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Recommended Citation

Mazzoleni, C., China, S., Scarnato, B., Sharma, N., Bhandari, J., Mazzoleni, L., Fialho, P., Facchini, C., Decesari, S., Gilardoni, S., & Zanca, N. (2016). The Morphology of Atmospheric Aerosol and Some Implications. *European Geophysical Union General Assembly 2016, 18*.

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The Morphology of Atmospheric Aerosol and Some Implications

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The morphology of individual atmospheric particles, including their mixing state, shape and internal structure, can have important atmospheric implications. Understanding the mechanisms leading to specific morphologies, the role of morphology in different atmospheric processes, and accounting for these details in models present considerable challenges. Several approaches are currently underway to make progress toward the resolution of these difficulties; for example, development and deployment of improved single particle analytical and observational tools, use of accurate electromagnetic models to quantitatively predict the interactions of solar radiation with single complex particles, and particle resolved models. In this presentation we will present single particle analyses of samples collected during several field campaigns. Implications of these results on the effects upon aerosol optical properties will be discussed.