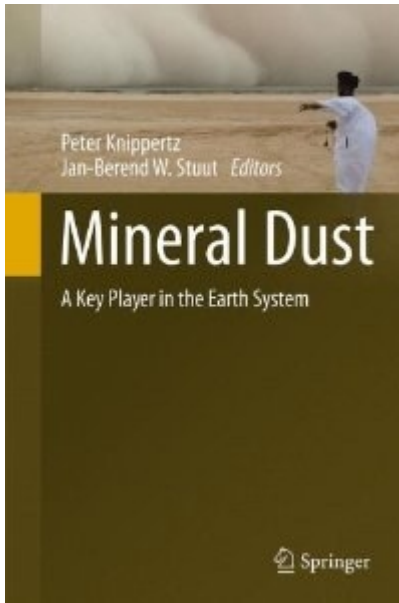


[Inici](#) > The book "Mineral Dust - A key player in the Earth system" has been released

[The book "Mineral Dust - A key player in the Earth system" has been released](#)



BSC researchers José María Baldasano, Sara Basart and Francesco Benincasa contributed to the chapter "[Operational Dust Prediction](#)"

(via [Barcelona Dust Forecast Center](#))

[Mineral Dust - A key player in the Earth system](#), edited by **Peter Knippertz** and **Jan-Berend W. Stuut**, has been released by [Springer](#).

About the book

- Covers the whole breadth of mineral dust research, from a scientific perspective
- Presents interdisciplinary work including results from field campaigns, satellite observations, laboratory studies, computer modelling and theoretical studies
- Explores the role of dust as a player and recorder of environmental change

This volume presents state-of-the-art research about mineral dust, including results from field campaigns, satellite observations, laboratory studies, computer modelling and theoretical studies. Dust research is a new, dynamic and fast-growing area of science and due to its multiple roles in the Earth system, dust has become a fascinating topic for many scientific disciplines. Aspects of dust research covered in this book reach from timescales of minutes (as with dust devils, cloud processes, and radiation) to millennia (as with loess formation and oceanic sediments), making dust both a player and recorder of environmental change.

The book is structured in four main parts that explore characteristics of dust, the global dust cycle, impacts of dust on the Earth system, and dust as a climate indicator. The chapters in these parts provide a comprehensive, detailed overview of this highly interdisciplinary subject.

The contributions presented here cover dust from source to sink and describe all the processes dust particles undergo while travelling through the atmosphere. Chapters explore how dust is lifted and transported, how it affects radiation, clouds, regional circulations, precipitation and chemical processes in the atmosphere, and how it deteriorates air quality. The book explores how dust is removed from the atmosphere by gravitational settling, turbulence or precipitation, how iron contained in dust fertilizes terrestrial and marine ecosystems, and about the role that dust plays in human health. We learn how dust is observed, simulated using computer models and forecast. The book also details the role of dust deposits for climate reconstructions.

Scientific observations and results are presented, along with numerous illustrations. This work has an interdisciplinary appeal and will engage scholars in geology, geography, chemistry, meteorology and physics, amongst others with an interest in the Earth system and environmental change.

Table of contents

- Mineral Dust: A Key Player in The Earth System.
- On Composition, Morphology and Size Distribution of Airborne Mineral Dust.
- Identifying Sources of Aeolian Mineral Dust: Present and Past.
- Processing / Ageing in the Atmosphere.
- Dust Production Mechanisms.
- Meteorological Aspects of Dust Storms.
- Dust Observations and Climatology.
- Dust Deposition.
- Numerical Dust Models.
- Operational Dust Prediction.
- Radiative Effects of Dust.
- Mineral Dust and Its Microphysical Interactions with Clouds.
- Impact of Dust Radiative Forcing upon Climate.
- Biogeochemical Impacts of Dust on the Global Carbon Cycle.
- Dust and Human Health.
- Loess Records.
- Subaquatic Dust Deposits.
- Ice Core Archives of Mineral Dust.

Source URL (retrieved on 12 Mar 2025 - 15:26): <https://www.bsc.es/ca/news/bsc-news/the-book-mineral-dust-key-player-the-earth-system-has-been-released>