GIGCAS
中国科学院广州地球化学研究所
Guangzhou institute of geochemistry,chinese academy of sciences

On mineral dust hygroscopicity

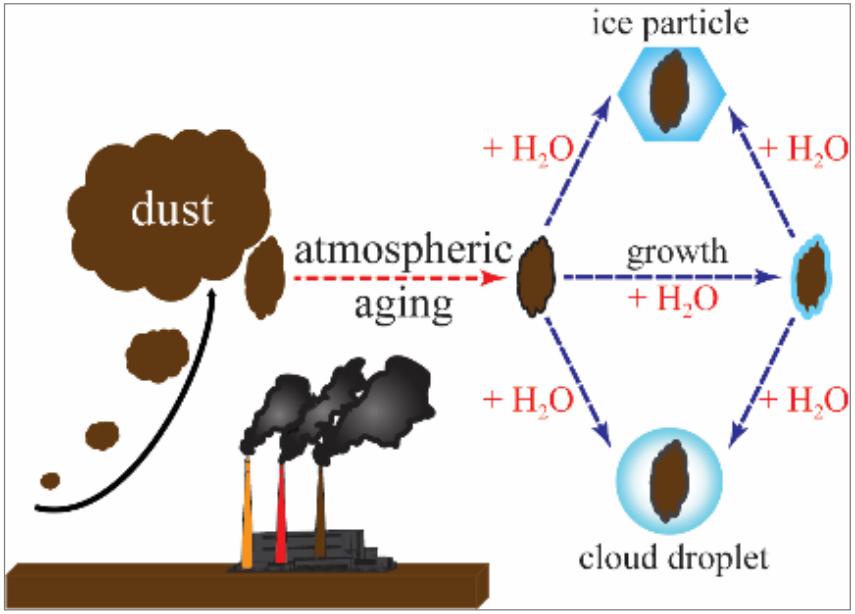
Lanxiadi Chen, Wenjun Gu, Chao Peng, Mingjin Tang

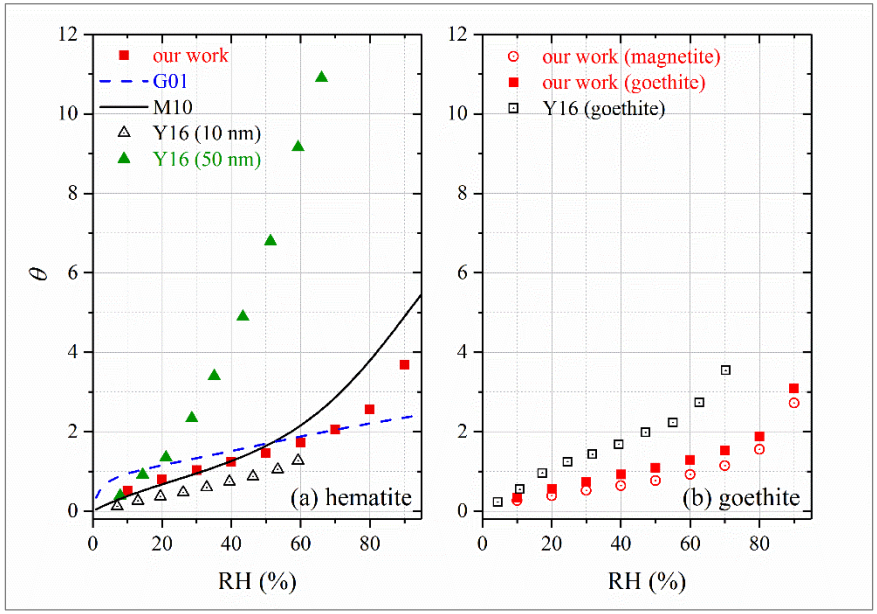
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vEGU21: Gather Online | 19–30 April 2021

Hygroscopicity: important but uncertain





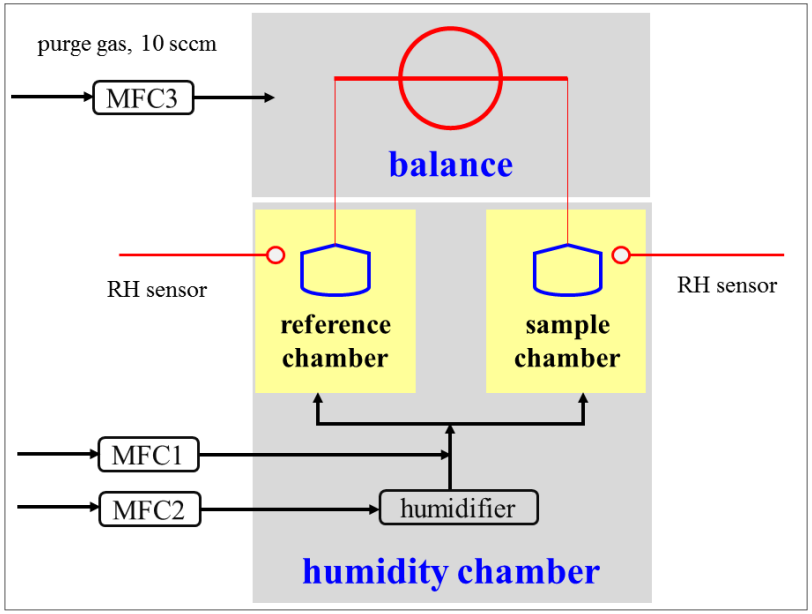
Why important?

