

**Figure 3** (a) Model geometry and well position. Model dimensions are  $3km \times 9km \times 80m$  with 20 layers. The bottom row shows the side view of  $CO_2$  distribution (in red) at the end of simulation in different aggradation cases, from low (b) to high (d). The vertical direction is exaggerated.

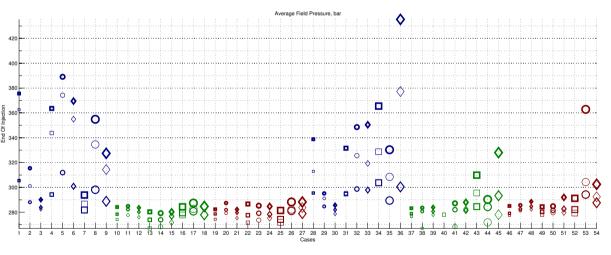


Figure 4 Average reservoir pressure plot for all cases. Colours represent 'aggradation' level: blue for low, green for medium, and red for high levels. Size represents 'barrier': small for low, medium for medium, and large for high level of barrier. Marker shape represents 'lobosity': square for flat shore-line, circle for one lobe, and diamond for two lobes. The first half of the case numbers refer to 'progradation' up-dip towards the crest, and the second half represent 'progradation' down-dip. Thickness shows the fault criteria: thin for unfaulted, medium for open faulted and thick for closed faulted cases.