODA), i.e., the constraint that component concentrations sum to 100%, when we need to compare two chemical compositions,ratios among individual entries have to be considered rather than difference vector between absolute values of entries. For example, since this *multiplicative* point of view, the arithmetic mean of two compositions is not *located* in its middle point. Instead, the geometric mean is its true *compositional average*. This fact generalizes in the *multiplicative compositional combinations* of two *endmembers* compositions. These compositional combinations could be used for applying the sputter-codes. Exospheric density distributions in 1-D and 3-D for all the expected species under ordinary solar wind conditions could be produced.