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Waves, and Eddies; 2.5.1 Kelvin Waves; 2.5.2 Coastal Trapped Waves and Continental Shelf Waves; 2.5.3 Eddies; 2.6 Internal Waves, Turbulence, Diapycnal Mixing; 2.6.1 Introduction; 2.6.2 Vertical Mixing in the Interior; References; 3. The History of Long-Term Observations in Warnemunde; 3.1 Introduction; 3.2 Shipborne Measurements at Fixed Stations; 3.2.1 Basic Oceanographic Instrumentation for Shipborne Measurements; 3.2.2 Oceanographic Observations in the 1950s and 1960s; 3.2.3 International Cooperation 1969-2005 3.2.4 Activities in the Frame of BMP, 1979-2005 3.3 Buoy Stations and Measuring Platforms; 3.3.1 The First Buoy Stations; 3.3.2 MARNET Stations; 3.3.3 Current Meter Stations in the Central Baltic Sea; 3.4 Parameters Measured; 3.5 Data Quality; References; 4. Weather of the Baltic Sea; 4.1 Introduction; 4.2 Extreme Weather Conditions; 4.2.1 Hurricanes, Gales; 4.2.2 Storm Surges; 4.2.2.1 Features of the Northwest Situation; 4.2.2.2 Features of the Northeast Situation; 4.3 Special Weather Situations; 4.3.1 Baltic Cyclones; 4.3.2 Land and Sea Breeze; 4.3.3 Warnemunder Wind 4.3.4 General Vb- and Omega-Weather Types 4.3.4.1 The Vb-Weather Type; 4.3.4.2 The Omega-Weather Type; 4.4 Greenhouse Effect; Acknowledgment; References; 5. Baltic Climate Change; 5.1 Introduction; 5.2 Seasonal Cycles; 5.3 Climatic Trends; 5.4 Climatic Variability; 5.4.1 Year-to-Year Fluctuations; 5.4.2 Decadal Scale Changes; 5.4.3 Possible Trigger Mechanisms; 5.5 Conclusions and Outlook; References; 6. Current Observations in the Western Baltic Sea; 6.1 Introduction; 6.2 Great Belt and Fehmarnbelt; 6.2.1 Great Belt; 6.2.2 Fehmarnbelt; 6.3 Arkona Sea West and Drogden Sill; 6.3.1 Darss Sill 6.3.2 Drogden Sill 6.3.3 From Kriegers Flak to Hiddensee; 6.4 Around Rugen; 6.4.1 West Off Hiddensee; 6.4.2 Wittow; 6.4.3 Kap Arkona; 6.4.4 Tromper Wiek; 6.4.5 From Landtief A to Jan Heweliusz; 6.4.6 Oderbank; 6.5 Conclusions; Acknowledgments; References; 7. Sea State, Tides; 7.1 Sea State; 7.1.1 History of Observation and Research; 7.1.2 Observation and Measurement; 7.1.3 Sea State Characteristics and Wave Generating Factors; 7.1.3.1 Wind Sea Characteristics; 7.1.3.2 Wave Height Frequency Distribution; 7.1.3.3 Wave Spectra 7.1.3.4 Wave Generating and Wave Modifying Factors (Wind, Fetch, Wind Duration, Water Depth)

Sommario/riassunto

Based on a fifty-year study conducted by the Leibniz Institute for Baltic Sea Research, this book brings together a comprehensive summary of their observations and findings. Written by well-known experts, this revealing book concentrates on long-term changes in the Baltic Sea? which can be extrapolated to shed light on the environmental problems of other shelf seas, brackish seas, and large estuaries?thereby contributing to our understanding of water exchange processes, eutrophication, and climatic impacts at the forefront of international concern.