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The Geological Geophysical Dialogue

Most modern exploration is done by multidisciplinary teams, wherein each member brings their own expertise to the table, but must also be able to understand the other members' contributions. In particular, each must be able to understand the jargon, the assumptions, and the approximations of the other, in order to hold a constructive dialogue. A lot of cross-disciplinary education is important for all members of the team.

The geologist is typically the expert in synthesis, whereas the geophysicist is typically more expert in analysis. Because of this, geophysicists are the more able to win arguments by appealing to the Laws of Physics and to heavy computation. Here are some questions to ask them, in order to (help) keep them honest:

- Which aspects of this seismic image do you believe, and which are artifacts of the processing and the acquisition?
- Is this interpretation consistent with log-scale data?
- Have you fully handled the 3D effects?
- Have you considered the effects of seismic anisotropy?
- Can we narrow the uncertainty here with other seismic data, for example, shear waves?

Questions like these, along with the robust self-confidence needed to pose them, can go a long way toward helping the members of the team appreciate each other.

Biographical Sketch

DR. LEON THOMSEN holds degrees in geophysics from Caltech (BS '64) and Columbia (PhD '69). His academic career began with post-doctoral appointments at CNRS in Paris and at Caltech, followed by faculty appointments at the State University of New York in Binghamton (1972-80). His industrial career began with 14 years at Amoco, at its famous Tulsa Research Center. Following the change of its mission in 1994, he joined Amoco's worldwide exploration department in Houston. Following the recent merger, he serves in BP Amoco's upstream technology group in Houston, as principal geophysicist.

For his work in seismic anisotropy, Leon was given the Fessenden Award in 1994 by the SEG. He served as its Distinguished Lecturer in 1997 and as the Chair of its Research Committee in '99-'00. He and his colleagues received the EAGE's Best Paper Award in 1997 for their converted-wave analysis at Valhall, and several SEG "Best Paper Honorable Mentions". He was made an Honorary Member of the GSH in 1998. □