

CURRICULUM VITAE

Huib Douma, Ph.D

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PERSONAL

Born November 14th, 1971 in Grave, the Netherlands. Citizen of the Netherlands. Married.

EDUCATION

- Colorado School of Mines, Golden, CO, USA
Doctor of Philosophy with thesis in Geophysics, 2006
Thesis title: A hybrid formulation of map migration and wave-equation-based migration using curvelets
- Utrecht University, Utrecht, The Netherlands
Master of Science with thesis in Geophysics, 1996
Thesis title: Ensemble Inference in terms of Empirical Orthogonal Functions
- Dominicus College, Nijmegen, The Netherlands
A-level, 1990, Mathematics, Physics, Chemistry, Dutch, Latin, English, and Economics

POSITIONS HELD

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|----------------|---|
| 2006 – present | Hess postdoctoral research fellow, Princeton University |
| Fall 2006 | Invited internship with BP, Houston TX, USA, advanced imaging group |
| 2001 – 2006 | Research assistant at Colorado School of Mines, Center for Wave Phenomena |
| 2000 – 2001 | Research geophysicist at Western Geophysical, Isleworth, UK |

1999 – 2000	Staff geophysicist at Western Geophysical, Isleworth, UK
1998 – 1999	Seismic analyst in the multicomponent (4C) group at Western Geophysical, Isleworth, UK
1997 – 1998	Field seismic analyst at Western Geophysical on both streamer and ocean bottom cable acquisition vessels
1996 – 1997	Research assistant in the project-group Exploration Geophysics at the institute of Earth Sciences at Utrecht University
Summer 1994	Internship at ELF-PETROLAND B.V. the Hague, the Netherlands, Exploration Division

AWARDS

- 2006 – now : Harry Hess Fellowship, Princeton University
- 2001 – 2004 : Annual 3-month paid sabbatical leave from Western Geophysical to pursue individual research interests towards a Ph.D. in Geophysics

PROFESSIONAL ACTIVITIES

- June 2007 : Organizer of workshop at 69th annual conference of the European Association of Geoscientists and Engineers (EAGE). Title: “*Curvelets, contourlets, seislets, in seismic data processing: Where are we and Where are we going?*”, organized in collaboration with Herve Chauris, Centre de Géosciences, Ecole des Mines de Paris, France
- 2006 – 2007 : Organizer of Solid Earth seminar at Princeton University
- 1996 – 1997 : Graduate student representative at the daily management committee of the geophysics division of the faculty of earth sciences at Utrecht University
- Peer reviewer for numerous papers in *Geophysics* and *Geophysical Journal International*
- September 2006 : Visiting scientist with Bureau of Economic Geology, Austin TX, USA
- September 2004 : Visiting scientist at California Institute of Technology, applied mathematics
- May - July 2000 : Visiting scientist at the Center for Wave Phenomena, CSM Golden, USA
- Member of the AGU, SEG, and EAGE

PUBLICATIONS

See attached list of 9 internationally peer-reviewed publications and 5 publications in preparation.

CONFERENCE PROCEEDINGS

See attached list of 12 proceedings of international conferences.

SELECTED PRESENTATIONS

See attached list of 17 presentations or invited seminars given at international conferences, departmental seminars, or companies.

TEACHING EXPERIENCE

- Spring 2006, 2007 Guest lecturer, *Earthquakes, Volcanoes, Hazards*, Princeton, GEO-210
- Fall 2003 Guest lecturer, *Systems Thinking*, Colorado School of Mines
- Spring 1999 Guest lecturer, *Seminar Seismics*, Utrecht University
- Spring 1995 Teaching assistant, *Potential Methods*, Utrecht University
- Spring 1994 Teaching assistant, *Classical Mechanics*, Utrecht University
- Spring 1994 Teaching assistant, *Introduction to Seismology*, Utrecht University
- Graduate coursework at Colorado School of Mines included course “Fundamentals of College Teaching”

LANGUAGE ABILITIES

Dutch : native tongue
English : fluent in speech and writing
German : fluent in speech, well in writing
French : basic knowledge, both in speech and writing

