
GRO BIRKEFELDT MØLLER PEDERSEN

Postdoctoral research fellow

July 8, 1982

Female

Danish citizenship

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Nordic Volcanological Center

Sturlugata 7, Askja

101 Reykjavik

Iceland

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EDUCATION

PhD : Dept. Geology Aarhus University, Denmark 08/2008 – 12/2010

Supervisors: Dr. P. Nørnberg, Dr. H. P. Gunnlaugsson. Major collaborator: Prof. James Head III

MSc Geology: Dept. Geology Aarhus University, Denmark 08/2005 – 07/2008

BSc Geology: Dept. Geology Aarhus University, Denmark 08/2002 – 07/2005

PROFESSIONAL EXPERIENCE

Project manager, EMMIRS grant of excellence, University of Iceland, Iceland 04/2015-present

Post-doctoral research fellow, University of Iceland, Iceland 04/2015-present

Post-doctoral research fellow, Nordic Volcanological Center, Iceland 09/2013-03/2015

Post-doctoral research fellow, University of Iceland, Iceland 01/2011- 08/2013

Graduate research fellow, Aarhus University, Denmark 08/2006-12/2010

Research assistant, Hawaiian Volcano Observatory, USA 05/2010-10/2010

Teaching assistant, Aarhus University, Denmark 05/2005-10/2010

AWARDS, GRANTS AND FELLOWSHIPS

RANNIS grant of Excellence (Icelandic research council) 2015- 2018

IAVCEI registration grant: 338€ 2015

NORDVULK postdoctoral research fellowship (Nordic Council of Ministers) 2014-2015

NORDVULK postdoctoral research fellowship (Nordic Council of Ministers) 2013-2014

Danish Research Council (FNU), Postdoctoral grant: 1,200,833DKK (161,102€) 2011-2013

NORDVULK postdoctoral research fellowship (Nordic Council of Ministers) 2011-2012

Young Scientist's Travel Award (EGU): 338€ 2011

Nordforsk grant: 900€ 2009

Niels Bohr Fondet: 15,000DKK (2012€) 2008

Knud Højgaard's Fond: 15,000DKK (2012€) 2008

Dansk Geofysisk Forenings Rejselegat: 3000DKK (402€) 2007

Nordic Mineralogical Network: 10,000DKK (1342€) 2007

Nordplus: 1880€ 2006

Etatsråd C. G. Filtenborg & hustru Marie Filtenborgs studielegat: 1000DKK (134€) 2006

American Fulbright Grantees 85,000DKK (11,404€) 2005

TEACHING AND SUPERVISION

Supervisor of Master student Thórey Dagmar Möller, University of Iceland 2013-2014

NORDVULK summer school on remote sensing techniques in a dynamic geological Setting, Teaching lectures + practicals, University of Iceland. 2013

Object-based image analysis, Guest teacher in „Image processing and GIS in geological research“ University of Iceland 2013

Volcanology (8 ECTS), Teaching lectures + practicals, University of Iceland 2012

Fieldtrips on Reykjanes Peninsula (Organizer & guide), Nordic Volcanological Center 2011-2012

Introduction geologic mapping, Hawaiian Volcanological Observatory 2010

Principal Supervisor of BSc- project (10 ECTS, >40hr) Aarhus University 2008-2009

Minerals and Rocks (5 ECTS), Teaching Assistant (~170 hr) Aarhus University 2007-2009

Geochemistry (5 ECTS) Teaching Assistant (~160 hr), Aarhus University 2007

Rock Microscopy (5 ECTS) Teaching Assistant (~260 hr) Aarhus University 2006-2007

PUBLICATIONS (PEER-REVIEWED)

