

VITA

Name: Douglas H. Christensen
Date of Birth: December 28, 1954
Citizenship: U.S.A.
Address: Geophysical Institute
University of Alaska Fairbanks
Fairbanks, Alaska 99775-7320
Tel. (907)-474-7426

EDUCATION:

Ph.D. (Geophysics, Seismology), University of Michigan, Department of Geological Sciences, 1987
M.S. (Geophysics, Seismology), University of Michigan, Department of Geological Sciences, 1979
B.S. (Geophysics), University of Utah, Department of Geology and Geophysics, 1977

PROFESSIONAL EXPERIENCE:

Associate Director of the Geophysical Institute, August 1999 (current position)
Professor, Geophysical Institute, University of Alaska Fairbanks, 1998 (current position)
Associate Professor, Geophysical Institute, University of Alaska Fairbanks, 1993-1998
Assistant Professor, Geophysical Institute, University of Alaska Fairbanks, 1988-1992
Project Director of 15 element seismic array in Ohio, Indiana and Michigan, (Seismological Observatory), Department of Geological Sciences, University of Michigan, 1980-1987
Graduate Research Assistant, Department of Geological Sciences, University of Michigan, 1977-1987
Graduate Teaching Assistant, Department of Geological Sciences, University of Michigan, 1977-1980
Cities Services, Data Processing, Tulsa, Oklahoma, Summer 1977
Undergraduate Research Assistant, (Seismological Observatory), Department of Geology and Geophysics, University of Utah, 1975-1977
American Smelting and Refining, Exploration Department, Salt Lake City, Utah, Summer 1974

PROFESSIONAL SOCIETIES:

Seismological Society of America
American Geophysical Union

AWARDS:

William M. Dolan, 4 yr. Undergraduate Scholarship, Univ. of Utah, 1973-1977
Terris and Katrina Moore Prize, 1990

TEACHING:

Courses Taught

Spring 1988	GEOS 194	Earthquakes*	1 cr.	23 students
Spring 1989	GEOS 693	Forward & Inverse Theory	3 cr.	3 students
Fall 1989	GEOS 697	Seismology	3 cr.	1 student
Spring 1990	GEOS 120	Earthquakes*	1 cr.	84 students
Fall 1990	GEOS 604	Intermediate Seismology	3 cr.	9 students
Fall 1991	GEOS 602	Geophysical Fields	3 cr.	9 students
Spring 1992	GEOS 120	Earthquakes*	1 cr.	~70 students
Spring 1993	GEOS 120	Earthquakes*	1 cr.	~70 students
	GEOS 604	Intermediate Seismology	3 cr.	12 students
Fall 1993	GEOS 602	Geophysical Fields	3 cr.	12 students
Spring 1994	GEOS 120	Earthquakes*	1 cr.	~70 students
Spring 1995	GEOS 120	Earthquakes*	1 cr.	~90 students
	GEOS 604	Intermediate Seismology	3 cr.	10 students
Fall 1995	GEOS 602	Geophysical Fields	3 cr.	10 students
Spring 1996	GEOS 120	Earthquakes*	1 cr.	~80 students
	GEOS 497	Independent Study	2 cr.	1 student
Fall 1996	GEOS 120	Earthquakes*	1 cr.	78 students
	GEOS 418	Basic Geophysics	3 cr.	12 students
Spring 1997	GEOS 120	Earthquakes*	1 cr.	133 students
Fall 1997	GEOS 120	Earthquakes*	1 cr.	130 students
	GEOS 418	Basic Geophysics	3 cr.	15 students
Spring 1998	GEOS 120	Earthquakes*	1 cr.	146 students
	GEOS 602	Geophysical Fields	3 cr.	6 students
	GEOS 692	Topics in Geophysics**	1 cr.	~6 students
Fall 1998	GEOS 120	Earthquakes*	1 cr.	100 students
	GEOS 418	Basic Geophysics	3 cr.	8 students
	GEOS 692	Topics in Geophysics**	1 cr.	~5 students
Spring 1999	GEOS 604	Intermediate Seismology	3 cr.	5 students
	GEOS 120	Earthquakes*	1 cr.	124 students
	GEOS 692	Topics in Geophysics**	1 cr.	~8 students
Fall 1999	GEOS 418	Basic Geophysics	3 cr.	12 students
	GEOS 692	Topics in Geophysics**	1 cr.	~10 students
	GEOS 120	Earthquakes*	1 cr.	68 students
Spring 2000	GEOS 120	Earthquakes*	1 cr.	125 students
	GEOS 692	Topics in Geophysics**	1 cr.	~8 students
Fall 2000	GEOS 418	Basic Geophysics	3 cr.	9 students
	GEOS 692	Topics in Geophysics**	1 cr.	~8 students
	GEOS 120	Earthquakes*	1 cr.	90 students
Spring 2001	GEOS 120	Earthquakes*	1 cr.	121 students
	GEOS 604	Intermediate Seismology	3 cr.	5 students
	GEOS 692	Topics in Geophysics**	1 cr.	~8 students
Fall 2001	GEOS 418	Basic Geophysics	3 cr.	8 students
	GEOS 692	Topics in Geophysics**	1 cr.	~8 students
	GEOS 482	Geology Seminar	1 cr.	3 students
	GEOS 120	Earthquakes*	1 cr.	120 students
Spring 2002	GEOS 120	Earthquakes*	1 cr.	103 students
Fall 2002	GEOS 120	Earthquakes*	1 cr.	80 students
	GEOS 418	Basic Geophysics	3 cr.	13 students
	GEOS 692	Topics in Geophysics**	1 cr.	~6 students
Spring 2003	GEOS 120	Earthquakes*	1 cr.	122 students

	GEOS 604	Intermediate Seismology	3 cr.	4 students
	GEOS 692	Topics in Geophysics**	1 cr.	3 students
Fall 2003	GEOS 120	Earthquakes*	1 cr.	121 students
	GEOS 418	Basic Geophysics	3 cr.	14 students
	GEOS 692	Topics in Geophysics**	1 cr.	7 students
Spring 2004	GEOS 120	Earthquakes*	1 cr.	98 students
	GEOS 692	Topics in Geophysics**	1 cr.	4 students
Fall 2004	GEOS 120	Earthquakes*	1 cr.	116 students
	GEOS 418	Basic Geophysics	3 cr.	8 students
	GEOS 692	Topics in Geophysics**	1 cr.	13 students

Courses to be Taught in the Future

Spring	2005, 2007, 2009, ...	GEOS 604	3 cr.	Intermediate Seismology
Spring	2005, 2006, 2007, ...	GEOS 120	4 cr.	Earthquakes/Volcanoes/Glaciers*
Spring	2005, 2006, 2007, ...	GEOS 692	1 cr.	Topics in Geophysics** (sem.)
Fall	2005, 2006, 2007, ...	GEOS 120	4 cr.	Earthquakes/Volcanoes/Glaciers*
Fall	2005, 2006, 2007, ...	GEOS 418	3 cr.	Basic Geophysics
Fall	2005, 2006, 2007, ...	GEOS 692	1 cr.	Topics in Geophysics** (sem.)

