

3D Geological Model Utilizing 3D Seismic Data for the CO₂ Geological Storage in Saline Aquifer

Yoshinori Yamanouchi[1]; Kazuyoshi Hoshi[2]

[1] JAPEX; [2] JGI

Various studies of CO₂ geological sequestration has been carried out for stabilizing atmospheric greenhouse gas concentrations recently. 3D numerical simulation run in appropriate 3D geological model is a promising method to examine long-term behavior of injected CO₂. 3D seismic technology is indispensable to build a fine tuned 3D geological model. The study area is located offshore Niigata prefecture in northern Japan, and is covered with 3D seismic survey. 3D structural framework, several amplitude maps and seismic trace facies for each interval were provided from 3D seismic data to build a 3D geological model. The model size is 3km*7km*1km. The average cell size is 150m*150m*15m. Total number of active cells is 58,150. Environment of deposition (EOD) to build facies model was deduced from interpretation of amplitude maps and seismic trace facies. Facies model considered with heterogeneity of lithofacies was generated with a geostatistical method based on an analogue data and deduced EOD. Porosity and permeability as a property modeling were calculated as a depth dependant function from near field analogue data.