

## Curriculum Vitae

Fred John Hilterman

### Contact:

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### Education:

Professional Geophysical Eng. Degree: Colorado School of Mines, 1959-1963  
Ph.D.: Colorado School of Mines, 1966-1970

### Employment:

|                             |                |  |
|-----------------------------|----------------|--|
| University of Houston       | 2005 - Present | Margaret Sheriff Professor of Applied Geophys. |
| University of Houston       | 2003-2005      | Professor                                      |
| University of Houston       | 1999-2003      | Distinguished Research Professor.              |
| Geophysi. Development Corp. | 1981-2003      | VP-Development                                 |
| University of Houston       | 1973-1983      | Professor                                      |
| Mobil Oil – FRL & ESC       | 1970-1973      | Activity Leader                                |
| Mobil Oil                   | 1963-1966      | Geophysicist                                   |

### Experience Overview (non-proprietary):

*2003 - Present UH Professor*

*1981 - 2003 Geophysical Development Corporation – VP Development*

*1977 - 1981 Principal Investigator (Director) - UH Seismic Acoustic Laboratory (SAL)*

*1974 - 1982 Oil-industry Lecturer*

*1974 - 1978 GeoQuest International, Inc. – Consultant*

*1973 - 1981 UH Professor*

Developed and taught the following senior or graduate courses:

- Geophysical Measurements in Laboratory and Field
- Quantitative Earth Sciences
- Marine Geophysics
- Theory of Seismic Computations
- Seismic Modeling
- Seismic Data Processing
- Seismic Wave Velocities
- Time-Series Analysis
- Wave Equation Migration
- Seismic Analysis
- Vertical Seismic Profiling
- Graduate Seminars

*1971-1973 Mobil Oil Company - Activity Leader*

*1970-1971 Mobil Oil Company- Associate Geophysicist*

*1963-1966 Mobil Oil Company- Geophysicist*

### Editorship:

- Member of The Leading Edge Journal Editorial Board (1984-1987, 1992-1995)
- Chairman of The Leading Edge Journal Editorial Board (1993-1994)
- Associate Editor of Geophysics (1976-1978)
- Editor of Dallas Geological and Geophysical Newsletter (1971-1972)

### Awards:

- SEG Cecil Green Enterprise Award (2004)
- Curtin University Adjunct Research Fellow (1999)
- SEG Best Presentation Award (1998)
- CSM Distinguished Alumni Medal (1997)
- GSH Honorary Membership (1996)
- SEG Honorary Membership (1995)
- SEG Classic Paper of Past 25 Years (1985)
- SEG Virgil Kauffman Gold Medallist (1984)

- Amoco Distinguished Achievement Award (1980)
- SEG Best Paper Award (1970)
- CSM vanDeist Gold Medal (1970)

**Professional Distinguished Lectures:**

- SEG Distinguished Instructor Short Course (DISC) Lecturer (2000-2001) 21 worldwide presentations
- SEG Distinguished Lecturer - (1985-1986)
- AAPG Distinguished Lecturer - (1984-1985)

**2005 Continuing Education Lecture Series:**

- Sept. 2005 – Seismic Amplitude Interpretation –TPAO Turkey
- Spring 2005 - Seismic Exploration – Delft University, Holland
- August 2005 – Seismic Wave and Ray Theory – Petrobras
- June 2005 – Seismic Amplitude Interpretation – Petrobras
- April 2005 – Seismic Amplitude Interpretation – OXY
- 2005 - SEG Seismic Amplitude Interpretation Course
  - November – Houston
  - May – Calgary
  - April – New Orleans

**Past Continuing Education Lecture Series Summary:**

- AAPG – 1977-Present
- SEG – 1979-Present
- University of Houston – 1974-1986
- Colorado School of Mines – 1968-1970

Example of CE topics offered:

- Application of Seismic Velocity
- Petrophysics
- Velocity and Lithology
- Seismic Lithology
- Integrated Geophysical Interpretations
- Seismic Exploration Modeling
- Geologic Predictions and Pitfalls
- 3-D Data Acquisition, Processing and Interpretation
- Linear Systems Analysis
- Seismic Amplitude Interpretation

**National and International Committees:**

- Chairman of SEG Honors and Awards Committee (2001-2002)
- Director of SEG Foundation (1999-Present)
- Chairman of SEG Advisory Committee (1998-1999)
- Chairman of SEG Nomination Committee (1997-1998)
- President of SEG (1996-1997)
- Board of Directors – LCT, Inc. (1996-1999)
- SEG General Chairman for 1995 Annual Convention
- Member of Advisory Board for Gas Research Institute (1992-1996)
- Member of CSM Geophysical Advisory Board (1991-2001)
- SEG Technical Program Chairman for 1991 Annual Convention
- Chairman of SEG Continuing Education Committee
- Seismic Technical Committee Chairman (1985 SEG Convention)
- Chairman of AAPG Geophysics Committee (1984-1985)
- Vice-President of SEG (1982-1983)
- Member of SEG, AAPG, EAGE, HGS, AGU, Tau Beta Pi and Sigma Xi.