*Course GEOS 120 Earthquake / Volcanoes / Glaciers (4 credits), team taught with J. Eichelberger (Volcanology), and K. Echelmeyer or H. Eicken, V. Romonovski, C. Duguay (Glaciers)

**Course GEOS 692 Topics in Geophysics (1 credit, team taught with J. Freymueller)

OTHER INSTRUCTIONAL ACCOMPLISHMENTS:

- Organized the weekly Seismology/Solid Earth Seminar during the 1988 Spring Semester
- Participated in a formal seminar for seismology students (GEOS 692-004) taught by Niren Biswas. This included attending and participating in each class, in addition to preparing and presenting an occasional lecture (Fall 1990) - 4 students.
- Played a leading role in formulating the current Geophysics graduate curriculum.
- Developed and taught Earthquakes of the mini-course series GEOS 120, Earthquakes, Volcanoes, Glaciers and labs which were subsequently accepted as one of the general science courses under the breadth category. Volcanoes is taught by J. Eichelberger, and Glaciers is taught by K. Echelmeyer, H. Eicken, V. Romonovski, or C. Duguay.
- Developed two new graduate courses, Intermediate Seismology GEOS 604 and Geophysical Fields GEOS 602, which are now part of the Geophysics graduate curriculum.
- Presented a lecture in GEOS 101 taught by Keith Watts on "Earthquakes in Alaska" during the Fall semester, 1991
- Lectured on Earthquake in Alaska for David Stones class on Geology of Alaska for non-Geologist, 1994.
- Started teaching Basic Geophysics (GEOS 418) following the retirement of David Stone. This course is one of the optional courses required for undergraduates.
- In the 1996 Spring Semester I developed an independent study class for Cristyn Presley (GEOS 497, 2 credits). This course was based on a research paper on the seismotectonics of Cascadia.

During 1996 I presented hour lectures for - Environmental Geology GEOS 125 (Feb. 13); Volcanology GEOS 606 (Feb. 21); Global Tectonics GEOS 613 (Nov. 5); The Dynamic Earth GEOS 101 (April 4); and help teach ED 593 (March 4).
Lectured on Earthquakes in Alaska for - The Dynamic Earth GEOS 101 (Sept. 23, 1997, and March, 1998)

GRADUATE STUDENTS:

Chairman/Major Supervisor

- Cheryl Searcy (Ph.D.) admitted in the Fall Semester, 1989, graduated in 1996
Thesis work involved determining the crustal and upper mantle velocity structure in Alaska using receiver function inversion and seismic tomography.
- Jim Clippard (Ph.D.) admitted in the Fall Semester, 1990, graduated in 1998
Thesis work involved theoretical work in tomography (inversion theory) and image enhancement.
- Hilary Fletcher (M.S.) admitted in the Fall Semester, 1992, graduated in Fall 1995. Thesis topic on large interplate earthquakes in Alaska.
- Charlotte Rowe (Ph.D.) admitted in the Fall Semester, 1993
Left program at the end of 1996 to complete Ph.D. degree in New Mexico.
- Aaron Pearson (M.S.) admitted in the Fall Semester, 1997, graduated in Fall 2000. Thesis work involved determining the velocity structure of Kilauea Volcano in Hawaii using seismic tomography.
- Elizabeth Meyers (Ph.D.) admitted in the Spring Semester, 1999.
Is working on the PASSCAL Experiment (BEAAR) to determine the structure of the Alaska Range using receiver function analysis.
- Kelly Kore (M.S.) admitted in Fall Semester, 2002, but started working with me in Fall Semester, 2003. Is looking at seismicity rate changes at Aleutian volcanoes.

Committee Member

- | | |
|--------------------|-------------------------------------|
| (18) M.S. Students | Robert Lorenzen (Graduated) |
| (4 Active) | Andrew Goodliffe (Graduated) |
| | Carol Petersen (Graduated) |
| | Yanjia Chen (Graduated) |
| | Zhijian Li (Graduated) |
| | Mingshuai Hu (Graduated) |
| | Jean Johnson (Graduated in 1989) |
| | Jim Dixon (Graduated in 1991) |
| | Ellen Wilson (Left Program) |
| | Shelly Worley (Switched programs) |
| | Shad O'Neal (Graduated in 2000) |
| | John Sanchez (Graduated in 2001) |
| | Duncan Marriott (Graduated in 2002) |
| | Sharon Pitiss (Active) |
| | Travis Williams (Left Program) |
| | Julie Elliot (Active) |
| | Celso Reyes (Active) |
| | Samik Sil (Active) |

(20) Ph.D. Students
(6 Active)

Yuzo Toya (Left program)
John Tokuuke (Left program)
Yanjia Chen (Switched to M.S. program)
Lorraine Wolf (Graduated in 1989)
Domonique Gillard (Graduated)
Stefan Wiemer (Graduated in 1996)
Zhong Lu (Graduated in 1996)
John Power (Graduated in 1998)
Ken Richards (Outside member, graduated)
Matt Nolan (Graduated in 1998)
Kent Lindquist (Graduated in 1998)
Natalia Ratchkovskaia (Graduated in 2001)
Qizhi Chen (Graduated in 2002)
Hilary Fletcher (Graduated in 2002)
Elena Suleimani (Active)
John Chappelow (Active)
John Sanchez (Active)
Sigrun Hreinsdottir (Active)
Tanja Petersen (Active)
Tom Fournier (Active)

INFORMAL GRADUATE, UNDERGRADUATE SUPERVISION:

Informal Graduate Supervision

Tom McSweeney (M.S., Graduated in 1989)
Charlotte Rowe (M.S., Graduated in 1989)
John Power (M.S., Graduated in 1989)

Summer Intern Program (NSF funded Research Experience for Undergraduates)

Jan Kaufmann (1988) - Project: Rupture process of the 1965 Rat Islands earthquake - results presented at Fall AGU 1988 and published in JGR, 1991.

