

## **Bjorn Gunnarsson, Ph.D.**

Rector

RES | the School for Renewable Energy Science  
Solborg at Nordurslod, Akureyri  
IS-600, Iceland

Date of Birth: 24<sup>th</sup> of April 1957

Nationality: Icelandic

Married from 1986 – 2005

Three children – Gunnar Thor (15), Kristjan Bjarni (13)  
and Gudmundur Nikulas (10)



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## **EDUCATION**

### ***Post-Doctoral Research Fellow***

Research Fellow in Geology (1989-1990) at the Morton K. Blaustein Department of Earth & Planetary Sciences at Johns Hopkins University, Baltimore, Maryland, U.S.A.

Research topic: Study of Magma Physical Aspects of Rhyolite Genesis – Melt Generation, Extraction and Transport of Silicic Magmas beneath Central Volcanoes in Iceland (Research funds awarded by the US National Science Foundation).

### ***Post-Doctoral Research Fellow***

Research Fellow in Geology (1987-1989) in the Division of Geological & Planetary Sciences, California Institute of Technology (Caltech), Pasadena, California, U.S.A.

Research topic: Oxygen Isotope Characteristics and Geochemistry of Postglacial Extrusives from the Active Krafla Central Volcano in Northern Iceland (Research funds awarded by the US National Science Foundation).

### ***Doctoral Degree in Geochemistry***

Ph.D. Degree in Geochemistry (1981-1987) within the Morton K. Blaustein Department of Earth & Planetary Sciences, Johns Hopkins University, Baltimore, Maryland, U.S.A.

Ph.D. thesis: Petrology and Petrogenesis of Silicic and Intermediate Lavas on a Propagating Ocean Rift: The Torfajokull and Hekla Central Volcanoes, South Central Iceland (Ph.D. studies fully funded by scholarships from JHU and the research by the US National Science Foundation).

### ***Bachelors Degree in Geology***

B.Sc. Degree in Geology (1977-1980) from the Department of Geology & Geography, University of Iceland, Reykjavik, Iceland.

## **PROFESSIONAL EMPLOYMENT**

### ***Rector***

Rector (2006-Present) of RES |the School for Renewable Energy Science, Akureyri, Iceland.

Founder of RES; strategic planning of the School and design of the M.Sc. Degree Program and other educational and research programs; oversight and responsibility for all academic issues, including faculty, students, curriculum and program development, and international cooperation with partner institutions in Iceland and abroad.

### ***Dean of Faculty***

Dean (2003-2006) of the Faculty of Natural Resource Sciences at the University of Akureyri, Akureyri, Iceland.

Oversight of the Faculty of 15 full-time professors and a number of adjunct faculty members; budgetary management, research initiatives, course offerings and teaching in four concentrations: environmental science and energy, biotechnology, aquaculture, and fisheries.

### ***Director***

Director (2000-2003) of the Environmental Research Institute at the University of Iceland, Reykjavik, Iceland.

Responsibilities included strengthening and coordinating interdisciplinary environmental research at the University of Iceland and promoting collaboration with Icelandic research institutions; promoting collaboration with foreign universities and research institutions; overseeing an interdisciplinary M.Sc. and M.A. Programs in Environmental Sciences at the University of Iceland in collaboration with eight university faculties (incl. Faculties of Sciences, Engineering, Economics, Social Sciences, and Law). Faculty member in the Department of Geology & Geography and also taught a course in the Department of Civil & Environmental Engineering.

### ***Associate Program Chair & Senior Faculty***

Associate Program Chair and Senior Faculty (1994-2000) of the Masters Program in Environmental Science & Policy within the Advanced Professional Programs of the Zanvyl Krieger School of Arts & Sciences, Johns Hopkins University, Baltimore, Maryland, U.S.A.

Responsibilities included program and curriculum development and academic leadership of the new (1994) M.Sc. Degree Program in Environmental Sciences & Policy; course development (towards the end over 48 masters-level courses at three campus locations in the Baltimore-Washington metropolitan area); indentifying and interviewing qualified faculty; supervision of 54 adjunct faculty members. Teaching four masters-level courses per academic year.

