

# Deployment of MAGDAS in Africa

G. Maeda, K. Yumoto, Y. Kakinami, T. Tokunaga,  
A. Fujimoto, A. Ikeda, Y. Yamazaki, S. Abe, M. Sakai,  
N. Eto, H. Terada, M. Shinohara.

Presented at  
2010 ISWI UN/NASA/JAXA Workshop  
6 – 10 November 2010.  
Helwan Univ., Cairo, Egypt.



*during the MAGDAS Session*

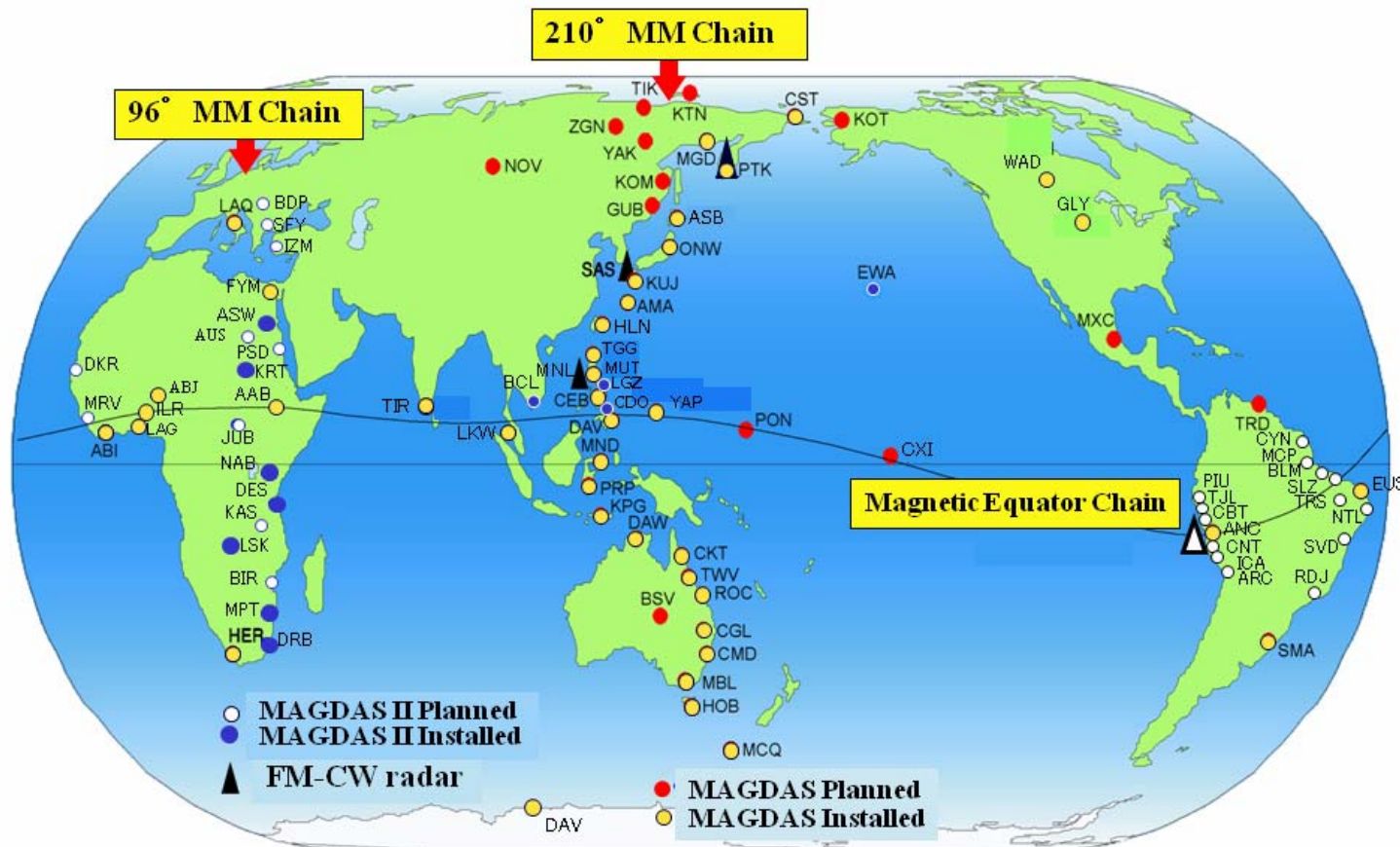


# Topics covered in this talk

1. Motivation for MAGDAS in Africa.
2. History of MAGDAS in Africa.
3. Summer of 2010: Major Upgrade of MAGDAS Network in Africa
4. Summary of the Horizontal Chain and Vertical Chain.
5. Ambient Noise: Best Six Stations
6. Internet situation of the African stations.
7. Please check your Real Time Data Plot – *every day* if possible!
8. Lightning damage.



