



Jørn A. Jernsletten, Dr.Philos.

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Career Goals

To be a gainfully employed commercial pilot.
Working in cold (arctic / antarctic), dry (desert), & remote environments.

Personal Background

Flight Instructor, Airplane Single and Multiengine; Instrument Airplane [US / FAA MEI / CFI / CFII]; 1,000+ flight hours total (not counting any sim). 500+ flight hours as CFI, 330 cross country, 50 night, 110 instrument (27 actual, 83 hooded), 950 PIC, 227 instruction received, 11.9 helo.

Commercial Pilot [US / FAA CPL (A), SEL / MEL / I]; PASSED all 14 EASA ATPL (A) theory exams on 1st attempt, with Luftfahrtstilsynet (CAA Norway, Civil Aviation Authority of Norway), at the locales of Luftfartsskolen A/S (a gov't approved FCL testing center) in Oslo, Norway. Last exam taken 18 June 2015. CPL (A) FAA to EASA conversion in progress: EASA / JAR CPL (A) pilot license (Norway), an Instrument rating, and an MCC (= CRM) course during the first & second quarters of 2017.

As a thought on field work, I have very extensive experience in the field under Arctic winter conditions, through military service, and through having lived most of my life in Arctic Northern Norway. I am Sami (the native people of Northern & central Scandinavia and Finland, and parts of the Kola peninsula), and I am not afraid of being alone, do not get lost, and can work independently and make decisions outdoors and in remote locations.

I have a B.S. in Computer Science, an M.A.S. in Space Studies, and a Dr.Philos. in Earth Science (geophysics / planetary science) from Universitetet i Bergen (UiB). Coursework, research, and writing for my UiB Dr.Philos. degree were all done in residence at Rice University and the Lunar and Planetary Institute, both located in Houston, Texas, while my Dr.Philos. disputas was conducted at the Faculty of Mathematics and Natural Sciences at Universitetet i Bergen, Department of Earth Science.

Education / Training

- 23 June 2004: Doctor Philosophiae (Dr.Philos.) degree in geophysics and planetary science, University of Bergen, Norway. Dissertation: "Possible Temperature-Related Slope and Surface Roughness Differences Between the North and South Walls of Coprates Chasma, Mars". Experience: Active source magnetotelluric, transient electromagnetic, fast-turnoff transient electromagnetic, resistivity, induced polarization, reflection & refraction seismic, ground-penetrating radar, gravity, magnetic, and broadband active electromagnetic geophysical field methods.
- 09/1996-08/1997: Master of Aeronautical Science degree in space studies, Embry-Riddle Aeronautical University, Daytona Beach, Florida. Graduated with a 3.88 GPA (4.00 scale). Skills / courses: Remote sensing / synthetic aperture radar (SAR); space operations; space physiology; air transportation; human factors.
- 08/1991-08/1993: Bachelor of Science degree in computer science, Southeastern Oklahoma State University, Durant, Oklahoma. Finished in 24 months, Magna Cum Laude with a 3.89 GPA (4.00 scale). Skills / courses: Operating systems (Windows XP, 2000, NT, 9x, 3.x, MS-DOS, Linux, UNIX, DEC Vax VMS); programming (C++, C, Fortran, Assembler, COBOL, SQL, Pascal, HTML, Lisp, Basic); applications (ArcView, MS Office, Photoshop, Acrobat, Matlab, USGS ISIS, etc.).
- 01/1989-01/2016: FAA Commercial Pilot (CPL) certificate, Airplane Multi Engine Land (AMEL), Airplane Single Engine Land (ASEL), & Instrument Airplane (IA) ratings. FAA Certified Flight Instructor (CFI) certificate, Airplane Multi Engine (MEI) & Instrument Airplane (CFII) ratings.
- 09/2013-09/2013: Planning and Operating a Land 3D Seismic Survey, by Andreas Cordsen and Peter Eick. Two day course in planning, designing, and overseeing a 3D land seismic survey, in conjunction with the 2013 SEG Annual Meeting.
- 04/2013-04/2013: Health, Safety, Environment, and Quality (HSEQ) Management System (HSEQMS). Three day introduction to Global Geophysical Services' HSEQMS based on OGP Document 210.
- 03/2013-03/2013: Three day introduction to project management principles & methods by Project Management Institute standards.
- 09/2012-09/2012: GMG Mesa seismic survey design software. Design of 3D and 2D land & marine seismic surveys.
- 02/2012-02/2012: GEDCO Vista seismic processing software. Processing of 3D and 2D land & marine seismic geophysical data.
- 09/2010-09/2010: GEDCO Vista seismic processing software. Processing of 3D and 2D land & marine seismic geophysical data.
- 07/2008-07/2008: Landmark ProMAX seismic processing software. Processing of 3D and 2D land & marine seismic geophysical data.
- 06/2006-06/2006: Sercel 408XL Recording System Training Course. Operating system and software installation, recording system setup and operation, line spread troubleshooting, system troubleshooting.
- 06/2001-07/2001: SAGE 2001 (Summer of Applied Geophysical Experience). Geophysical field course sponsored by the University of California and the Los Alamos National Laboratory branch of the IGPP. Methods covered: Seismic reflection; seismic refraction; gravity; magnetic; magneto telluric; transient electromagnetic; ground-penetrating radar (GPR); broadband active electromagnetic.

