



Trends and variability of the start of the wet season over Africa

D. Kniveton (1), R. Layberry (2) and C. Williams (3)

(1) Department of Geography, University of Sussex, Brighton, UK, (2) Environmental Change Institute, University of Oxford, Oxford, UK, (3) Walker Institute for Climate System Research, University of Reading, Reading, UK (C.J.R.Williams@reading.ac.uk / Fax: +44 (0)118 931 8316 / Phone: +44 (0)118 378 5586)

Much of the research into rainfall variability over Africa has focused on monthly and seasonal rainfall totals and their relationship with land surface processes and sea surface temperatures (SSTs) over the global oceans. A number of seasonal forecasting schemes for the continent have resulted. Unfortunately, however, studies of agricultural users have revealed that the information of most interest to the user is not rainfall totals but the start and end dates of the wet season. In particular the start date of the wet season is of crucial importance as it determines sowing times, with planting too early possibly leading to crop failure and planting too late leading to a reduced growing season and crop yield. Therefore, clearly there is a need to understand trends in the start of the wet season.

In this paper we use 25 years of daily rainfall data from the Global Telecommunications System (GTS) to define the temporal and spatial variability of the start of the wet season over Africa and surrounding extreme south of Europe and parts of the Middle East. The results suggest that, for the period 1978-2003, the start of the wet season for the majority of region has arrived later in the year as time has progressed, with an annual increase in start date of up to 4 days a year in some parts of the continent. On average the start of the wet season has arrived 9, 12 and 21 days later from 1978 to 2003, for rainfall thresholds of 10, 20 and 30mm over two days used to define the start of the rains. However it is also noted that the interannual variability of the start of the rains is high with standard deviations of the start dates during this period being 38, 53

and 72 days for the 10, 20 and 30mm thresholds respectively.