

AMMA Instrument Form**SF12**

Code	PI (Name, E-Mail)	Labo and TT.	AMMA Period	Funding Source
AS.Dust_0d	Véronique Pont ponv@aero.obs-mip.fr	LA, C. Mari TT7, TT8	2006 SOP wet/dry	API, INSU

Description of the instrument. Site of Djougou with the AE_VAN_OR Instrument completed with two 13 stairs DKT Impactors, an ELPI, a CCN Counter, two SMPS counters (SMPS and D-SMPS), two nephelometers, AIRMOVOC analyser, CAML microlidar

Scientific and technical team. A. Mariscal, V. Pont, C. Liousse, E. Gardrat, P. Castera, C. Galy-Lacaux, JP Lacaux (LA), D. Tanré, G. Brogniez et C. Verwaerde (LOA), H. Cachier, J. Sciare et R. Sarda (LSCE), B. Dupré et R. Freyrier (LMTG), L. Gomes, P. Tulet, F. Burnet, T. Bourriane et J.M. Etcheberry (CNRM), JC Roger, P. Dubuisson et X. Meriaux (ELICO), J. Pelon (SA, LMD), C. Jambert (LISA)

Scientific Objectives . Transport and climatic impact of west-African aerosols; Hygroscopic and radiative properties of the mixing of aerosols (dust, biomass burning, fossil fuel combustion); zoom on organic functions of the carbonaceous aerosol (formation, transport, aging)

Observation Strategy. During intensive observing periods, two spells a day of 2*13 filters will be performed (2 DKT impactors: the first for mineral analysis, the second for carbonaceous analysis). Air sampling with pumps during two periods of some hours (to determine) integrating, firstly, the early morning pollution event and secondly, the afternoon photochemical episode (SOPA, SOPB 2). Continuous measurements of the aerosol distribution between 3nm and 300 nm with the SMPS. During wet season (SOPB 2), continuous measurements of the cloud condensation nuclei number, and of the size distribution at ambient humidity; variability of these size distributions at controlled humidity and temperature (D-SMPS). These measurements complete the dataset provided in the frame of the AE_VAN_OR Instrument. Continuous measurements of aerosols extinction with CIMEL microlidar. Continuous measurements of VOC concentrations over both periods.

Links with other instruments. L_Depot_RW (ORE IDAF Network (super-sites of Lamto, Djougou, and Banizoumbou) ; AE_VAN_OR (site of Djougou) ; Photometer (LOA request for site of Lamto) ; Photometer at Djougou (LOA) ; TEOM, Lidar, Photometer at Banizoumbou (LISA).

WPs relying on the instrument : 1.1, 2.4 (2.4.1, 2.4.2 & 2.4.3), 4.1 et 4.3

OPERATION and COLLABORATIONS

Deployment (site, dates, logistics). Intensive measurements in Djougou during one month (dry SOPA in 2006); Intensive measurements during one month (wet SOPB2 in 2006).

African partners. V. Yoboué, A. Konare from LAPA in Ivory Coast, Fofana Mamadou (geophysical site of Lamto)

Others :

INFORMATION for the DATA BASE

Type of platform: ground-based observations

Type of instrument: , 13 stairs Impactors, nephelometers (2), Volatile Organic Compounds Analyser, MicroLIDAR , ELPI, CCNC, SMPS, D-SMPS

Sensor producer: NEPHELOMETER: ECOTECH; VOC ANALYSER: Chromatosud, microLIDAR: CAML; ELPI: Ecomesure; CCNC: DMT; SMPS (DMA + CPC): TSI; D-SMPS (DMA+CPC+ air drier): TSI

Serial number of sensor: 030352; 1781299; no serial number (single device); 6339; ??; DMA:1259 + CPC:1257; DMA:8351 + CPC: 1422

Information about calibration: ; ? ;10/06/05 par étalon NPL 30 COV (~0,5 Å 3 ppbv) ; ??; 20/04/2005; done before end of 2005; OK; OK;

Site and position of sensor(s): Super site of Djougou;

Measured parameters: Particulates scattering efficiencies; Chromatogram storage (1 per 30 min) providing VOC concentrations (NMHC from 4 to 8 carbon atoms; range concentrations: 0.1 to 100 ppbv; detection threshold: 0.1 ppbv, aerosol extinction coefficient; number concentration of the carbonaceous aerosol by stairs (filter on each stair is dedicated to BC analysis) (13 stairs from 0.03 µm to 10 µm); CCN Concentrations for supersaturations between 0.1 % and 1 %; Aerosol size distributions between 300 nm and 3 µm (ambient humidity); Aerosol size distributions between 300 nm and 3 µm (relative humidity < 20 %);

Data provided to the AMMA data base: Impactors: Concentrations of mineral and trace elements by stairs size of the impactor; weight. Nephelometers: Particulates scattering efficiencies. AIRMOVOC : VOC concentrations. CAML : aerosol extinction coefficient. ELPI: Concentrations of Total Carbon and Black Carbon by stairs size of the impactor; weight. CCNC: number of cloud condensation nuclei for supersaturations between 0.1 et 1%); SMPS, D-SMPS: particle sizer between 3 nm and 300 nm; hygroscopic and volatil properties of aerosols (size distributions versus relative humidity),.

Unit of data provided : néphélo: dimensionless ; impacteur ELPI : nombre / m³ ; 2 impacteurs DKT : µg/m³ et pesée des filtres/ mg ; Chromato AIRMOVOC: µg/m³ ; µlidar CAML: m⁻¹ ; CCNC, SMPS et D-SMPS: nombre/m³

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