

1.	Record Nr.	UNIORUON00500675
	Autore	SCHLOSSER, Julius : von
	Titolo	Raccolte d'arte e di meraviglie del tardo Rinascimento / Julius von Schlosser
	Pubbl/distr/stampa	Firenze, : Sansoni, c1974
	Descrizione fisica	188 p., [40] p. di tav. : ill. ; 20 cm.
	Disciplina	708.943
	Soggetti	COLLEZIONE D'ARTE - Germania - Sec. 16
	Lingua di pubblicazione	Italiano
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
2.	Record Nr.	UNINA9910473456003321
	Autore	Hajnsek Irena
	Titolo	Polarimetric Synthetic Aperture Radar : Principles and Application
	Pubbl/distr/stampa	Springer Nature, 2021 Cham : , : Springer International Publishing AG, , 2021 ©2021
	ISBN	3-030-56504-1
	Descrizione fisica	1 online resource (304 pages)
	Collana	Remote Sensing and Digital Image Processing ; ; v.25
	Classificazione	SCI030000SCI063000TEC003000TEC003040TEC008000TEC036000
	Altri autori (Persone)	DesnosYves-Louis
	Soggetti	Geographical information systems (GIS) & remote sensing Other technologies & applied sciences Teaching of a specific subject Agricultural science Forestry & silviculture: practice & techniques Urban & municipal planning
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia

Intro -- Foreword -- Preface -- Pioneering Space-Borne SAR
Interferometry -- Organising Airborne Polarimetric SAR Campaigns and
Scientific Studies -- Dialoguing with POLinSAR Scientists and Training
the Next Generation -- Pioneering Space-Borne SAR Polarimetric
Interferometry -- Future Missions -- From Science to Applications --
Outlook -- In Memoriam -- Contents -- Symbols -- 1: Basic Principles
of SAR Polarimetry -- 1.1 Theory of Radar Polarimetry -- 1.1.1 Wave
Polarimetry -- 1.1.1.1 Electromagnetic Waves and Wave Polarization
Descriptors -- 1.1.1.2 Totally and Partially Polarized Waves -- 1.1.1.3
Change of Polarization Basis -- 1.1.2 Scattering Polarimetry -- 1.1.2.1
The Scattering Matrix -- 1.1.2.2 Scattering Polarimetry Descriptors --
1.1.2.3 Partial Scattering Polarimetry -- 1.1.2.4 Change of Polarization
Basis -- 1.1.2.5 Scatterers Characterization by Single, Dual, Compact
and Full Polarimetry -- 1.2 SAR Data Statistical Description and Speckle
Noise Filtering -- 1.2.1 One-Dimensional Gaussian Distribution --
1.2.2 Multidimensional Gaussian Distribution -- 1.2.3 The Wishart
Distribution -- 1.2.4 The Polarimetric Covariance and Coherency Matrix
-- 1.2.5 The Polarimetric Coherence -- 1.2.6 Polarimetric Speckle
Noise Filtering -- 1.2.6.1 PolSAR Speckle Noise Filtering Principles --
1.2.6.2 PolSAR Speckle Noise Filtering Alternatives -- 1.3 Polarimetric
Scattering Decomposition Theorems -- 1.3.1 Coherent Scattering
Decomposition Techniques -- 1.3.1.1 The Pauli Decomposition --
1.3.2 Incoherent Scattering Decompositions Techniques -- 1.3.2.1
Three-Component Freeman Decomposition -- 1.3.2.2 Four-
Component Yamaguchi Decomposition -- 1.3.2.3 Non-negative
Eigenvalue Decomposition -- 1.3.2.4 Eigenvector-Eigenvalue-Based
Decomposition -- 1.3.2.5 The Touzi Target Scattering Decompositions
-- 1.4 Polarimetric SAR Interferometry.
1.4.1 SAR Interferometry -- 1.4.2 Algorithms for Optimum
Interferogram Generation -- 1.4.3 Model-Based Polarimetric SAR
Interferometry -- 1.4.3.1 PolInSAR for Bare Surface Scattering --
1.4.3.2 PolInSAR for Random Volume Scattering -- 1.4.3.3 PolInSAR
Two-Layer Combined Surface and Random Volume Scattering -- 1.5
Polarimetric SAR Tomography -- 1.5.1 TomoSAR and PolTomoSAR as
Spectral Estimation Problems: Non-model-Based Adaptive Solutions --
1.5.2 Model-Based PolTomoSAR -- 1.5.3 Coherence Tomography --
References -- 2: Forest Applications -- 2.1 Introduction -- 2.2 Forest
Classification -- 2.2.1 Land Cover Classification in Tropical Lands
Using PolSAR -- 2.2.1.1 Introduction, Motivation and Literature Review
-- 2.2.1.2 Methodology -- 2.2.1.3 Experimental Results -- 2.2.1.4
Discussion on the Role of Polarimetry, on the Maturity of the
Application and Conclusions -- 2.2.2 Forest Mapping and Classification
Using Polarimetric and Interferometric Data -- 2.2.2.1 Introduction,
Motivation and Literature Review -- 2.2.2.2 Methodology -- 2.2.2.3
Experimental Results -- 2.2.2.4 Discussion on the Role of Polarimetry,
on the Maturity of the Application and Conclusions -- 2.2.3 Detection
of Fire Scars -- 2.2.3.1 Introduction, Motivation and Literature Review
-- 2.2.3.2 Methodology -- 2.2.3.3 Experimental Results -- 2.2.3.4
Discussion on the Role of Polarimetry, on the Maturity of the
Application and Conclusions -- 2.3 Forest Height Estimation -- 2.3.1
Introduction, Motivation and Literature Review -- 2.3.2 Methodology --
2.3.2.1 Random-Volume-Over-Ground Inversion -- 2.3.2.2 Non-
volumetric Decorrelation Contributions -- 2.3.3 Experimental Results
-- 2.3.4 Comparison with Single/Dual Polarimetric Data -- 2.3.5
Discussion on the Role of Polarimetry, on the Maturity of the
Application and Conclusions.
2.4 Forest Vertical Structure Estimation Using Multi-baseline
Polarimetric SAR Acquisitions -- 2.4.1 Polarimetric SAR Tomography --

