

## Do nothing and do it fast



Guy Holmes

Guy.Holmes@spectrumdata.com.au

A few weeks ago I met with a company that needed some 'important' data managed. I did the same the week before, and the week before that. However, it is pretty much the same thing different day. The theme goes like this:

'We need this important data recovered, managed, stored, whatever. Can you come see me?'

'Yes – I can come see you'. I talk about their problem with them and deliver a proposal to look after the issue. And like any sales proposition – the 'DO NOTHING' competitor latches on to the client and they end up doing just that – Nothing.

So a few weeks ago I decided to introduce a new section into my proposals called Risk vs Value and I started to compare the value of the data that the client has to the real costs if they do nothing about the issue. I did some research on the value of some of the data assets that these companies have, the cost of originally creating the data and what the contribution of that data was to the ongoing business. (Example: If you drill a well for \$10 million and discover a \$1 billion gas discovery, how much is that well data worth? – \$10 million, \$1 billion?)

I cracked the code. The 'Do Nothing' competitor had no chance against this force of reason. Simple math wins every time and in this case the results of the simple math produced unmistakable

answers. There could be no confusion about what they should do, and after all, the 'Do Nothing' competitor could not compete with simple math (I don't even think he can add).

Let me give you an example:

I met with Oil Company A. They had their lifetime collection of exploration data in a disorganised state, stored inappropriately, with most of the data stored on media that was long passed its use-by date.

I ran some numbers and provided some best practice information on what the company should do. I also provided a list of services that could be performed to solve the problem that they originally approached me about. All of this went into a nice colourful proposal, with their company logo on it, and a nice picture or two of oil rigs and seismic boats. A perfectly produced document, with a business case that could never be ignored. I slept well after this went out to them.

I woke up the next day and logged into my laptop looking for the purchase order. There was no way that the 'Do Nothing' case could fly in the face of this baby.

As it turns out there was no purchase order, but there was a reply and 'Do Nothing' wrote it. This 'Do Nothing' guy was even a little sarcastic about it. It seems that I wrote a proposal that stunned my client into running for cover, rather than them stopping to build some solid shelter.

In my document I came to some ridiculous, but I believe to be accurate, conclusions. These were as follows:

Their collection of data, based on the information I was provided, was valued at \$400 million dollars. That being the cost to acquire, process, interpret and act on that information, with a small mark-up for the revenues that this data ended up producing. Oil companies hear these sorts of numbers all of the time – \$400 million, \$2 billion... whatever. The data

is valuable – and hugely so – no surprise here.

The solution offered was going to cost a few thousand per month – essentially nothing when compared with the value. Such a cost-effective solution to a massive risk could not be ignored could it? Really an insurance policy type of situation... everyone has insurance. That line of thinking seems to have been my downfall.

Can a few thousand per month really be a viable solution to protecting \$400 million in assets? If you were in charge of these \$400 million in assets and had a boss to report to, how could you go to them with a straight face and say that you have been responsible for a massive financial risk that could have been protected for an amount less than 0.00001% of the value of that risk. The short answer is – you can't, well not unless you are a new guy and can blame the previous person for the oversight.

I learned a few important things from this. First, never underestimate your competitor – this 'Do Nothing' guy is fiercely intelligent, unrelenting and very switched on. Second, never explain anything in simple math, especially when the two sides of the equation are so unbalanced – it simply looks ridiculous.

Which is worse: (1) never addressing the problem at all; or (2) recognising a need, starting along the road and then stopping and ignoring it once you are better informed?

In a closing note, many of you may have been aware that I went to the North Pole in April. I reached the Geographic North Pole on 20 April 2013 and returned safely to Perth a week later. My trip raised over \$20 000 for the HeartKids charity and I want to thank everyone for their support and donations – the simple math there is that the charity was +\$20 000 and the lives of the kids they support is priceless – 'Do Nothing' did not stand a chance of winning this one!

## Recording noise



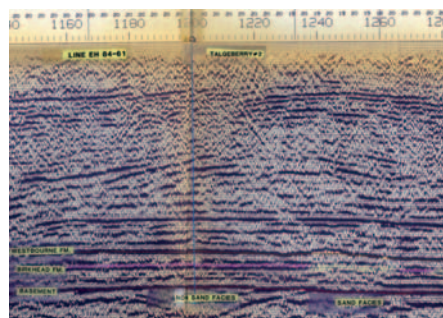
### Talgeberry stratigraphic traps revisited

Recently the Cooper Basin western flank oil play has been in the news with discoveries by Beach, Senex and Drillsearch. In particular the Birkhead Formation (technically in the Eromanga Basin) stratigraphic sands have been successfully targeted. The stratigraphic trapping potential of the Birkhead and other Jurassic units was recognised in the Queensland sector of the Cooper/Eromanga in the mid-1980s and described in detail in a pair of overlooked papers (Micenko and Torkington 1988; Torkington and Micenko, 1988). Figure 1 is from these papers and shows the interpreted Birkhead Formation sand distribution across the Talgeberry oil field in SW Queensland.

This interpretation was made using the 2D grid of lines shown in the map. Interpretation was usually confined to picking the relevant reflector with coloured pencils and digitising the horizon with the end result being a



**Fig. 1.** Interpreted Birkhead channel sand (from Micenko and Torkington 1988).



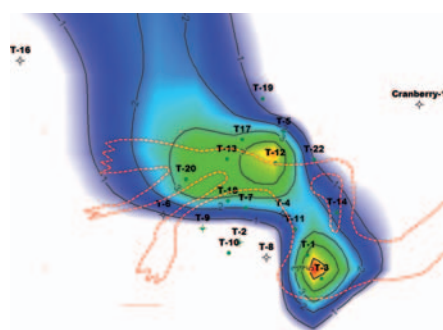
**Fig. 2.** Faded seismic line 84-61 through Talgeberry 2 showing a difference in seismic character where Birkhead sand is present. Birkhead reflector shown in purple.

structural contour map. Stratigraphic interpretation was a somewhat black art. In the course of picking the Birkhead reflector at Talgeberry it was recognised that a change in reflection character occurred where sands were present (Figure 2). This character change was then confirmed with synthetic modelling. The entire process from receiving the sections to outputting a final map could take several weeks.

