



IEAGHG Information Paper; 2012-IP1: Rebuttal to Zoback paper

Background: Zoback et al paper titled: Earthquake triggering and large-scale geologic storage of carbon dioxide.

Some of you may already be aware of the highly publicised paper from Zoback et al of Stanford University. The controversial paper links CCS with earthquakes and seismic activity and suggests the risks of CCS outweigh the benefits.

I will take nothing away from Professor Zoback, who is a well respected geoscientist at Stanford University in the USA and he has every right to express his opinion. Further weight is added to the paper by the association to Sally Benson of Stanford University. Sally is a preeminent geoscientist, well known around the world and one of the lead authors of the IPCC SRCCS. However, this link to a Stanford article on Zoback's paper (<http://news.stanford.edu/news/2012/june/carbon-capture-earthquakes-061912.html>) includes comments from Sally Benson providing counter comments, suggesting that induced seismicity is an issue to be dealt with by rigorous site selection, but is not a showstopper.

On becoming aware of this paper, IEAGHG were able to raise and debate this at the Joint Network Meeting that was at the time being held in the USA. As you would expect, the paper was a source of hot debate in the network meeting margins. Tim Dixon (IEAGHG) organised a special session at the meeting to discuss the paper. The collected response from the 80 odd participants at the meeting was as follows:

'The topic of induced seismicity and the Zoback paper was discussed by the international gathering of experts at the IEAGHG Joint Network Meeting, and the majority agreed "Induced seismicity is important to consider for CO₂ geological storage and has already been the subject of extensive research and risk assessment for current CCS projects. There is not sufficient information available to justify the conclusions drawn in the last sentence of the abstract by the paper by Zoback'.

(IEAGHG Joint Network Meeting, Santa Fe, USA, 20 June 2012) "

We are aware that in the USA a National Research Council report was released at the same time, and provides a much more positive, balanced, discussion of the topic. The link to that report is:

<http://dels.nas.edu/Report/Induced-Seismicity-Potential-Energy-Technologies/13355>

Further to this, it has been agreed that the study being undertaken by CO2CRC on behalf of IEAGHG on Induced Seismicity which is at the draft report stage, will be used by CO2CRC and GNZ to publish our own comment to the Zoback Paper. Like the other comments our report does not indicate that induced seismicity is a significant issue.

It should also be noted that there are counter arguments to the Zoback paper, highlighted in other blogs, such as Bruce Hill, Senior Geologist for the Clean Air Task Force. Also, we are aware that scientists in both the Netherlands and Australia are responding to let's say the more sensational press article stimulated by the Zoback paper, to bring a more balanced view in the media reports. John Kaldi the Principal Scientist at the CO2CRC gave the following interview to ABC news in Australia:

<http://www.abc.net.au/science/articles/2012/06/19/3527827.htm>

So it seems that the broader geoscience community are not in accord with Prof Zoback's opinion.

John Gale 22/6/12