-
- Pedersen, G. B. M.** (in review) Semi-automatic classification of glaciovolcanic landforms: An object-based mapping approach based on geomorphometry, *JVGR*.
- S.R. Gíslason, G. Stefánsdóttir, M.A. Pfeffer, S. Barsotti, Th. Jóhannsson, I. Galeczka, E. Bali, O. Sigmarsson, A. Stefánsson, N.S. Keller, A. Sigurdsson, B. Bergsson, B. Galle, V.C. Jacobo, S. Arellano, A. Aiuppa, E.S. Eiríksdóttir, S. Jakobsson, G.H. Guðfinnsson, S.A. Halldórsson, H. Gunnarsson, B. Haddadi, I. Jónsdóttir, Th. Thordarson, M. Riishuus, Th. Högnadóttir, T. Dürig, **G.B.M. Pedersen**, Á. Höskuldsson, M.T. Gudmundsson (2015) Environmental pressure from the 2014–15 eruption of the Bárðarbunga volcano, Iceland, *Geochem. Perspect. Lett* 1, 84-93.
- Pedersen, G. B. M.**, Grosse, P. (2014) Morphometry of subaerial and intraglacial volcanoes from Reykjanes Peninsula, Iceland: Effects of eruption environment, *JVGR*, doi: 10.1016/j.jvolgeores.2014.06.008.
- Pedersen, G. B. M.** (2014) Chaos Terrain. In: Hargitai, H., Kereszturi (eds.) *Encyclopedia of Planetary Landforms*. Springer, Berlin, Germany.
- Pedersen, G. B. M.** (2014) Ring-mold craters. In: Hargitai, H., Kereszturi (eds.) *Encyclopedia of Planetary Landforms*. Springer, Berlin, Germany.
- Pedersen, G. B. M.**, 2013. Frozen Martian lahars? Evaluation of morphology, degradation and geologic development in the Utopia –Elysium transition zone. *Planetary and Space Science*, doi:10.1016/j.pss.2013.05.020.
- Pedersen, G. B. M.**, Head III, J. W., 2010. Evidence of widespread degraded Amazonian-aged ice-rich deposits in the transition between Elysium Rise and Utopia Planitia, Mars: Guidelines for the recognition of degraded ice-rich materials. *Planetary and Space Science*, doi:10.1016/j.pss.2010.09.019.
- Pedersen, G. B. M.**, Head III, J.W., 2010. Chaos formation by sublimation of volatile-rich substrate: Evidence from Galaxias Chaos, Mars. *Icarus*, doi:10.1016/j.icarus.2010.09.005.
- Pedersen, G. B. M.**, Head III, J. W., Wilson, L., 2010. Formation, erosion and exposure of Early Amazonian dikes, dike swarms and possible subglacial eruptions in the Elysium Rise/Utopia Basin Region, Mars. *Earth Planet. Sci. Lett.*, doi:10.1016/j.epsl.2009.08.010

PUBLICATIONS IN PREP. (PEER-REVIEWED)

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- Pedersen, G. B. M.**, Grosse, P. (in prep.) Morphometric analysis of tuyas in the neovolcanic zone, Iceland.
- Thordarson et al. (in prep.) The Nornahraun Fires, on the Bárðabunga-Veiðivötn volcanic system, Iceland
- Pedersen, G. B. M. et al.** (in prep.) Nornahraun lava morphology and mode of emplacement.

