



1997 Activities

Michael Glinsky
Shell E&P Technology Co.

Recent activities



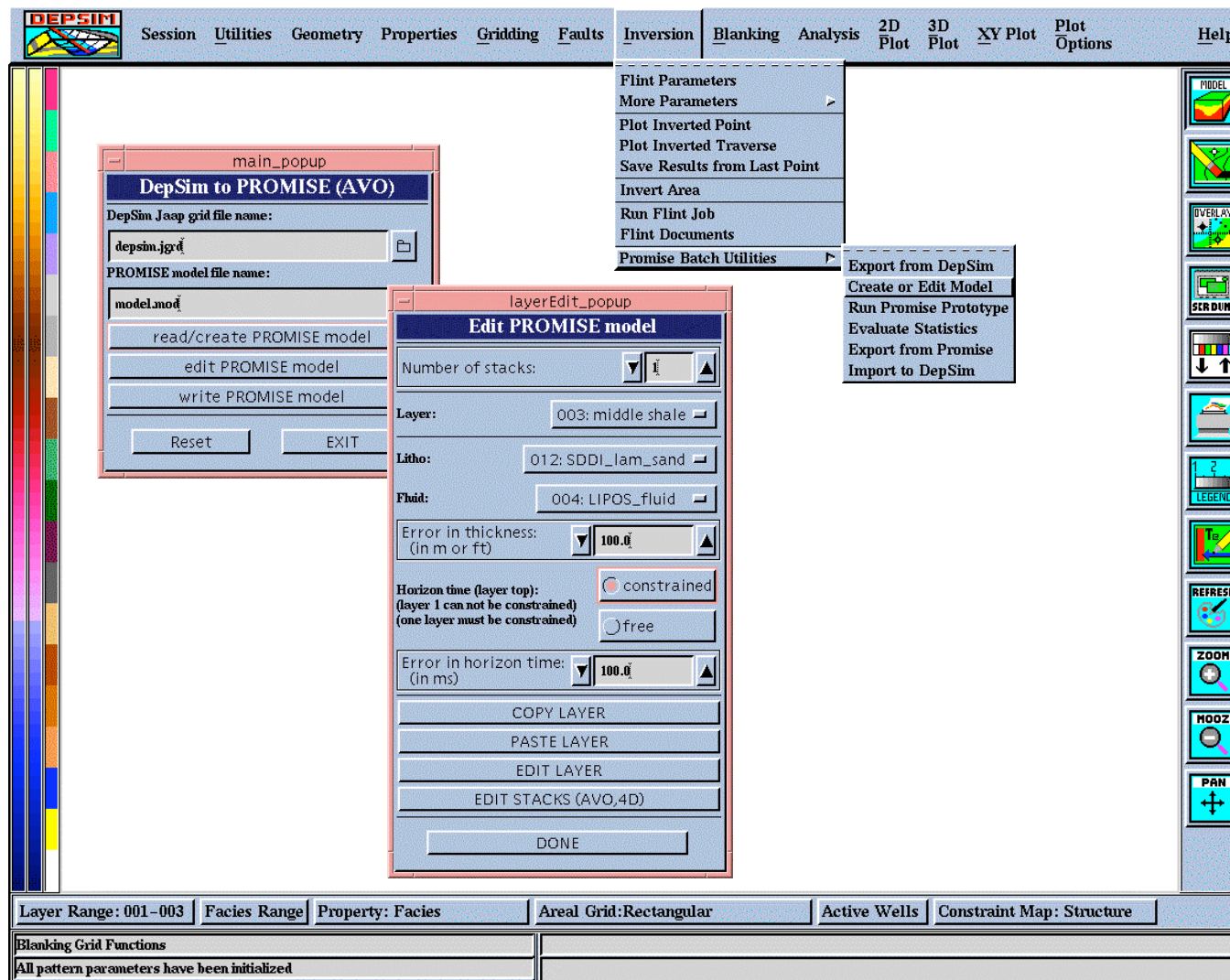
- **AVO inversion**
- **DepSim/PROMISE integration**
- **preliminary scoping of AVF and 4D inversion**
- **finished my work on PNN stklmp picking**
 - wrote Geophysics paper

