



Dust storms in the Sahara and Sahel: Nowcasting and its application to understanding global dust

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Saharan dust forms and integral but very poorly understand part of earth's global climate system, interacting with solar and infrared radiation, nucleating cloud ice and providing nutrients to the biosphere as far away as the Amazon. Dust storms themselves are a major weather hazard in Africa, but very poorly forecast. This means that there is a growing need and opportunity for dust forecasts based directly on forward extrapolations of observations, i.e. “nowcasts”, a technique that is very successfully being developed for convective storms in Africa within the £9M GCRF African SWIFT project, and as a result of SWIFT is now being used in Africa. This project will develop a tool for satellite-based dust nowcasting, which could have wide future applications in areas of the world prone to dust storms, as well as to wider research on Earth's dust cycle. There will be an opportunity to interact with scientists at the UK Met Office, which has a growing interest in nowcasting. The project requires a student with knowledge of Python as it will rely on use of some existing code, but this also means a good student could do publishable work in six weeks.