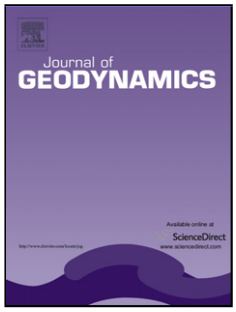

Title: Lower Cretaceous tectonostratigraphic evolution of the northcentral Barents Sea

Authors: B. Kairanov, A. Escalona, A. Mordasova, K. Śliwińska, A. Suslova

PII: S0264-3707(17)30058-3
DOI: https://doi.org/10.1016/j.jog.2018.02.009
Reference: GEOD 1548

To appear in: *Journal of Geodynamics*

Received date: 23-3-2017
Revised date: 5-2-2018
Accepted date: 22-2-2018

Please cite this article as: Kairanov, B., Escalona, A., Mordasova, A., Śliwińska, K., Suslova, A., Lower Cretaceous tectonostratigraphic evolution of the northcentral Barents Sea.Journal of Geodynamics https://doi.org/10.1016/j.jog.2018.02.009

Lower Cretaceous tectonostratigraphic evolution of the northcentral Barents Sea

B. Kairanov[1], A. Escalona[1], A. Mordasova[2], K. Śliwińska[3] and A. Suslova[2]

[1]*Department of Petroleum Engineering, University of Stavanger, 4036 Stavanger, Norway; (bereke.kairanov@uis.no), (alejandro.escalona@uis.no).*

[2]*Lomonosov Moscow State University, Geological Faculty, Moscow, Russia; (alenkij_89@inbox.ru), (suslovaanna@yandex.ru)*

[3]*Geological Survey of Denmark and Greenland (GEUS), Øster Voldgade 10 DK-1350 Copenhagen, Denmark; (kksl@geus.dk)*

ABSTRACT

In this paper we investigate the structural evolution of the northcentral Barents Sea during the Early Cretaceous, and the influence of fault activity on the sedimentation pattern in the area. This is achieved by integrating 2D seismic data, two exploration wells and information of available shallow cores from the Norwegian and Russian sectors. As a result of our work, three fault families, two Lower Cretaceous seismic sequences and seven seismic facies, were interpreted in the area. During the Hauterivian–early Barremian (sequence 1), a syn-tectonic phase is observed, where fault families 1 and 2 of Late Paleozoic age were reactivated as reverse faults and induced the inversion of NE-SW and E-W structural highs that controlled deposition in the Kong Karls Land Platform, North Barents Basin and the newly formed Olga Basin. During early Barremian–early Aptian (sequence 2), the study area was marked by a tectonically quiescent period, where the increase of clastic supply from the N-NE was responsible for progradation of the system towards the S-SW Barents Sea. The progradation was controlled and routed by structural highs inherited from the Hauterivian–early Barremian inversion.