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   Sommario/riassunto This book introduces the reader to applications of machine learning (ML) in Earth Sciences. In detail, it describes the basic application of machine learning algorithms and models and their potential in Earth

Sciences. It discusses the use of several tools and software and the typical workflow for ML applications in Earth Sciences. This book provides a comparative analysis of how standard processes and ML algorithms work in several Earth Sciences applications. Case studies from the various fields of Earth Sciences are presented to illustrate how to apply ML and Deep Learning, these include regression, forecasting, time series analysis in Climate studies, classification methods using multi-spectral data clustering, and dimensionality reduction in classification. This book reviews ML/AI models, algorithms, and methods, analyse case studies, and examine methods of application of ML/AI techniques to specific areas of Earth Sciences. It aims to serve all professionals, and researchers, scientists alike in academics, industries, government, and beyond.