



Africa

2019 Cho Lab
Summer Camp
合宿

G. Maeda

<https://www.google.co.jp/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&ved=2ahUKEwjhv7SLiZHjAhVCErWKhVrDDRAQjhx6BAGBEAM&url=http%3A%2F%2Fbiofocuscommunicatie.nl%2Flogos-with-africa-%2F&psig=AOvVaw1H1eu-7cLTryme7Y-lIJv-&ust=1561979279183998>

Africa - G. Maeda - 2019 Summer Camp

Why I will talk about Africa today:

① TICAD 7 takes place this month

② I have been to Africa a bit

<https://s3-eu-west-1.amazonaws.com/rhinoafrica-blog/wp-content/uploads/2017/02/zebras-roaming-in-etosha-national-park-namibia-850x410.jpg>



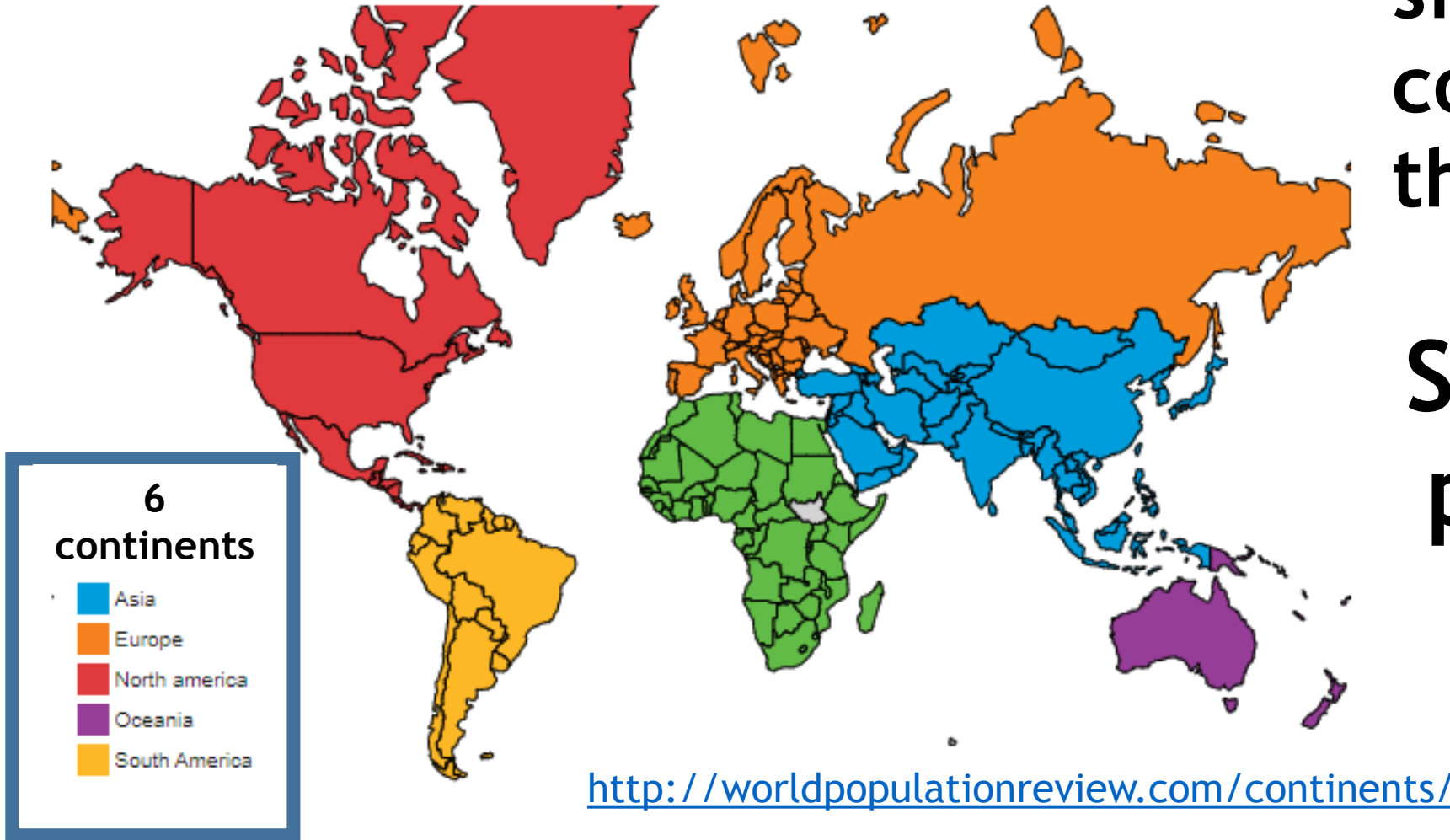
Why is Africa important ?



