(Figure 3b). Also, upto this time the same amount of CO_2 is injected in all cases, which allows for a fair comparison between cases.

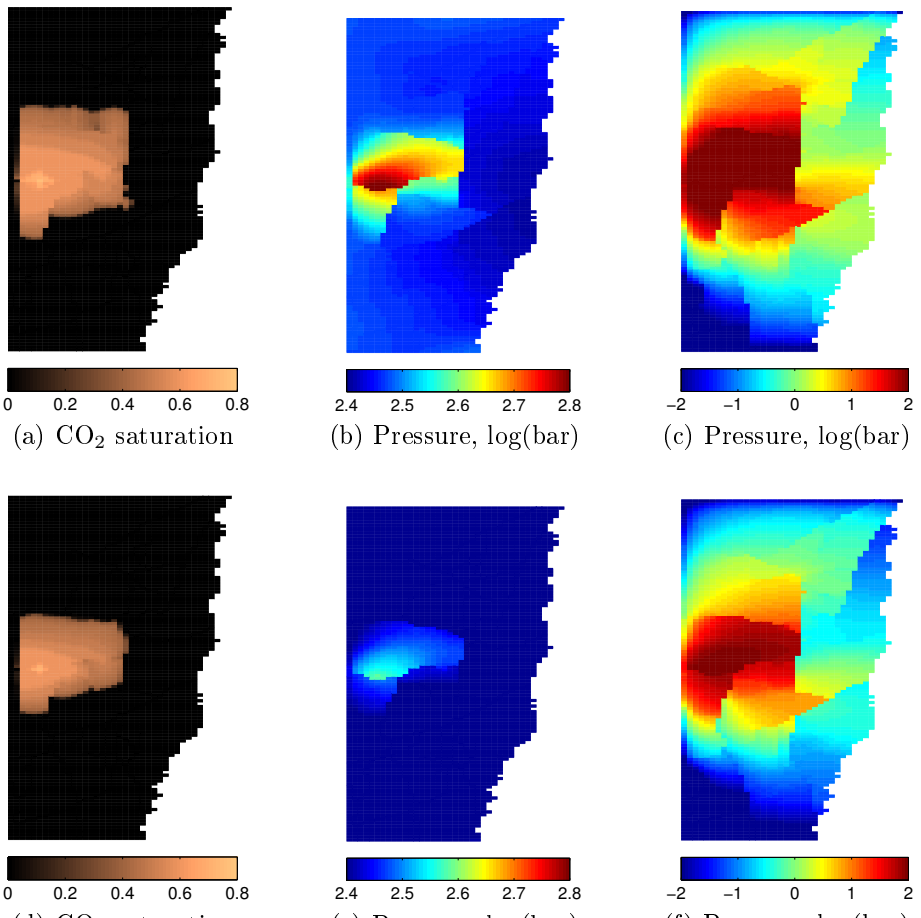

Figure 4: Responses at the middle of injection period (15 years). The first row corresponds to rate-constrained and the second row belongs to the pressure-constrained injection scenario. Figures c and f show the pressure build up from its initial value. Top view of last injection layer is shown in all figures.

Four types of responses are considered to be basis for the comparison between cases. One important question is how fast we can inject into a realization. To compare different cases, injection time is calculated considering a fixed total volume of injection in all models. Pressure behavior in the system is studied, by looking at aquifer average pressure and pressure drop across the well. An overpressure region is defined in which the volumetric spread of over-pressurized locations in the model is measured. Finally, the farthest place from the injection point that a pressure build up has reached is reported for each realization to see the impact of heterogeneity and channellings on how the pressure wave travels through the medium.

Figure 4 shows the pressure and saturation responses for the two injection scenarios in a selected case. This case has one lobe, parallel rock-type stratigraphy (i.e., low aggradation angle), and up-dip progradation. It is faulted with almost open faults and has high barrier