# Motivation for MAGDAS in Africa



# History of MAGDAS in Africa

**Phase 1 (Summer 2006)**  
**Three MAG-1 installed**  
**along Dip Equator.**

**Phase 2 (Summer 2008)**  
**Six MAG-II installed**  
**along 96 Deg. MM.**

**Phase 3 (Summer 2010)**  
**Major upgrade**  
**of existing**  
**stations.**



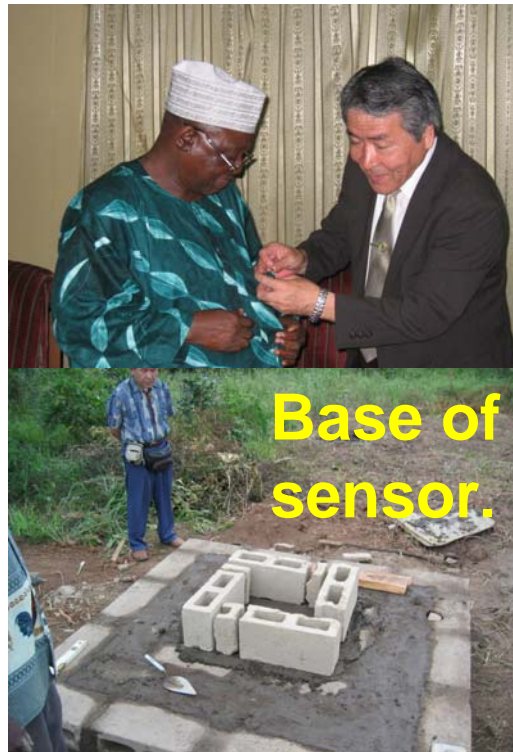
# Phase 1 – Year 2006 – Dip Equator Installations

**Abidjan (ABJ)**



**Cote 'Ivoire**

**Ilorin (ILR)**



**Nigeria**

**Addis Ababa (AAB)**



**Ethiopia**



# Phase 2 – Year 2008 – 96 Deg MM (A Team)

Dar Es Salaam (DES)



Tanzania

Khartoum (KRT)



Sudan

Nairobi (NAB)