Serving as a the Program liaison to federal and state agencies, non-profit organizations, academic institutions, and business organizations in the Baltimore-Washington area (incl. NOAA, EPA, NASA, USGS, FEMA, Smithsonian, Chesapeake Bay Foundation, Maryland Department of the Environment, Maryland Department of Natural Resources, U.S. Fish & Wildlife Service, NWF, Booz Allen & Hamilton, DynCorp, Bechtel

Environmental, Woodward-Clyde Group, and many others) and actively promoting Program to possible constituencies in the metropolitan area.

The main science advisor to the student body (200-300 M.Sc. students enrolled each year); and evaluation of all M.Sc. theses for consistency, academic quality, and final approval on behalf of JHU. Coordinating the Environmental Sciences & Policy Program with other JHU Programs such as within the School of Engineering, School of Public Health, School of Arts & Sciences, and School of Advanced International Studies.

### ***Science/Program Advisor & Faculty***

Science/Program Advisor and Faculty (1991-1994) of the Masters of Science in Interdisciplinary Science Studies (ISS) Program, The School of Continuing Studies (now School of Professional Studies in Business & Education), Johns Hopkins University, Baltimore, Maryland, U.S.A.

Advisor to the Director of the ISS Program on all academic issues; 20 faculty members and 25 courses offered each academic year, and over 100 students accepted each year. Program and course development; evaluated new faculty credentials; evaluated student applications and conducted admission and exit interviews; student counseling; advising students on their M.Sc. thesis as fulfillment of degree requirements; and teaching for courses per academic year. Organized administrative and planning meetings as needed to successfully phase-out the ISS Program, which was being transferred to the School of Arts & Sciences (see above).

### ***Researcher***

Field Geologist and Research Scientist (1979-1981) at the National Energy Authority, Museum of Natural History, and University of Iceland, Reykjavik, Iceland.

## **UNIVERSITY TEACHING**

### ***Johns Hopkins University***

Courses taught at Johns Hopkins University (1991-2000) include: Natural Hazards: Impact Assessment & Mitigation; Natural Disasters & Impact on Human Ecology; Earth Resources & their Waste Products; Selected Topics in Environmental Sciences; Master's Thesis Research (all masters-level); and Volcanoes: Earth's Awakening (undergraduate short course).

### ***University of Iceland and University of Akureyri***

Courses taught at University of Iceland and University of Akureyri (2000-2006) include: Environmental Geology; Utilization of Natural Resources; Igneous Petrology; Introduction to the Geology & Geography of Iceland; and Earth's Natural Resources (at both graduate and undergraduate levels).

## **SOME RECENT ASSIGNMENTS & COMMITTEE APPOINTMENTS**

Expert Evaluator and Rankin Panel Member (2003-Present) in Brussels for the European Commission's FP6 Global Change & Ecosystems Thematic Priority for both Mitigation

& Adaptation to Climate Change and Natural Disasters, and for the FP7-ENV-1 on Climate Change & Environmental Risks.

Coordinator (2008-Present) of the Theme Project Group on Energy for the Northern Research Forum (NRF).

Member of the Conference Scientific Committee, and Panel Member of the Session on Sustainable Energy Options for the Future, Transatlantic Conference on Renewable Energies, 8-9 of December 2006, Terceira Island, Azores.

Member (2007-Present) of the Core Course Revision Team of the University of the Arctic (UArctic).

Member of the Committee on Arctic Shipping and Environmental Issues appointed by the Icelandic Ministry of Foreign Affairs (2004-2005).

Member of Working Committee organized by Landvernd on greenhouse gas emissions and global and local climate change impacts (2004-2005).

Acting Chair of the University of Iceland Environmental Board to design and execute the environmental policy of the University of Iceland (2003).

Rector and University Board appointee to evaluate new positions in the Department of Civil & Environmental Engineering, Faculty of Engineering at the University of Iceland (2002-2003).

Visiting Professor (2004-2007), Utrecht Network's International Summer School in Environmental & Resource Management, Ljubljana, Slovenia. The Summer School is offered at the University of Ljubljana and attended by mainly postgraduate students (about 50) from all over Europe, but also students coming from U.S.A. and Australia.

Member of the DEANS European Academic Network; attended meetings at University of Porto, Portugal, in 2004, and at University of Ghent, Belgium, in 2005.

