

Fields of research: Regional geophysics and geology, geophysical interpretation, continental shelf studies, Neogene uplift and neotectonics

Background: 30 years of professional experience, including management roles for 14 years, 22 years of extensive contract work and research activities for mineral and petroleum industry and governmental bodies and 9 years of part time teaching experience at university level (incl. 2 years as Adjunct Professor in Applied Geophysics at the Norwegian University of Science and Technology).

Geophysical interpretation in Proterozoic greenstone-gneiss terrain (Kautokeino and Karasjok Greenstone belts) [1981-1991], Phanerozoic fold belt (North-Norwegian Caledonides) [1984-2002], continental rift (Oslo Rift) [2003-2005] and a passive continental margin (Norwegian continental shelf) [1989-2011]. Also ten years of experience from neotectonic research in Norway and two years of geochemical exploration and bedrock mapping.

Management experience includes supervision of geophysical and geological mapping projects/programs with annual budgets of 0.5 –3 million Euros since 1985. Professional experience includes integrated interpretation of geological, geochemical and geophysical data (gravimetric, aeromagnetic, electromagnetic, radiometric, seismic and petrophysical data).

Education:

1991: Ph.D. (geophysics), Norwegian Institute of Technology

1980: M.Sc. (geology), Norwegian Institute of Technology

Employment Record:

2005-present: Team leader, Continental margin geophysics

2003-04: Project manager, GEOS – Geology in the Oslo Region

1999-01: Team leader, Geodatabases

1999-01: Professor II, Norwegian University of Science and Technology

1995-98: Project Manager, Regional Geophysics

1991-95: Senior Geophysicist, NGU

1990-91: Assistant program leader, Bedrock mapping, NGU

1990: NTNF Research fellow, Norwegian Institute of Technology

1987-90: Senior Geophysicist, NGU

1986-87: NTNF Research fellow, Univ. of Toronto

1985-86: Section Leader, Section for Geophysics, NGU

1983-85: Geophysicist, Geophysical Dept., NGU

1982-83: State geologist, Bedrock Dept., NGU

1981-82: Research assistant, Geochemical Dept., NGU

Recent publications

2013

Olesen, O. Kierulf, H.P., Brønner, M., Dalsegg, E., Fredin, O. & Solbakk, T. 2013: Deep weathering, Neotectonics and strandflat formation in Nordland, northern Norway. Submitted to Norwegian Journal of Geology.

Olesen, O., Bungum, H., Dehls, J., Lindholm, C., Pascal, C. and Roberts, D. 2013: Neotectonics, seismicity and contemporary stress field in Norway – mechanisms and implications. In Olsen, L., Fredin, O. & Olesen, O. (eds.) Quaternary Geology of Norway, Geological Survey of Norway Special Publication 13, pp. 143–172.

2012

Ebbing, J., England, R.W., Korja, T., Lauritsen, T., **Olesen, O.**, Stratford, W., Weidle, C. 2012: Structure of the Scandes lithosphere from surface to depth. Tectonophysics, doi: 10.1016/j.tectonophysics.2011.03.031.

Gernigon, L., Gaina, C., **Olesen, O.**, Peron-Pinvidic, G. & Yamasaki, T. 2012: The Norway Basin revisited: From continental breakup to spreading ridge abortion. Marine and Petroleum Geology, 35, doi:10.1016/j.marpetgeo.2012.02.015

2011

Fichler, C., Odinsen, T., Rueslåtten, H., **Olesen, O.**, Vindstad, J.E. & Wienecke, S.: Crustal inhomogeneities in the Northern North Sea from potential field modeling: Inherited structure and serpentinites? Tectonophysics, 510, 1-2, 172-185

Kukkonen, I., Ask, M.V.S. & **Olesen, O.** 2011: Postglacial Fault Drilling in Northern Europe: Workshop in Skokloster, Sweden. Scientific Drilling 11, 56-59.

Werner, S.C., Ebbing, J., Litvinova, T. P. & **Olesen O.**: Structure of the Barents and Kara Sea regions based on gravity and magnetic data. In: Spencer, A.M., D. Gautier, A. Stoupakova, A.Embry, K. Sørensen (Eds.) Arctic Petroleum Geology, Geol. Soc. Memoirs 35, 197-208.

