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Structure and dynamics of the Saharan Heat Low observed during the AMMA-SOP 2006 campaign

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The West African Monsoon (WAM) onset occurred very late this year around the 15^{th} of July. Two AMMA (African Multidisciplinary Monsoon Analyse) flights occurred around this date: (i) the DLR (*Deutsches Zentrum für Luft- und Raumfahrt*) flight between Niamey and Agadir at the 14^{th} July, thus immediately before the onset with crossing of the Saharan Heal Low centre (ii) the FAAM (FACILITY for AIRBORNE ATMOSPHERIC MEASUREMENTS)-MetOffice flight between Agadir and Bamako – nearly at 9.5˚W - at the 17^{th} July, thus immediately after the onset date and over the Western part of the Saharan Heat low (SHL).

Such flights have never been performed before and this work consequently gives a first insight of the diurnal structure and dynamics of the SHL. For instance, the FAAM flight data shows all the main features of the WAM: ITF, SHL core, AEJ and circulation over the North Sahara and the influence of Atlas Mountain as well. The DLR LIDAR data show the northern centre and South Saharan circulation with SHL dynamics as well.

In particular, the existence of a residual layer above an internal boundary layer is clearly illustrated by tephigram associated to the FAAM dropsondes data.