

THE NORWEGIAN CONTINENTAL MARGIN: CRUSTAL STRUCTURE AND TECTONO-MAGMATIC SEGMENTATION

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The passive continental margin off Norway, and its conjugate off East Greenland, is part of a region which has experienced several post-Caledonian episodes of lithospheric extension. We recognize Late Paleozoic-Early Mesozoic, Late Jurassic-Early Cretaceous, mid-Cretaceous (Aptian/Albian-Cenomanian) and Late Cretaceous-Paleocene rift structures, and a westward shift in the central rift zone with time. The latest episode culminated in crustal breakup and accretion of oceanic crust, accompanied by large-scale igneous activity, near the Paleocene-Eocene transition. The margins south and north of 70N are predominantly of the rifted volcanic and sheared types, respectively. There is a well-defined along-strike margin segmentation and the various segments are characterized by distinct crustal properties, structural and magmatic styles, and post-opening history of vertical motion. Analysis of high-quality vertical incidence and wide-angle seismic data show that the margin segmentation is largely governed by Late Cretaceous-Paleocene transfer systems which, however, may reflect older zones of crustal weakness. Following breakup, the subsiding margin experienced modest sedimentation until the late Pliocene when huge wedges of glacial sediments prograded westward, constituting at least one half of the post-opening sediment volume.