REFERENCES

Prof. Dr. F. Anthony Dahlen (fad@princeton.edu)
Department of Geosciences
Princeton University, Princeton NJ 08544, USA
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Prof. Dr. Guust Nolet (nolet@princeton.edu)
Department of Geosciences
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Prof. Dr. R.K. Snieder (rsnieder@mines.edu)
Center for Wave Phenomena and Geophysics Department
Colorado School of Mines, Golden CO 80401, USA
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Prof. Dr. Ingrid Daubechies (ingrid@math.princeton.edu)
Department of Mathematics
Program in Applied and Computational Mathematics
Princeton University, Princeton NJ 08544, USA
phone: +1-609-258.4128

Prof. Dr. K. Larner (klarner@dix.mines.edu)
Center for Wave Phenomena and Geophysics Department
Colorado School of Mines, Golden CO 80401, USA
phone: +1-303-273.3428

PUBLICATIONS

Peer-reviewed publications:

H. Douma, 2007, Generalized representation theorems for acoustic wavefields in perturbed media, submitted for publication in *Geophysical Journal International*

H. Douma and M.V. de Hoop, 2007, Leading-order seismic imaging using curvelets, accepted for publication in *Geophysics*

H. Douma and M. van der Baan, 2007, Semblance-based anisotropy parameter-estimation for qP-waves in layered VTI media, accepted for publication in *Geophysics*

H. Douma and R. Snieder, 2006, Correcting for bias due to noise in coda wave interferometry, *Geophysical Journal International*, vol.164, pp. 99-108

H. Douma and A. Calvert, 2006, Nonhyperbolic moveout correction in VTI media using rational interpolation, *Geophysics*, vol.71, pp. D59-D71

H. Douma and M.V. de Hoop, 2006, Explicit expressions for pre-stack map time-migration in isotropic and VTI media and the applicability of map depth-migration in heterogeneous anisotropic media, *Geophysics*, vol.71, pp. S13-S28

R. Snieder, A. Grêt, **H. Douma**, and J. Scales, 2002, Coda wave interferometry for estimating nonlinear behavior in seismic velocity, *Science* 295, pp. 2253-2255

H. Douma and K. Roy-Chowdhury, 2001, Amplitude effects due to multi-scale impedance contrasts and multiple scattering: implications for IVREA-type continental lower crust, *Geophysical Journal International*, vol.147, pp. 435-448

H. Douma, R. Snieder, and A. Lomax, 1996, Ensemble inference in terms of Empirical Orthogonal Functions, *Geophysical Journal International*, vol.127, pp. 363-378

Publications in preparation:

H. Douma, Time-lapse seismic interferometry

H. Douma, Explicit expressions for pre-stack map time-migration in weakly anisotropic VTI media

H. Douma and R. Snieder, Generalized representation theorems for perturbed general dynamic systems with symmetric operators

H. Douma, I. Loris, and C.J. Regone, Sparse regional finite-frequency traveltime-tomography in the wavelet domain

M. Fornasier, S. Judd, and **H. Douma**, Sparse global finite-frequency traveltime-tomography in the wavelet domain

CONFERENCE PROCEEDINGS

H. Douma and F.A. Dahlen, 2007, Efficient calculation of the Green function in time-lapse seismic studies using boundary-integral representations, *EOS Trans. AGU* 88(23), *Jt. Assem. Suppl.*, Abstract S41B-06.

H. Douma and M.V. de Hoop, 2007, Leading-order seismic imaging using curvelets, workshop on “Curvelets, contourlets, seislets, ... in seismic data processing: Where are we and Where are we going?”, 69th Annual International Meeting of the EAGE.

H. Douma and M.V. de Hoop, 2007, Seismic imaging using curvelets, *EOS Trans. AGU* 88(23), *Jt. Assem. Suppl.*, Abstract S41B-03.

H. Douma and M. van der Baan, 2006, Semblance-based anisotropy-parameter estimation in layered VTI media using rational interpolation, *Expanded Abstracts of the 68th International Meeting of the EAGE*.