CONFERENCE ABSTRACTS & PROCEEDINGS

-
- M. T. Gudmundsson, T. Dürig, T. Högnadóttir, A. Höskuldsson, H. Björnsson, S. Barsotti, G. N. Petersen, T. Thordarson, **G. B. M. Pedersen** and M. S. Riishuus., 2015 Large, Moderate or Small? The Challenge of Measuring Mass Eruption Rates in Volcanic Eruptions. Paper for AGU, San Francisco, USA.
- T. Thordarson, A. Höskuldsson, I. Jónsdóttir, **G. B. M. Pedersen**, M. T. Gudmundsson., T. Dürig, M. S. Riishuus, W. Moreland, J. Gudnason, C.R. Gallagher and R. A. Askew., 2015. Emplacement and Growth of the August 2014 to February 2015 Nornahraun Lava Flow Field North Iceland. Paper for AGU, San Francisco, USA.
- (Invited) **G.B.M. Pedersen**, A. Höskuldsson, M.S. Riishuus, I. Jónsdóttir, M.T. Gudmundsson, F. Sigmundsson, B.V. Óskarsson, V.J.P.B. Drouin, C. Gallagher, R. Askew, W.M. Moreland, T. Dürig, S. Dumont, Þ. Þórdarson and the IES eruption team. Nornahraun lava morphology and mode of emplacement. Paper for IUGG, Prague, Czech Republic.
- Pedersen, G. B. M.**, 2015. Semi-automatic mapping of volcanic landforms based on object-based image analysis and geomorphometry. Paper for IUGG, Prague, Czech Republic.
- Jónsdóttir, I., Thórhásson, T., Höskuldsson, Á., Davis, D., Schneider, D., Wright, R., Kestay, L., Hamilton, C., Harris, A., Coppola, D., Guðmundsson, M. T., Dürig, T., **Pedersen, G. B. M.**, Drouin, V., Höskuldsson, F., Símonarson, H., Arnarson, G. Ö., Einarsson, M. Ö., Riishuus, M., 2015. Real-
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- time satellite monitoring of Nornahraun lava flow NE Iceland. Paper for EGU, Vienna, Austria.
- Tarquini, S., Vittuti, M. D. M., Jensen, E. H., Barsotti, S., **Pedersen, G. B. M.**, Coppola, D., 2015. Simulating the lava flow formed during the 2014–2015 Holuhraun eruption (Bardarbunga volcanic system, Iceland) by using the new F-L probabilistic code. Paper for EGU, Vienna, Austria.
- Hoskuldsson, A., Jónsdóttir, I., Riishuus, M., **Pedersen, G. B. M.**, Gudmundsson, M. T., Þórdarson, Þ., Drouin, V. J. P. B. And the Futurevolc IES field work team., 2015. Magma discharge and lava flow field growth in the Nornahraun/ Bardarbunga eruption in Iceland. Paper for EGU, Vienna, Austria.
- Pedersen, G. B. M.**, Höskuldsson, A., Riishuus, M., Jónsdóttir, I., Gudmundsson, M. T., Sigmundsson, F., Óskarsson, B. V., Dürig, T., Drouin, V. J. P. B., Gallagher, C., Askew, R., Moreland, W. M., Dumont, Þórdarson, Þ., 2015. Nornahraun lava morphology and mode of emplacement. Paper for EGU, Vienna, Austria.
- Pedersen, G. B. M.**, Höskuldsson, A., Riishuus, M., Jónsdóttir, I., Gudmundsson, M. T., Sigmundsson, F., Óskarsson, B. V., Dürig, T., Drouin, V. J. P. B., Gallagher, C., Askew, R., Moreland, W. M., Dumont, S., Davies, A., Keszthelyi, L., Hamilton, C. W., Þórdarson, Þ., 2015. Nornahraun lava morphology and emplacement: A new terrestrial analogue for planetary lava flows. Paper for 46th LPSC, The Woodlands, Texas, USA.
- Pedersen, G. B. M.**, Gallagher, C.R., Reynolds, H.I. and the IES eruption team, 2014. Holuhraun: lava flow morphologies and emplacement mechanisms. Paper for The Icelandic Geological Society, Reykjavik, Iceland
- (Keynote)* **Pedersen, G. B. M.**, Grosse, P., 2014. Insights into subglacial eruptions based on geomorphometry: Broad scale analysis of subglacial edifices in Iceland. Paper for EGU, Vienna, Austria.
- (Invited)* **Pedersen, G. B. M.**, Grosse, P., 2013. Morphometric analysis of glaciovolcanic edifices in Iceland. Paper for EPSC, London, United Kingdom.
- Pedersen, G. B. M.**, 2013. Frozen martian lahars? Evidence from Utopia-Elysium flows. Paper for IAVCEI, Kagoshima, Japan.