Leslie McCullough (1989) - Project: Rupture process of the 1964 Prince William Sound earthquake - results presented at Fall AGU 1989, Wadati Conference, 1992.

Joseph Galewsky (1990) - Project: Rupture process of several large earthquakes in the Kermadec Islands region which occurred on January 14, 1976 - results presented at Fall AGU 1991. Joe also helped in fieldwork in the Brooks Range.

Sharon Spitzak (1991) - Project: Worked on data from the Brooks Range project to determine crustal and upper mantle velocity structure - results presented at Fall AGU 1991.

Julie Roden (1992) - Project: Worked on short period teleseismic data recorded by the Alaska Earthquake Information Center.

Dorothy Buck (1993) - Project: Broadband teleseismic data recorded in the Brooks Range and Glenallen area to determine the earth structure and anisotropy beneath these sites.

Erik Perez (1994) - Project: Rupture process of the 1987-1988 Gulf of Alaska earthquakes

Priscilla Dioquino (1994) - Project: S-wave splitting and anisotropy under Fairbanks Alaska using data from seismic station COL

Laura Hungate (1995) - Project: Worked on receiver function analysis of several Siberian seismic stations.

Margaret Boettcher (1996) - Project: Worked on b-value estimates and moment release rates in several regions of Alaska and the Aleutians.

Eric Frankel (1996) - Project: Worked on site response at the Alaska Seismic Network from teleseismic events. (co-supervised with Steve McNutt)

Sarah Albano (1997) - Project: Structure and array studies of Kilauea volcano

Margaret Benoit (1998) - Project: Determining crustal structure using receiver functions

Margaret Pollock (1999) - Project: Deployment and preliminary studies of the BEAAR array - results presented at Fall AGU 1999.

Addie Holland (2000) - Project: Deployment and preliminary studies of the BEAAR array - results presented at Fall AGU 2000.

Kate Beebe (2000) - Project: Deployment and preliminary studies of the BEAAR array - results presented at Fall AGU 2000.

Amie Lucier (2001) - Project: Receiver functions from the BEAAR project - results presented at Fall AGU 2001.

Jacob Cooper (2001) - Project: Gravity survey across the Alaska Range

Toni McKnight (2003) - Project: Mantle anisotropy beneath the Alaska Range from S-wave splitting observations - results presented at Fall AGU 2003.

Andrea Llenos (2003) - Project: Crustal thickness in Alaska from teleseismic receiver functions - results presented at Fall AGU 2003.

Krista Mondelli (2004) – Project: Determined crustal and upper mantle velocities using the BEAAR data.

RESEARCH:

Current Research Projects, Areas of Investigations

- 1) Spatial and Temporal Variations of Intraplate Seismicity as Related to Subduction Zone Dynamics. Global occurrences of intraplate earthquakes in the vicinity of the subduction zones (particularly in the outer rise) are related to the occurrences or the lack of occurrences of large underthrusting earthquakes (i.e., seismic gaps, and asperity distributions).
- 2) Rupture Process, Asperity Distribution and Source Models for Large and Great Earthquakes of Alaska and the World
 - a) 1965 Rat Islands Earthquake
 - b) 1964 Prince William Sound Earthquake
 - c) 1976 Kermadec Earthquakes
 - d) Interplate and Intraplate Earthquakes in Alaska
 - e) 1986 and 1996 Aleutian Earthquakes
 - f) 1987-1988 Gulf of Alaska Earthquakes
 - g) October 5, 1995 Minto Flats Earthquake
 - h) November 3, 2002 Denali Fault Earthquake
- 3) Tomography (3-D velocity structure determination)
 - a) Crust and Upper Mantle Velocity Structure in Alaska
 - b) Velocity Structure of Individual Volcanoes in Alaska, Hawaii, and Cascadia
 - c) Theoretical Improvements to Tomography (Image Enhancement)
- 4) Geophysical Inverse Theory
- 5) Forward and Inverse Modeling of Seismic Waves
 - a) To Determine Source Properties of Earthquakes
 - b) To Determine Earth Structure
 - i. Converted Phases from Local and Teleseismic Sources

- ii. Multiple Reflected Phases (identification & interpretation)
 - c) Receiver Functions (used to determine crustal and upper mantle structure beneath high quality seismic stations)
 - d) S Wave Splitting (quantify anisotropic structure of the crust and upper mantle)
- 6) Broadband Seismic Studies
 - a) Deployment and Interpretation of Broadband Seismic Instruments in Alaska
- 7) GPS and Geodetic Measurements as Related to Pre-, Co-, and Post Earthquake Deformation
- 8) Field Studies
 - a) Deployed Seismic Instrumentation in the Brooks Range During the Summer of 1990 to Determine Crustal and Upper Mantle Structure
 - b) Deployed Seismic Instrumentation in the Glenallen Area During 1990 - 1991 to Determine Crustal and Upper Mantle Structure
 - c) Deployed Seismic Instrumentation on Kilauea Volcano, Hawaii in Jan. 1996 and Feb. 1997 (Collaborative Project with Japan and USGS)
 - d) PASSCAL Seismic Experiment (BEAAR) across the Alaska Range (work funded by NSF, 1/1/99 - 1/31/03)
 - e) PASSCAL Seismic Experiment (ARCTIC) in northern Alaska. Observational and Theoretical Constraints on the Structure and Rotation of the Inner Core (work funded by NSF, 6/1/04-5/31/08)
 - f) PASSCAL Seismic Experiment (TUNA) on the Kenai Peninsula. Seismic and Geodetic Imaging of Subducting Terranes Under North America (work funded by NSF, 7/1/04-6/30/09)

PAST, PRESENT, AND PENDING SUPPORT:

Funded Proposals

Spatial and Temporal Stress Variations in the Outer Rise and Subduction Zone Dynamics (P.I. D.H. Christensen), NSF, 7/1/89 - 12/31/90, \$50,000.

