

Contents

Foreword	ix
Acknowledgements	xi
Preface	xiii
Section I Arctic overviews	
SPENCER, A. M., EMBRY, A. F., GAUTIER, D. L., STOUPAKOVA, A. V. & SØRENSEN, K. An overview of the petroleum geology of the Arctic	1
GRANTZ, A., SCOTT, R. A., DRACHEV, S. S., MOORE, T. E. & VALIN, Z. C. Sedimentary successions of the Arctic Region (58–64° to 90°N) that may be prospective for hydrocarbons	17
GAINA, C., WERNER, S. C., SALTUS, R., MAUS, S. & The CAMP-GM GROUP. Circum-Arctic mapping project: new magnetic and gravity anomaly maps of the Arctic	39
SALTUS, R. W., MILLER, E. L., GAINA, C. & BROWN, P. J. Regional magnetic domains of the Circum-Arctic: a framework for geodynamic interpretation	49
LAWVER, L. A., GAHAGAN, L. M. & NORTON, I. Palaeogeographic and tectonic evolution of the Arctic region during the Palaeozoic	61
GOLONKA, J. Phanerozoic palaeoenvironment and palaeolithofacies maps of the Arctic region	79
CHEW, K. J. & ARBOUILLE, D. Hydrocarbon finds in the Arctic basins: discovery history, discovered resources and petroleum systems	131
CHARPENTIER, R. R. & GAUTIER, D. L. US Geological Survey Circum-Arctic Resource Appraisal (CARA): introduction and summary of organization and methods	145
GAUTIER, D. L., BIRD, K. J., CHARPENTIER, R. R., GRANTZ, A., HOUSEKNECHT, D. W., KLETT, T. R., MOORE, T. E., PITMAN, J. K., SCHENK, C. J., SCHUENEMEYER, J. H., SØRENSEN, K., TENNYSON, M. E., VALIN, Z. C. & WANDREY, C. J. Oil and gas resource potential north of the Arctic Circle	151
Section II Baltica related articles	
HENRIKSEN, E., RYSETH, A. E., LARSEN, G. B., HEIDE, T., RØNNING, K., SOLLID, K. & STOUPAKOVA, A. V. Tectonostratigraphy of the greater Barents Sea: implications for petroleum systems	163
WERNER, S. C., EBBING, J., LITVINOVA, T. P. & OLESEN, O. Structural interpretation of the Barents and Kara Seas from gravity and magnetic data	197
IVANOVA, N. M., SAKULINA, T. S., BELYAEV, I. V., MATVEEV, YU. I. & ROSLOV, YU. V. Depth model of the Barents and Kara seas according to geophysical surveys results	209
KLIMENKO, S. S., ANISCHENKO, L. A. & ANTOSHKINA, A. I. The Timan–Pechora sedimentary basin: Palaeozoic reef formations and petroleum systems	223
BAGRINTSEVA, K. I., STRELCHENKO, V. V. & STOUPAKOVA, A. V. Lower Permian and Devonian carbonate reservoir rocks in the onshore and offshore areas of the Pechora Sea	237
HØY, T. & LUNDSCHIEN, B. A. Triassic deltaic sequences in the northern Barents Sea	249
KHLEBNIKOV, P. A., BELENKY, V. YA., PESHKOVA, I. N., KAZANIN, G. S., SHKARUBO, S. I., PAVLOV, S. P. & SHLYKOVA, V. V. Geological structure and petroleum potential of the eastern flank of the Northern Barents Basin	261
HENRIKSEN, E., BJØRNSETH, H. M., HALS, T. K., HEIDE, T., KIRYUKHINA, T., KLØVJAN, O. S., LARSEN, G. B., RYSETH, A. E., RØNNING, K., SOLLID, K. & STOUPAKOVA, A. Uplift and erosion of the greater Barents Sea: impact on prospectivity and petroleum systems	271
SCHENK, C. J. Geology and petroleum potential of the Timan–Pechora Basin Province, Russia	283
KLETT, T. R. & PITMAN, J. K. Geology and petroleum potential of the East Barents Sea Basins and Admiralty Arch	295