**Technical Articles Published (SEG, CSEG):**

- Hilterman, F. and VanSchuyver, C., Seismic wide-angle processing to avoid NMO stretch, Geophysics (In press)
- Hilterman, F., 2005, Expert Answers – Amplitude Preservation, CSEG Recorder

- Hilterman, F., 2004, Is there anything else to do in AVO?, CSEG Recorder
- Russell, B., Hedlin, K., Hilterman, F. and Lines, L. R., 2003, Fluid-property discrimination with AVO: A Biot-Gassmann perspective: GEOPHYSICS, Soc. of Expl. Geophys., 68, 29-39.
- Devault, B., Davis, T. L., Tsvankin, I., Verm, R. and Hilterman, F., 2002, Multicomponent AVO analysis, Vacuum field, New Mexico: GEOPHYSICS, Soc. of Expl. Geophys., 67, 701-710.
- Hilterman, F. Van Schuyver, C. and Sbar, Marc, 2000, AVO examples of long-offset 2-D data in the Gulf of Mexico: The Leading Edge, 19, no. 11, 1200-1213.
- Hilterman, F., Sherwood, J. W. C., Schellhorn, R., Bankhead, B. and DeVault, B., 1998, Identification of lithology in the Gulf of Mexico: The Leading Edge, 17, no. 02, 215-222.
- Verm, R., Luh, L. and Hilterman, F., 1998, Significance of geopressure in predicting lithology: The Leading Edge, 17, no. 02, 227-234.
- Verm, R. and Hilterman, F., 1995, Lithology color-coded seismic sections: The calibration of AVO crossplotting to rock properties: The Leading Edge, 14, no. 08, 847-853.
- Hilterman, F. J., 1994, Three-dimensional seismic modeling, in McDonald, J. A., Ed., Seismic physical modeling, 15: Soc. of Expl. Geophys., 284-301. (\* Reprinted from Geophysics, 35, 1020-1037)
- Hilterman, F., 1990, Is AVO the seismic signature of lithology? A case history of Ship Shoal-south addition: The Leading Edge, 09, no. 06, 15-22.
- Hilterman, F. J., 1985, Three-dimensional seismic modeling: Geophysics, Soc. of Expl. Geophys., 50, 1984-2001.
- Hilterman, F. J., 1982, Interpretative lessons from three-dimensional modeling: Geophysics, Soc. Of Expl. Geophys., 47, 784-808.
- Hilterman, F. J., 1975, Amplitudes of seismic waves - A quick look: Geophysics, Soc. of Expl. Geophys., 40, 745-762.
- Hilterman, F. J., 1970, Three-dimensional seismic modeling: Geophysics, Soc. of Expl. Geophys., 35, 1020-1037.