Crustal and Upper Mantle Velocity Structure Beneath the Brooks Range, Alaska, Using Inversion of Teleseismic Receiver Transfer Functions (P.I. D.H. Christensen), Faculty Grants, 7/1/89 - 6/30/90, \$5,000.

EAR 90-04112 Crustal and Upper Mantle Velocity Structure Along the Trans-Alaska Crustal Transect Using Inversion of Teleseismic Receiver Functions (P.I. D.H. Christensen), NSF, 8/15/90 - 1/31/92, \$50,000.

1434-92-G-2221 Source Properties and Tectonic Implications of Large Intraplate Earthquakes in Alaska (P.I. D.H. Christensen), USGS/NEHRP, 3/10/92 - 3/9/94, \$51,236.

EAR 91-18090 A Tomographic Study of Seismic Velocity Structure in Alaska (P.I.s, D.H. Christensen and D. Zhao), NSF, 3/1/92 - 8/31/94, \$134,358

EAR 92-49904 A Conference on Great Subduction Earthquakes (Wadati Conference)(P.I.s, M. Wyss, D.H. Christensen, and J.N. Davies), NSF, 7/1/92 - 6/30/93, \$32,000.

14-08-0001-A0574 Determine Seismic Velocity Structure in the Cook Inlet Region, Alaska (P.I., D.H. Christensen), USGS/AVO, 5/18/92 - 5/17/93, \$19,874.

1434-93-A-1127 Alaska Volcano Observatory, Task E: Determine Seismic Velocity Structure in the Cook Inlet Region (P.I., D.H. Christensen), USGS/AVO, 5/18/93 - 5/17/94, \$23,159.

1434-93-A-1127 Alaska Volcano Observatory, Task E: Determine Seismic Velocity Structure in the Cook Inlet Region (P.I., D.H. Christensen), USGS/AVO, 5/18/94 - 5/17/95, \$11,837.

EAR-93-22471 Research Experience for Undergraduates in the Geosciences (P.I.s, D.H. Christensen, P. Layer, and D. Stone), NSF, 4/15/94 - 9/30/96 at \$90,000

EAR-94-05471 Internal Structure of an Endogenous Andesitic/Dacitic Dome Complex - Augustine Volcano (P.I.s, J. Kienle, and D.H. Christensen) NSF, 9/1/94 - 8/31/97 at \$143,000.

EAR-95-06379 Enhanced 3-D Tomographic Imaging via Composite Distribution Inverse Theory, (P.I., D.H. Christensen) NSF, 7/15/95 - 6/30/97 at \$41,665.

1423-95-A-01310 Seismic Network Operations in Alaska (P.I., R. Hansen, D.H. Christensen), USGS/NEHRP, 5/1/95 - 4/30/98 at \$891,681.

0159 Northeast Siberia Seismic Instrumentation Experiment (P.I., K. Fujita, D. Stone, P. Layer, D.H. Christensen), IRIS, 1995-1996, 1 year, \$29,199.

CIFAR grant Tsunami Hazard Mitigation in Alaska from Real Time Moment Tensor Inversion of Broadband Seismic Data, (P.I., D.H. Christensen), 1995-1996, \$15,000.

EAR-95-31601 Research Experience for Undergraduates in the Geosciences (P.I.s, D.H. Christensen, P. Layer), NSF, 5/1/96-4/30/98, at \$98,431.

Geophysical Investigations of the Denali Fault System in Alaska (P.I.s, J.T. Freymueller, D.H. Christensen) Earthwatch, 3 months, July-Sept., 1997, \$11,200.

Three Dimensional Wavefield Modeling for Seismic Hazards in Alaska (P.I.s, R. Hansen, D.H. Christensen) ARSC/NSF, 1 year, 1997, \$48,000.

Determination of Source Parameters and Wave Attenuation Characteristics in Alaska, (P.I.s, R. Hansen, D. Christensen) USGS, 5/1/98-4/30/99, at \$61,606.

Dense Seismic Array Studies of Kilauea Volcano, Hawaii (P.I.s, S. McNutt, D. Christensen), NSF, 1/1/98-12/31/99, at \$140,177.

Seismic Network Operations in Alaska (P.I.s, R. Hansen, D. Christensen) USGS, 5/1/98-4/30/01, at ~\$750,000.

Research Experience for Undergraduates in the Geosciences (P.I.s, D.H. Christensen, P. Layer) NSF, 5/1/98-4/30/01, at \$167,152.

Collaborative Research: Subduction, Collision, and Mountain Building, a Broadband Seismic Experiment Across the Alaska Range (BEAAR) (P.I.s, D.H. Christensen, R. Hansen, Collaborative with the University of Kansas, Geoff Abers) NSF, 1/1/99-1/31/03, at \$304,752.

Research Experience for Undergraduates in the Geosciences (P.I.s, D.H. Christensen, P. Layer) NSF, 3/1/01-3/31/03, at \$66,297.

Research Experience for Undergraduate in the Geosciences (REU site) (P.I.s, D.H. Christensen, P. Layer) NSF, 1/1/03 - 12/31/05, at \$263,350.

CSEDI Collaborative Research: Observational and Theoretical Constraints on the Structure and Rotation of the Inner Core (P.I.s, X. Song, B. Buffett, D.H. Christensen) NSF, 6/1/04 - 5/31/08, at \$140,648.

Collaborative Research: Seismic and Geodetic Imaging of Subducting Terranes Under North America (TUNA) (P.I.s, D.H. Christensen, G.A. Abers, and J. Freymueller) NSF, 7/1/04 - 6/30/09, at \$531,841.

Pending Proposals

None

Not Funded Proposals

A Conference on Great Subduction Earthquakes (P.I.s, M. Wyss, D.H. Christensen and J.N. Davies), NASA, 6 months, submitted in 1991, \$14,760, not funded.

A Southern Alaska Continuously Operating GPS Array for Near Real Time Crustal Dynamic Studies (P.I.s, D.B. Stone, J.N. Davies, D.H. Christensen, K. Echelmeyer, B.H. Hager, T.A. Herring, and R.W. King), NASA, 4 years, submitted in 1991, \$708,999, not funded

Research Experience for Undergraduates in the Geosciences (P.I.s, D.H. Christensen, P. Layer, and D. Stone), NSF, 3 years, submitted Oct. 1, 1992, \$154,058, not funded.