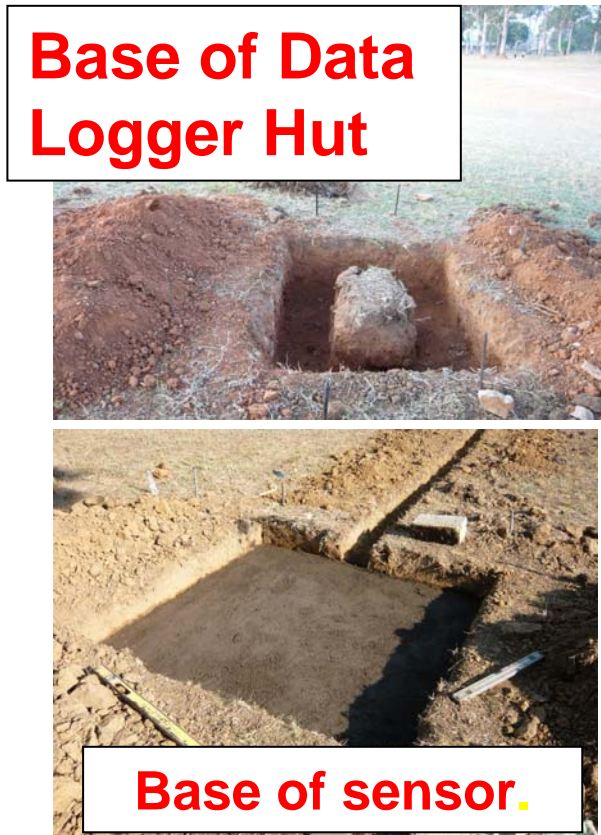


Kenya



# Phase 2 – Year 2008 – 96 Deg MM (B Team)

## Lusaka (LSK)



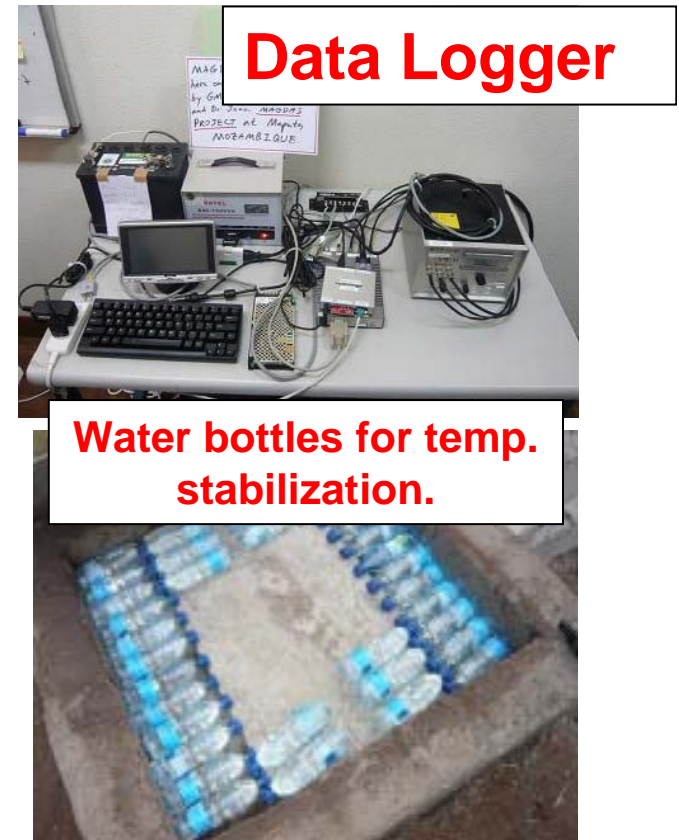
## Zambia

## Durban (DRB)



## South Africa

## Maputo (MPT)



## Mozambique



# Phase 3 – Year 2010 – Upgrade of Stations in Africa

**A u g u s t**

## Equatorial Team

- G. Maeda
- M. Sakai
- N. Etoh

### **ABJ (Abidjan)**

MAG-1 to MAG-9

### **LAG (Lagos)**

MAG-II to MAG-9

### **ABU (Abuja)**

MAG-9 (new)

### **AAB (Addis Ababa)**

MAG-1 to MAG-9

## A Team

- Prof. K. Yumoto
- Y. Yamazaki
- Y. Fujita

### **DES (Dar Es Salaam)**

Upgrade of MAG-II

### **NAB (Nairobi)**

Upgrade of MAG-II

### **KRT (Khartoum)**

Upgrade of MAG-II

## B Team

- G. Maeda
- A. Ikeda
- K. Matsuyama

### **DRB (Durban)**

Upgrade of MAG-II

### **MPT (Maputo)**

Upgrade of MAG-II

### **LSK (Lusaka)**

MAG-II to MAG-9

← **S e p t e m b e r** →





## Summary of MAGDAS Equatorial Stations in Africa

### FROM WEST TO EAST

Station Code	Country	Year of Installation	MAG-DAS type	Institute	Person of Highest Authority
ABJ	Cote D'Ivoire	2006	MAG-9	University de Cocody	Dr Vafi
LAG	Nigeria	2008	MAG-9	Redeemer's University (RUN)	Prof. Kolawole
ILR	Nigeria	2006	MAG-9	University of Ilorin	Dr Adimula
ABU	Nigeria	2010	MAG-9	National Space Research and Dev. Agency (NASRDA, the space agency of Nigeria)	Dr Rabiou
AAB	Ethiopia	2006	MAG-9	Addis Ababa University	Dr Gizaw



## Summary of MAGDAS Stations in Africa along 96 Deg MM

### FROM NORTH TO SOUTH

Station Code	Country	Year of Installation	MAG-DAS type	Institute	Person of Highest Authority
FYM	Egypt	2008	MAG-1	Fayoum University	Dr Mahrous (Helwan Univ.)
ASW	Egypt	2008	MAG-II	South Valley University.	Dr Mahrous (Helwan Univ.)
KRT	Sudan	2008	MAG-II	Sudan University of Science and Technology (SUST)	Prof. Badi
NAB	Kenya	2008	MAG-II	University of Nairobi	Dr Baki
DES	Tanzania	2008	MAG-II	Univ. of Dar es Salaam	Prof. Magingo
LSK	Zambia	2008	MAG-9	University of Zambia	Dr Mweene
MPT	Mozambique	2008	MAG-II	Eduardo Mondlane University (EMU)	Dr Macamo
DRB	South Africa	2008	MAG-II	Univ. of Kwazulu-Natal (UKZN)	Prof. Afullo
HER	South Africa	2007	MAG-I	Hermanus Magnetic Observatory	Dr Lee-Anne McKinnell



## Local Ambient Noise

**Very roughly, these are the Best Six Stations in terms of noise:**

1. ABJ (Abidjan, the best performer)
2. ILR (Ilorin, Nigeria)
3. LSK (Lusaka, Zambia)
4. MPT (Maputo, Mozambique)
5. NAB (Nairobi, Kenya)
6. DES (Dar es Salaam, Tanzania)