Future focus on:



- **PROMISE/DepSim integration**
- **AVO inversion**
- **Amplitude Variation with Frequency (AVF) inversion**
- **4D inversion**

PROMISE/DepSim integration

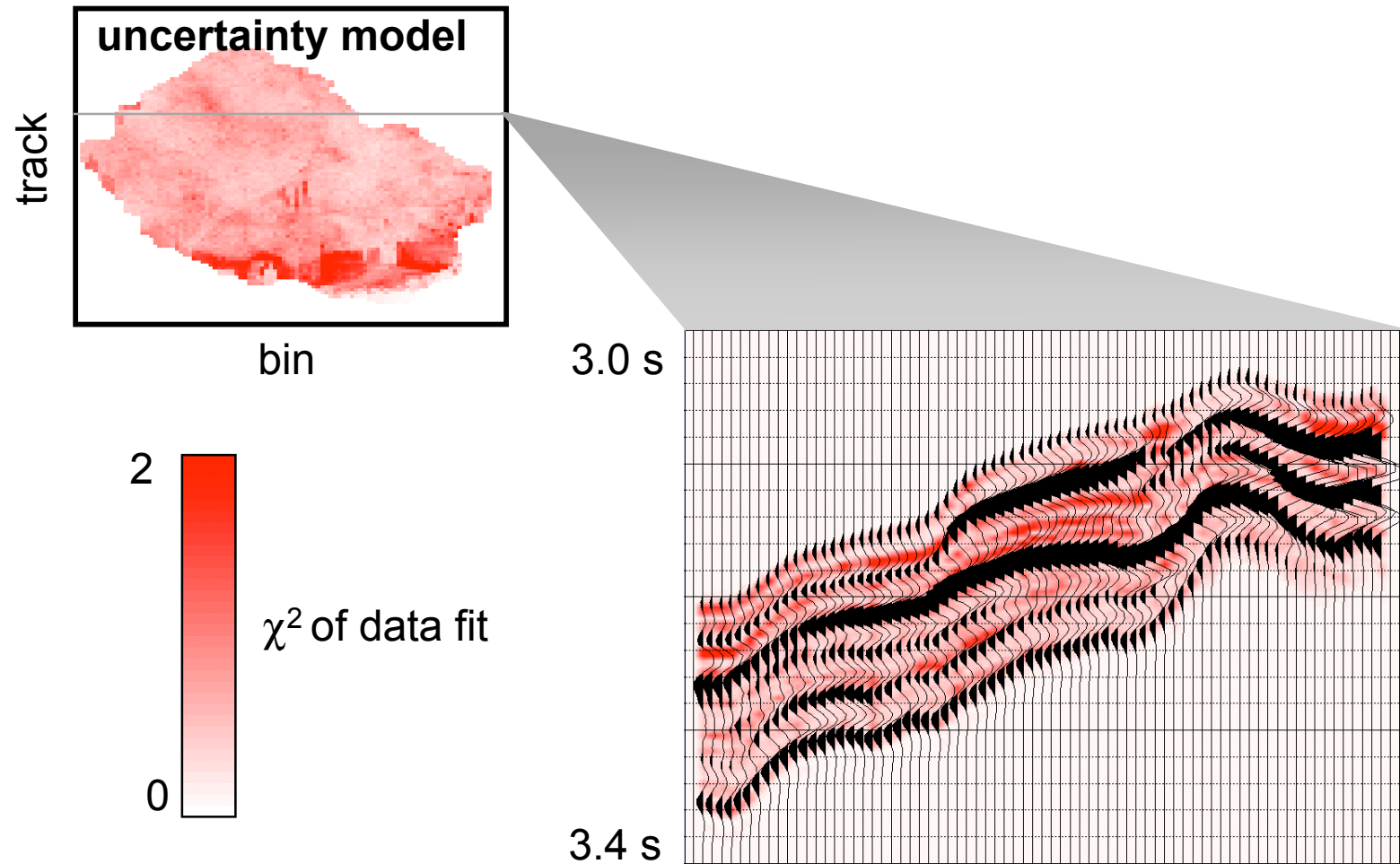


Philosophy of development

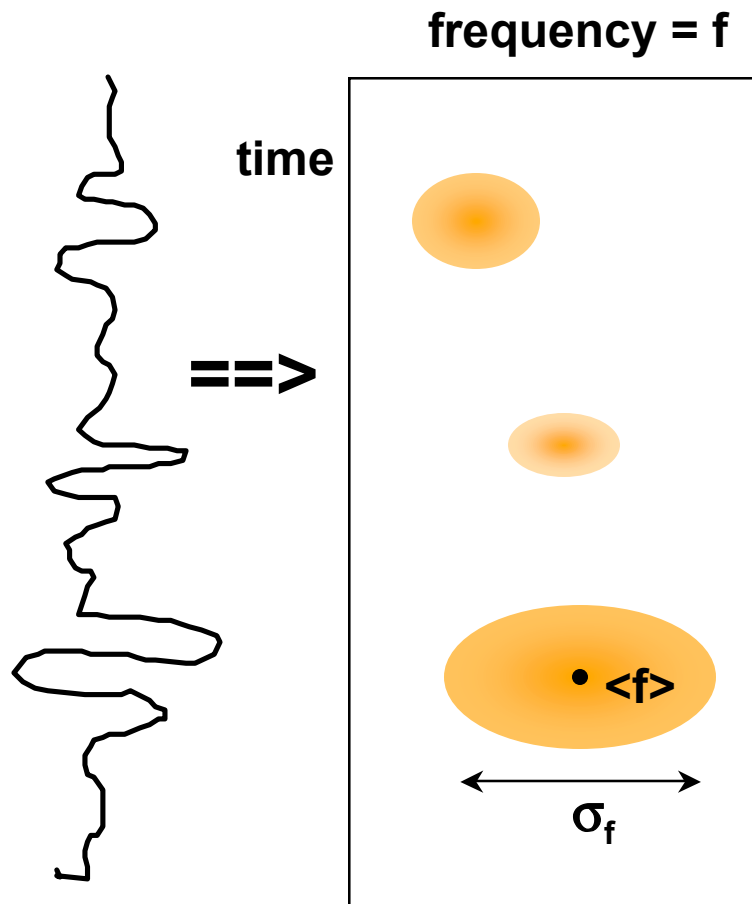


- **DepSim IO engine for PROMISE**
- **SPIRIT II wrapper on prototype PROMISE code**
- **easy specification of seismic noise**
- **compatible and expandable**
 - AVOMOD and AVO inversion
 - neural net (fluid prediction and beyond)
 - GOM petrophysics (trends and LIPOS)