2.4.1.1 Introduction, Motivation and Literature Review -- 2.4.1.2
 Methodology -- 2.4.1.3 Experimental Results -- 2.4.1.4 Comparison
 with Single/Dual Polarization Data -- 2.4.1.5 Discussion on the Role of
 Polarimetry, on the Maturity of the Application and Conclusions --
 2.4.2 Estimation of Vegetation Structure Parameters -- 2.4.2.1
 Introduction, Motivation and Literature Review -- 2.4.2.2 Methodology
 -- 2.4.2.3 Experimental Results -- 2.4.2.4 Discussion on the Role of
 Polarimetry, on the Maturity of the Application and Conclusions -- 2.5
 Biomass Estimation -- 2.5.1 Biomass Estimation: A Review -- 2.5.1.1
 Introduction, Motivation -- 2.5.1.2 Methodology -- 2.5.1.2.1 Direct
 Biomass Estimation -- 2.5.1.2.2 Model-Based Estimation -- 2.5.1.2.3
 Allometric Biomass Estimation -- 2.5.1.3 Experimental Results --
 2.5.1.4 Discussion on the Role of Polarimetry, on the Maturity of the
 Application and Conclusions -- 2.5.2 Biomass Estimation from Semi-
 empirical Relationships -- 2.5.2.1 Introduction, Motivation and
 Literature Review -- 2.5.2.2 Methodology -- 2.5.2.3 Experimental
 Results -- 2.5.2.4 Discussion on the Role of Polarimetry, on the
 Maturity of the Application and Conclusions -- 2.6 Summary --
 References -- 3: Agriculture and Wetland Applications -- 3.1
 Introduction -- 3.2 Crop Type Mapping -- 3.2.1 Evaluation of C-Band
 Polarimetric SAR for Crop Classification -- 3.2.1.1 Introduction,
 Motivation and Literature Review -- 3.2.1.2 Methodology -- 3.2.1.3
 Experimental Results -- 3.2.1.4 Comparison with Single-/Dual-
 Polarisation Data -- 3.2.1.5 Discussion on the Role of Polarimetry, on
 the Maturity of the Application and Conclusions -- 3.2.2 Crop
 Classification Using Multitemporal L- and C-Band Airborne Polarimetric
 SAR.
 3.2.2.1 Introduction, Motivation and Literature Review -- 3.2.2.2
 Methodology -- 3.2.2.3 Experimental Results -- 3.2.2.4 Comparison
 with Single-/Dual-Polarisation Data -- 3.2.2.5 Discussion on the Role
 of Polarimetry on the Maturity of the Application and Conclusions --
 3.3 Soil Moisture Estimation Under Vegetation Using SAR Polarimetry --
 3.3.1 Introduction, Motivation and Literature Review -- 3.3.2
 Methodology -- 3.3.3 Experimental Results -- 3.3.4 Comparison with
 Single-/Dual-Pol Data -- 3.3.5 Discussion on the Role of Polarimetry,
 on the Maturity of the Application and Conclusion -- 3.4 Crop
 Phenology Estimation Using SAR Polarimetry -- 3.4.1 Introduction,
 Motivation and Literature Review -- 3.4.2 Methodology -- 3.4.3
 Experimental Results -- 3.4.3.1 Analysis -- 3.4.3.1.1 Cereals --
 3.4.3.1.2 Canola -- 3.4.3.1.3 Field Pea -- 3.4.3.2 Retrieval Algorithms
 -- 3.4.3.3 Results and Validation -- 3.4.3.3.1 Wheat -- 3.4.3.3.2 Oat
 -- 3.4.3.3.3 Barley -- 3.4.4 Comparison with Single-/Dual-Polarisation
 Data -- 3.4.5 Discussion on Role of Polarimetry, on the Maturity of the
 Application and Conclusions -- 3.5 Wetland Observation -- 3.5.1 C-
 Band Polarimetric Time Series for Delineating and Monitoring Seasonal
 Dynamics of Wetlands -- 3.5.1.1 Introduction, Motivation and
 Literature Review -- 3.5.1.2 Methodology -- 3.5.1.3 Experimental
 Results -- 3.5.1.4 Comparison with Single-/Dual-Polarisation Data --
 3.5.1.5 Discussion on the Role of Polarisation, on the Maturity of the
 Application and Conclusions -- 3.5.2 Tropical Wetland Characterisation
 with Polarimetric SAR -- 3.5.2.1 Introduction, Motivation and Literature
 Review -- 3.5.2.2 Methodology -- 3.5.2.3 Experimental Results --
 3.5.2.4 Comparison with Single-/Dual-Polarisation Data -- 3.5.2.5
 Discussion on the Role of Polarimetry, on the Maturity of the
 Application and Conclusions.
 3.5.3 Subarctic Peatland Characterisation and Monitoring -- 3.5.3.1
 Introduction, Motivation and Literature Review -- 3.5.3.2 Experimental
 Results -- 3.5.3.2.1 La Baie des Mines -- Peatland Hydrology