Visiting Professor (2006-Present), International Summer School in Karelia (ISSK). Program offered by the Petrozavodsk State University in the Republic of Karelia, Russia. The Summer School is attended by mainly postgraduate students (30-40) from Finnish and Russian universities.

Reviewer (2000-Present) of grant applications for RANNIS (the Icelandic Research Council).

Participant in the EU's Joint Masters in Water & Coastal Zone Management (2002-2003), while at the University of Iceland.

Member of the EU's REGIONET Thematic Network (2002-2003).

Member of the EU-MEDIN Forum on Natural Disaster Research (2003-Present).

Iceland representative in the Science Planning Group of ISAC (International Study of Arctic Change).

## **CURRENT RESEARCH INTERESTS**

*Renewable Energy Science and Technologies* – Geothermal energy exploration and technologies; different sources of renewable energies and future potential; integrated renewable energy systems. Since 2004, worked on establishing all academic programs (including M.Sc.) of RES |the School for Renewable Energy Science, as well as educational and research partnerships in renewable energy science and technologies with more than 30 leading technical universities in Europe, Russia and the Americas (RESnet). Coordinator for the Northern Research Forum's Theme Project Group on Energy emphasizing integrated alternative energy systems in Circum-Arctic communities.

*Arctic Resource Exploitation and Shipping* – Arctic climate and environmental changes, mitigation and adaptation; natural resource exploitation in the Arctic (including oil, natural gas, coal and minerals); transportation infrastructure, shipping, new trade routes, transshipment hubs; environmental security and environmental pollution prevention; and Nordic-Russian cooperation. Co-coordinator for the multi-partner Nordic-Russian project on Northern Eurasian Geopolitics (NEG), with the goal of analyzing and drawing up a holistic picture of current geopolitical significance and future importance of the Eurasian North.

*Natural Hazards & Risk Assessments* – Suitable mitigation measures for all types of natural hazards; methodology for hazard and risk assessments, natural hazard management, and hazard maps in GIS. A major research and teaching interest while at John Hopkins University, worked with partners from NOAA, FEMA, NASA, USGS, University of Maryland at College Park, and others. Using remote sensing data and GIS, generate hazard maps on various scales, and develop improved methods for risk assessment, regional development and land-use planning for applications by local communities.

*Mitigation of Technological Hazards* – Mitigation of water (freshwater and saltwater), soil and air pollution; and waste management. Academic advising for a number of M.Sc. research projects dealing with contaminant clean-up and pollution prevention while at Johns Hopkins University, and collaboration with researchers at USEPA (US Environmental Protection Agency) and engineering firms in the U.S.

*State of the Environment Indicators* - Identification and selection of appropriate state of the environment indicators for Northern (Arctic) Regions; provide numerical indication of the condition or the state the natural environment. This includes geological, hydrological, ecological and atmospheric/climatic indicators. Such indicators are cost-effective and powerful tool for the monitoring and reporting of environmental progress, and should be developed for the whole circumpolar Arctic region.

## **MOST RESENT PRESENTATIONS AT CONFERENCES & PUBLICATIONS**

Gunnarsson, B., 2008: Renewable Energy Utilization in Iceland. *Presentation at the Department of Process & Environmental Engineering, Faculty of Technology, University of Oulu, Finland, December 15, 2008 (Invited Speaker).*

Gunnarsson, B., 2008: Renewable Energy Use in Iceland and RES |the School for Renewable Energy Science. *Lunch Colloquia at the Centre for Renewable Energy of NTNU, SINTEF and IFE, Norwegian University of Science & Technology, Norway, November 20, 2008 (Invited Speaker).*

Gunnarsson, B., 2008: Renewable Energy Societies: Iceland as a Case Study. *The 5<sup>th</sup> NRF (Northern Research Forum) Open Meeting on "The Northern Community in the 21<sup>st</sup> Century – Seeking Balance in a Changing North", September 24-27, Rasmuson Center of the Anchorage Museum, Anchorage, Alaska (Invited Speaker).*