#### **Abstracts Published (from SEG only):**

- Zhou, Z., Hilterman, F., Ren, H. and Kumar, M., 2005, Water-saturation estimation from seismic and rock-property trends, 75th 4rd Ann. Internat. Mtg.: Soc. of Expl. Geophys.
- Hilterman, F. and VanSchuyver, C., 2005, Maintaining frequency content for long offset seismic data, AGU, New Orleans.
- Hilterman, F. and Dunn, M., 2004, Seismic amplitude attributes for GOM Miocenesediments, 74rd Ann. Internat. Mtg.: Soc. of Expl. Geophys., 1710-1713.
- Hilterman, F. and Liang, L., 2003, Linking rock-property trends and AVO equation to GOM deep-water reservoirs, 73rd Ann. Internat. Mtg.: Soc. of Expl. Geophys., 211-214.
- Hilterman, F. and VanSchuyver, C., 2003, Seismic wide-angle processing to avoid NMO stretch, 73<sup>rd</sup> Ann. Internat. Mtg.: Soc. of Expl. Geophys., 215-218.
- VanSchuyver, C. and Hilterman, F., 2003, 3D refraction migration for depth imaging of West Africa salt walls, 73rd Ann. Internat. Mtg.: Soc. of Expl. Geophys., 10201022.
- Pankhurst, D., Hilterman, F., Gallagher, J., Sullivan, C., Marfurt, K. and Zhou, H., 2002, Long Offset AVO in a Mid-Continent Tight Gas Sand Reservoir, 72nd Ann. Internat. Mtg: Soc. of Expl. Geophys., 297-299.
- Al-Otaibi, M., Marfurt, K., Zhou, H., Hilterman, F. and Kabir, N., 2001, Effect of velocity transition zones on the apparent polarization of ocean-bottom cable multicomponent data, 71st Ann. Internat. Mtg: Soc. of Expl. Geophys., 1253-1256.
- Al-Otaibi, M., Marfurt, K., Hilterman, F., Zhou, H. and Kabir, N., 2001, Effect of Velocity Transition Zones on the Apparent Polarization of Ocean-Bottom Cable Data, 63rd Mtg.: Eur. Assn. of Expl. Geophys., Session: P178.
- Al-Otaibi, M. and Hilterman, F., 2000, P-P and P-S amplitude observations pre- and post-critical angle, 70th Ann. Internat. Mtg: Soc. of Expl. Geophys., 1931-1933.
- Hilterman, F., Verm, R., Wilson, M. and Liang, L., 1999, Calibration of rock properties for deepwater seismic, 69th Ann. Internat. Mtg: Soc. of Expl. Geophys., 65-68.
- DeVault, B., Davis, T. L., Tsvankin, I., Hilterman, F. and Verm, R., 1998, Multicomponent AVO analysis at Vacuum Field, New Mexico, Part I: Theory and data processing, 68th Ann. Internat. Mtg: Soc. of Expl. Geophys., 166-169.
- Hilterman, F. J., Sherwood, J. W. C., Schellhorn, R., Bankhead, B. and DeVault, B., 1996, Detection of hydrocarbons with lithostratigraphy, 66th Ann. Internat. Mtg: Soc. of Expl. Geophys., 1751-1754.
- Disiena, J. P., Parsons, B. E. and Hilterman, F. J., 1995, Two-term inversion from AVO to detect

- combined effect of porosity and gas in a Cretaceous sand reservoir, 65th Ann. Internat. Mtg: Soc. Of Expl. Geophys., 111-114.
- Verm, R. W. and Hilterman, F. J., 1994, Lithologic color-coded sections by AVO crossplots, 64th Ann. Internat. Mtg: Soc. of Expl. Geophys., 1092-1095.
  - Disiena, J. P. and Hilterman, F. J., 1994, Density estimation from the sonic log: A case study, 64<sup>th</sup> Ann. Internat. Mtg: Soc. of Expl. Geophys., 1096-1099.
  - Hilterman, F. J., 1989, Is AVO the seismic signature of rock properties?, 59th Ann. Internat. Mtg: Soc. of Expl. Geophys., 559.
  - Watkins, J. S., Schneider, L., Hilterman, F. and Spencer, L., 1987, Interactive and conventional interpretation of seismic data from Eugene Island, South Marsh Island, and Green Canyon OCS area, offshore Louisiana, 57th Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:POS2.10.
  - Hilterman, F. J., 1986, Education and training - Research symposium: Technology transfer, 56th Ann. Internat. Mtg.: Soc. of Expl. Geophys., Session:RES1.2.
  - Engelmarm, F., Hilterman, F., Liang, L. C. and Burns, C. S., 1985, Relating seismic lithology to Gulf Coast petrophysics, 55th Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:S10.1.
  - LaFehr, T. R., Dean, V. C., Davis, T. L. and Hilterman, F. J., 1983, Seismic and gravity modeling of the Mors salt dome, Denmark, 53rd Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:S4.8.
  - Sherwood, J., Hilterman, F., Neale, R. and Chen, K. C., 1983, Synthetic seismograms with offset for a layered elastic medium, 53rd Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:S14.1.
  - Nelson, H. R., Jr., Gardner, T. N. and Hilterman, F. J., 1981, Interpretation of physical model tank data with the raster segment generator, 51st Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:S18.7.
  - Morgan, T. R. and Hilterman, F. J., 1981, Three-dimensional migration velocity analysis in the space time and space-frequency domains, 51st Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:S9.5.
  - Duffy, B., Jr. and Hilterman, F. J., 1980, Stratigraphic analysis of seismic goal models with different depositional environments, 50th Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:G.31.
  - Owusu, K. and Hilterman, F. J., 1980, Velocity analysis over a 3-D curved boundary, 50th Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:G.67.
  - Wu, W. J., Raz, S. and Hilterman, F. J., 1980, Evaluation of direct inversion techniques, 50th Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:R.13.
  - Nelson, H. R., Jr., Hilterman, F. J. and Gardner, G. H. F., 1980, Introduction to interactive 3-D interpretation, 50th Ann. Internat. Mtg: Soc. of Expl. Geophys., Session:G.29.

