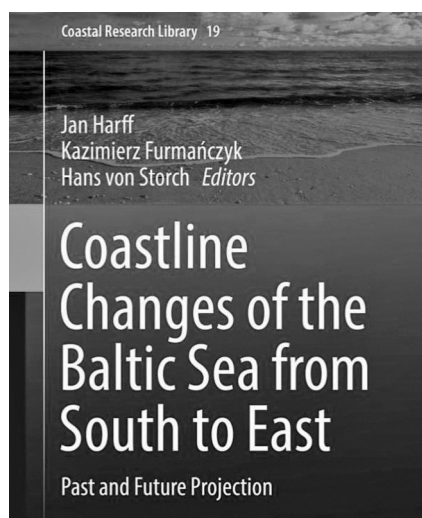


Coastline changes of the Baltic Sea from south to east. Past and future projection, edited by J. Harff, K. Furmańczyk, H. von Storch, 2017. Springer International Publishing. 388 pages, ISBN 978-3-319-49892-8.



Problems related to sea level rise and prediction of coastline changes form a significant obstacle during increased socio-economic pressure on coastal zones worldwide. Thus, definitions of steering factors, such as natural processes (including eustatic sea level rise, superimposed on isostatic subsidence), diversity of geological, hydrological and hydrodynamic conditions, vegetation and, finally, anthropogenic pressure should be considered as minimal input into modern studies of land/sea interactions. These natural processes and their interrelations that shape coasts are common in the case of epicontinental seas such as the Baltic Sea. The coastal zone of the southern Baltic, from Germany in the west to Latvia and Estonia in the east, in particular, is exposed to intense changes.

During the last few decades, several monographs have been published on coastal features around the Baltic countries; however, the current book may be considered a new quality item added to this list. The editors of this tome are widely recognised specialists in their field. Professor Jan Harff is a leading specialist in marine geology, whose main interests and scientific achievements are related to sedimentology, coastal geology and mathematical geology.

He made a special contribution to palaeogeographical research and mathematical modelling of coastal development in the Baltic Sea. His research and scientific publications are widely known and appreciated by his peers. Professor Kazimierz Furmańczyk research interests concern the morphodynamics of the coastal zone, studied by the usage of remote sensing methods. He ranks among Polish coastal researchers with achievements appreciated not only in Poland but across the world, as evidenced by numerous scientific works. Professor Hans van Storch is a German climate scientist who is interested in coastal climate and impact (wind, storm surges and waves) in recent times as well as in future decades. He is also an expert in methodical issues of statistical climatology such as detection and attribution of anthropogenic climate change. In addition, he has been engaged in joint research with social and cultural scientists over many years. With such an editorial team, the book can be trusted to present the most reliable data available in this field.

The book itself is divided into two parts: I – Concepts and model approaches and II – Regional studies. In the first part, in addition to topics that have been important and discussed for a long time (e.g., ‘What determines the change of coastlines in the Baltic Sea? [by J. Harff *et al.*] and ‘Factors and processes forming the Polish southern Baltic Sea coast on various temporal and spatial scales [by S. Musielak *et al.*]), two issues regarding modelling future coastal changes deserve particular attention. These are models and studies of coastal morphogenesis, including reconstructions of the geological past and projections into the future on the scale of decades to centuries and studies on land/sea interactions under medium- to long-term climatic control, in particular investigation of coastal foredune morphodynamics as well as natural environmental factors involved in shaping foredune geometry by a numerical model (‘The dynamic equilibrium shore model for the reconstruction and future projection of coastal morphodynamics’ [by J. Deng *et al.*] and

'Modelling of medium-term (decadal) coastal fore-dune morphodynamics - historical hindcast and future scenarios of the Świna Gate barrier coast (southern Baltic Sea) [by W. Zhang *et al.*]. It is also worth noting that, as the authors' team point out, it is not only in the Baltic countries that hearts are beating for the Baltic; indeed, such research can be considered to be universal.

The second part comprises studies into reconstructions and evolution of the area along the southern and eastern Baltic, ranging from Mecklenburgian Bay to the Gulf of Finland (e.g., 'Late glacial to Holocene environmental changes (with particular reference to salinity) in the southern Baltic reconstructed from shallow water lagoon sediments' [by A. Witkowski *et al.*] and 'Postglacial evolution of the Odra River mouth, Poland-Germany' [by R. Borówka *et al.*]), together with climate change and sea level scenarios ('Retrieving the signal of climate change from numerically simulated sediment transport Along the eastern Baltic Sea coast' [by T. Soomere *et al.*] and 'Sea-level change and flood risks at Estonian coastal zone' [by A. Rosentau *et al.*]). However, there are also very insightful deliberations on the application of old maps: the increased number of digitalised old maps and proper use of these can result in new opportunities of spatial comparisons of natural coastal elements. The publications raise and (at least partially) answer numer-

ous questions about methodological aspects, limits and consequences of using old maps for modern interpretations ('New demands on old maps - an approach for estimating aspects of accuracy of old maps as basis for landscape development research' [by J. Hartleib *et al.*] and 'Reconstruction of coastline changes by the comparisons of historical maps at the Pomeranian Bay, southern Baltic Sea' [by J. Deng *et al.*]).

Summing up, the book is well structured and well written. The colour figures serve as supplement of the valuable contents. Both parts contain a wealth of data especially on the explanation of conceptual and dynamical models describing morphodynamic changes along the southern Baltic coasts and the use of historical maps for parameterisation of some processes that steer development in the coastal area. This tome comprises a useful set of chapters that discuss sea level rise and coastline changes. The issues presented here can contribute to problem solving, not only in the Baltic Sea basin but also worldwide, along all coasts of epicontinental seas.

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