

Conclusions

Herein, we have reported on a preliminary study of the influence of various geological parameters on the injection and early-stage migration of CO₂ in progradational shallow-marine systems. The important responses related to storage capacity and risk of leakage are calculated for all the cases and discussed accordingly. The correlations between responses are investigated and a sensitivity measure is introduced and discussed for different responses.

Large variations in the flow responses show the importance of considering uncertainty in the geological parameters. Moreover, we have demonstrated that different geological parameters can have a different impact on the CO₂ migration during injection and during the later migration. In particular, our results highlight how variation in aggradation, fault criteria and barriers significantly change the flow direction within the medium. Therefore we believe that effort should be put into detailed geological modelling of potential injection sites. This way, one can better balance the influence of simplifications made in the models of geology and flow physics.

References

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