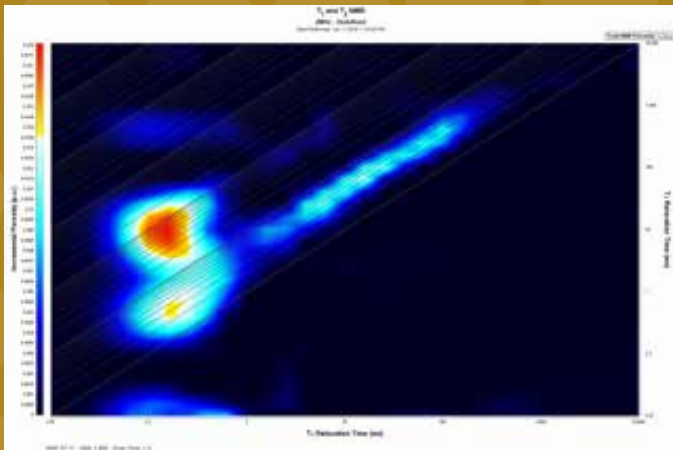


# Benefits of going higher...

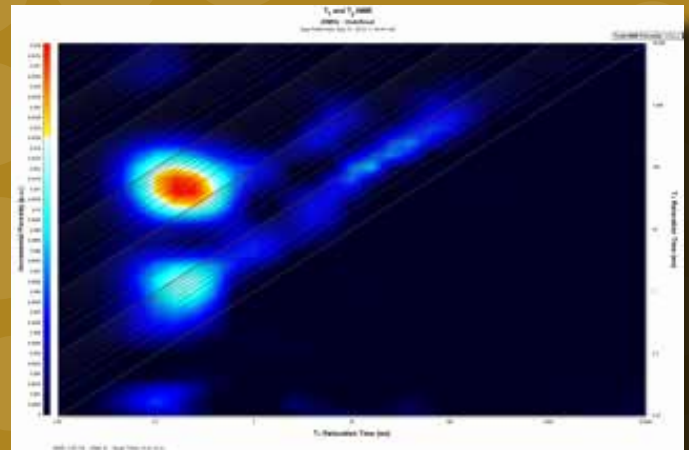
## Higher field NMR instruments provide many advantages when dealing with unconventional core plugs.

As magnet field strength rises, the magnets produce better SNR, or more signal, which allows for tighter samples to be measured more efficiently. This higher amount of signal also allows us to measure ever smaller pores, resulting in more accurate porosity measurements.

In the example below, a shale sample was used to measure a  $T_1T_2$  2D map on instruments at 2MHz and 23MHz, both of which are located in house at H2 Laboratories. Using standard cut-offs, the map can be divided into bound water, mobile water, bitumen, and mobile oil. We can quantify each population and will give a comparison of fluid contributions to each plug's overall porosity.



Map 1 – This correlation map was captured with a GeoSpec 2MHz instrument. Note the scan time is 1 day. Also note the poor separation between the data populations.



Map 2 – With the same sample, this map was captured with an MQC 23MHz NMR Analyzer. The scan time is just 6 minutes, as opposed to the 1-day acquisition time as demonstrated above. Also note the data populations are much better separated and therefore easier to define.

