

FIRST OZONE SOUNDINGS OVER COTONOU IN THE FRAME OF AMMA

V. THOURET (1), A. MINGA (2), A. MARISCAL (1,3), B. BENECH (1,4)
and B. SAUVAGE (1)

(1) Laboratoire d'Aerologie, Toulouse, France

(2) Univ. Marine Ngouabi, Brazzaville, Congo (3) IRD, Cotonou, Benin, (4) now retired

In the frame of the Enhanced Observation Period (EOP) of the AMMA program, ozone soundings have been scheduled for two years of operation in Cotonou, Benin, in order to provide a valuable climatology characteristic of the West Africa region. On the other hand, this new site for tropical ozone soundings complements the SHADOZ network (<http://croc.gsfc.nasa.gov/shadoz/>) giving thus the missing site over the western part of continental Africa. Soundings over Cotonou are regularly performed since December 2004.

We use the Vaisala technique along with the ECC ozone sondes to launch balloons once a week or four times a month to get a minimal statistical significance on a monthly basis. Unfortunately, due to technical problems it has been impossible to perform sounding in July and the first half of August 2005. Figure 1 below shows the tropospheric part of every single vertical profile recorded since January 2005.

We clearly see the influence of biomass burning in January-March with high ozone concentrations recorded in the lower troposphere. The profile recorded on February 18th is of particular interest as it shows three different layers with high ozone. Different origins are explained in Figure 2. The most surprising feature is the stratospheric intrusion from the southern hemisphere. During the wet season (June-August), we observe two types of profiles as shown in Figure 1. About half of the profiles show low ozone concentrations throughout the troposphere while the other half exhibit ozone enhanced layers between 2 and 6 km altitude characterizing a transport from the southern hemisphere (biomass burning season over there) as demonstrated by *Sauvage et al., 2005* using the MOZAIC data recorded in the region (Abidjan, Lagos, Douala) to build the first climatology over West Africa and Equatorial Africa (Brazzaville).