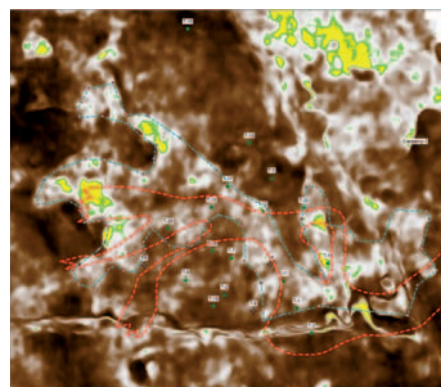
In addition, for this project, a post-stack seismic inversion was available on selected lines. This inversion required data to be sent to Canada with a bag of money and eventually some coloured displays of 'synthetic sonic logs' were sent back for the interpreter. They were then dutifully filed.

### So how good was the prediction?

Since 1988 there have been 20 extra wells drilled on the Talgeberry field and a 3D survey has been acquired. I recently obtained the Talgeberry 3D seismic and well completion reports from the



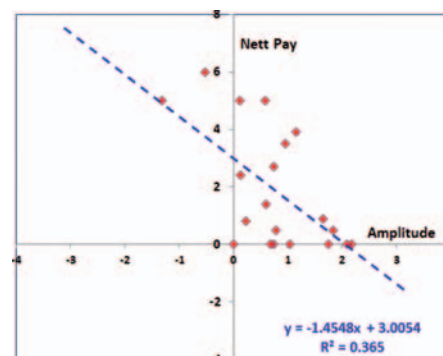
**Fig. 3.** Net pay based on information in well completion reports overlain by original interpreted channel outline. The thick areas of net pay are located within the interpreted channel.



**Fig. 4.** Amplitude extracted from Talgeberry 3D along the Birkhead reflector showing the extent of sand facies across the field. Red outline is channel extent based on 2D data. Light blue outline is channel extent based on this 3D extraction.

Queensland Department of Mines and Environment. This data is open file and readily available to the public (what a great system we have here in Australia). I was able to produce a contour map of Birkhead net pay based on the information contained in the Talgeberry 1 to 22 well completion reports and it is shown in Figure 3 together with the outline of the original interpreted channel. The match is quite good with the interpreted channel passing through the areas of thick net pay.

But can we do better now with 3D and modern interpretation systems? Figure 4 is an amplitude attribute extracted from the Talgeberry 3D seismic along the Birkhead reflector. The original interpretation of the sand distribution is shown along with an interpreted outline based on the extracted amplitude of the 3D seismic. Both interpretations are similar.



**Fig. 5.** Talgeberry Birkhead net pay vs amplitude cross plot showing correlation suggesting amplitude may be useful in determining net pay distribution.

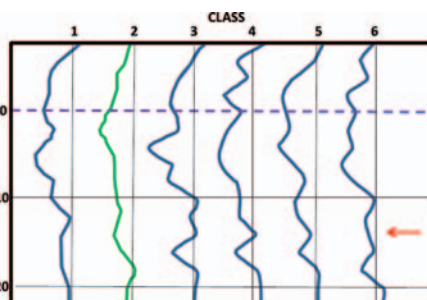




**Fig. 6.** Results of unsupervised waveform classification show areal extent of 'sand facies' (green) overlain on the similarity attribute.

A cross plot of the amplitude vs net pay (Figure 5) shows a linear trend but statistically there is a large deviation. This quick interpretation took less than a day (compared with several weeks in the past) and with more time perhaps the seismic horizon could be adjusted and a better attribute could be found.

The original modelling work indicated a change in the shape of the reflector where sand is present as shown in Figure 2. As an experiment I ran an unsupervised



**Fig. 7.** Waveform classification across the Birkhead horizon (purple event) identified six classes with class 2 most closely related to 'sand facies'. Class 2 does not have the small peak at the time indicated by the red arrow. Areal extent of class 2 is shown in Figure 6.


waveform classification on a window across the top Birkhead. The results in Figure 6 show the areal distribution of the wavelet class that most closely represents the 'sand' seismic character (Figure 7). This attribute may also be useful for identifying areas of high net pay such as the downthrown area to the northeast. Interestingly there appears to be

a strong correlation between areas of low similarity and the sandy seismic character.

All a bit nostalgic maybe but I hope this highlights the advances in seismic interpretation tools and illustrates some of the modern techniques used by today's geophysicists. The entire process of loading the data, picking a Birkhead horizon and analysing a variety of attributes was quicker than writing this article.

## References



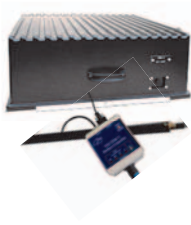
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- Torkington, J., and Micenko, M. I. (1988). A stratigraphic analysis of the Talgeberry oil field. *APEA Journal* **28**, 113–121.



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**Monex GeoScope Pty Ltd**

P: +61 (0)3 9762 7862 E: [info@monexgeoscope.com.au](mailto:info@monexgeoscope.com.au) W: [www.monexgeoscope.com.au](http://www.monexgeoscope.com.au)