

The book *“The Essentials of SAR, A Conceptual View of Synthetic Aperture Radar and its Remarkable Capabilities”* is authored by Thomas P. Ager. Mr. Ager is an expert in the SAR (Synthetic Aperture Radar) industry. He provides SAR consulting and teaching services.

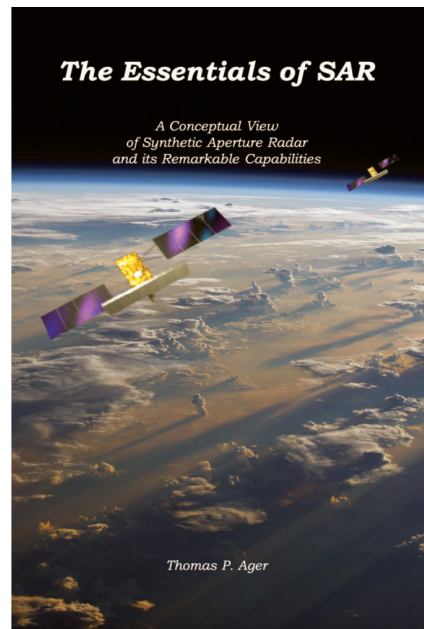
This book comprises a total of six parts that the author refers to as “Apertures” – each with several chapters. SAR is not unknown to the imaging industry. As the author stated in the Foreword of the book: “SAR is well known as an imaging technology that can see through clouds and darkness, but SAR remains a confusing and enigmatic sensor for many. Its image is naturally different from the optical views wired into the human visual system, and SAR has an electrical engineering heritage that is incomprehensible to most ordinary people.” Adroitly, the author explains the SAR technology to make it a clear and appealing subject for users who do not have advanced degrees in electrical engineering.

The author highlights the values of SAR in the preface, from which the reader can learn and appreciate important characteristics of SAR technology. These characteristics are “cloud penetration”, “day and night coverage”, “high resolution independent of distance”, “variable resolution and coverage”, “accurate geolocation”, and “coherent illumination and many products”.

Aperture, reviews basic sensor design and explains microwave sensors and how a simple form of radar imaging works. He then addresses how these processes enable for SAR imaging thoroughly providing the formulas behind the science. The author provides various examples of SAR theories behind those image phenomenon.

Aperture Three provides an overview of SAR products so readers can learn how SAR products are produced. Aperture Four explains how SAR geolocation works and gives examples of geodetic level accuracy derived from a commercial spaceborne SAR satellite. The author reviews how a radar pulse works and how the echoes, and the sources of all SAR data behave when they arrive at the antenna while also explains why SAR images sometimes have ghostly misplaced features in Aperture Five. The final Aperture describes the SAR’s future by reviewing examples of ease, speed and automation in SAR processing of how to access the harmonic depth of SAR by replacing orderable, individual products. The book also includes appendices to discuss further considerations of SAR while reader can also find a list of symbols and acronyms, and an Index in the book.

The book provides basic concepts and explains the practices of SAR technology in great detail. The book is well organized so the reader can follow the contents in a logical



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By Thomas P. Ager

Independently published, August 2021. 309 pp. ISBN-13 979-8512864487, ASIN B09CGKTLZV.

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way with ease. The book could be used as a text book for undergraduates or graduates who study remote sensing science. It also can be a valuable reference for remote sensing professionals.

SAR is a serious technical topic. To help the reader understand the subject more easily and to keep the discussion interesting, the author uses tables, charts and related pictures, some of them even cartoon-like illustrations, to present the theories of SAR. The book uses some mathematical formulas, stories and even music and

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Photogrammetric Engineering & Remote Sensing  
Vol. 88, No. 12, December 2022, pp. 760, 764.  
0099-1112/22/760, 764

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and Remote Sensing  
doi: 10.14358/PERS.88.12.760