Work / Military Experience

- 12/1989-present: Flight Instructor, Airplane Single and Multiengine; Instrument Airplane [US / FAA MEI / CFI / CFII]; 1,000+ flight hours total (not counting any sim). 500+ flight hours as CFI, 330 cross country, 50 night, 110 instrument (27 actual, 83 hooded), 950 PIC, 227 instruction received, 11.9 helo.
- 11/1989-present: Commercial Pilot [US / FAA CPL (A), SEL / MEL / I]; PASSED all 14 EASA ATPL (A) theory exams on 1st attempt, with Luftfahrtstilsynet (CAA Norway, Civil Aviation Authority of Norway), at the locales of Luftfartsskolen A/S (a gov't approved FCL testing center) in Oslo, Norway. Last exam taken 18 June 2015. CPL (A) FAA to EASA conversion in progress: EASA / JAR CPL (A) pilot license (Norway), an Instrument rating, and an MCC (= CRM) course during the first & second quarters of 2017.
- 11/2013-04/2015: Geophysical Supervisor, Alaska Operations, Global Geophysical Services, Inc., Houston, Texas. Responsible for supervision of QC and in-field processing for land seismic acquisition operations in Alaska, and for 3D seismic survey design for bids and operational projects.
- 08/2012-10/2013: Geophysical Supervisor, Marine Operations, Global Geophysical Services, Inc., Houston, Texas. Responsible for supervision of QC and in-field processing in marine geophysical acquisition operations. 3D seismic survey design for bids, efficiency studies, and operational projects.
- 08/2010-07/2012: Director of Geophysics, NodalSeismic, LLC, Signal Hill (Long Beach), California. Managing and supervising geophysical field processing & quality control (QC) in seismic acquisition operations & project startups. Developed field processing methods for transitioning receiver domain seismic data from a fully cable free acquisition system (FairfieldNodal ZLand) into source domain, using GEDCO Vista software and Fairfield format field data.
- 01/2010-08/2010: Senior Field Geophysicist, Global Geophysical Services, Inc., Houston, Texas. Continuing to take on additional responsibilities for seismic project startups, training of QC personnel, and supervision of field crew geophysical QC operations.
- 08/2007-12/2009: Field Geophysicist, Global Geophysical Services, Inc., Houston, Texas. Worked on Crews 667 and 668 in Algeria, and on crews in the USA and Mexico. Involved in development, field testing, and production with slip-sweep harmonic noise removal. Supervised uphole logging programs. Supervised a seismic crew QC / field processing department with 11 personnel on a 2,560 km² ISS 3D seismic project for BP Exploration Algeria. Supervised the QC department on the ~79,000 channels per shot Piceance Creek 3D project for ExxonMobil.
- 10/2006-07/2007: Field Geophysicist II, Global Geophysical Services, Inc., Houston, Texas. Responsible for 3D seismic survey design, shot script generation, and field data QC; using Mesa and ProMAX software tools. In-field geometry processing of seismic data, data shipment, and production analysis & tracking. Worked on Crews 445 and 446 in Texas, Oklahoma, Kansas, Colorado, and California, for clients like Conoco and OXY USA. Experienced in development, field testing, and production with HFVS processing flows.
