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Comment

Interactive comment on “3-D geomechanical modelling of a gas reservoir in the North German Basin: workflow for model building and calibration” by K. Fischer and A. Henk

D. Tanner (Referee)

davidcolin.tanner@liag-hannover.de

Received and published: 12 July 2013

This is a good article and deserves to be published in this journal. The majority of the paper is concerned with the method, which I think is necessary. I would therefore suggest the title was changed to ‘A workflow for building and calibrating 3-D geomechanical models of gas reservoirs, as shown for an example from the North German Basin’.

Of course this example is only possible because this area has been heavily drilled and a lot of calibration data is available. It would be interesting if this method was used in addition on a not-so-well-known area, and a range of Young’s Moduli and Poisson’s

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ratios and/or a range of far-field stress magnitudes were applied. Then the relative effects of these unknown quantities could be investigated and classified as to their effects on the results. Maybe in a future paper?

Specific Comments

1. recent, as in "recent stress-field" is too imprecise - please use 'present-day stress-field' throughout the text.
2. p. 777 l.21 'Only distant and hypothetical faults are left out'. This sentence is too vague in its present form. Whether a fault is seismically visible or otherwise inferred should explained here. What are criteria for putting a fault in a model? Displacement? Size?

English Corrections

- p.769, l.4 delete 'respectively'
- p.770, l.9 serves as a boundary condition...
- p.771, l.9 had to be found. -> are required.
- p.772, l.13 delete 'becomes'
- p.772, l.18 line is not complete. than the surrounding ? area?
- p.772, l.23 demand, by definition, a surface...
- p.773, l.21 The FE method not only allows...
- p.775, l.1 analyses -> analysis
- p.775, l.2 All these measurements...
- p.775, l.13 is increasing... -> increases ...

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p.779, l.29 Most of the model predictions, as well as the borehole observations, follow the the regional...

p.789, l.3 between faults do pronounced orientation changes occur.

p.783, Fig. 1 caption delete 'After calibration the validated undrilled parts of the reservoir.'

Interactive comment on Solid Earth Discuss., 5, 767, 2013.

SED

5, C312–C314, 2013

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