Source Parameters of Earthquakes ($M > 6$) Along the Southern Alaska Plate Boundary (P.I.s, D. Gillard, M. Wyss, and D.H. Christensen), NSF, 2 years, submitted June 1, 1992, \$197,632, not funded.

Minimum Feature Tomography (P.I., D.H. Christensen), NSF, 1 year, submitted Dec. 1, 1992, \$37,032, not funded.

Seismicity, Tectonics, and Seismic Hazards in the Fairbanks, Alaska Region (P.I., D.H. Christensen) USGS/NEHRP, 1 year, submitted in 1993, \$49,207, not funded.

Design of Panels for the Earthquake Park Display in Anchorage (P.I.s, D.H. Christensen and S. Akasofu) Alaska Science & Technology Foundation, 1 year, submitted in 1993, \$20,000, not funded.

Subduction, Collision, and Mountain Building: Active Tectonics of the Southern Alaska Plate Boundary (P.I.s, D.H. Christensen, M. Wyss, W. Wallace, and D. Stone), NSF, 5 years, submitted in 1993, \$1,428,080, not funded.

Seismic Anisotropy: Crustal or Mantle Origin? (P.I., D.H. Christensen), NSF, 2 years, submitted in 1993, \$176,222, not funded

Detailed Structure and Segmentation of the Transition Between the Aleutian and Wrangell Subduction Zones from Broadband Seismic Data (P.I.s, D.H. Christensen) NSF, 3 years, submitted June 1, 1994, \$196,535, not funded

Broadband Studies of Earthquake Sources in Alaska (P.I., D.H. Christensen and M. Wyss) NSF, 2 years, submitted June 1, 1994, \$56,887, not funded.

Seismic Anisotropy: Crustal or Mantle Origin? (P.I., D.H. Christensen), NSF, 2 years, submitted Dec. 1, 1994, \$125,482, not funded

Detailed Structure and Segmentation of the Transition Between the Aleutian and Wrangell Subduction Zones from Broadband Seismic Data (P.I., D.H. Christensen) NSF, 1 year, submitted June 1, 1995, \$70,291, not funded

Subduction, Collision, and Mountain Building: Broadband Seismic Experiment Across the Alaska Range (P.I.s, D.H. Christensen, R. Hansen) NSF, 3 years, submitted June 1, 1995, \$333,388, not funded

CIFAR proposal Tsunami Hazard Mitigation in Alaska from Real Time Moment Tensor Inversion of Broadband Seismic Data, (P.I.s, D.H. Christensen, R. Hansen, T. Sokolowski) 1 year, submitted 1995, \$56,887, not funded

Determination of Source Parameters and Wave Attenuation Characteristics in Alaska (P.I.s, R. Hansen, D.H. Christensen) USGS - NEHRP, 1 year, submitted April, 1995, \$57,730, not funded

Detailed Structure and Segmentation of the Transition Between the Aleutian and Wrangell Subduction Zones from Broadband Seismic Data (P.I., D.H. Christensen) NSF, 1 year, submitted June 1, 1996, \$71,777, not funded

Subduction, Collision, and Mountain Building: Broadband Seismic Experiment Across the Alaska Range (P.I.s, D.H. Christensen, R. Hansen) NSF, 3 years, submitted June 1, 1996, \$337,030, not funded

Determination of Source Parameters and Wave Attenuation Characteristics in Alaska (P.I.s, R. Hansen, D.H. Christensen) USGS - NEHRP, 1 year, submitted April, 1996, \$61,126, not funded

Evaluation of Teleseismic Arrays and Broadband Stations for Regional Monitoring of a CTBT (P.I.s, R. Hansen, D.H. Christensen) Defense Special Weapons Agency, 3 years, submitted November, 1996, \$280,372, not funded

Collaborative Research: Alaska Lithosphere and Inner Core Experiment (ALICE) (P.I.s, D.H. Christensen, R. Hansen, Collaborative with Rice University, Alan Levander, and Lamont Doherty, Xiaodong Song) NSF, 4/1/00-3/31/03, at \$218,852, not funded.

Research Experience for Undergraduates in the Geosciences (REU site) (P.I.s, D.H. Christensen, P. Layer) NSF, 1/1/02 - 12/31/04, at \$200,382, not funded.

Collaborative Research: High Resolution Imaging of Inner Core-Anisotropy and Rotation: A PASSCAL Experiment (P.I.s, X. Song, D.H. Christensen) NSF, 1/1/03 - 12/31/05, at \$123,012, not funded.

Collaborative Research: Plate Interface Experiment on the Kenai Peninsula (PIE) (P.I.s, D.H. Christensen, G.A. Abers) NSF, 1/1/04 - 12/31/06, at \$397,547, not funded.

Seismicity of Denali National Park: The Kantishna Cluster (P.I.s, D.H. Christensen, R. Hansen) NSF, 1/1/03 - 12/31/05, at \$216,184, not funded.

Seismological Studies of the November 3, 2002 Denali Fault Earthquake (P.I.s, D.H. Christensen, R. Hansen) NSF, 5/1/03 - 4/30/05, \$143,789, not funded.

Collaborative Research: Seismic Imaging of the Denali Fault, Alaska (P.I.s, C. Thurber, D.H. Christensen) NSF, 5/1/03 - 4/30/05, \$115,355, not funded.

Seismological Studies of the November 3, 2002 Denali Fault Earthquake (P.I.s, D.H. Christensen, R. Hansen) NEHRP/USGS, 11/1/03 - 10/31/05, at \$149,899, not funded.

Seismotectonics of the Western Denali Fault and the Kantishna Cluster (P.I.s, D.H. Christensen, R. Hansen, N. Ratchkovski) NSF, 1/1/04 - 12/31/06, at \$327,219, not funded.

LIST OF PUBLICATIONS IN REFEREED JOURNALS:

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Kore, K.R., S.R. McNutt, and D.H. Christensen (2004). Systematic Search for Background Seismicity Rate Changes and Correlations at Alaskan Volcanoes, *EOS* ??, ????. (Fall AGU 2004)

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Mauk, F. J., D. Coupland, D. Christensen, J. Kimball, and P. Ford (1979). Geophysical Investigations of the Anna, Ohio, Earthquake Zone: Annual Progress Report for the U. S. Nuclear Regulatory Commission, July 1978-July 1979, NUREG/CR-1065.

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OTHER SCHOLARLY ACTIVITIES:

Contributed the cover photograph to Seismological Research Letters, Volume 59, Number 2, 1988.