- 01/2006-09/2006: Junior Observer, Crew 446 and Crew 888, Global Geophysical Services, Inc., Houston, Texas. Responsible for seismic recording and data quality. Proficient with the Sercel 408XL/VE432 recording system. Formal training through the Sercel 408XL Recording System Course. Worked in Texas, Oklahoma, Colorado, Kansas, and California.
- 06/2005-12/2005: Geophysical Research Associate, Engineering Geophysics Laboratory (EGL), Dept. of Civil & Environmental Engineering, UNLV. Responsible for operation and routine maintenance of IVI minivib T-7000W seismic source, and recording equipment.
- 05/2003-06/2003: Fast-Turnoff TEM field survey in the Rio Tinto area of Spain, on behalf of the NASA Mars Analog Research and Technology Experiment (MARTE).
- 06/2002-08/2002: Zonge Engineering & Research Organization, Inc., Tucson, Arizona (geophysical field services company and equipment manufacturer). Spent 50 days in Alaska doing electromagnetic geophysical field work (Controlled Source Audiofrequency Magneto-Tellurics, CSAMT; fast-turnoff Transient Electro-Magnetic, NanoTEM) on two different contract jobs. Included repair and maintenance of generator and geophysical equipment. Experience with Induced polarization (IP).
- 01/1999-12/2001: Ph.D. Fellow, Project Manager, and Project Leader, Research Council of Norway (RCN fellowship number 128197/410, later 128197/410/bg). Fellowship awarded in a peer-reviewed process, totaling about US \$ 138,000 over 3 years.
- 05/1998-09/2003: No-Cost Visiting Graduate Fellow, Lunar and Planetary Institute, Houston, Texas.
- 09/1997-05/2003: Teaching assistant, Department of Geology and Geophysics, Rice University, Houston, Texas: Fall 1997, GEOL 101 The Earth; Spring 2002, ESCI 444 Reflection Seismic Data Processing Lab; Spring 2003, ESCI 446 Solid Earth Geophysics.
- 10/1989-06/1991: Flight Instructor Airplane, Versatile Helicopters, Inc., Ardmore, OK. Unsalaries work training. 241.5 flight hours of instruction given.
- 05/1988-12/1988: Norwegian Battalion (NORBATT) of the United Nations Interim Forces In Lebanon (UNIFIL), infantry. Nighttime ambush patrols, road checkpoints, communications, surveillance, crowd control. Shot at a couple of times, held hostage by paramilitaries for a day.
- 01/1986-04/1987: Royal Norwegian Navy, Artillery Systems Operator (ASYO), radar-guided weapons systems for Penguin surface-to-surface missiles and 4" naval guns (HOSA). Television / joystick control system for 40mm air defense guns (TVT-300). Repair and maintenance of missile racks, liquid nitrogen cooling system, and radar system.

Academic Honors, Medals, etc.

1992-1993:	Member, Blue Key National Academic Honor Fraternity.
Summer 1993:	Dean's Honor Roll for academic achievement, Southeastern Oklahoma State University.
Spring 1993:	Dean's Honor Roll for academic achievement, Southeastern Oklahoma State University.
Fall 1992:	Dean's Honor Roll for academic achievement, Southeastern Oklahoma State University.
Summer 1992:	President's Honor Roll for academic achievement, Southeastern Oklahoma State University.
Spring 1992:	President's Honor Roll for academic achievement, Southeastern Oklahoma State University.
Fall 1991:	President's Honor Roll for academic achievement, Southeastern Oklahoma State University.
November 1988:	United Nations Service Medal, United Nations Interim Forces in Lebanon (UNIFIL).
March 1987:	Royal Norwegian Navy Draft Service Medal.
February 1986:	Royal Norwegian Navy 30-km Forced March Medal.
February 1986:	Royal Norwegian Navy Sharpshooter's Medal.