2010

Olesen, O., Brønner, M., Ebbing, J., Gellein, J., Gernigon, L., Koziel, J., Lauritsen, T., Myklebust, R., Pascal, C., Sand, M., Solheim, D. & Usov, S. 2010: New aeromagnetic and gravity compilations from Norway and adjacent areas – methods and applications. In: Vining, B.A. & Pickering, S.C. (eds.) Petroleum Geology: From mature basins to new frontiers. Proceedings of the 7th Petroleum Geology Conference. Petroleum Geology Conference Series 7, Geological Society of London 559-586.

Ebbing, J. & **Olesen, O.** 2010: New compilation of to basement and basement thickness for the Norwegian continental shelf reveals the segmentation of the passive margin system. In: Vining, B.A. & Pickering, S.C. (eds.) Petroleum Geology: From mature basins to new frontiers. Proceedings of the 7th Petroleum Geology Conference. Petroleum Geology Conference Series 7, Geological Society of London, 885-897.

Bungum, H. **Olesen, O.**, Pascal, C., Gibbons, S., Lindholm, C. & Vestøl, O. 2010: To what extent is the present seismicity of Norway driven by postglacial rebound? Journal of the Geological Society, London 167, 373-384.

Kukkonen, I.T., **Olesen, O.** & Ask, M.V.S. & the PFDP Working Group 2010: Postglacial Fault Drilling Project (PFDP). Geologiska Föreningens i Stockholm Förhandlingar (GFF) 132, 71-81.

Olesen, O. & altus, R. 2010: Meeting Report, Advances in Magnetic and Gravitational Potential Field Data in the Arctic, Integration of magnetics and Gravity in Northern Exploration (iMAGINE), Tromsø, Norway, 1-2 June 2010, EOS, Transactions American Geophysical Union 91, 26 Oct., p 396.

2009

Stratford, W., Thybo, H., Faleide, J.I., **Olesen, O.** & Tryggvason, A. 2009: New Moho Map for onshore southern Norway, Journ. Geophys. Int. 178, 1755-1765.

Pascal, C. & **Olesen, O.** 2009: Are the Norwegian mountains compensated by a mantle thermal anomaly at depth?

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Slagstad, T., Balling, N., Elvebakk, H., Midttømme, K., **Olesen, O.**, Olsen, O., Pascal, C. 2009: Heat-flow measurements in Late Palaeoproterozoic to Permian geological provinces in south and central Norway and a new heat-flow map of Fennoscandia and the Norwegian–Greenland Sea. Tectonophysics 473, 341–361.

Gernigon, L., **Olesen, O.**, Ebbing, J., Wienecke, S., Gaina, C., Mogaard, J.O., Sand, M. & Myklebust, R. 2009: Geophysical insights and early spreading history in the vicinity of the Jan Mayen Fracture Zone, Norwegian–Greenland Sea. Tectonophysics 468, 185–205.

Ebbing, J., Gernigon, L., Pascal, C., **Olesen, O.**, & Osmundsen, P.T. 2009: A discussion of structural and thermal control of magnetic anomalies on the mid-Norwegian margin. Geophysical Prospecting 57, 665–681

Stratford, W., Thybo, H., Faleide, J.I., **Olesen, O.** & Tryggvason, A. 2008: New Insights Into the Lithospheric Structure of Southern Norway. EOS, Transactions American Geophysical Union 89, 554-555.

Smelror, M., Petrov, O.V., Larssen, G.B. Werner, S.C. (eds.) + 16 co-authors (including **Olesen, O.**) 2009: Geological history of the Barents Sea. Geol. Survey of Norway, Trondheim, 135 pp.

2008

Olesen, O. og Rønning, J.S. 2008: Dypforvitring: Fortidens klima gir tunnelproblemer. I: Geologi for samfunnet i 150 år – arven etter Kjerulf (T. Slagstad & R. Dahl, eds.), NGU Gråsteinen nr 12, s. 101 – 110.

Rønning, J.S. & **Olesen, O.** 2008: Forundersøkelser. Metoder og muligheter. Norsk forening for fjellsprengeingsteknikk. Tunneldagene 2008, 15-17 september, Sundvolden, 7 pp.

Olesen, O. & Rønning, J.S. 2008: Deep weathering: The climate of the past causes tunnel problems. In: Geology for society for 150 years – The legacy after Kjerulf NGU Gråsteinen nr 13, s. 101 – 110.

