We present a methodology to update the reservoir model of static and dynamic properties of reservoir rocks, such as porosity and permeability, by simultaneously matching production and seismic data. The inversion scheme is based on the Ensemble Smoother Multi-Data Assimilation method, combined with model order reduction techniques such as Proper Orthogonal Decomposition. In the proposed workflow, time-lapse seismic data are inverted to estimate changes in saturation and pressure, and subsequently matched by introducing a reduced parameterization of time-lapse seismic-inverted results. The methodology is illustrated using a 2D synthetic example. Results of the seismic history matching method are compared to traditional history matching where only production data are used in the data assimilation process.

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