- Pedersen, G. B. M.**, Grosse, P., 2013. Morphometric extraction of the passage zone: Broad scale analysis of subglacial edifices in Iceland. Paper for IAVCEI, Kagoshima, Japan.
- Einarsson, P., Hjartarsdóttir, A.R., Michalczevska, K., Ágústadóttir, T., **Pedersen, G. B. M.**, Magnúsdóttir, S. et al., 2013. Fault systems within the Reykjanes Peninsula Oblique Rift near Geitafell. Paper for JFI 22nd spring conference, Reykjavík, Iceland.
- Pedersen, G. B. M.**, Head J. W., 2013. Frozen martian lahars? Emplacement mechanisms and geologic impact of Utopia-Elysium flows. Paper for 44th LPSC, The Woodlands, Texas, USA.
- Pedersen, G. B. M.**, Grosse, P., 2013. Topographic fingerprints of eruption environment: Evidence from Reykjanes Peninsula, Iceland. Paper for 44th LPSC, The Woodlands, Texas, USA.
- Pedersen, G. B. M.**, Grosse, P., 2012. Identification of topographic fingerprints of eruption environments: Geomorphometric evidence from volcanoes of the Reykjanes Peninsula, Iceland. Paper presented at AGU, San Francisco, California, USA.
- Pedersen, G. B. M.**, Head III, J. W., 2012. Evidence of complex ice-volcano interactions in the transition zone between Elysium Rise and Utopia Basin. Print-only abstract at 43rd LPSC, The Woodlands, Texas, USA.
- Pedersen, G. B. M.**, 2012. Diagnostic criteria for icelandic volcanic landforms based on remote sensing data: constraints on morphology and optimization of mapping methodologies. Paper presented at Nordic Geological winter meeting, Reykjavík, Iceland.
- Pedersen, G. B. M.**, 2011. Bridging fieldwork and remote sensing data: Pilot study of diagnostic criteria for Icelandic volcanoes to optimize analysis of volcanic landforms. Paper presented at AGU, San Francisco, California, USA.
- Pedersen, G. B. M.**, Head III, J. W., 2011. Evidence of widespread degraded Amazonian-aged ice-rich deposits in the transition between Elysium Rise and Utopia Planitia, Mars: Guidelines for the recognition of degraded ice-rich materials. Paper presented at EGU, Vienna, Austria.
- Pedersen, G. B. M.**, 2010. Observed degradation stages of ring-mold craters (RMC): Geomorphic evidence for modification of ice-rich deposits in the transitions zone between Elysium and Utopia Basin, Mars. Paper presented at 41. LPSC, The Woodlands, Texas, USA.
- Pedersen, G. B. M.**, Head III, J. W., Wilson, L., 2009. Early Amazonian dike swarms in Utopia Basin, Mars: Nature of substrate and estimates of effusion rates. Paper presented at 40th LPSC, The Woodlands, Texas, USA.
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- Pedersen, G. B. M.,** Head III, J. W., 2009. Overview of Possible Ice-Related Morphologies in the transition zone between Elysium and Utopia Basin, Mars. Paper presented at 40th LPSC, The Woodlands, Texas, USA.
- Pedersen, G.B.M.,** 2009. Dikes and dike swarms on Mars. Paper presented at Magma Chamber Process XV, Aarhus, Denmark.
- Pedersen, G. B. M.,** Head III, J. W., 2008. Amazonian dike swarm in Utopia Basin, Mars. Paper presented at AGU, San Francisco, California, USA.
- Pedersen, G. B. M.,** Head III, J. W., 2008. Geomorphic characteristic for Amazonian dike swarm in Utopia Basin, Mars. Paper presented at EPSC, Münster, Germany.
- Pedersen, G. B. M.,** Hauber, E., Nørnberg, P., 2008. Characteristics of Galaxias Chaos, Mars; Implication for formation models. Paper presented at 39th LPSC, Leage City, Texas, USA.
- Pedersen, G.B.M.,** Wilson, J.R., 2005. Classification of a meteorite. Paper presented at Magma Chamber Processes XIII, Aarhus, Denmark.