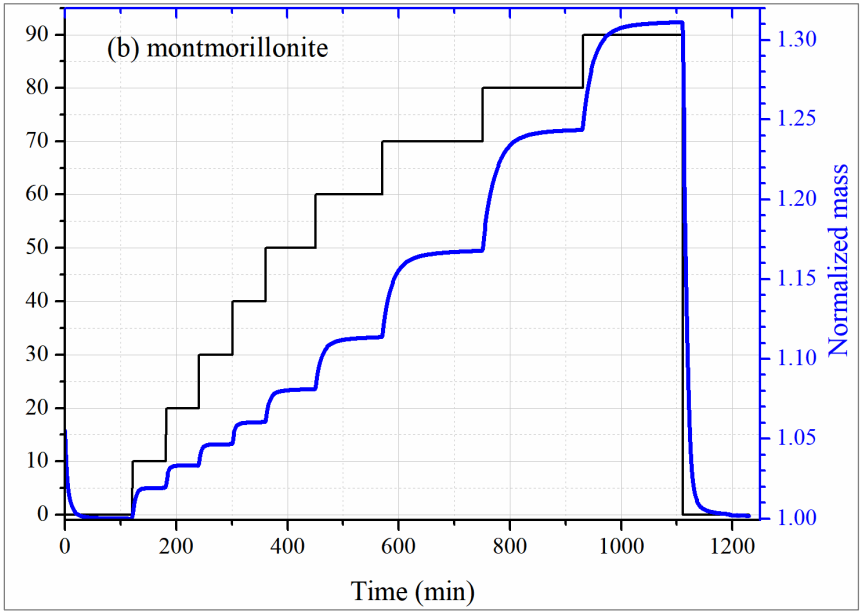
- Chemical reactivity
- Aerosol diameter/optical properties
- Cloud nucleation activities

Why uncertain?

- Hygroscopicity is low
- Nonspherical particles
-

Our solution: vapor sorption analyzer





Feature

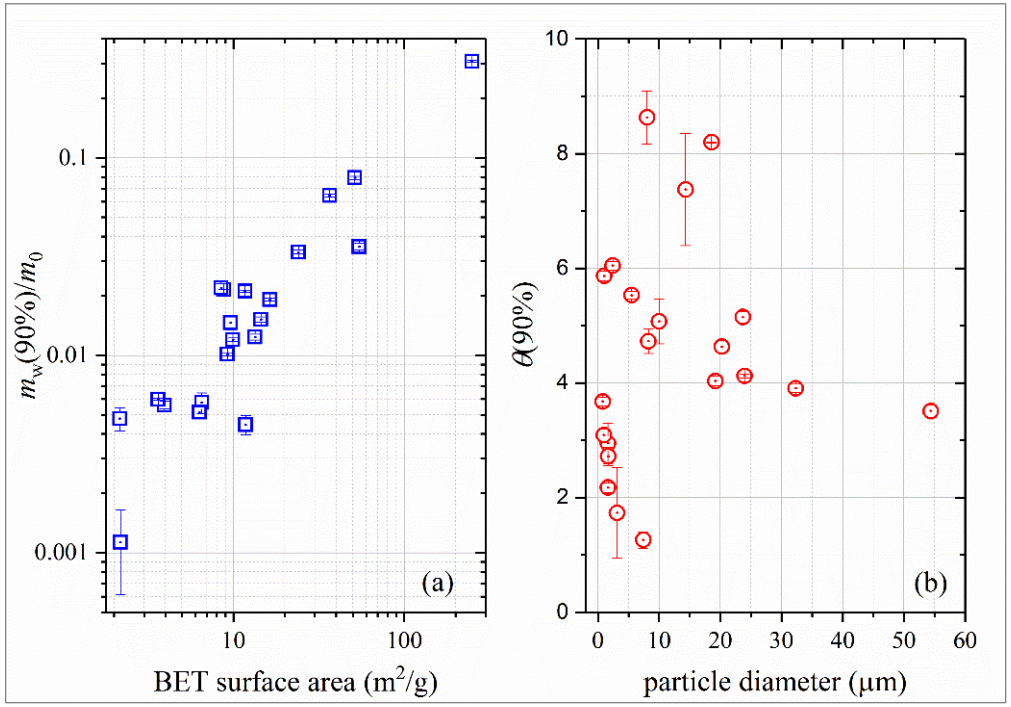
- Measure sample mass versus RH
- Very sensitive (down to 0.01 μg)
-

Advantage

- No assumption on particle shape
- Suitable for particles with low hygroscopicity

Major results

- **21 mineral dust samples**
  - **5** oxides
  - **3** feldspars
  - **2** carbonates
  - **4** clay minerals
  - **7** desert soils



✓ In general, hygroscopicity of mineral dust is low

✓ Hygroscopicity is determined by surface area

Chen et al.: On mineral dust aerosol hygroscopicity, ***Atmos. Chem. Phys.***, 20, 13611-13626, 2020



If you have interesting samples,

we are open for collaborations!

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