Example of new PROMISE output

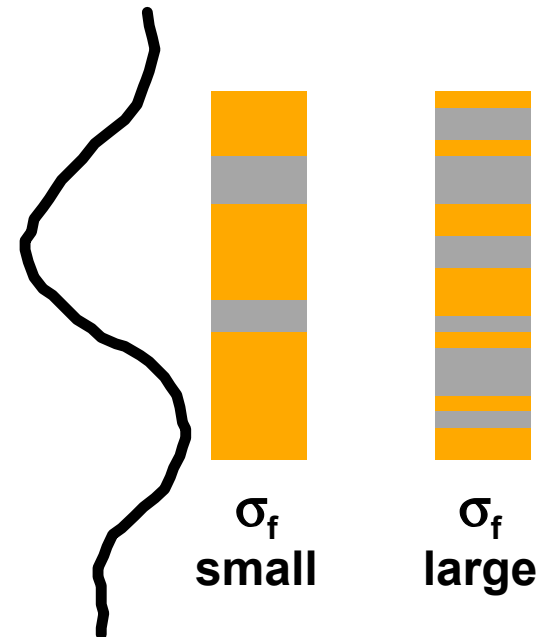


Amplitude Variation with Frequency inversion



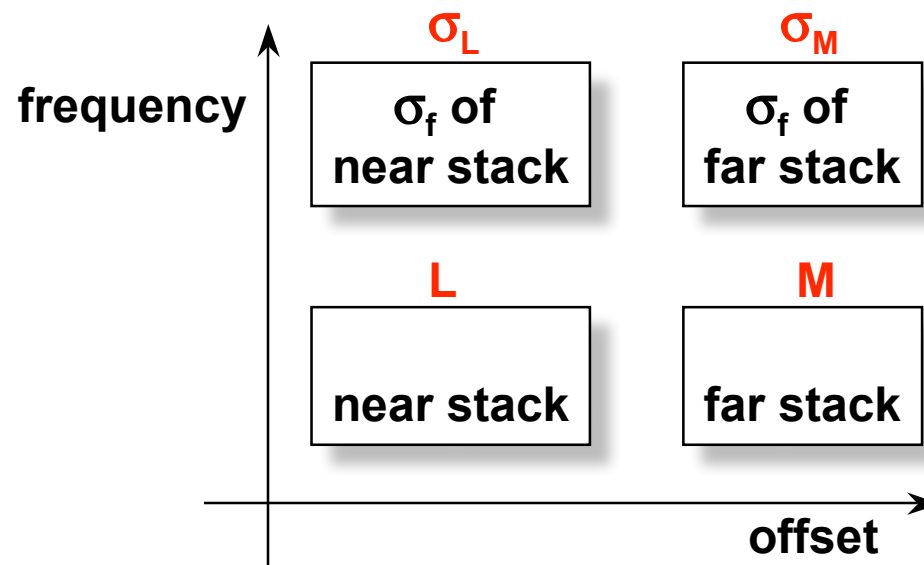
concept:

$<f>$ and σ_f give information
on statistics of lithology
over seismic wavelet



O'Doherty and Anstey, Geo. Prosp. 19, 430 (1971)
Shapiro and Hubral, Geophysics 61, 1282 (1996)
S. Devi, SEPTCo, lithology estimation

AVF inversion could give independent constraints on model



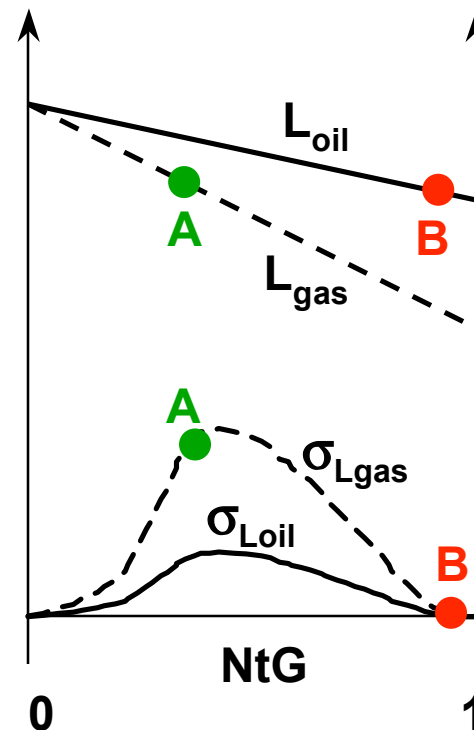
Example of utility of AVF inversion



tell the difference between:

