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An instrument for studying wind borne dust transport and electrification

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The transport of fine grained material (dust) through the atmosphere has both scientific and technological importance both on earth and other planets. Specifically a factor which is expected to influence the adhesion and cohesion of such granular material is electrification, though little is known about the extent or affect such electrification has.

In order to study wind borne dust transport on Mars an optoelectronic instrument has been developed which can quantify the concentration, flow rate (wind velocity) and deposition rate of dust at the surface of the planet. Importantly it can also study the electrical charging of the suspended dust. Results from wind tunnel tests will be presented using analogue material and under a Mars simulation environment.