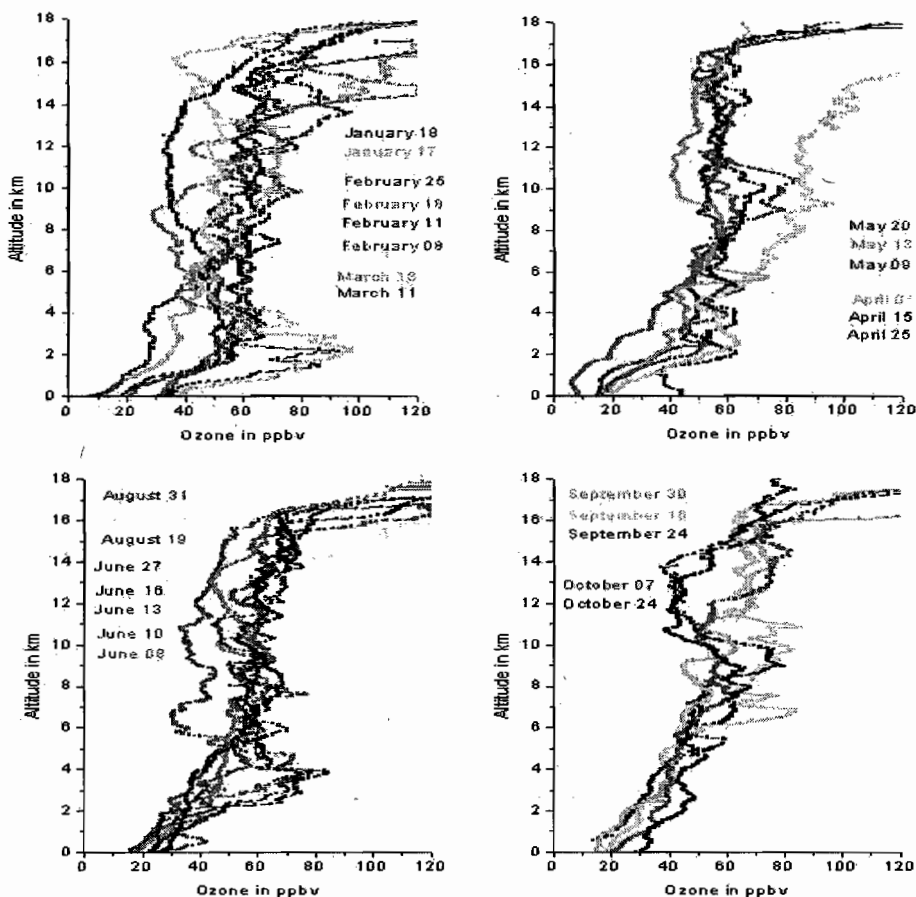


Figure 1: Tropospheric part (up to 18 km altitude) of the ozone vertical profiles recorded over Cotonou since January 2006 in the frame of the AMMA program.

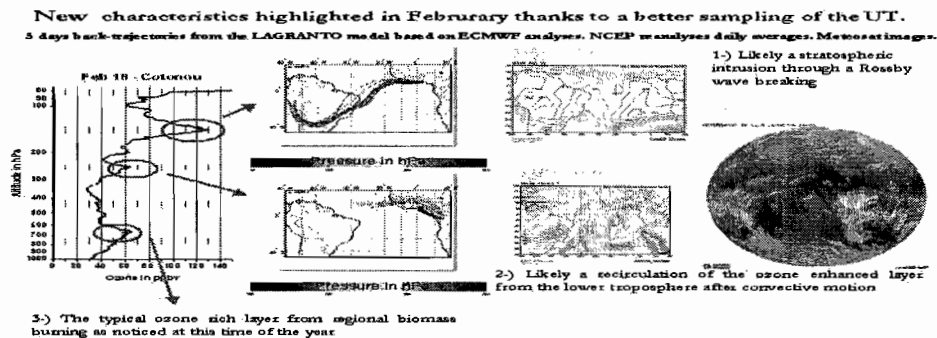


Figure 2: Case study of the "three layers profile" recorded on February, 18th over Cotonou.

Contact and presenting author: V. Thouret : thov@acero.obs-mip.fr



Afrikaanse Moesson Multidisciplinaire Analyse
Afrikanske Monsun : Multidisplinaere Analyser
Analisi Multidisciplinare per il Monsone Africano
Analisis Multidisciplinar de los Monzones Africanos
Afrikanischer Monsun : Multidisziplinäre Analysen
Analyses Multidisciplinaires de la Mousson Africaine

African Monsoon Multidisciplinary Analyses

1st International Conference

Dakar, 28th November – 4th December 2005

Extended abstracts

Isabelle Genau, Sally Marsh, Jim McQuaid, Jean-Luc Redelsperger,
Christopher Thorncroft and Elisabeth van den Akker (Editors)

AMMA International

Conference organisation:

Bernard Bourles, Amadou Gaye, Jim McQuaid, Elisabeth van den Akker

English and French editing :

Jean-Luc Redelsperger , Chris Thorncroft, Isabelle Genau

Typesetting:

Sally Marsh, Isabelle Genau, Elisabeth van den Akker

Printing and binding:

Corlet Numérique
14110 Condé-sur-Noireau
France
numeric@corlet.fr

Copyright © AMMA International 2006

AMMA International Project Office

IPSL/UPMC
Post Box 100
4, Place Jussieu
75252 PARIS cedex 5

Web : <http://www.amma-international.org/>

Email amma.office@ipsl.jussieu.fr

Tel. +33 (0) 1 44 27 48 66

Fax +33 (0) 1 44 27 49 93

All rights reserved.

Back page photo: (Françoise Guichard, Laurent Kergoat)

Convective wind system with aerosols, named "haboob", Hombori in Mali, West Africa.