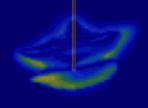
SLIM 🔂

ML4Seismic



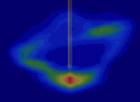


errors & inferred standard deviation

KM **-**

I 1



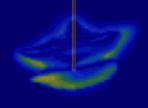


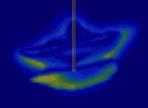
errors w.r.t. ground-truth

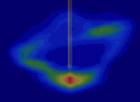
inferred standard deviations

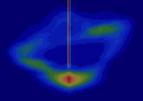
$$V^{\frac{1}{2}}[p(\mathbf{x}_{1:24} | \bar{\mathbf{y}}_{1:6:24}^{o})]$$

$$\mathbb{E}[p(\mathbf{x}_{1:24} | \bar{\mathbf{y}}_{1:6:24}^{o}] - \mathbf{x}_{1:24}^{*}]$$











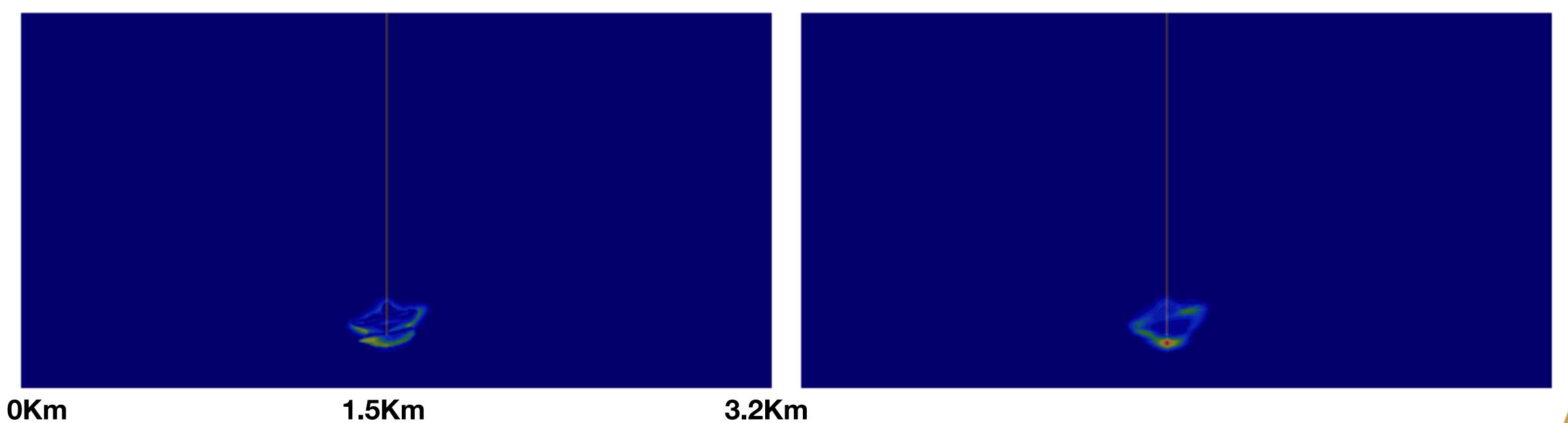
errors & inferred standard deviation

errors w.r.t. ground-truth

$$\mathbb{E}[p(\mathbf{x}_{1:24} | \bar{\mathbf{y}}_{1:6:24}^{o}] - \mathbf{x}_{1:24}^{*}]$$

inferred standard deviations

$$V^{\frac{1}{2}}[p(\mathbf{x}_{1:24} | \bar{\mathbf{y}}_{1:6:24}^{o})]$$



Digital shadow Time Pairs advance data/state Well pressure [MPa] Well saturation Migration 0 0 0 0 0.6 Update 0 0 0 0 networks 0 Training hase 0 0 0 0 Inference Phase **Current field** Start **Digital Twin** data injection Well pressure [MPa] 2.0 Migration Well saturation 0.6 0.5 Bayesian **Synthetic** Inference data 0/0 0 0 CO₂ Dynamics Current Next 0 0 0 0 0 0 state state 0 0 0 0 in silico Simulation