Appendix 1

The correlation matrices were calculated for each of the four regional hydrogeochemical pole (RHP) obtained with the classification of the samples of the regional dataset (321 samples) based on the type of aquifer from which the groundwater was collected (bedrock or granular aquifers) and the anionic facies of the groundwater (Cl^- or HCO_3^-). Therefore, four correlation matrices are presented:

1. **Correlation matrix 1:** Correlations for **RHP 3** (bicarbonate groundwater from bedrock aquifers; 124 samples)
2. **Correlation matrix 2:** Correlations for **RHP 1** (bicarbonate groundwater from granular aquifers; 132 samples)
3. **Correlation matrix 3:** Correlations for **RHP 4** (chloride groundwater from bedrock aquifers; 46 samples);
4. **Correlation matrix 4:** Correlations for **RHP 2** (chloride groundwater from granular aquifers; 19 samples).

The correlation matrix were generated using the software Statistica version 6.1 (Statsoft Inc., Ok, USA; 2013) and were investigated in order to identify chemical elements which are correlated to chemical elements highlighted as regional anomalies of groundwater quality (CERM-PACES, 2013: F^-, Mn^{2+}, Fe^{2+}, Ba^{2+}, Al^{3+}) as well as others based on their discriminating potential as indicated by the correlation matrices. Significant correlations are defined using the Neyman-Pearson approach (p-value < 0.05). Only significant values are presented in the correlation matrices.

The figures represent a summary of the geochemical interrelationships in the four data sets. In order to fully understand all of the strong correlation presented, considerably more experimental water-rock interaction studies are required.