Collaborated with and advised Dapeng Zhao who was a Post-Doc at the Geophysical Institute between May 1991 and May 1992. Dapeng came to UAF from Tohoku University in Sendai, Japan and is an expert in tomographic inversions having written a Ph.D. thesis on the subject. With Dapeng's help my students and I have become very active in the field of seismic tomography.

PUBLIC AND UNIVERSITY SERVICE:

Public Service

Participated in the planning of the Geophysical Institute Open House including public presentations - October 7-9, 1988 and October 2-4, 1992.

Generally available to discuss earthquakes and earthquake related problems with the Press, groups and individuals by phone or on lab tours (usually several times per month).

Participated in the Elderhostel Program by presenting seminars on August 8 and 15, 1989, titled: Earthquakes and Earthquake Hazards in Alaska

Actively involved with the Alaska Volcano Observatory (AVO), which includes informing the public on volcanic hazards and standing watch when necessary (usually Saturday or Sunday each week between December 13, 1989 and September 7, 1990 during the Redoubt eruption) and also

during the more recent Mt. Spurr eruptions. While this is not a part of my research or teaching load, AVO often needs more manpower than is normally available during an eruption.

Manned the College of Natural Sciences booth at the Tanana Valley State Fair on August 14, 1990 and the University of Alaska booth at the Tanana Valley State Fair on August 11, 1992.

Prepared a poster and computer display on the tectonics of Alaska and the 1964 earthquake which was donated to the Valdez museum during the AAAS Arctic Science Conference on Sept. 8-12, 1992.

Helped with the Earthquake Hazard booth sponsored by the Fairbanks Lions club during the Tanana Valley State Fair, Summer 1994.

Helped with the Alaska Earthquake Information Center and the Alaska Volcano Observatory booth sponsored by the Geophysical Institute during the Tanana Valley State Fair, Summer of 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2003, 2004. Manned booth several times each year.

Participated in the Science and Math Enrichment Program for Galena Students on March 16, 1998 and March 15, 1999 (Earthquake workshop)

Provided a tour of the Seismology Lab for the IGARSS 2004 visitors to Fairbanks (Sept. 25, 2004)

University Service

Member of the Geophysical Institute Computer Advisory Committee (1989-1991)
Elvey Building Floor Captain (3rd floor). Requires certain safety related actions during fire alarms (1989 →).

Space Committee - Geology and Geophysics Department standing Committee (1989 →) (assignment of graduate student space, new building, etc.)

Responsible for the real time digital acquisition and processing of Alaskan earthquake data (1988-1990). Responsibilities included:

1. Supervise two employees (Charlotte Rowe, full time and Jim Dixon, half time). These employees are responsible for picking arrival times for the recorded earthquakes in both digital and film formats.
2. Interact with computer group (Cole Sonafrank, etc.) to supply technical advice and scientific input for program development.
3. Be ultimately responsible for the integrity of the data base (approximately 30 earthquakes per day).
4. Develop a catalog of the processed data
5. Be responsive to public concerns regarding earthquake safety and information.
6. Gather information on similar systems throughout the country which may be used to improve the present system
7. Interact with technical support staff (i.e., shops).

This job is now being done by GI/USGS staff under State Seismologist.

Organized, planned, and carried out, with funding from the college, an advertising campaign to attract new graduate students. Research assistantships were advertised in EOS and posters were placed at the San Francisco AGU meeting. The effort was marginally successful.

Outside Examiner - Master of Science degree in Civil Engineering by Erling A. Juel, title: Moisture-temperature Relationships in a Sand Due to Outward, Radial freezing - March 3, 1989.

Outside Examiner for Ph.D. Oral Comprehensive Exam for Amy Stone-Schauer in Marine Biology, April 10, 1990.

Outside Examiner for Ph.D. Oral Comprehensive Exam for Mary Milkovich in Oceanography, March 12, 1992.

Outside Examiner for Ph.D. Oral Comprehensive Exam for John Demosky in
 Molecular Biology, March 4, 1997.
 Chairman of the search committee for the Endowed Wadati Chair in Seismology
 (outcome, Max Wyss was hired during the Fall of 1991)
 Group Leader of the Solid Earth Group (1990-1991) - Responsible for
 organization of group activities, meetings and interactions of the group
 with the director of the Geophysical Institute. This was a temporary
 assignment which was turned over to Max Wyss, the Wadati Chair, when
 he came on board in the fall of 1991.
 Deputy Group Leader for Seismology (Geophysical Institute) (1992→)
 (acting Group Leader during Nov. - Dec., 1995, and Aug. 1997 through
 Aug. 1998, in the absence of Max Wyss, on sabbatical)
 Faculty Finance Committee (Geophysical Institute) (1993-1994)
 GI Finance Committee (Geophysical Institute) (1994 - 1999)
 Commonly asked to act as the State Seismologist in the absence of Roger
 Hansen
 Search Committee member for the Sea Ice faculty position (1995-1996).
 Resulted in hiring of H. Eicken.
 Search Committee member for the Remote Sensing position (1997-1998).
 Resulted in hiring of B. Sharpton.
 Geophysics Coordinator (represents the Department in the GI) (1995 - 9/1999)
 Undergraduate Student Advisor for the Geology and Geophysics Department
 (1996→).
 Annual Activity Review Committee of GI research Faculty (1997)
 Merit Raise CNS committee member (studied and presented a formula for giving
 merit raises to the CNS faculty) (1996-1997)
 Geophysical Institute Space Committee (1997-1998)
 Acting Department Head (October 19 –October 26, 1997)
 Associate Director of the Geophysical Institute (August 1999 →)
 Search Committee member for the Remote Sensing position (2000-2001).
 Resulted in hiring of A. Prakash and C. Duguay.
 Search Committee member for the Basin Analysis position (2000-2001).
 Resulted in hiring of B. Coakley
 Outside Examiner for Ph.D. Dissertation Defense Exam for George Minassian in
 Civil and Environmental Engineering, Nov. 10, 2003.
 Search Committee member for the Volcano Seismologist position (2003-2004).
 Resulted in hiring of M. West