Characteristics for Bog-Fen Discrimination -- Application of the Touzi
 Decomposition to Polarimetric ALOS Data: Required Processing Window
 Size for Unbiased ICTD -- Analysis of the ALOS Acquisitions --
 Peatland Subsurface Water Flow Monitoring Using Polarimetric May and
 November ALOS Acquisitions: Multi-polarisation Versus Pol... --
 3.5.3.2.2 Wapusk National Park -- 3.5.3.3 Discussion on the Role of
 Polarimetry, on the Maturity of the Application and Conclusions --
 3.5.3.4 Acknowledgement -- 3.6 Monitoring Change Detection
 Produced by Tsunamis and Earthquakes by Using a Fully Polarimetric
 Model-Based Decomposition -- 3.6.1 Introduction, Motivation and
 Literature Review -- 3.6.2 Methodology -- 3.6.3 Experimental Results
 -- 3.6.4 Comparison with Single-/Dual-Polarisation Data -- 3.6.5
 Discussion on the Role of Polarimetry, on the Maturity of the
 Application and Conclusions -- 3.7 Summary (Table 3.13) --
 References -- 4: Cryosphere Applications -- 4.1 Introduction -- 4.2
 Land Ice Extinction Estimation Using PolInSAR -- 4.2.1 Introduction,
 Motivation, and Literature Review -- 4.2.2 Methodology -- 4.2.3
 Experimental Results -- 4.2.4 Comparison with Single/Dual Polarisation
 Data -- 4.2.5 Discussion on the Role of Polarimetry, on the Maturity of
 the Application, and Conclusions -- 4.3 Snow Water Equivalent
 Retrieval -- 4.3.1 Introduction, Motivation, and Literature Review --
 4.3.2 Methodology -- 4.3.2.1 Polarimetric Decomposition for Snow-
 Covered Areas -- 4.3.2.2 Snow Water Equivalent Retrieval Algorithm --
 4.3.3 Experimental Results -- 4.3.4 Comparison with Single/Dual
 Polarisation Data.
 4.3.5 Discussion on the Role of Polarimetry, on the Maturity of the
 Application and Conclusions.

Sommario/riassunto

This open access book focuses on the practical application of
 electromagnetic polarimetry principles in Earth remote sensing with an
 educational purpose. In the last decade, the operations from fully
 polarimetric synthetic aperture radar such as the Japanese
 ALOS/PaISAR, the Canadian Radarsat-2 and the German TerraSAR-X
 and their easy data access for scientific use have developed further the
 research and data applications at L, C and X band. As a consequence,
 the wider distribution of polarimetric data sets across the remote
 sensing community boosted activity and development in polarimetric
 SAR applications, also in view of future missions. Numerous
 experiments with real data from spaceborne platforms are shown, with
 the aim of giving an up-to-date and complete treatment of the unique
 benefits of fully polarimetric synthetic aperture radar data in five
 different domains: forest, agriculture, cryosphere, urban and oceans.
