Mechanism of high porosity anomaly development at Kazusa fore-arc basin Formation, Japan: implication for pore pressure evolution model in fore-arc basin

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To investigate mechanisms of over-pressurization in sedimentary basins is important for understanding properties of fluid circulations, and/or developments of resources at sedimentary basins. It has been reported that there are high porosity anomaly has been reported at the Kazusa fore-basin Formation, Boso peninsula, NE Japan, which is possibly because of over-pressurization. Marumo (2015, Master thesis) examined how pore pressure develops in silt/mudstone layer which has hydraulic properties similar to those in the Kazusa Formation simply by sedimentation and consolidation of the layer, and indicated that this simple pore pressure development model can be one of the candidates for mechanisms of the high porosity anomaly development at the Kazusa Formation. We develop the model of Marumo (2015) by including more realistic conditions such as sedimentation, subsiding and uplifting history for the Kazusa Formation, and examine the mechanism of the high porosity anomaly development and the pore pressure development evolutions.

Keywords: over-pressurization, fore-arc basin, the Kazusa Formation, consolidation

