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Optimized calculations for Rayleigh fractionation of lithium isotopes

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Due to recent advent of various stable isotope measurements in Korea, for example, MC-ICP-MS, Laser-spectroscopy, H-device and Gas Bench, studies of stable isotopic compositions of specific element including water are exponentially increasing. It is possible for us to better understand global cycle of each element by analysis and interpretation using concentration and stable isotopic compositions of each element. These increasing data should be quantitatively analyzed and interpreted with proper models. In this study, a module for optimizing parameters of Rayleigh fractionation model has been developed using isotopic compositions of specific element. In this work, using the analyzed data from previous study (Vigier et al., 2009), the best optimized value was selected based on the distance between analyzed data and model results. In this process, MATLAB codes have been developed. The best fit of α and f from the analysis is 0.996 and 5%, respectively. We believe this module will be used as a subroutine in similar study for specific element and other studies, such as comparison between model and analyzed data.