H. Douma and M.V. de Hoop, 2006, Leading-order seismic imaging using curvelets, *Expanded Abstracts of the SEG 76th Annual International Meeting*.

H. Douma and M.V. de Hoop, 2005, Common-offset pre-stack time-migration using curvelets, *EOS Trans. AGU* 86(18), *Jt. Assem. Suppl.*, Abstract S33A-02.

H. Douma and A. Calvert, 2005, Nonhyperbolic moveout analysis in VTI media using rational interpolation, *Expanded Abstracts of the SEG 75th Annual International Meeting*.

H. Douma and M.V. de Hoop, 2005, On common-offset pre-stack time-migration with curvelets, *Expanded Abstracts of the SEG 75th Annual International Meeting*.

H. Douma and M.V. de Hoop, 2004, Wave-character preserving pre-stack map migration using curvelets, *Expanded Abstracts of the SEG 74th Annual International Meeting*, pp. 961-964

R. Snieder and **H. Douma**, 2000, Coda wave interferometry, *EOS Trans. AGU, Fall Meeting Suppl.*, Abstract, **48**, 848.

H. Douma, and K. Roy-Chowdhury, 1998, The importance of multiple scattering in 1D bimodal fractal media: implications for imaging the continental lower crust, *Proc. of the 8th International Symposium on Deep Seismic Profiling of the Continents and their Margins*.

H. Douma, R.K. Snieder, and A. Lomax, 1996, Ensemble inference in terms of Empirical Orthogonal Functions, *Proceedings of the Annual Meeting of the EGS*.

SELECTED PRESENTATIONS

Efficient calculation of the Green function in time-lapse seismic studies using boundary-integral representations, oral presentation at the AGU joint assembly meeting, Acapulco, Mexico, 2007.

Leading-order seismic imaging using curvelets, oral presentation at the workshop on “Curvelets, contourlets, seislets, ... in seismic data processing: Where are we and Where are we going?” at the 69th Annual International Meeting of the EAGE, London, UK, 2007.

Seismic imaging using curvelets, oral presentation at the AGU joint assembly meeting, Acapulco, Mexico, 2007.

Leading-order seismic imaging using curvelets, oral presentation at Shell Research, Rijswijk, The Netherlands, 2006.

Semblance-based anisotropy-parameter estimation in layered VTI media using rational interpolation, oral presentation at the workshop “Seismic Anisotropy – State of the Art in Parameter Estimation and Imaging” at the 68th International Meeting of the EAGE, Vienna, Austria, 2006.

Semblance-based anisotropy-parameter estimation in layered VTI media using rational interpolation, poster presentation at the 68th International Meeting of the EAGE, Vienna, Austria, 2006.

Leading-order seismic imaging using curvelets, oral presentation at the 76th Annual International Meeting of the Society of Exploration Geophysics, New Orleans LA, USA, 2006.

Towards seismic imaging with curvelets, invited oral presentation at Department of Geosciences, Princeton University, Princeton NJ, USA, 2005.

Towards seismic imaging with curvelets, invited oral presentation at BP, advanced imaging group, Houston TX, USA, 2005.

Common-offset pre-stack time-migration using curvelets, oral presentation at the AGU Joint Assembly, New Orleans LA, USA, 2005.

Nonhyperbolic moveout analysis in VTI media using rational interpolation, oral presentation at the 75th Annual International Meeting of the Society of Exploration Geophysics, Houston TX, USA, 2005.

On common-offset pre-stack time-migration with curvelets, poster presentation at the 75th Annual International Meeting of the SEG, Houston TX, USA, 2005.

Wave-character preserving pre-stack map migration using curvelets, 74th Annual International Meeting of the SEG, Denver CO, USA, 2004.

Towards seismic imaging with curvelets, invited oral presentation at Total, Houston TX, USA, 2004.

Dual sensor summation technology at Western Geophysical, oral presentation at Total, Pau, France, 1999.

Dual sensor summation technology at Western Geophysical, oral presentation at BP, Sunbury, UK, 1998.

Ensemble inference in terms of Empirical Orthogonal Functions, oral presentation at the Annual Meeting of the EGS, The Hague, The Netherlands, 1996.