#### **SEG General Articles Published:**

- Hilterman, F., 1997 Presidential Address: An arsenal of silver bullets: The Leading Edge, 17, no. 03, 366-369.
- Hilterman, F., 1998, Maurice Ewing Medal for T.R. LaFehr: The Leading Edge, 17, no. 03, 385-386.
- Hilterman, F. and Bridges, R., 1997, President's page - Corporations behind education: The Leading Edge, 16, no. 10, 1372-1373.
- Hilterman, F., 1997, President's page: The Leading Edge, 16, no. 11, 1562-1563.
- Hilterman, F. J., 1997, President's page - SEG's 1996 annual meeting: The Leading Edge, 16, no. 01, 8.
- Hilterman, F., 1997, 1996 Award citations: Special Commendation for Robert E. Sheriff: The Leading Edge, 16, no. 02, 157-158.
- Hilterman, F., 1997, President's page - New SEG programs and services: The Leading Edge, 16, no. 04, 320.
- Smethurst, J. and Hilterman, F., 1997, President's page: The Leading Edge, 16, no. 07, 978-979.
- Hilterman, F. J., 1996, GRI? Who are you?: The Leading Edge, 15, no. 02, 113.
- Hilterman, F. J., 1996, President's page - On your mark, get set, go.: The Leading Edge, 15, no. 12, 1310.
- Hilterman, F. J., 1996, President's page - Oil-finding tools of 1995-what tomorrow?: The Leading Edge, 15, no. 02, 80-82.
- Hilterman, F. and Verm, R., 1995, Planning ahead for Houston 95: The Leading Edge, 14, no. 07, 760-761.
- Hilterman, F., 1994, SEG 1993 Award Citations: Honorary Membership Citation for John W.C. Sherwood: The Leading Edge, 13, no. 02, 98-99.
- LaFehr, T. R., Hilterman, F. J. and Davis, T. L., 1986, Focusing on continuing education: The Leading Edge, 05, no. 06, 35.

**Books Published:**

- Hilterman, F. J., 2001, Seismic amplitude interpretation, Seismic Amplitude Interpretation: Soc. Of Expl. Geophys., 235.
- McDonald, J.A., Gardner, G.H.F., and Hilterman, F.J., (edited by), 1983, Seismic studies in physical modeling: IHRDC.

**Current Invited Talks:**

Oct. 2005, "Estimation of reflection coefficients from seismic amplitudes", Mariner Energy, Inc  
Oct. 2005, "Estimation of water saturation", Kerr-McGee Corporation  
Sept. 2005, " Water-saturation estimation from seismic and rock-property trends", Geological Society of London.  
May, 2005, "Energy-related issues", NSM college, Dean's Advisory Board.  
April, 2005, "AVO Signatures: (Gas to Fizz) = (31-34% Porosity Variation)", UT Edger Conference.  
Sept., 2004, "Estimation of pore-fluid content from seismic amplitude", Dan Tudor Lecturer, Univ. of Indiana  
May, 2004 Hilterman, "Seismic wide-angle processing to avoid NMO stretch", 66th EAGE Conference and Exhibition, Paris  
Jan. 10, 2003, "Rock-properties of deep Miocene plays on GOM shelf", Samson Oil Co.  
Jan. 21, 2003, "What's next in pore-fluid prediction?", GSH Luncheon  
Jan. 27, 2003, "Application of pore-fluid prediction to Deep-Water GOM", ExxonMobil  
Jan. 31, 2003, "Seismic Amplitude Interpretation Lecture Series", CSM  
Feb. 15, 2003, SEG 2001 Distinguished Instructor Short Course, ASEG, Adelaide  
Feb. 17, 2003, Keynote Speaker, ASEG, Adelaide  
Feb. 18, 2003, Panelist, "Global Geophysical Trends", ASEG, Adelaide  
Apr. 10-11, 2003, Keynote Speaker, Corporate Technology Seminar, Ocean Energy  
Feb. 14, 2003, "New rock-property transforms in AVO equation", ExxonMobil Research  
May15, 2003, "Seismic Data Calibration", AAPG Convention  
Oct. 15, 2003, "Seismic Amplitude Interpretation", SIPES

**Advisor to Completed Theses at UH (1973-1981):**

- Seven Ph.D.
- Five Masters

**Current Graduate Student Advising:** 5 PhD and 5 MS

**Funding:**

1. 2005-2007, DOE "Advanced reservoir imaging using frequency-dependent seismic attributes", \$800,000.
2. Reservoir Quantification Consortium, Sponsored by BP, Unocal, ExxonMobil, Devon, Geophysical Development Corporation, Shell, Fairfield Industries, Paradigm and Apex Metalink.