Funding History

Since starting Ph.D. work, I have already built a fairly substantial funding history, totaling roughly US \$ 237,000. Details of this funding are described below.

In May and June of 2003 I carried out a Fast-Turnoff TEM field survey in the Rio Tinto area of Spain, on behalf of the NASA Mars Analog Research and Technology Experiment (MARTE). This project was funded at ~US \$11,000.

This funding history includes a Ph.D. student fellowship from the Research Council of Norway (RCN fellowship number 128197/410, later 128197/410/bg) in a peer-reviewed process, totaling about US \$ 138,000 over 3 years, as specified in the following. Per year for 3 years: A stipend of roughly US \$ 32,000; expense funds of approximately US \$ 4,000; and about US \$ 10,000 in overhead.

In addition to the support from the Research Council of Norway, I received a Rice University Tuition Fellowship (approximately US \$ 49,000 over 5 years) and the Rice Department of Geology and Geophysics (now the Department of Earth Science) Keck Fellowship stipend (approximately US \$ 39,000 over 5 years).

Field Experience

In addition to SAGE 2001 and the summer 2002 job with Zonge Engineering in Alaska, the candidate has actively pursued the opportunities for educational field trips available in the Rice Department of Geology and Geophysics. These trips have included one-day trips to study the K-T boundary in the Brazos River banks and coastal erosion along the Texas coastline, a week-long trip to the Permian basin in New Mexico and Texas, an eight-day trip to Big Bend National Park (West Texas) to do structural field mapping, another five-day trip to the Permian basin and reef-complex, and a five-day trip to look at depositional systems in New Mexico.

In January 2003, I carried out a Transient Electro-Magnetic (TEM) field study in an area in the desert approximately 30 miles southwest of Tucson Arizona. The purpose of this study was to explore the use of electromagnetic geophysical techniques for mapping deep groundwater tables in Mars analog environments, in order to provide a baseline for such studies, and to evaluate the appropriateness of the TEM method in mapping deep groundwater tables. This field study consisted of a total of 40 stations of in-loop TEM, making up 4 line-kilometers of data divided into 3 lines. For control, I am using 4 USGS test wells in the area, which have shown water levels from 116.27 m to 124.68 m. The survey was carried out by a crew of one person, the author of this document. The survey design was in-loop TEM with a square transmitter wire loop of 100 m on a side for each station, with a ferrite-core magnetic coil receiver antenna in the center of the transmitter loop. I was solely responsible for and independently carried out all phases of planning, execution, data processing, data analysis, and report writing.

In May and June of 2003 I carried out a Fast-Turnoff TEM field survey in the Rio Tinto area of Spain, on behalf of the NASA Mars Analog Research and Technology Experiment (MARTE). MARTE is a project for drilling in the context of search for life in Mars analog environments, which has been funded by the NASA Astrobiology Science and Technology Program (ASTEP), and its principal investigator is Dr. Carol Stoker at the NASA Ames Research Center. Based on initial requirements defined by Dr. Stoker, I was again solely responsible for and independently carried out all phases of planning, execution, data processing, data analysis, and report writing.

Working as a Field Geophysicist (and in the past as a Field Geophysicist II and a Junior Observer) for Global Geophysical Services, Inc. of Houston, Texas I have extensive field experience in the country of Algeria and the US states of Texas, Oklahoma, Colorado, Kansas, and California, under frequently difficult conditions.

I believe my field experiences, extensive experience in the field under Arctic winter conditions, and my military and flight instructor experiences prepare me well for a career in any field involving geophysical field work, or that in general involves work outdoors, in remote environments, under harsh weather conditions, and intense operational environments.

