

Meteorological Measurements and Instrumentation



This book describes the fundamental scientific principles underlying high-quality instrumentation used for environmental measurements. It discusses a wide range of in situ sensors employed in practical environmental monitoring and, in particular, those used in surface-based measurement systems. It also considers the use of weather balloons to provide a wealth of upper atmosphere data. To illustrate the technologies in use, it includes many examples of real atmospheric measurements in typical and unusual circumstances, with a discussion on the electronic signal conditioning, data-acquisition considerations and data-processing principles necessary for reliable measurements. This also allows the long history of atmospheric measurements to be placed in the context of the requirements of modern climate science, by building the physical science appreciation of the instrumental record and looking forward to new and emerging sensor and recording technologies.

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