Gunnarsson, B., 2008: The Importance of Renewable Energy in the 21<sup>st</sup> Century. *Lectures at the International Summer School in Karelia 2008 (ISSK'08) on "Energy" at Petrozavodsk State University, May 15-20; organized by Aleksanteri Institute at the University of Helsinki, University of Tampere, and University of Lapland in Finland, and Petrozavodsk State University in Russia (Invited Visiting Professor).*

Gunnarsson, B., 2008: Renewable Energy Utilization: What can be learned from the Icelandic Experience? *Calotte Academy 2008 "Climate Change Defining Human Security", May 23-26 in Inari (Finland), Kirkenes (Norway), and Murmansk (Russia). Conference organized by Faculty of Social Sciences at the University of Lapland, Thule Institute at the University of Oulu, and the Northern Research Forum in cooperation with the Municipality of Inari, Saami Parliament in Finland, the Barents Secretariat and the Barents Institute in Norway (Invited Speaker).*

Gunnarsson, B., 2008: Towards Low Carbon Society – Technology Applied in Iceland. *European Union Sustainable Energy Week 2008, January 28 to February 1, Session 2: Strategic Technology Plan (SET) – Making a Change, Slovenian Presidency & European Commission: Partners for Sustainable Energy (Presidency Event), January 28, Charlemagne Building, Room S3 (Invited Speaker by the Slovenian Ministry of Economy).*

Gunnarsson, B. & Chattey, N., 2007: Energy as a Catalyst for Trans-Border Cooperation – A New Positive Debate on Environment and Regional Maritime Regimes. *In: Greg Austin and Marie-Ange Schellekens-Gaiffe (eds.) Energy and Conflict Prevention, Anna Lindh Programme on Conflict Prevention, 2007 Edition, p. 137-153, Madariaga European Foundation and EastWest Institute, publ. Gidlunds Förlag, Sweden.*

Gunnarsson, B., 2007: Renewable Energy Utilization in Iceland: A Case to follow for other Countries. *Colorado School of Mines, Sustainability Committee, November 16<sup>th</sup> 2007, Golden, Colorado, United States (Invited Speaker).*

Gunnarsson, B., 2007: Alternative Energy Use in Iceland. *Northern Colorado Clean Energy Cluster Forum on "Putting International Trends in Renewable Energy & Smart-Grid Applications to Work in Fort Collins", 14<sup>th</sup> of November 2007, Fort Collins, Colorado, United States (Invited Speaker).*

Gunnarsson, B., 2007: Alternative Energy Use in Iceland and Hybrid Energy Systems: A Case to Follow for other Circumpolar Countries? *The Arctic Conference Days 2007 - The AGREE II - 2<sup>nd</sup> Conference on Arctic Geology, Resources and Environment, September 6-7, 2007, Tromso, Norway (Invited Speaker).*

Gunnarsson, B., 2007: Hazard and Risk Assessments & Risk Mitigation Strategies; Environmental Security: The Impacts of Climate Change. *Lectures at the International Summer School in Karelia 2007 (ISSK'07) on "Security" at Petrozavodsk State University, May 14-18; organized by Aleksanteri Institute at the University of Helsinki, University of Tampere, and University of Lapland in Finland, and Petrozavodsk State University in Russia (Invited Visiting Professor).*

Gunnarsson, B., 2007: The Use of Alternative Energies in Iceland. *An Energy Conference organized by Escola Secundaria Dominogos Rebelo, Royal Garden Hotel, 23<sup>rd</sup> of March 2007, Ponta Delgada, Sao Miguel, Azores (Invited Speaker).*

Gunnarsson, B., 2006: Renewable Energy Technologies. *"Transatlantic Conference on Renewable Energies", Terceira Island, Azores, 8<sup>th</sup> and 9<sup>th</sup> of December 2006; also a Panel Member for the Session on Sustainable Energy Options for the Future, and Member of the Conference Scientific Committee (Invited Speaker).*

Gunnarsson, B., and others 2006: School for Renewable Energy Science (RES) á Akureyri. *"Orkuþing 2006: Orkan og samfélagið – vistvæn lífsgæði". Erindi og kynningar á Orkuþingi 12. – 13. október 2006, Reykjavík; ritstjóri Sigurður Ágústsson, Samorka; bls. 368-374.*

