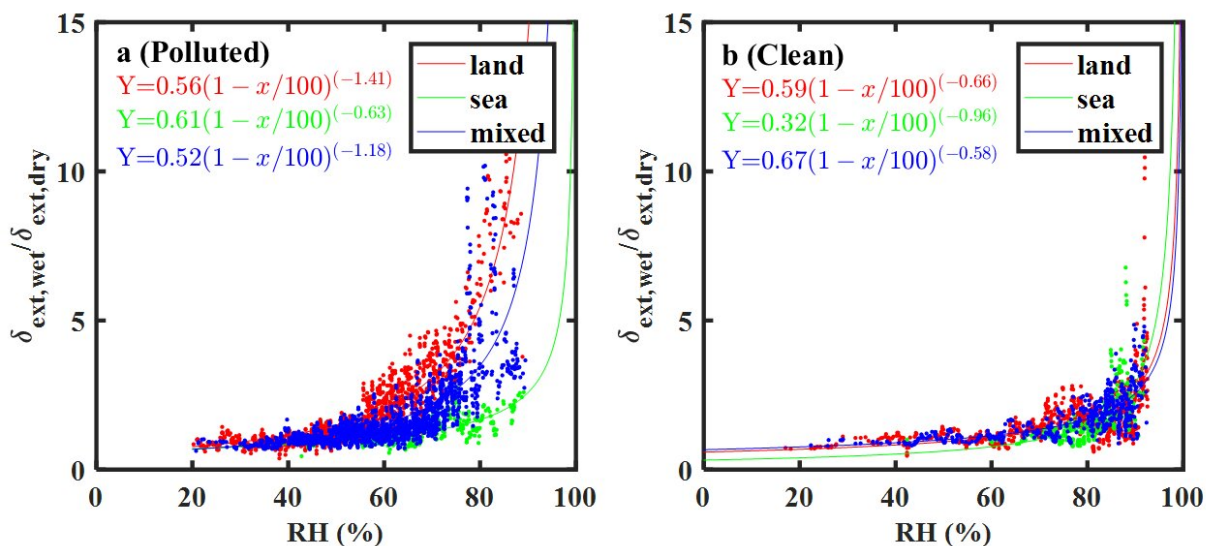


Aerosol extinction hygroscopic growth characteristics obtained for coastal city

March 2 2023, by Zhang Nannan



The extinction hygroscopic growth factor of different sources aerosol under polluted and clean background in Qingdao from Sept. 2019 to Aug. 2020. Credit: Liu Nana

In order to study the extinction hygroscopic growth characteristics of aerosol in coastal areas, researchers have analyzed the local aerosol characteristics of Qingdao, a typical coastal city in China.

This study, conducted by researchers led by Prof. Zhu Wenyue from the Hefei Institutes of Physical Science of Chinese Academy of Sciences,

has been published in *Remote Sensing*.

The [extinction](#) capacity of marine aerosols is strongly influenced by the atmospheric relative humidity (RH). Coastal areas are mixed areas of marine and terrestrial aerosols due to the complex local [aerosol](#) types and the drastic changes in environmental RH. The computational accuracy of atmospheric radiative transfer model in [coastal regions](#) requires accurate aerosol hygroscopic growth models.

In this new study, the researchers used an aerosol backtracing trajectory model to classify the local aerosol type.

"We used the long-term field campaign data in Qingdao from 2019 to 2020," said Associate Prof. Cui Xiangsheng, a member of the team.

"The aerosol hygroscopic growth (HG) characteristics of different aerosol types such as land source, sea source, and mixed aerosol under different seasons were investigated, and different atmospheric environments including polluted background and clean background were analyzed."

They established quantitative models of the aerosol HG factor for aerosols from various sources in different seasons and under different pollution background conditions.

This study will help to improve the current tracing models, according to the team. These models can be directly used to characterize the hygroscopic properties of atmospheric aerosols in Qingdao at specific seasons or pollution levels for radiative transfer modeling and [remote sensing](#).

More information: Nana Liu et al, Characteristics of Aerosol Extinction Hygroscopic Growth in the Typical Coastal City of Qingdao, China, *Remote Sensing* (2022). [DOI: 10.3390/rs14246288](https://doi.org/10.3390/rs14246288)

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