



Fennec - The Saharan Climate System: Project Overview

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The central Sahara forms an important part of the global climate system. During the northern summer months, the Saharan Heat Low (SHL), caused by intense solar heating, develops over a huge, largely uninhabited expanse of northern Mali, southern Algeria and eastern Mauritania. Dry convection through more than 5000m of the atmosphere, is routine in what is thought to be the deepest such layer on the planet. The SHL also co-locates with the largest loadings of dust anywhere in the Earth's atmosphere, making for a complex yet crucial component of WAM. Much of what is known about the SHL derives from numerical models rather than observations although it is widely accepted that such 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.

In an effort to address the observational deficit in the region, as well as to improve model performance, the Fennec project is a large scale, multi-platform, extended duration observational campaign in the Saharan Heat Low (SHL) region. During the summers of 2011 and 2012 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 project aims, institutional involvement and key elements of the observational campaign, particularly as it relates to the effort to understand dust over the region.