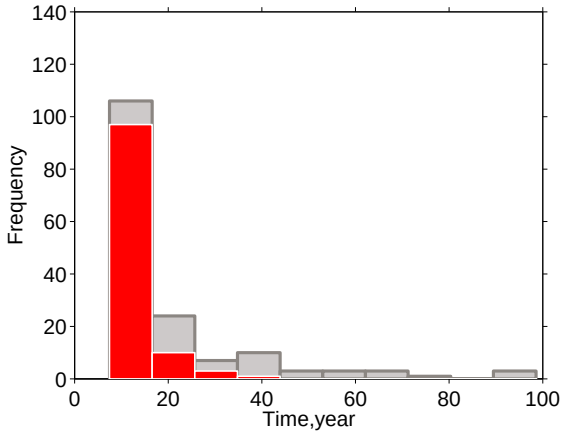
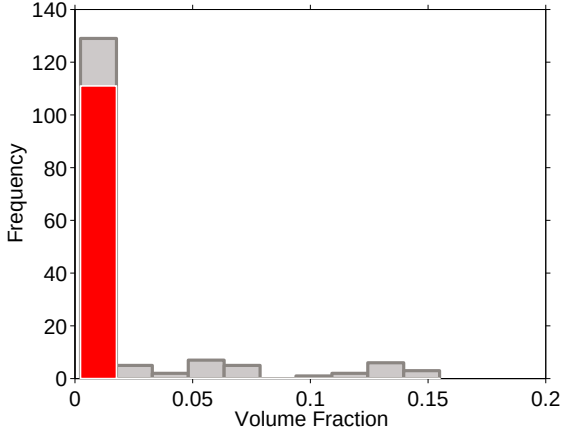
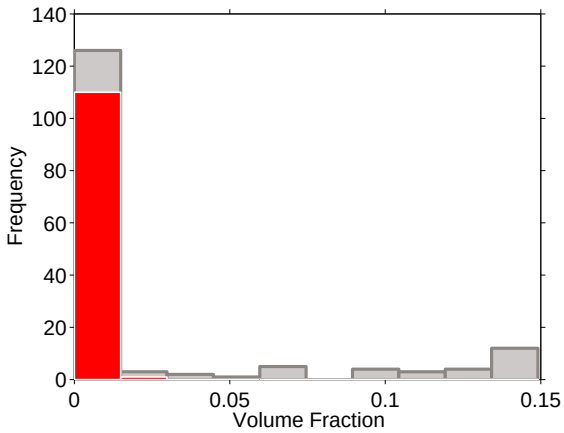


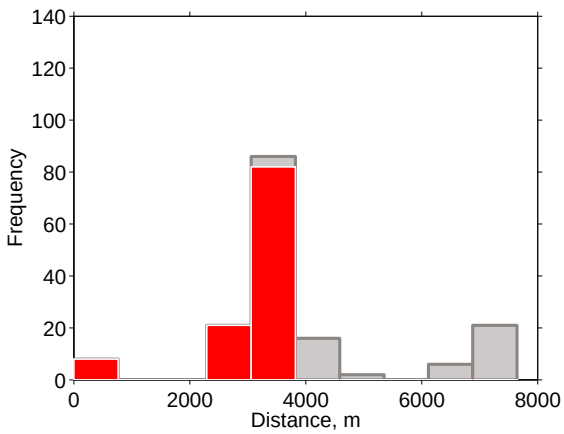
(a) Injection time



(b) Pressurized volume fraction



(c) Buildup volume fraction



(d) Farthest pulse propagation

Figure 16: Defined pressure criteria can be used to filter cases that are appropriate for the proposed injection scenario. Figure shows the histogram of filtered cases (red) compared with the histogram of all cases (gray) for different pressure responses.

time, 0.0787 for the pressurized volume fraction, 0.0745 for the buildup volume fraction, and 3822 m for the farthest pulse distance from the injection point. (These values are the mid-points of the range of variations in the results). By these assumptions, 49 cases out of the total number of 160 cases exceed the critical limits. Figure 16 shows the histogram of filtered cases compared with the histogram of all studied cases for each response.

6 Conclusions

This work is part of a comprehensive sensitivity study to assess the impact of geological heterogeneity on CO_2 injection and early plume migration. The aim of this study is to determine how different geological parameters impact the pressure buildup and establish which combinations that may potentially lead to buildup of high pressure values and large-distance propagation of elevated pressures. Simulation responses related to the pressure behavior in the system are defined and calculated for two CO_2 injection scenarios. Geological variations