Section III Siberia related articles

PEASE, V. Eurasian orogens and Arctic tectonics: an overview	311
STOUPAKOVA, A. V., HENRIKSEN, E., BURLIN, YU. K., LARSEN, G. B., MILNE, J. K., KIRYUKHINA, T. A., GOLYNCHIK, P. O., BORDUNOV, S. I., OGARKOVA, M. P. & SUSLOVA, A. A. The geological evolution and hydrocarbon potential of the Barents and Kara shelves	325
KAMINSKY, V. D., SUPRUNENKO, O. I. & SUSLOVA, V. V. Oil and gas potential of the Russian Arctic Shelf and palaeogeographical mapping of the Barents Sea	345
IVANOVA, N. M., BELYAEV, I. V. & KOLESNIKOVA, Y. V. Geological model and oil and gas potential of the Gydan–Yuratskiy region and the southern part of the Kara Shelf	353
KIRILOVA-POKROVSKAYA, T. A., DJYACHENKO, A. B. & ZAVARZINA, G. A. Application of AVO analysis to seismic records on the Laptev Sea Shelf	359
DRACHEV, S. S. Tectonic setting, structure and petroleum geology of the Siberian Arctic offshore sedimentary basins	369
LEBEDEVA-IVANOVA, N. N., GEE, D. G. & SERGEYEV, M. B. Crustal structure of the East Siberian continental margin, Podvodnikov and Makarov basins, based on refraction seismic data (TransArctic 1989–1991)	395
KLETT, T. R., WANDREY, C. J. & PITMAN, J. K. Geology and petroleum potential of the north and east margins of the Siberian Craton, north of the Arctic Circle	413
GRIGORENKO, YU. N., SOBOLEV, V. S. & KHOLODILOV, V. A. Petroleum systems and forecasting the largest oil and gas fields in the offshore Russian Arctic basins	433
KONTOROVICH, A. E., BURSSTEIN, L. M., KAMINSKY, V. D., KURCHIKOV, A. R., MALYSHEV, N. A., PRISCHEPA, O. M., SAFRONOV, A. F., STUPAKOVA, A. V., SUPRUNENKO, O. I. & EPOV, M. I. The potential for hydrocarbon resource development on the Russian Arctic Ocean Shelf	443

Section IV Laurentia related articles

CREANEY, S. & SULLIVAN, M. A. The genetic evolution of Arctic North America and Greenland and implications for petroleum systems	451
COLPRON, M. & NELSON, J. L. A Palaeozoic NW Passage and the Timanian, Caledonian and Uralian connections of some exotic terranes in the North American Cordillera	463
BIRD, K. J. & HOUSEKNECHT, D. W. Geology and petroleum potential of the Arctic Alaska petroleum province	485
KUMAR, N., GRANATH, J. W., EMMET, P. A., HELWIG, J. A. & DINKELMAN, M. G. Stratigraphic and tectonic framework of the US Chukchi Shelf: exploration insights from a new regional deep-seismic reflection survey	501
HOUSEKNECHT, D. W. & BIRD, K. J. Geology and petroleum potential of the rifted margins of the Canada Basin	509
HELWIG, J., KUMAR, N., EMMET, P. & DINKELMAN, M. G. Regional seismic interpretation of crustal framework, Canadian Arctic passive margin, Beaufort Sea, with comments on petroleum potential	527
EMBRY, A. Petroleum prospectivity of the Triassic–Jurassic succession of Sverdrup Basin, Canadian Arctic Archipelago	545
OMMA, J. E., PEASE, V. & SCOTT, R. A. U–Pb SIMS zircon geochronology of Triassic and Jurassic sandstones on northwestern Axel Heiberg Island, northern Sverdrup Basin, Arctic Canada	559
DEWING, K. & OBERMAJER, M. Thermal maturity of the Sverdrup Basin, Arctic Canada and its bearing on hydrocarbon potential	567
CHEN, Z. & OSADETZ, K. G. Using discovery process and accumulation volumetric models to improve petroleum resource assessment in Sverdrup Basin, Canadian Arctic Archipelago	581
HARRISON, J. C., BRENT, T. A. & OAKEY, G. N. Baffin Fan and its inverted rift system of Arctic eastern Canada: stratigraphy, tectonics and petroleum resource potential	595
SCHENK, C. J. Geology and petroleum potential of the West Greenland–East Canada Province	627
CHRISTIANSEN, F. G. Greenland petroleum exploration: history, breakthroughs in understanding and future challenges	647

GAUTIER, D. L., STEMMERIK, L., CHRISTIANSEN, F. G., SØRENSEN, K., BIDSTRUP, T., BOJESEN-KOEFOD, J. A., BIRD, K. J., CHARPENTIER, R. R., HOUSEKNECHT, D. W., KLETT, T. R., SCHENK, C. J. & TENNYSON, M. E. Assessment of NE Greenland: prototype for development of Circum-Arctic Resource Appraisal methodology	663
SØRENSEN, K., GAUTIER, D., PITMAN, J., JACKSON, H. R. & DAHL-JENSEN, T. Geology and petroleum potential of the Lincoln Sea Basin, offshore North Greenland	673
Section V Arctic Ocean	
KRISTOFFERSEN, Y. Geophysical exploration of the Arctic Ocean: the physical environment, survey techniques and brief summary of knowledge	685
THIEDE, J., ELDHOLM, O. & MYHRE, A. M. Scientific deep-sea drilling in high northern latitudes	703
MARCUSSEN, C. & MACNAB, R. Extending coastal state boundaries into the central Arctic Ocean: outer continental shelves beyond 200 nautical miles and the quest for hydrocarbons	715
MOORE, T. E. & PITMAN, J. K. Geology and petroleum potential of the Eurasia Basin	731
MOORE, T. E., GRANTZ, A., PITMAN, J. K. & BROWN, P. J. A first look at the petroleum geology of the Lomonosov Ridge microcontinent, Arctic Ocean	751
GRANTZ, A., HART, P. E. & CHILDERS, V. A. Geology and tectonic development of the Amerasia and Canada Basins, Arctic Ocean	771
Index	801