# Data Transmission Performance

<b>ABJ</b>	<b>Usually OK, but no data transmission when no one is at the site.</b>
<b>LAG</b>	<b>Usually OK, starting this summer.</b>
<b>ILR</b>	<b>Usually OK, since this spring.</b>
<b>ABU</b>	<b>Usually OK – installed this summer.</b>
<b>AAB</b>	<b>Excellent.</b>
<b>FYM</b>	<b>Problems with the DSL connection; not a good situation here</b>
<b>ASW</b>	<b>Break in the local LAN cable --- not sending data.</b>
<b>KRT</b>	<b>Usually OK, starting this summer.</b>
<b>NAB</b>	<b>Usually OK, starting this summer.</b>
<b>DES</b>	<b>Usually OK, starting this summer.</b>
<b>LSK</b>	<b>Usually OK, starting this summer.</b>
<b>MPT</b>	<b>Usually OK, starting this summer.</b>
<b>DRB</b>	<b>Usually OK, starting this summer.</b>
<b>HER</b>	<b>Usually OK, starting this summer.</b>



# Local IP Management

Please stay informed of local IP-setting changes.

If your university makes some IP-setting changes, then usually your MAGDAS will also have to be adjusted for those changes.



# Global Internet Connectivity Density



8 Nov. 2010

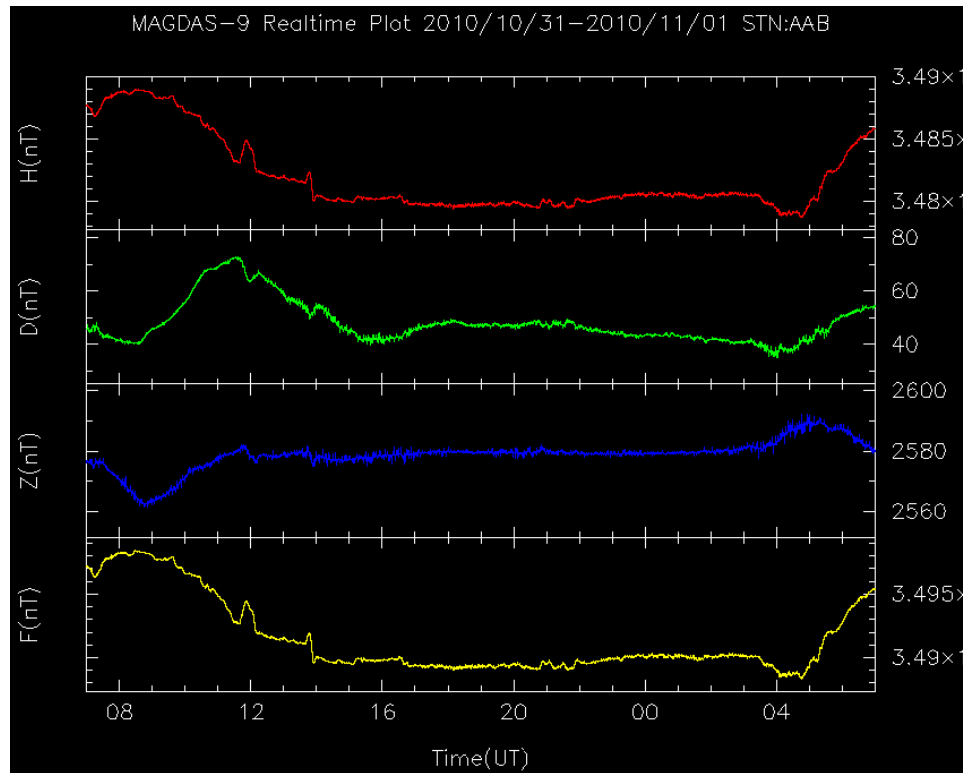
G. Maeda – 2010 ISWI Workshop (Egypt) **Slide 14/17**



If possible, please check the real time data of your station every day by going to this website:

<http://magdas2.serc.kyushu-u.ac.jp/realtime/index.html>

This was the plot for Addis Ababa on 01 Nov 2010 (from this website).



This data plot is a sample of what you can see at the SERC website on a nearly real time basis. You can see if your data is arriving at SERC and you can check the quality of your data.



# Lightning Damage Control

- Lightning damage occurs often at stations near the equator due to increased thunderstorm activity.
- One countermeasure is to shutdown equipment during lightning storms.





# Thank you ! from all of us at SERC.



## Miscellaneous Photo

The original Africa  
“B Team” (Maeda, Ikeda,  
Yamazaki) was  
dispatched to Ilorin  
this year to upgrade  
the MAGDAS running  
there since 2006.