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	Nota di contenuto	Introduction -- Formation and Types of Natural Ice Masses -- Properties and Mechanical Behaviour of Ice -- Sea Ice in Civil Engineering Applications -- Sea Ice in Geophysical Applications -- Micro-Mechanical Modes of Polar Ice -- Phenomenological Constitutive Models for Polar Ice -- Polar Ice Sheet Flow Models.
	Sommario/riassunto	This book presents the concepts and tools of ice mechanics, together with examples of their application in the fields of glaciology, climate research and civil engineering in cold regions. It starts with an account of the most important physical properties of sea and polar ice treated as an anisotropic polycrystalline material, and reviews relevant field observations and experimental measurements. The book focuses on theoretical descriptions of the material behaviour of ice in different stress, deformation and deformation-rate regimes on spatial scales ranging from single ice crystals, those typical in civil engineering

applications, up to scales of thousands of kilometres, characteristic of large, grounded polar ice caps in Antarctica and Greenland. In addition, it offers a range of numerical formulations based on either discrete (finite-element, finite-difference and smoothed particle hydrodynamics) methods or asymptotic expansion methods, which have been used by geophysicists, theoretical glaciologists and civil engineers to simulate the behaviour of ice in a number of problems of importance to glaciology and civil engineering, and discusses the results of these simulations. The book is intended for scientists, engineers and graduate students interested in mathematical and numerical modelling of a wide variety of geophysical and civil engineering problems involving natural ice.