Summer Work Experience

- 05/2003-06/2003: Fast-Turnoff TEM field survey in the Rio Tinto area of Spain, on behalf of the NASA Mars Analog Research and Technology Experiment (MARTE). Further details under the Field Experience section of this document.
- 06/2002-08/2002: Zonge Engineering & Research Organization, Inc., Tucson, Arizona. Further details under the Work / Military Experience section of this document.
- 06/2001-07/2001: SAGE 2001 (Summer of Applied Geophysical Experience). Further details under the Education section of this document.
- 06/1985-09/1985: Nord-Norsk Import Kompani, A/S, Tromsø, Norway, invoice clerk. Work duties included reconciliation of invoices with purchase orders and inventory, inventory control, price list maintenance, and export / import paperwork.
- 06/1984-09/1984: Nord-Norsk Import Kompani, A/S, Tromsø, Norway, invoice clerk. Work duties included reconciliation of invoices with purchase orders and inventory, inventory control, price list maintenance, and export / import paperwork.
- 06/1982-09/1982: Kurbadet A/S, Tromsø, Norway, assisting in janitorial and maintenance work. In addition to routine janitorial duties included landscaping (moved several tons of soil by spade and wheelbarrow), concrete work (built a swing foundation), and complete rebuilding of a swimming pool (drilled out the grouting in the spill tanks under the pool, re-tiling inside the pool).

Other Interests

- Languages: English, German (a bit rusty), Norwegian (+ Swedish & Danish).
- Pilot Licenses: Commercial Pilot single and multi engine airplane, instrument. Flight Instructor, single and multi engine airplane.
- Hobbies: Space, flying, skydiving, skiing, scuba diving, swimming, rowing, surfing, hiking, fishing, reading, movies, boating.

Peer-Reviewed Journal Articles, Dissertation, etc.

- Jernsletten, J.A. (2006), Time domain electromagnetics in Mars analog environments: Comparing two field studies, in *Mars Analog Research*, edited by Jonathan D. A. Clarke, pp. 93-105 (AAS 06-256), Vol. 111, Science and Technology Series, American Astronautical Society, San Diego, California.
- Jernsletten, J. A. (2004), A topographic test for the existence of ground ice in the walls of Coprates Chasma, Mars, *J. Geophys. Res.*, *109*, E12004, doi: 10.1029/2004JE002272.
- Jernsletten, J. A. (2004), Possible temperature-related slope and surface roughness differences between the north and south walls of Coprates Chasma, Mars, a dissertation for the degree Doctor Philosophiae, 268 pp., Department of Earth Science, Faculty of Mathematics and Natural Sciences, University of Bergen, Bergen, Norway, June 15.