POPULAR SCIENCE PUBLICATIONS

- Gunnlaugsson, H. P., **Pedersen, G. B. M.,** Madsen, M. B., 2010. Geologi på Mars. In: Brun, L., Pedersen, K. (eds.) Dansk astronomi i kikkerten. Sangill Grafisk, Danmark. p. 102-111 (*Book section*).
- Pedersen, G. B. M.,** 2009. Liv i universet- er vi alene ?, Geologisk Nyt v. 01, p. 8 (*Book review*).
- Pedersen, G. B. M.,** 2008. Mars' nordligste feltgeolog- Phoenix Mars Lander. Geologisk Nyt 4, 4-7 (*Publication*).
- Pedersen, G. B. M.,** 2008. Mars "in action", Geologisk Nyt v. 01, p.21 (*Publication*).
- Pedersen, G. B. M.,** 2007. The surface of Mars – Boganmeldelse, Geologisk Nyt v. 07, p.8 (*Publication*).
- Pedersen, G. B. M.,** 2004. Geologi midt i byen – spektakulære fænomener inden for rækkevidde, Geologisk Nyt v. 04, p. 24-25 (*Publication*).

CONFERENCES

IUGG, Prague, Czech Republic, 25 th of June - 2 nd of July, 2015, 2 oral presentations including a <i>invited talk</i>	06/2015 04/2015
EGU, Vienna, Austria, 12 th of April – 17 th of April, 2015, poster presentation	11/2014
The Icelandic Geological Society, Reykjavik, Iceland, 22 nd of November	05/2014
EGU, Vienna, Austria, 28 th of April – 2 nd of May, 2014. <i>Keynote speaker</i>	09/2013
EPSC, London, England, 8 th – 13 th of September, 2013. <i>Invited talk</i>	07/2013
IAVCEI, Kagoshima, Japan, 20 th -24 th of July, 2013. 2 oral presentations	03/2013
LPSC, Houston, Texas, USA 18 th -22 nd of March, 2013, 1 oral and 1 poster presentation.	12/2012
AGU fall meeting, San Francisco, USA, 3 rd - 7 th of December 2012, poster presentation	
Nordic Geologic Winter Meeting, Reykjavík, Iceland, 9 th – 11 th of January, poster presentation.	01/2012 12/2011
AGU fall meeting, San Francisco, USA, 5 th - 9 th of December 2011, poster presentation.	04/2011
EGU, Vienna, Austria, 3 rd -8 th of April, 2011, oral presentation.	03/2009
LPSC, Houston, Texas, USA 23 rd -27 th of March, 2009, 2 poster presentations.	03/2009
Vernadsky-Brown Microsymposium 47, Houston, Texas, USA 21 st -22 nd of March 2009.	
Meeting on Magma chamber Processes XV, Aarhus, Denmark, 9 th of January 2009, oral presentation.	01/2009
AGU fall meeting, San Francisco, USA, 15 th - 19 th of December 2008, poster presentation.	12/2008 09/2008
EPSC, Münster, Germany, 21 st -26 th of September 2008, poster presentation.	03/2008
LPSC, Houston, Texas, USA 10 th -14 th of March, 2008, poster presentation.	03/2008
Vernadsky-Brown Microsymposium 47, Houston, Texas, USA 8 th -9 th of March 2008.	
2 nd International Workshop on Exploring Mars and its Earth Analogues, Trento, Italy. 19 th – 23 rd of June 2007.	06/2007
Fourth International Conference on Mars Polar Science and Exploration, Davos, Switzerland, 2 nd – 6 th of October 2006.	10/2006
Meeting on Magma chamber Processes XIII, Aarhus, Denmark, 30 th of September 2005, oral presentation.	09/2005