Gunnarsson, B., 2006: Geopolitics of the Northern Sea Route – Economic Opportunities, Security Issues, and Environmental Concerns. *The 4<sup>th</sup> NRF (Northern Research Forum) Open Meeting, October 4-9, in Oulu and Tornio, Finland, and Haparanda and Lulea, Sweden. Co-Organizer for a Project Day Session on Northern Eurasian Geopolitics (Invited Speaker).*

Gunnarsson, B., and Chattey, N., 2006: Energy as a Catalyst of Trans-Border Cooperation – A New Positive Debate on Environmental and Regional Maritime Border Regime. *Conference in October 26-27, Brussels, Belgium, on "Energy & Dispute Management in the Barents Region". Organized by the EastWest Institute and Madariaga European Foundation. Paper to be published as a chapter in Anna Lindh 2007 Edition of Programme on Conflict Prevention (Invited Speaker).*

Gunnarsson, B., 2006: Natural Hazards, Mitigation Strategies & Policies related to Regional Sustainable Development. *The Utrecht Network International Summer School (for Postgraduate Students) --"Environmental & Resource Management", University of Ljubljana, Slovenia, July 9-23 (Invited Visiting Professor).*

Gunnarsson, B., 2006: Vöktunar- og rannsóknastöðvar norðurslóða. *"Ísland í þjóðleið – siglingar á norðurslóðum og tækifæri Íslands", Ágrip erinda á málþingi sem haldið var 14. júní á Hótel KEA á vegum auðlindadeildar Háskólans á Akureyri, ritstjórar Þór Jakobsson og Björk Sigurgeirsdóttir, Háskólinn á Akureyri, bls. 49-55.*

Gunnarsson, B., 2006: Arctic Climate Change – Natural Resource Exploitation, Shipping, Environmental Issues, and Nordic-Russian Cooperation. *Lectures at the International Summer School in Karelia 2006 (ISSK'06) "The Nordic Model and Cooperation", at Petrozavodsk State University, May 24-31; organized by Aleksanteri Institute at the University of Helsinki, University of Tampere, and University of Lapland in Finland, and Petrozavodsk State University in Russia (Invited Visiting Professor).*

Gunnarsson, B., 2006: A Nordic-Russian Partnership in Arctic Sciences: Education, Research, Environmental Monitoring & Technology Transfer; and second presentation on: Environmental Concerns due to Increased Natural Resource Exploitation and Shipping in the Arctic Region. *Calotte Academy 2006 on "The New Geopolitics of the North Calotte"*, May 19-22 in Inari (Finland) and Kirkenes (Norway). Conference organized by Faculty of Social Sciences at the University of Lapland, Thule Institute at the University of Oulu, and the Northern Research Forum in cooperation with the Municipality of Inari, Saami Parliament in Finland, the Barents Secretariat and the Barents Institute in Norway (Invited Speaker).

Gunnarsson, B., 2005: The Changing Arctic Environment: Environmental Concerns due to Increased Natural Resource Exploitation. *NATO Advanced Research Workshop -- Ecosystems and Groundwater, Canakkale Onsekiz Mart University, Turkey, September 5-7* (Invited Speaker).

Gunnarsson, B., 2005: The Northern Sea Route: Economic Opportunities, Security Issues, and Environmental Concerns. *VII World Congress of ICCEES (International Council for Central and East European Studies) – "Europe - Our Common Home? Panel Session "North Eurasian Geopolitics: From Technology Models to Resource Models – Corporate Globalization, Environmental Conflicts and Societal Responsibilities"*, Humboldt University, Berlin, Germany, July 25-30 (Invited Speaker).

Gunnarsson, B., 2005: Natural Hazards, Mitigation Strategies and Policies Related to Regional Sustainable Development. *The Utrecht Network International Summer School (for Postgraduate Students) --"Environmental & Resource Management"*, University of Ljubljana, Slovenia, July 10-24 (Invited Visiting Professor).

Gunnarsson, B., 2005: Network of Monitoring and Research Centers of the Circumpolar North. *Calotte Academy 2005 "State of Human Development and Impacts of Globalization in the Circumpolar North"*, May 26-28, Inari, Finland. Conference organized by Faculty of Social Sciences at the University of Lapland, Thule Institute at the University of Oulu, and the Northern Research Forum in cooperation with the Municipality of Inari, Saami Parliament in Finland, the Barents Secretariat, and the Parents Institute in Norway (Invited Speaker).

