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# Fennec - The Saharan Climate System: an overview

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The central Sahara has one of the most extreme climates on Earth. During the northern summer months, a large low pressure system caused by intense solar heating develops over a huge, largely uninhabited expanse of northern Mali, southern Algeria and eastern Mauritania. Temperatures in the high 40s, with uplift of dry air through more than 5000m of the atmosphere, are routine in what is thought to be the deepest such layer on the planet. This large zone is also where the thickest layer of dust anywhere in the Earth's atmosphere is found. The atmospheric aerosol loading and thermodynamics over the Sahara are unique, and have major impacts on the climate of the whole North African sector, Europe and the Atlantic.

Weather and climate prediction models show significant systematic errors over the Sahara desert manifested as differences in radiation reaching and leaving the surface, surface temperature, winds, dust and in representation of the boundary layer. Progress in understanding these features and errors is currently limited due to the lack of observations in the central Saharan region.

Fennec is a large scale, multi-platform, extended duration observational campaign in the Saharan Heat Low (SHL) region. During the summer of 2011 a major campaign set about addressing the data deficiency of this important region. The campaign, which involved many more people than are indicated by the authorship of this abstract, featured the use of the instrumented BAe-146 and Falcon aircraft as well as supersite ground-stations both Algeria and Mauritania. The purpose of this overview is to describe the observational campaign, particularly as it relates to the effort to understand dust over the region.