TALKS, PRESS & PUBLIC OUTREACH

01/2015

Talks for danish high school teachers at University of Iceland: „Iceland: Glaciers, earthquakes and volcanoes“.	09/2015
Interview with the Icelandic public news RUV: Topic Bárðarbunga activity (18-01)	12/2014
Interview with the Icelandic public news RUV: Topic Bárðarbunga activity (10-12)	08/2014
Interview with the danish newspaper Politiken. Topic: Bárðarbunga activity (23-08)	
Interview with the danish newspaper Ekstra bladet. Topic: Bárðarbunga activity (31-08)	08/2014
Talks for danish high school teachers at University of Iceland: „Iceland: Glaciers, earthquakes and volcanoes“.	10/2013
Talk for danish high school students at University of Iceland: „Iceland: Glaciers, earthquakes and volcanoes“.	09/2013
Talk for undergraduate geoscientists, University of Iceland: „Mapping volcanic landforms from above“.	03/2013 03/2013
Talk at University of Iceland: „Frozen martian lahars ?“.	
Talk for danish high school teachers at University of Iceland: „Iceland: Earthquakes and volcanoes“.	10/2012 10/2012
Talk for undergraduates, University of Iceland: „Volcanic landforms mapping“.	
Invited talk at Brown University: „Geomorphological analysis of Icelandic volcanoes“	11/2011 10/2011
Invited talk at Aarhus University: „Bridging fieldwork and remote sensing“	
Interview-based article with scienceblog www.videnskab.dk. Topic: Landscapes of Galaxias region, Mars: results from PhD thesis.	05/2011
Article based on interview with scienceblog www.videnskab.dk. Topic: Impact cratering on the moon.	09/2010 04/2010
Interview live with the danish radiochannel P4. T topic: Eyjafjallajökull eruption	

TECHNICAL SKILLS AND LANGUAGES

Operating systems: MacOS X , Win 7/Vista/2000/XP

Applications: ESRI GIS software experience (ArcGIS 9.1, 9.2, 10, 10.1,10.2 including the extensions: 3D analyst, feature analyst, geostatistical analyst and spatial analyst.), eCognition, ERDAS IMAGINE 9.3, IDL 6.4, Adobe Design Premium CS5, Office 2007, EndNote, RefWorks .

ACADEMIC STAYS

Hawaiian Volcano Observatory, USA	04/2010-10/2010
Nordic Volcanological Center, University of Iceland, Iceland.	06/2009-07/2009
UNIS, Svalbard, Norway.	04/2009-05/2009
Planetary Geoscience Group, Brown University, USA	01/2008-05/2008
Oslo University, Norway	10/2007
Planetary Sciences and Remote Sensing, Free University, Germany	01/2007-03/2007
ESA, Alpbach Summer School, Austria	06/2006-07/2006
University of Iceland, Iceland	01/2006-07/2006

PROFESSIONAL ASSOCIATIONS AND SERVICE

Scientific reviewer for JVGR-Planets and PSS	
Organizer of Nordic volcanological summerschool	2013
Organizer of „Mapping and Classification“ one-day seminar, University of Iceland	2013
Initiator and coordinator of the center for remote sensing at University of Iceland	2012-
Member of Iceland geological society	2011-
Member of American Geophysical Union	2008-
Organizer of Department-Lectures, University of Iceland	2011-2012
PhD student association, committee member	2009-2010
Organizer of Department-Lectures, Aarhus University	2006-2009
Students´ association, committee member	2004-2005
UNF (Youth Science Organization), committee member	1998 – 2000 & 2003-2005

MISCELLANEOUS

Languages: Danish (mother tongue), English (highly proficient), Icelandic (proficient), German (proficient).

Sports: Climbing, Running, hiking, indian classical dance, football, diving, kayaking, photography.

PROFESSIONAL REFERENCES

Prof. James Head III
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