



## **Dust as a potential tracer for the flow over topography**

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The distribution of mineral dust around topographical obstacles is examined, using the dimensionless Froude number ( $Fr$ ) that describes different flow regimes in a fluid.

Flow around a peak with a close-to-circular shape in dusty environment like the Sahara and the Sahel was examined in order to investigate the distribution of the dust around the obstacle in different flow regimes as expressed by the  $Fr$  number. The Total Ozone Mapping Spectrometer Aerosol Index (TOMS-AI) daily Aerosol Index, and the  $u$  and  $v$  wind components were used for the years 1979-1992, i.e. 14 years.

It is first shown by the TOMS-AI data that the shape of the dust distribution around the circular peak is in good agreement with the shape of the peak itself. Additionally good correlation exists between the vertical distribution of the dust above the peak and the Froude Number in its vicinity.

This method allows for the first time the investigation of flow above and around topographical obstacles in the open space employing dust as the flow-tracer.

References:

J. Barkan and P. Alpert, "Dust as a potential tracer for the flow over topography", Intern. J. Geosci., (in press) 2015.

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