

1. Record Nr.	UNINA9910299381703321
Autore	Awange Joseph
Titolo	GNSS Environmental Sensing : Revolutionizing Environmental Monitoring // by Joseph Awange
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-58418-9
Edizione	[2nd ed. 2018.]
Descrizione fisica	1 online resource (XXII, 452 p. 190 illus., 180 illus. in color.)
Collana	Environmental Science, , 1431-6250
Disciplina	333.7
Soggetti	Environmental management Water pollution Nature conservation Environmental Management Waste Water Technology / Water Pollution Control / Water Management / Aquatic Pollution Nature Conservation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Environmental monitoring -- Modernization of GNSS -- The Global Positioning System.-Mathematical modelling -- Environmental surveying and surveillance -- Data processing and adjustment -- Basics of Galileo satellites -- GNSS maps in environmental monitoring -- GNSS remote sensing of the environment -- GNSS Reectometry and Applications -- Climate change and weather related impacts -- GNSS Sensing of Climate Variability -- GNSS Sensing of the Tropopause -- Water resources -- Coastal resources -- Land management -- Disaster management -- Environmental pollution.-Animals and vegetation protection and conservation -- Environmental impact assessment -- Applications to Unmanned Aircraft Vehicles/Drones (UAV). .
Sommario/riassunto	This book is the second edition of Environmental Monitoring using GNSS and highlights the latest developments in global navigation satellite systems (GNSS). It features a completely new title and additional chapters that present emerging challenges to environmental monitoring—"climate variability/change and food insecurity." Since the

publication of the first edition, much has changed in both the development and applications of GNSS, a satellite microwave remote sensing technique. It is the first tool to span all four dimensions of relevance to humans (position, navigation, timing and the environment), and it has widely been used for positioning (both by military and civilians), navigation and timing. Its increasing use is leading to a new era of remote sensing that is now revolutionizing the art of monitoring our environment in ways never imagined before. On the one hand, nearly all GNSS satellites (Global Positioning System (GPS), Global Navigation Satellite System (GLONASS), Galileo and Beidou) have become operational, thereby providing high-precision, continuous, all-weather and near real-time remote sensing multi-signals beneficial to environmental monitoring. On the other hand, the emerging challenges of precisely monitoring climate change and the demand for the production of sufficient food for ever-increasing populations are pushing traditional monitoring methods to their limits. In this regard, refracted GNSS signals (i.e., occulted GNSS signals or GNSS meteorology) are now emerging as sensors of climate variability, while the reflected signals (GNSS reflectometry or GNSS-R) are increasingly finding applications in determining, e.g., soil moisture content, ice and snow thickness, ocean heights, and wind speed and direction, among others. Furthermore, the increasing recognition and application of GNSS-supported unmanned aircraft vehicles (UAV) /drones in agriculture (e.g., through the determination of water holding capacity of soil) highlights the new challenges facing GNSS. As such, this new edition three new chapters address GNSS reflectometry and applications; GNSS sensing of climate variability; and the applications in UAV/drones. Moreover, it explores the application of GNSS to support integrated coastal zone management.