Public Lectures

Geology and Geophysical Department (Spring Semester, 1988)
 Geophysical Institute Seminar - Oct 27, 1988. Title - The Rupture Process of
 Large Earthquakes
 Seismology/Solid Earth Seminar - Mar. 28, 1988. Title - Temporal Variations of
 Large Intraplate Earthquakes in Coupled Subduction Zones
 Presented a lecture to the Summer Intern Program on July 31, 1989, titled: The
 rupture process of large subduction zone earthquakes
 Presented a lecture to the Summer Intern Program on July 30, 1990, titled:
 Mechanisms of Large Earthquakes
 Presented a lecture to the Summer Intern Program on July 15, 1991, titled:
 Mechanisms of Large Earthquakes
 Presented a lecture at the University of Nevada Reno in August, 1991, titled:
 Rupture Process of Great Subduction Zone Earthquakes

Solid Earth Geophysics Lunch Seminar - Sept. 6, 1991, titled: Intraplate Seismicity in the Vicinity of Subduction Zones

Presented a lecture to the Summer Intern Program on August 3, 1992, titled: 3-D Tomography of Alaska

Geophysical Institute Seminar - October 29, 1992, Title: Tomographic Imaging of the Earth

Public speeches were given at several public schools in Anchorage and at the Anchorage public library on the occasion of the 30th anniversary of the March 28, 1964 Alaska earthquake. (1994)

Presented a lecture to the Summer Intern Program, Earthquakes in Alaska, in 1995

Public speech was given for the Geology Seminar on December 8, 1995 on what earthquakes tell us about the interior of the earth.

Spoke about earthquake hazards in Alaska and the Fairbanks area to a working group of Emergency Services employees at a conference on Disaster Planning and Prevention in Fairbanks 1995.

Public speech was given for the Geophysical Institute Seminar on November 21, 1996 on Tomography and its Application to Geophysical Problems.

Spoke about Earthquake Hazards in Alaska and the Fairbanks area to members of the Corp. of Engineers (Nov. 20, 1996).

Presented lectures in Fairbanks (Feb. 21, 1996) and in Anchorage (Feb. 27, 1996) as part of the Science for Everyone Series.

Presented a full day of lecture to the Polaris K12 Teachers Workshop in Anchorage (May 3-4, 1996)

Presented several lectures to the Teachers Workshop which is part of the PEPP project (Aug. 13 and Aug. 15, 1996)

Lectured on Earthquakes in Alaska to the summer interns on July 1, 1996 (REU group)

Presented lectures in Fairbanks (Jan. 22, 1997) and in Anchorage (Jan. 16, 1997) as part of the Science for Everyone Series.

Lectured on Inverse Theory and Tomography in Seismology Seminar, Spring 1997.

Lectured on Earthquakes in Alaska to the summer interns on July 14, 1997, June 22, 1998, July 7, 1999, Aug. 2000, Aug. 2001, July 2003, July 2004 (REU group)

Presented lectures in Fairbanks (Feb. 2001) and in Anchorage (Feb. 2001) as part of the Science for Everyone Series.

Presented two lectures at the Kantishna Roadhouse for the public on Earthquakes in Alaska (August, 2001).

Presented a lecture at the UAF Museum on January 23, 2003 on the November 3, 2002 Denali Fault Earthquake.

Presented three lecture for the Science for Alaska Series in Juneau (Feb. 23, 2004), Anchorage (Mar. 1, 2004), and Fairbanks (Feb. 17, 2004) titled "Alaska's Largest Earthquakes"

Presented three lecture for the Betchart Expeditions on "Alaska's Largest Earthquakes" on March 14, 21, and 28, 2004.

PROFESSIONAL DEVELOPMENT:

Conferences Attended

Seismological Society of America/ Seismological Society of Japan meeting in Hawaii, May 24-27, 1988.

American Geophysical Union meeting in San Francisco, Dec. 5-9, 1988
American Geophysical Union meeting in San Francisco, Dec. 4-8, 1989
Seismological Society of America meeting in Santa Cruz, May 1-4, 1990
NATO Conference in Fairbanks, Alaska, 1990
American Geophysical Union meeting in San Francisco, Dec. 3-7, 1990
American Geophysical Union meeting in San Francisco, Dec. 9-13, 1991
Seismological Society of America/IRIS meetings in Santa Fe, April 1992
American Geophysical Union meeting in Montreal, Canada, May 1992
Wadati Conference on Great Subduction Zone Earthquakes, Fairbanks, Alaska,
Sept. 16-19, 1992
American Geophysical Union meeting in San Francisco, CA, Dec. 7-11, 1992
IRIS Workshop meeting in Kona, Hawaii, June 10-14, 1993
Participate in the TACT meeting sponsored by the USGS in Menlo Park, 1993
(presented results from the Brooks Range)
American Geophysical Union meeting in San Francisco, CA, Dec. 6-10, 1993
IASPEI meeting in Wellington, New Zealand on January 10-21, 1994. (presented
paper and session chairman)
SSA meeting in Pasadena, CA in April, 1994
IRIS Workshop meeting in Glendale, CA in April, 1994
Subduction Conference sponsored by the USGS on Catalina Island, CA on June
12-18, 1994. (invited speaker)
U.S. Seismic Network meeting held in Denver CO., 1994
SEE (Science Education Equity) workshop in Sacramento, CA, Dec, 1994.
(student recruitment)
American Geophysical Union meeting in San Francisco, CA, December, 1994.
(presented paper)
In early December 1994 I attended a SEE (Science Education Equity) workshop
in Sacramento, CA, which attempts to get minority students in the
sciences involved in summer research positions. At this meeting I
represented our REU program and hope that it may help recruit minority
students to the program.
GSA Cordilleran Section meeting in Fairbanks, Alaska on May 24-26, 1995. Co-
chairman of session on Seismology of Subduction Zones.
IUGG XXI General Assembly meeting in Boulder, CO on July 2-14, 1995. Only
attended first week.
IRIS Workshop meeting in Grand Teton National Park, WY on June 21-24, 1995.
American Geophysical Union meeting in San Francisco, CA, Dec. 11-15, 1995.
Disaster Prevention and Planning Workshop in Fairbanks Alaska, 1995
IRIS Workshop meeting in Blaine Washington on June 19-23, 1996.
American Geophysical Union meeting in San Francisco, CA, Dec. 15-19, 1996.
Polaris Workshop for K12 Teachers in Anchorage on May 3-4, 1996.
IRIS Workshop meeting in Breckenridge, Colorado, June 8-12, 1997
American Geophysical Union meeting in San Francisco, CA, Dec. 8-12, 1997
IRIS Workshop meeting in Santa Cruz, California, 1998
American Geophysical Union meeting in San Francisco, CA, Dec. 6-10, 1998
Alaska Geological Society meeting in Fairbanks, AK, April 23-24, 1999
IRIS Workshop meeting in Tenaya Lodge at Yosemite, CA, June 9-12, 1999
American Geophysical Union meeting in San Francisco, CA, Dec. 13-18, 1999
IRIS Workshop meeting in Rockport, Maine, May, 2000
American Geophysical Union meeting in San Francisco, CA, Dec. 15-19, 2000
IRIS Workshop meeting in Jackson Lake Lodge, Wyoming, June 6-9, 2001
Earthscope Workshop in Snowbird, Utah, Oct. 9-12, 2001
American Geophysical Union meeting in San Francisco, CA, Dec. 10-14, 2001
IRIS Workshop meeting in Kona, Hawaii, June 2002