Gunnarsson, B., 2005: On the Economics of the Northern Sea Routes. *"Northern Economies Workshop" at the Thule Institute and Faculty of Economics, University of Oulu, Finland, May 20-22. Organized by the Northern Research Form, the Stefansson Arctic Institute, University of Alaska at Anchorage, and the Thule Institute of the University of Oulu* (Invited Speaker and Panel Chair).

Gunnarsson, B., 2005: Geopolitics of the Northern Sea Route. *The 3<sup>rd</sup> International Scientific Conference – "Dynamics of Socio-economic Processes in Northern Regions"*, Institute for Economic Studies, Kola Science Center of The Russian Academy of Sciences, Branch of St. Petersburg University of Engineering and Economics, Apatity, Russia, April 7-9 (Invited Speaker).

Gunnarsson, B., and others, 2005: North Meets North – Navigation and the Future of the Arctic. *A Feasibility Report completed by a expert group appointed by the Ministry of Foreign Affairs, published by the Ministry of Foreign Affairs, February 1, 63 pp.*

Gunnarsson, B., 2004: Climate Change, Environmental Assessment and their Impact on the Resource Sector. *Presentation and Panelist, In: Bigras, S.C. and McCoy, V. (eds.) Report of the Canada – EU Symposium: Environmental Assessment, Climate Change & Policy Implications in the Arctic, p. 44; Symposium held in Brussels, Belgium, May 15-16, 2004, by The Canadian Department of Foreign Affairs and the Canadian Polar Commission. Report (64 p.) published in March 2005 (Invited Panelist).*

Gunnarsson, B., 2004: Natural Hazards, Mitigation Strategies and Policies Related to Regional Sustainable Development. *The Utrecht Network International Summer School (for Postgraduate Students) --“Environmental & Resource Management”, University of Ljubljana, Slovenia, July 13-20 (Invited Visiting Professor).*

Gunnarsson, B., and Gunnarsson, M.V., 2003: Natural Hazard and Risk Assessments in Regional and Land-Use Planning: Iceland as a Case Study. *5th Nordic Environmental Assessment Conference – “Planning for Sustainable Development – The Practice and Potential of Environmental Assessment”, Reykjavík, Iceland 24-26 August, 2003.*

Gunnarsson, B., 2003: Social, Environmental and Economic Consequences of Volcanic Eruptions and Restoration Efforts: Iceland as a Case Study. *EU-MEDIN Forum on Disaster Research “The Road to Harmonization” 26-27 May, 2003, Thessaloniki, Greece (Invited Speaker by EC Research).*

Gunnarsson, B. and Gunnarsson, M.V., 2003: Natural Hazards and Sustainable Development: Multi-Level Governance Strategies for Sustainable Disaster Mitigation. *In: Lafferty, W.M., Narodoslawsky, M. and Norland, I.T. (eds.) Strategies for Effective Multi-level Governance, p. 234-257; a book based on REGIONET II Workshop in Lillehammer, Norway, 29-31 January, 2003 (Invited Speaker by EU-funded REGIONET).*

Gunnarsson, B. and Gunnarsson, M.V., 2002: The Role of Science and Technology in Mitigation of Natural Hazards to Achieve Sustainable Development. *In: Sikdar, S.K. and Glavic, P. (eds.) Technological Choices for Sustainability, p. 33; NATO Advanced Research Workshop, Maribor, Slovenia Oct 13-17, 2002 (Invited Speaker).*

Gunnarsson, B. & Gunnarsson, M.V., 2002: Iceland's Central Highlands: Nature Conservation, Ecotourism and Energy Resource Utilization. *In: Watson, A., Alessa, L. and Patterson, M. (eds.) Wilderness in the Circumpolar North: Searching for compatibility in traditional, ecotourism, and ecological values; p. Proceedings RMRS-P-000, published by U.S. Department of Agriculture, Forest Service, and The Rocky Mountain Research Station; based on a conference May 15-16, 2001 in Anchorage, Alaska (Invited Speaker).*