

Instrument description AMMA

EF1

Code	PI (Name, E-Mel)	Labo, AMMA rep and TT.	AMMA Period	Funding Source
AE.GPS_1	Olivier BOCK Marie-Noelle BOUIN bouin@ensg.ing.fr	SA, O. Bock Olivier.Bock@aero.jussieu.fr TT1	2005-2007	API : 75 % other (TBD) : 25%

Description of the instrument. Ground-based GPS station network – EOP.

Scientific and technical group. (collab. with french labs : IGN, LDL et LGIT).

Scientific Objectives.

Study of the diurnal cycle at the WA scale and its modulation throughout the year (namely in relation with the monsoon onset, the variability of the ITCZ and the ITF, and the local convective initiation).

Observing Strategy.

Continuous monitoring of integrated water vapor by GPS during at least 3 years. At the scale of WA, data from permanent networks (IGS and national, 5 stations) are complemented with 3 sites equipped in the frame of the EOP. These 3 sites will be maintained after 2007 (long-term cooperation, tbd with national Meteo Ins.).

Links with other instruments.

GPS products can be combined with other continuous observations for the study of the diurnal cycle (e.g., wind profilers from the ASECNA network, Meteosat...). They can be used for calibrating satellite humidity data and validating and improving (through assimilation) meteorological analyses/forecasts.

WPs relying on the instrument: 1.1, 1.2, 2.1, 4.1

References: O. Bock, et al., « GPS Water Vapor Project associated to the ESCOMPTE Programme : Description and first results of the field experiment, » Phys. Chem. Earth, 29, 149-157, 2004

OPERATION and COLLABORATIONS

Deployment (site, dates, logistics).

We propose to complement the existing network with 3 stations in the CATCH window (Cotonou, Niamey, Gao). A station from INSU has been installed late 2004 till Aug. 2005 for a test in Cotonou. Permanent stations have been installed (June 2005) in Niamey, Gao, Djougou. These stations will be in a near future attached to the IGS network.

African Partners. Contacts established with national meteorological services and universities of Benin, Niger, Mali.

INFORMATION for the DATA BASE

Type of platform: Ground-based GPS station network

Type of instrument: GPS receivers and geodetic antennas.

Sensor producer: Trimble

Serial number of sensor: 60073705 (Djougou), 60078702 (Gao), 60078704 (Niamey)

Information about calibration: none

Site and position of sensor:

Existing network IGS in WA;

Dakar, DAKA, Lat. 14.684; Lon. 342.534, Alt. 46.168, installed in 2003

Franceville, MSKU, Lat. -1.631; Lon. 13.552, Alt. 359.640, installed in 2001

Libreville, NKLG, Lat. 0.353; Lon. 9.672, Alt.: 31.52, installed in 1999

Cape Verde, TGCV, Lat. 16.754, Lon. 337.017, Alt. 35.227, installed in 2001

Yamoussoukro, YKRO, Lat. 6.871, Lon. 354.759, Alt. 270.271, installed in 2004

3 additional stations in the CATCH window

Djougou, DJOU, Lat. 9.692, Lon. 1.661, Alt., 459.814, installed in June 2005

Gao, GAO1, Lat. 16.252; Lon.: 359.993, Alt.: 285.022, installed in June 2005

Niamey, NIAM, Lat. 13.479; Lon. 2.182, Alt: 269.226, installed in June 2005

1 temporary station in Cotonou; Lat. 6.357; Lon.: 2.388, Alt.: 34.904, installed in December 2004 for 9 months.

Measured parameters: integrated water vapour in the atmosphere

Data provided to the AMMA data base: hourly IWV data;

Unit of data provided : kg/m²