American Geophysical Union meeting in San Francisco, CA, Dec., 2002
IRIS Workshop meeting in Tenaya Lodge at Yosemite, CA, June 18-21, 2003
American Geophysical Union meeting in San Francisco, CA, Dec. 8-12, 2003
IRIS Workshop meeting in Tucson, Arizona, June 10-12, 2004
American Geophysical Union meeting in San Francisco, CA, Dec. 13-17, 2004

Co-Convener of Technical Session at Fall AGU 1991, Session title: Seismotectonics of Plate Boundaries, presiding D. Christensen and T. Boyd
Organized and Chaired (with J. Beavan) a special Union session called "Interdisciplinary Studies of Subduction Zones" at the Fall 1993 AGU meeting. (44 papers were given)
Co-Convener of Technical Session at Fall AGU 2003, Session title: The 2002 Denali Fault Earthquake: Observations and Implications, presiding P. Haeussler, R. Hansen, and D. Christensen (33 papers presented)

Other External Activities

Participated in a joint UAGI/USGS meeting in Menlo Park on establishing an Alaskan Earthquake Data Center - Sept. 5-8, 1988. The outcome of this meeting was an agreement to combine the efforts of the USGS and UAF groups in recording and processing the Alaska network data. This has led to more cooperation and a tighter working relationship with the USGS.

Visited Lawrence Livermore National Lab to work on a joint project with Dr. Susan Beck (Rupture Process of the 1965 Rat Islands Earthquake) Sept. 8-11, 1988. Paper has been published in JGR, 1991.

Invited Lecturer at Lawrence Livermore National Lab, Sept. 9, 1988 Title - Outer Rise Earthquakes and Seismic Coupling

Visited Lawrence Livermore National Laboratory (October 23-29, 1989) to work with Dr. Susan Beck on a paper and to write a proposal using the technique of receiver function inversion in Alaska with Dr. George Zandt. Preliminary work on the crustal structure under Fairbanks was accomplished during this visit which was used in the proposal submitted to NSF on December 1, 1989 and subsequently funded.

Invited to visit two Universities in Japan (Earthquake Research Institute at Tokyo University and Tohoku University in Sendai) and presented three lectures (Feb. 21 to Mar 3, 1990). This trip was sponsored by Dr. Akira Hasegawa from Tohoku University as an attempt to form a cooperative relationship between the Observation Center for Prediction of Earthquakes and Volcanic Eruptions in Sendai, Japan and the Geophysical Institute/UAF. My visit was instrumental in finding the Post Doctoral researcher, Dapeng Zhao, who worked with me from May 1991 to May 1992. The possibility may also exist for a sabbatical in the future. I think that this trip was very beneficial to me and my career.

During the summer of 1991, late July to early August, I visited the University of Michigan and the University of Nevada Reno with the goals of learning new skills and starting new collaborations. My first stop was the University of Michigan (my alma mater) to work with Larry Ruff. Larry has been developing a new moment tensor inversion program to determine focal parameters from teleseismic data. This technique will prove useful in studying historic earthquakes in Alaska and has already been used to determine the focal mechanism of the 1976 Kermadec earthquake which was presented at the 1991 Fall AGU meeting. After leaving Michigan I visited the University of Nevada Reno. At Reno I presented a lecture to

the Geology Department, but my main purpose was to work with Dr. Martha Savage on a method she developed which uses S wave splitting results to determine the anisotropy of the crust and upper mantle. This new technique was used to study the data collected in the Brooks Range during 1990 and was presented at Fall AGU 1991. Both of these visits were very useful to me and have expanded my knowledge as well as my professional connections.

Planning (along with M. Wyss and J. Davies) of an international conference called the "Wadati Conference Great Subduction Zone Earthquakes" which was held in Sept. 16-19 1992 in Fairbanks. About 80 participants from at least 7 countries attended. The conference was a great success and allowed us to show off our facility to a large group of scientist.

Visited USGS in Golden Colorado on August 23-29, 1992 to gather data from the Historic Earthquake Archives for funded USGS research project.

Served on USGS/NEHRP panel review for the Northwest Pacific Section, August 31, 1992. This panel was responsible for evaluating the 42 proposals submitted to the USGS external grants program for funding consideration.

Board of Directors for IRIS (representing the University of Alaska, 1990→)

Between Jan 6 - 24, 1996, and again between Feb. 3-15, 1997. I participated in a joint collaborative program to monitor Kilauea volcano in Hawaii. This program was paid for by a consortium of Japanese researchers, and includes several researchers from UAF and the USGS in Menlo Park. The project has led to probably the most extensive data set ever recorded on an active volcano and a funded NSF project.

Paul Layer and I have taken the REU Summer Intern Students on a field trip to the Brooks Range during each year of the program (1994-2004)

Jeff Freymueller and I participated in a Student Challenge Earthwatch Program between August 3 and August 17, 1997 during which 8 high school students from around the country performed a geophysical survey across the Alaska Range. This survey included gravity, magnetic and GPS measurements.

Attended training at the PASSCAL center in Socorro, New Mexico in preparation for the BEAAR experiment (3 days, March 17-19, 1999)

Reviewed the 5th edition of the textbook "Earthquakes" by Bolt at the request of W.H. Freeman publishing company

Guest editor for a special issue of BSSA on the 2002 Denali Fault Earthquakes, Alaska. The issue should be published in January 2005.