Ebbing J., **Olesen, O.**, Gernigon, L., Reynisson, R.F. & sokkelgeofysikk lag på NGU 2008: Tyngde og magnetiske data viser sporene av gamle strukturer på norsk sokkel. I: Geologi for samfunnet i 150 år - arven etter Kjerulf (T. Slagstad & R. Dahl, red.), Gråsteinen 12, 89-98.

Ebbing, J., **Olesen, O.**, Gernigon, L., & continental shelf team at NGU 2008: Combined geophysical interpretation on the Mid-Norwegian continental shelf. In: Geology for society for 150 years – The legacy after Kjerulf (T. Slagstad & R. Dahl, eds.), Gråsteinen nr 13, s. 91 – 99.

Ramberg, I.B., Jansen, E., **Olesen, O.** & Torsvik, T.H. 2008: Chapter 17, What does the future hold? Geohazards, climate change and continental drift. In: I. Ramberg, I. Bryhi, A. Nøttvedt, & K. Ragnes. The making of a land, Geology of Norway. Geological Society of Norway, 560-591.

2007

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Bergh, S. G., Eig, K., Kløvjan, O. S., Henningsen, T., **Olesen, O.** & Hansen, J.-A. 2007: The Lofoten-Vesterålen continental margin: a multiphase Mesozoic-Palaeogene rifted shelf as shown by offshore-onshore brittle fault-fracture analysis. Norwegian Journal of Geology 87, 29-58.

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Olesen, O. 2007: Tunnelproblemer, olje og dinosaurer – hva er sammenhengen? *GEO* 1 2007,54-55.

Olesen, O. & Bjørlykke, O. 2007: Verdensmestere i tunnelbygging? *GEO* 3, 2007, 44-45.

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2006

Bøe, R., Polak, S., Zweigel, P., Lundin, E., Lindeberg, E. & **Olesen, O.** 2006: Storage potential for CO₂ in Mid-Norway – results from the CO₂STORE project. GHGT-8

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Ebbing, J. & **Olesen, O.** 2006: The Northern and Southern Scandes - Structural differences revealed by an analysis of gravity anomalies, the geoid and regional isostasy. *Tectonophysics* 411, 73-87.

Ramberg, I.B., Jansen, E., **Olesen, O.** & Torsvik, T.H.: 2006 Kap.17: Hva vil framtiden bringe? Geofarer, klima og kontinentforflytning, NGF's Jubileumbok "Norge blir til". 556-585.

2005

Osmundsen, P.T., Braathen, A., Sommaruga, A., Skilbrei, J.R., Nordgulen, Ø., Roberts, D., Andersen, T.B., **Olesen, O.** & Mosar, J. 2005: Metamorphic core complexes and gneiss-cored culminations along the Mid-Norwegian margin: an overview and some current ideas In: (Eds. Wandås, B., Nystuen, J.P., Eide, E.A. & Gradstein, F.M.) Onshore-offshore relationships on the North Atlantic margin. Norwegian Petroleum Society (NPF) Special Publication 12, 29-41.

Gabrielsen, R.H., Braathen, A., **Olesen, O.**, Faleide, J.I., Kyrkjebø, R., Redfield, T.F. 2005: Vertical movements in southwestern Fennoscandia: a discussion of regions and processes from the present to the Devonian. In: (Eds. Wandås, B., Nystuen, J.P., Eide, E.A. & Gradstein, F.M.) Onshore-offshore relationships on the North Atlantic margin. Norwegian Petroleum Society (NPF) Special Publication 12, 1-28.

Skilbrei, J.R. & **Olesen, O.** 2005: Deep structure of the Mid-Norwegian shelf and onshore-offshore correlations: Insight from potential field data.. In: (Eds. Wandås, B., Nystuen, J.P. & Eide, E.A.) Onshore-offshore relationships on the North Atlantic margin. Norwegian Petroleum Society (NPF) Special Publication 12, 43-67.

Ebbing, J., Afework, Y., **Olesen, O.** & Nordgulen, Ø. 2005: Is there evidence for magmatic underplating beneath the Oslo Rift? *Terra Nova* 17, 129-134

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Bungum, H. & **Olesen, O.** 2005: Reply to 'Comments on the Lurøy 1819 earthquake controversy' by E.S. Husebye. *Norwegian Journal of Geology* 85, 257-258.