A. low NtG gas sand

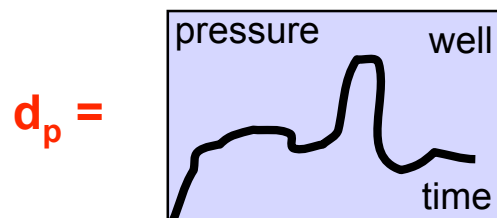
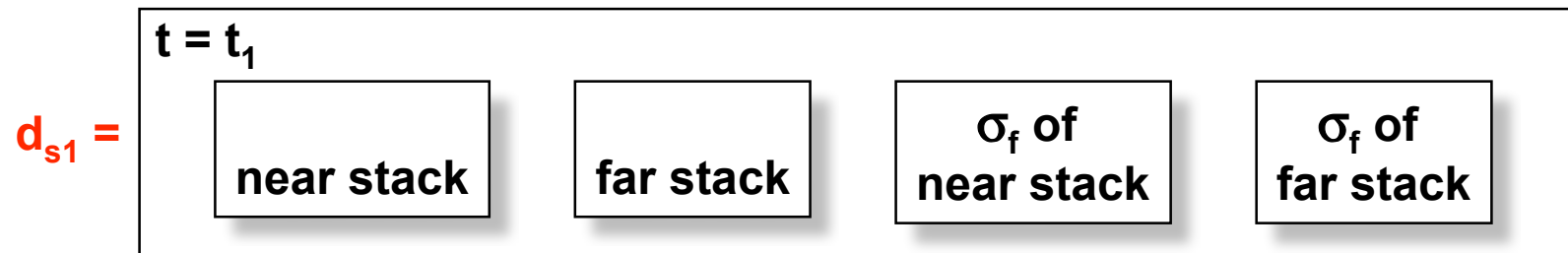
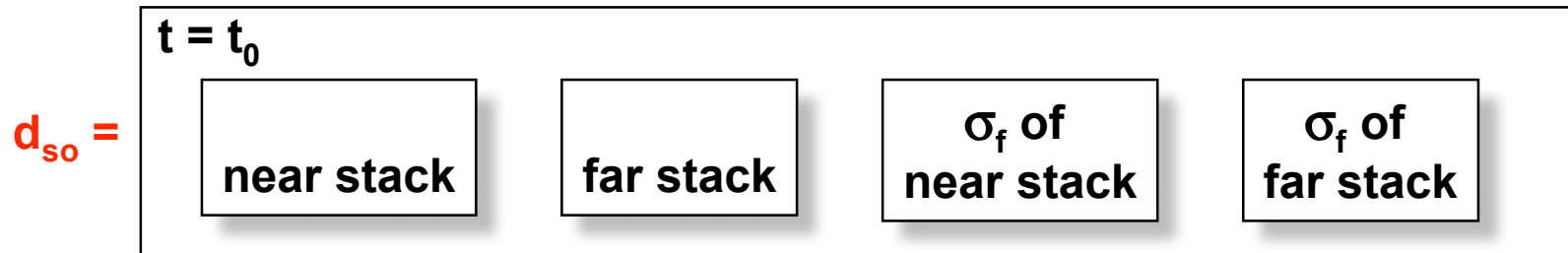
B. high NtG oil sand



4D inversion



$$d = (d_{so}, d_{s1}, d_p) \\ = \text{data}$$



AVO stack specification (with 4D)



stack_popup

Edit stacks

Veff:	7000.0	L factor: (dB)	0.0
Dip: (deg)	0.0	L error: (dB)	1.5
Time: (ms) **** FROM DEPSIM ****	3000.0	M factor: (dB)	0.0
		M error: (dB)	0.5

stack: 001:

