Título: Clouds In The Perturbed Climate System

Autor: Heintzenberg Jost, Charlson Robert

Precio: $560.00

Editorial:

Año: 2009

Tema:

Edición: 1ª

Sinopsis

ISBN: 9780262012874

More than half the globe is covered by visible clouds. Clouds control major parts of the Earth's energy balance, influencing both incoming shortwave solar radiation and outgoing longwave thermal radiation. Latent heating and cooling related to cloud processes modify atmospheric circulation, and, by modulating sea surface temperatures, clouds affect the oceanic circulation. Clouds are also an essential component of the global water cycle, on which all terrestrial life depends. Yet clouds constitute the most poorly quantified, least understood, and most puzzling aspect of atmospheric science, and thus the largest source of uncertainty in the prediction of climate change. Because clouds are influenced by climate change, and because complex, unidentified feedback systems are involved, science is faced with many unanswered questions.

This book begins by identifying and describing the baffling nature of clouds. It explores the boundaries of current knowledge on the spatial/temporal variability of clouds and cloud-related aerosols as well as the factors that control clouds, and examines the extent and nature of anthropogenic perturbations. Particular emphasis is given to the connections of clouds to climate through radiation, dynamics, precipitation, and chemistry, and to the difficulties in understanding the obvious but elusive fact that clouds must be affected by climate change. Utilizing the insights of this unique gathering of experts, the book offers recommendations to improve the current state of knowledge and direct future research on clouds in fields ranging from chemistry and theoretical physics to climate modeling and remote satellite sensing.