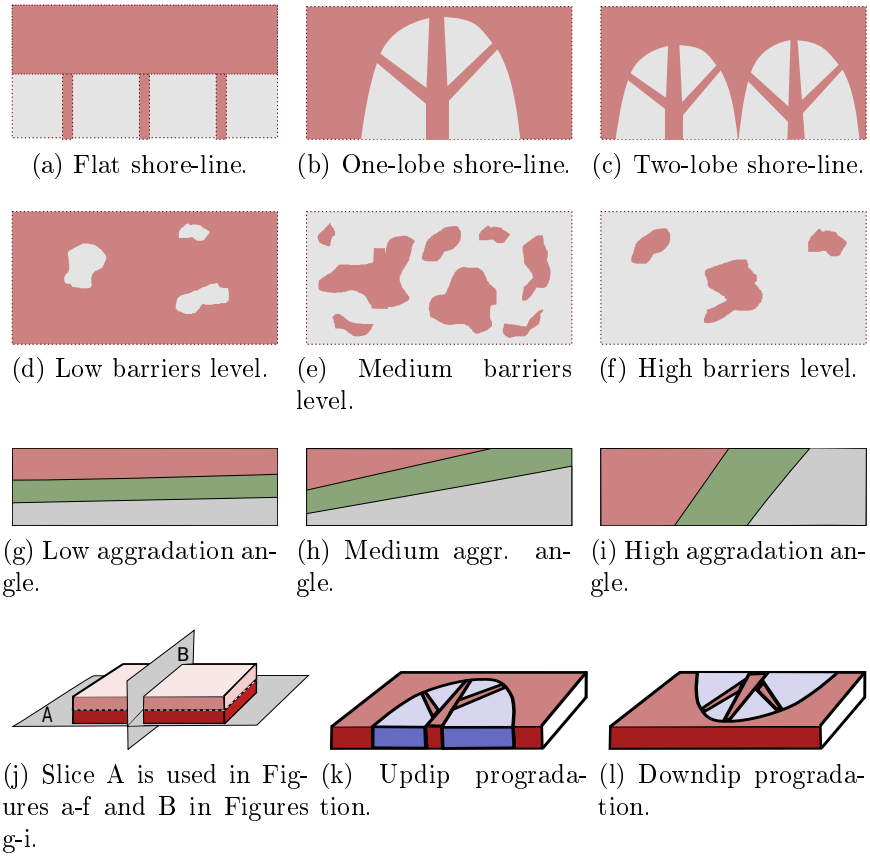
quality of flow simulations.



(a) Flat shore-line. (b) One-lobe shore-line. (c) Two-lobe shore-line.

(d) Low barriers level. (e) Medium barriers level. (f) High barriers level.

(g) Low aggradation angle. (h) Medium aggr. angle. (i) High aggradation angle.

(j) Slice A is used in Figures a-f and B in Figures g-i. (k) Updip progradation. (l) Downdip progradation.

Figure 1: The studied geological features. a-c) Shoreline shape, gray is for poor quality rock and brown color resembles a good quality rock. d-f) Barriers level defined by transmissibility multiplier. Gray color is for zero and brown color shows one. g-i) Aggradation angle. k-l) Progradation direction.

Table 1: Marker codes used in the result plots. The code level corresponds to levels in Figure 1.

Code	Description	Code level	Feature level
Thickness	Fault	thin/medium/thick	unfaulted/open/close
Shape	Lobosity	square/circle/diamond	flat/one-lobe/two-lobe
Size	Barriers	small/medium/large	10% / 50% / 90%
Color	Aggradation	blue/green/red	low/medium/high
Case no. counting	Progradation	first half/second half	up-dip / down-dip

We have selected five geological parameters from the SAIGUP project to study the impact of heterogeneity on the pressure responses in a typical CO_2 injection problem. These parameters span realistic intervals for progradational shallow-marine depositional systems with limited tidal influence. The considered features with the grading levels in each one, are