SEG Advanced Modeling (SEAM) Project
http://research.seg.org/SEAM/

• The panel:
  – Bee Bednar, Biondo Biondi, Joakim Blanch, Jacques Leveille, Joe Stefani, Bill Underwood (SEG).

• The “Gang of five”
  – Bill Abriel (Chevron), Bee Bednar (SEAM), Biondo Biondi (Stanford Univ.), Arthur Cheng (SEGRC), Stew Levin (Halliburton)

• The milestones
  – General meeting at CSM (July 05), two meetings of Geological Model Design Working Group and two meetings of Numerical Modelling Working Group
  – Twelve companies have agreed to be named at this workshop as “interested in the project” and “prospective sponsors” of the SEAM consortium
    • Amerada Hess, BHP, CGG, Chevron, ConocoPhillips, ExxonMobil, Geotrace, Halliburton, PGS, Total, Veritas, WesternGeco.

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Agenda

• Purpose - Biondo Biondi
• Model Design (Salt) - Jacques Leveille
• Model Design (Stratigraphy) - Joe Stefani
• Numerical Modeling - Joachim Blanch
• Business Model - Bee Bednar
• Discussion

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• Share the high cost of model design and numerical computation.

• Provide a forum to discuss geophysical problems of interest to the consortium members.

• Exercise the art of geological modeling and seismic modeling.

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SEG/EAGE Salt Data

- Example of successful collaborative modeling project
- Data used in hundreds of SEG abstracts and tens of Leading Edge and Geophysics papers
- Data used extensively for algorithm benchmarking
  - Acoustic
  - No stratigraphy
  - Simple structure
  - Small scale
  - Numerical dispersion

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SEAM Project

- Elastic model \((V_p, V_s, \rho)\)
- Realistic and multiple salt bodies
- Realistic stratigraphy
- Minimal numerical dispersion
- Large scale
  - 15 Km Depth
  - 40X40 Km Horizontal
- Large shot aperture
  - 30X30 Km
- High frequency
  - 30-40 Hz
- Enable acquisition design research.
- First data set acoustic

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Rationale for cooperative project

Computational Cost

Too expensive

3-D two-ways acoustic

3-D two-ways elastic?

3-D one-way elastic

2.5-D two-ways elastic

No need of cooperative project

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Years

2005 2006 2007 2008
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