

Remote Sensing for Environmental Sciences

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(H. E. Clifton) et "Facies Relationships on a Barred Coast, Kouchibouguac Bay" (R. Davidson-Arnott et B. Greenwood). Le premier insiste sur les relations entre les courants et les figures sédimentaires de surface, le second applique cette méthode à l'étude d'un environnement particulier et à son évolution.

G. W. Hill et R. E. Hunter recherchent les actions du biotope sur la sédimentation et sur l'importance sur le remaniement des matériaux meubles.

En résumé, ce livre apporte une contribution importante à l'étude de la frange côtière et il laisse présager de nombreuses interactions futures entre les diverses disciplines scientifiques s'intéressant au problème de l'océanographie littorale, tout en insistant sur le haut degré des techniques d'investigation actuelles.

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Remote Sensing for Environmental Sciences

Edited by Erwin Schanda
Springer-Verlag
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 367 p. 1976
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This book, the 18th in the series of Ecological Studies Analysis and Synthesis, discusses the various spectro-optical techniques that are currently employed in multidisciplinary studies of environmental parameters. Eight separate chapters, written by eight independent authors, cover the topics Aerospace Photography, Infra-Red Sensing, Lasers, Radar, Microwave Sensing, Gamma Radiation, Sonar, and Digital Image Processing, and each chapter unfolds in an identical manner. After an initial discussion of the physical principles involved, the sensing devices are described, and examples are presented of attempts to apply the

technology to specific problems. The book is competently written (despite some rather peculiar grammatical phrasing and very noticeable typesetting errors) with an excellent balance of European and North American reference material. As such, it gives an accurate, albeit abbreviated, narrative on the state-of-the-art of remote sensing. This is the most alarming aspect of the book, since it dramatically underscores the need for rapid (and probably, agonizing) self-reappraisals of the directions and philosophies being taken by active workers in the field. All the contributing authors adopt an optimistic (perhaps unreasonably so?) attitude while describing the efforts with which remote sensing has been applied to environmental management and the potential for future applications. However, such optimism appears incongruent with much of the cited literature, and it becomes eminently obvious that much clever and creative scientific thought is urgently required if the field of remote sensing is to achieve the potential that is continually being ascribed to it. Certainly it has a long way to go before it can achieve scientific respectability, a goal which is perhaps unattainable in the light of many of the activities and approaches discussed in this book. More realistic, however, is the ultimate acceptance of remote-sensing as a research technology / methodology (the use of the word "tool" liberally scattered throughout the book should be prohibited, as should the use of the phrase "ground truth" which mercifully is used only twice in the text, once in p. 4, and not again until p. 337) in the scientific assessment of the physical processes which govern the multi-disciplinary behaviour of the real world. But even this will require a concerted effort by many dedicated workers.

As an example of how accurately the book reflects the activities of the remote sensing community, the first technology discussed is aerospace photography, and the chapter devoted to photographic processes is the largest in the book. By contrast, the digital processing techniques are discussed in the closing chapter of the book in only a little more than half the space devoted to photography. To further emphasize the lack of scientific interpretation characterizing the current state-of-the-art in remote sensing, the closing

chapter on digital techniques (a mandatory approach for most interpretations based on scientific principles) deals with image enhancement, geometric correction, registration, and transformation, image filtering and smoothing, and classification techniques. Very little, if any, emphasis is placed upon a scientific (as opposed to an arithmetic) approach to the data. It has always been the contention of this reviewer that aerial photography should play, at most, a minimal role in the assessment of natural environmental resources by means of remote-sensing technologies, and that such photography should be included within the realms of photogrammetry, a field which is more concerned with geometry than the physical sciences. The sustained tedium of Chapter 2 serves only to reinforce such a contention.

This book is intended as an introduction to remote sensing in the natural sciences at the graduate student level, and there is no doubt that profit is to be found in this text book at such a level, particularly since the scientific principles upon which the remote sensing devices have been designed are described in an accurate (although, in some cases, overly concise) and exceptionally readable manner. However, perhaps it would be more profitable as a form of conscience to more veteran workers in the environmental sciences who are planning to utilize remote sensing methodologies in their particular disciplines. One can only hope!

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