2004

Olesen, O., Blikra, L.H., Braathen, A., Dehls, J.F., Olsen, L., Rise, L., Riis, F., Faleide, J.I. & Anda, E. 2004: Neotectonic deformation in Norway and its implications: A review. *Norwegian Journal of Geology* 84, 3-34.

Olesen, O., Smethurst, M.A., Torsvik, T.H. & Bidstrup, T. 2004: Sveconorwegian igneous complexes beneath the Norwegian–Danish Basin. *Tectonophysics* 387, 105-130.

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2002

Mørk M.B.E., McEnroe, S.A., **Olesen, O.** 2002: Magnetic susceptibility of Mesozoic and Cenozoic sediments off Mid Norway and the role of siderite: implications for interpretation of high-resolution aeromagnetic anomalies. *Mar. and Petr. Geology* 19, 1115-1126.

Olesen, O., Lundin, E., Nordgulen, Ø., Osmundsen, P.T., Skilbrei, J.R., Smethurst, M.A., Solli, A., Bugge, T. & Fichler, C. 2002: Bridging the gap between the Nordland onshore and offshore geology. *Norwegian Journal of Geology* 82, 243-262.

Skilbrei, J.R., **Olesen, O.**, Osmundsen, P. T., Kihle, O., Aaro, S. & Fjellanger, E 2002: A study of basement structures and some onshore-offshore correlations in Central Norway. *Norwegian Journal of Geology* 82, 263-279.

Osmundsen, P.T., Sommaruga, A., Skilbrei, J.R. & **Olesen, O.** 2002: Deep structure of the Norwegian Sea area, NE Atlantic margin. *Norwegian Journal of Geology* 82, 205-224.

Skilbrei, J.R., **Olesen, O.** 2002: Field, laboratory and theory: application of the datasets to the Mid Norway setting; A. Basement structure of the Mid Norwegian shelf. In: Eide, E.A. (coord.), *BATLAS – Mid Norway plate reconstruction atlas with global and Atlantic perspectives*. Geological Survey of Norway. pp. 60-61.

Olesen, O. 2002: Field, laboratory and theory: application of the datasets to the Mid Norway setting; B. Transfer zones and rift segmentation. In: Eide, E.A. (coord.), *BATLAS – Mid Norway plate reconstruction atlas with global and Atlantic perspectives*. Geological Survey of Norway. pp. 62-63.

Olesen, O., Dehls, J. & Olsen, L. 2002: De første nordlendingers katastrofe-skjelv. *Ottar nr. 3-2002*, 10-17.

Maps

Olesen, O., Gellein, J., Gernigon, L., Kihle, O., Koziel, J., Lauritsen, T., Mogaard, J.O., Myklebust, R., Skilbrei, J.S. & Usov, S.. 2010: Magnetisk anomalikart Norge og tilgrensende områder/ Magnetisk anomalikart Norway and adjacent areas. Målestokk/Scale 1:3 mill. Geological Survey of Norway, Trondheim, Norway.

Olesen, O., Ebbing, J., Gellein, J., Kihle, O., Myklebust, R., Sand, M., Skilbrei, J.R., Solheim, D. & Usov, S. 2010: Gravity anomaly map, Norway and adjacent areas. Tyngdeanomalikart Norge og tilgrensende områder. Målestokk / Scale 1:3 million. Geological Survey of Norway. Trondheim, Norway.

Olesen, O. 2006: Aktsomhetskart for tunnelplanlegging, Østlandsområdet, Geofysisk tolkning av tropisk dypforvitring. Målestokk 1:100.000. Norges geologiske undersøkelse, Trondheim.

Selected NGU-Reports

Olesen, O., Brønner, M., Ebbing, J., Elvebakk, H., Gellein, J., Koziel, J., Lauritsen, T., Lutro, O., Maystrenko, Y., Müller, C., Nauti, A., Osmundsen, P.T., Slagstad, T & Storrø, G. 2013: Coop Phase I - Crustal Onshore-Offshore Project. NGU Report 2013.002, 361 pp.

Olesen, O., Bering, D., Brønner, M., Dalsegg, E., Fabian, K., Fredin, O., Gellein, J., Husteli, B., Magnus, C., Rønning, J.S., Solbakk, T., Tønnesen J.F. & Øverland, J.A. 2012: Tropical Weathering In Norway, TWIN Final Report. NGU Report 2012.005, 188 pp.

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