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Titolo	Energy and Matter Fluxes of a Spruce Forest Ecosystem // edited by Thomas Foken
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Descrizione fisica	1 online resource (XV, 532 p. 189 illus., 84 illus. in color.)
Collana	Ecological Studies, Analysis and Synthesis, , 2196-971X ; ; 229
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Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
Nota di contenuto	History of the Waldstein-Weidenbrunnen FLUXNET site and scientific aims of the research -- Description of the measuring site -- Climate and trace gas concentrations -- Long-term carbon and water vapour fluxes -- Sap flow measurements.-Fluxes in the ground -- Coherent structures and flux coupling -- Trace gas concentrations and fluxes near the ground -- Trace gas fluxes -- Isotope fluxes -- Development of flux data quality tools -- Interaction Forest-Clearing -- Forest climate in vertical and horizontal scales -- Catchment evaporation and runoff -- One dimensional modelling of the energy and matter exchange -- Three dimensional modelling of the energy and matter exchange -- Comparison of meso-scale modeled fluxes and measurements -- What can we learn for a better understanding of the turbulent exchange processes at FLUXNET sites.
Sommario/riassunto	This book focuses on fluxes of energy, carbon dioxide and matter in and above a Central European spruce forest. The transition from a

forest affected by acid rain into a heterogeneous forest occurred as a result of wind throw, bark beetles and climate change. Scientific results obtained over the last 20 years at the FLUXNET site DE-Bay (Waldstein-Weidenbrunnen) are shown together with methods developed at the site, including the application of footprint models for data-quality analysis, the coupling between the trunk space and the atmosphere, the importance of the Damköhler number for trace gas studies, and the turbulent conditions at a forest edge. In addition to the many experimental studies, the book also applies model studies such as higher-order closure models, Large-Eddy Simulations, and runoff models for the catchment and compares them with the experimental data. Moreover, by highlighting processes in the atmosphere it offers insights into the functioning of the ecosystem as a whole. It is of interest to ecologists, micrometeorologists and ecosystem modelers.

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