Conference Publications

- Jernsletten, J. A. (2005), North-south components of slope in the global topography of Mars: Evidence for an ice-rich shallow crust?, *Eos Trans. AGU*, *86(52)*, Fall Meet. Suppl., Abstract no. P31C-0219, AGU 2005 Fall Meeting, San Francisco, California, December 5 – 9.
- Hirsch, A., C. Snelson, S. Zaragoza, J. Jernsletten, D. McEwan, S. Saldana, and B. McLaurin (2005), Seismic reflection investigation of Hidden Valley: A volcanotectonic regime, *Eos Trans. AGU*, *86(52)*, Fall Meet. Suppl., Abstract no. T43B-1412, AGU 2005 Fall Meeting, San Francisco, California, December 5 – 9.
- Zaragoza, S. A., C. M. Snelson, J. A. Jernsletten, S. C. Saldana, A. Hirsch and D. McEwan (2005), High-resolution seismic reflection profiling across the Black Hills fault, Clark County, Nevada: Preliminary results, *Eos Trans. AGU*, *86(52)*, Fall Meet. Suppl., Abstract no. S22A-04, AGU 2005 Fall Meeting, San Francisco, California, December 5 – 9.
- Jernsletten, J. A. (2005), Using TEM for sounding conductive and deep groundwater in Mars analog environments: Comparing two field studies, Abstract no. 781, SEG International Exposition and 75.th Annual Meeting, Houston, Texas, November 6 – 11.
- Jernsletten, J. A. (2005), Comparing time domain electromagnetics (TEM) and early-time TEM for mapping highly conductive groundwater in Mars analog environments, *Eos Trans. AGU*, *86(18)*, Jt. Assem. Suppl., Abstract no. P21D-06, AGU 2005 Joint Assembly, New Orleans, Louisiana, May 23 – 27.
- Jernsletten, J. A. (2005), Time domain electromagnetics for mapping mineralized and deep groundwater in Mars analog environments, Abstract no. 1013, 36.th Lunar and Planetary Science Conference, Houston, Texas, March 14 – 18.
- Jernsletten, J. A. (2005), Fast-turnoff transient electromagnetic (TEM) field study at the Mars analog site of Rio Tinto, Spain, Abstract no. 1014, 36.th Lunar and Planetary Science Conference, Houston, Texas, March 14 – 18.
- Jernsletten, J. A., and E. Heggy (2005), Comparing transient electromagnetics and low frequency ground penetrating radar for sounding of subsurface water in Mars analog environments, Abstract no. 6040, Workshop on Radar Investigations of Planetary and Terrestrial Environments, Houston, Texas, February 7 – 10.
- Jernsletten, J. A. (2004), Fast-turnoff transient electro-magnetic (TEM) geophysical survey in the Peña de Hierro (“Berg of Iron”) field area of the Mars Analog Research and Technology Experiment (MARTE), *Eos Trans. AGU*, *85(46)*, Fall Meet. Suppl., Abstract no. P43A-0904, AGU 2004 Fall Meeting, San Francisco, California, December 13 – 17.
- Jernsletten, J. A. (2004), Using the transient electromagnetic (TEM) method for mapping deep groundwater tables in Mars analog environments: A baseline field study, *Eos Trans. AGU*, *85(17)*, Jt. Assem. Suppl., Abstract no. P53A-05, AGU 2004 Joint Assembly, Montreal, Canada, May 17 – 21.
- Jernsletten, J. A., and E. Heggy (2004), Sounding of groundwater through conductive media in Mars analog environments using transient electromagnetics and low frequency GPR, *Eos Trans. AGU*, *85(17)*, Jt. Assem. Suppl., Abstract no. P53A-01, AGU 2004 Joint Assembly, Montreal, Canada, May 17 – 21.
- Jernsletten, J. A. (2004), Power line noise in transient electromagnetic (TEM) data: Identification and removal in a practical field study, *Eos Trans. AGU*, *85(17)*, Jt. Assem. Suppl., Abstract no. NS43A-07, AGU 2004 Joint Assembly, Montreal, Canada, May 17 – 21.
- Jernsletten, J. A. (2004), Possible temperature-related differences in slope angle between the north and south walls of Coprates Chasma, Mars, Abstract no. 1495, 35.th Lunar and Planetary Science Conference, Houston, Texas, March 15 – 19.
- Jernsletten, J. A., and E. Heggy (2004), Sounding of subsurface water through conductive media in Mars analog environments using transient electromagnetics and low frequency ground penetrating radar, Abstract no. 2089, 35.th Lunar and Planetary Science Conference, Houston, Texas, March 15 – 19.
- Jernsletten, J. A. (2003), Possible temperature-related slope and surface roughness differences between the north and south walls of Coprates Chasma, Mars, *Eos Trans. AGU*, *84(46)*, Fall Meet. Suppl., Abstract no. P11B-1032, AGU 2003 Fall Meeting, San Francisco, California, December 8 – 12.
- Jernsletten, J. A. (2002), The central mesas of Hebes, Ganges, and East Candor Chasmae, Abstract no. 2019, 33.rd Lunar and Planetary Science Conference, Houston, Texas, March 11 – 15.
- Jernsletten, J. A. (2002), Latitude-dependent topographic variations in the near-equatorial canyons of Mars (Valles Marineris region), Abstract no. 1861, 33.rd Lunar and Planetary Science Conference, Houston, Texas, March 11 – 15.
- Jernsletten, J. A. (1998), Ground ice and slope stability in the canyons of Mars, poster presentation, 7.th International Conference on Permafrost, Yellowknife, Canada, June 21 – 27.
- Jernsletten, J. A. (1998), Ground ice and slope failure in the canyons of Mars, oral presentation, AIAA Houston Section Annual Technical Symposium, Houston, Texas, May 28.