Time of stack: ☒ base survey ☐ monitor survey

Sipmap file name: data.sip Wavelet file name: wavelet.wav

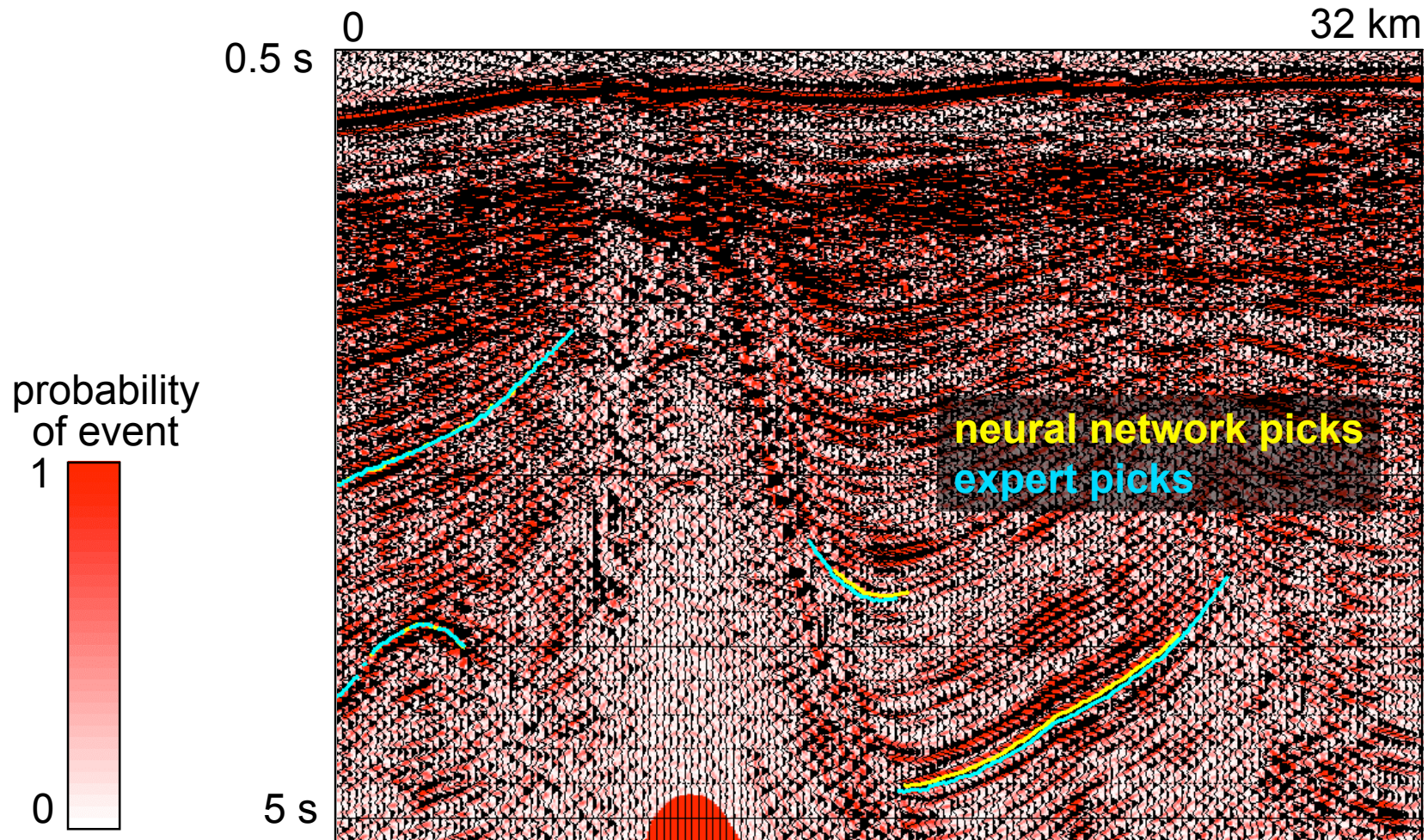
x_min:	0.0	x_mute_start_1:	0.0
x_max:	0.0	x_mute_start_2:	0.0
t_mute_1: (ms)	0.0	x_mute_end_1:	1.0
t_mute_2: (ms)	0.0	x_mute_end_2:	1.0

Noise:

snr: (dB)	10.0	f_low: (Hz)	1.0
refl_coeff:	0.0376	f_high: (Hz)	1000.0

Ok

Neural network picker applied to 2D GOM dataset (JIGSAW)



Neural network picker is not as aggressive as expert

