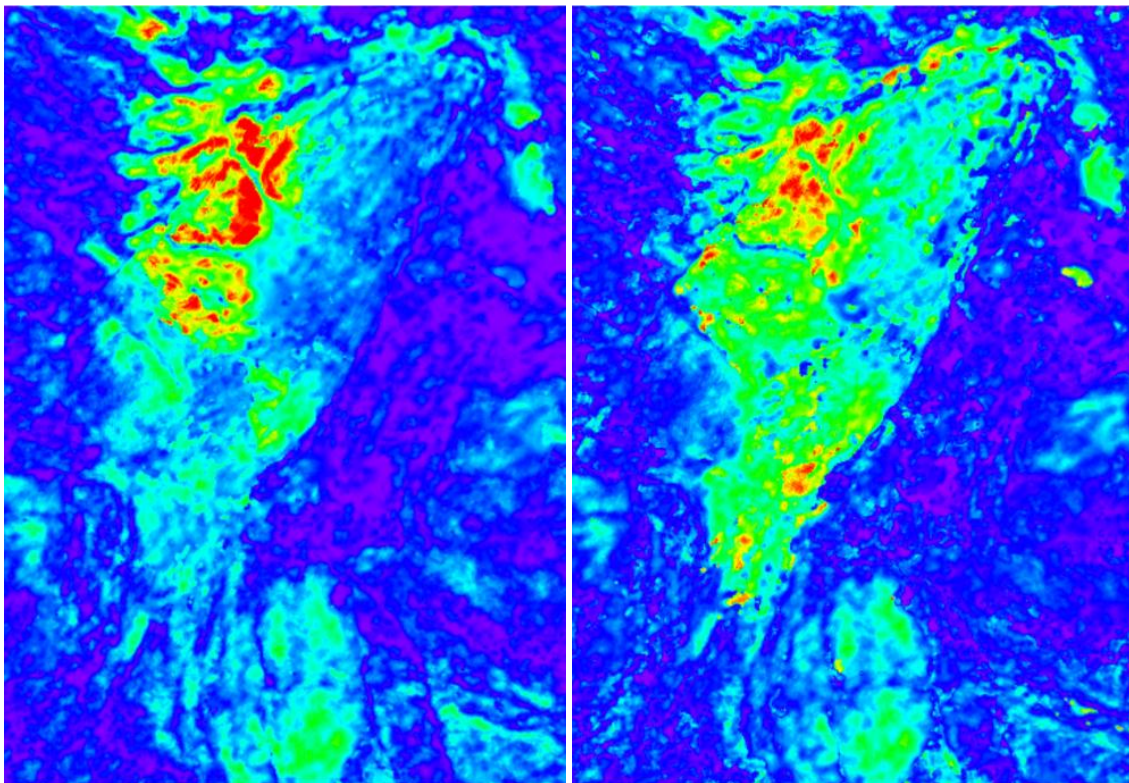


Direct Seismic Amplitude Detuning of Traces

A significant risk with seismic amplitude analysis is that *thickness related tuning* effects are the largest single factor affecting amplitudes in seismic data and mask the identification of genuine amplitude anomalies. Tuning effects are larger than any other effects due to geological changes, including lithology or hydrocarbon fluid effects (DHIs), responses we are often trying to interpret from amplitude information. It is very common for amplitude maps to be analysed and interpreted whilst completely ignoring tuning effects.

Until recently the only way to detune seismic amplitudes was to interpret a seismic event, extract the thickness and amplitudes in the form of maps and then detune the mapped response. This type of approach is slow, potentially inconsistent and may be subject to interpreter bias.

In response to this, Earthworks Reservoir has researched and developed a novel and unique detuning methodology called DT-AMP™. This is capable of directly detuning seismic traces in 2D or 3D surveys. By detuning the entire relative impedance seismic section, false amplitude indicators are suppressed and genuine anomalies highlighted. Amplitude analysis becomes robust and consistent and, because the analysis is performed in-situ and interactively on the seismic traces, the workflow is accelerated.



Amplitude map before detuning (left). Very bright amplitudes are tuning and the field outline is indistinct. After DT-AMP detuning (right), the amplitudes in the southern area now show the reservoir continuity observed in the wells and the field outline is sharply defined. Colour scaling is unaltered between the two images.