Continent and Region Populations 2019

**These are the
six major
continents of
the world.**

**See the next
page for the
population
figures.**



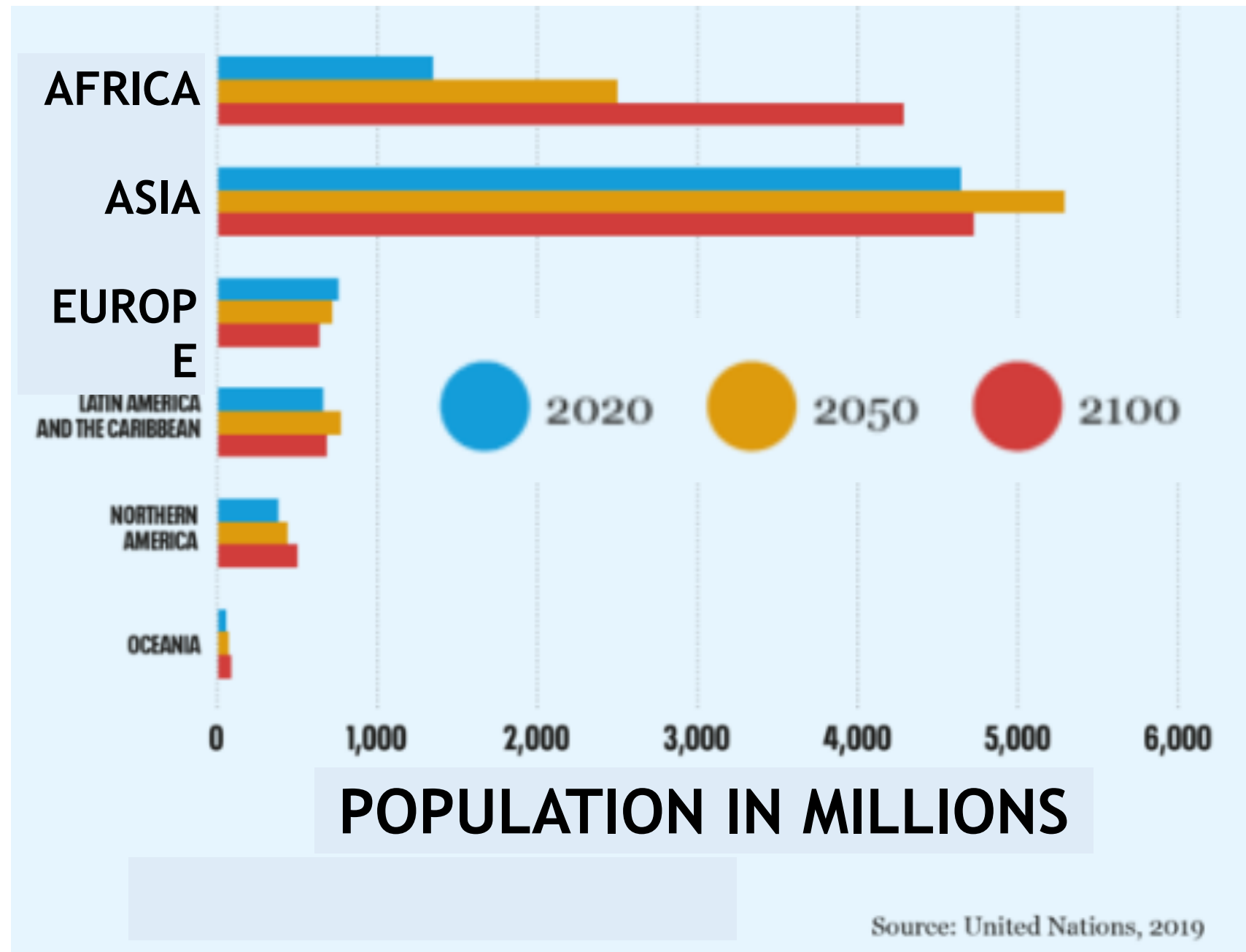
Name	2019 Population ▼	World's Population (%)	Growth Rate (%)
Asia	4,601,371,198	59.65%	0.89%
Africa	1,308,064,195	16.96%	2.52%
Europe	747,182,751	9.69%	0.10%
South America	427,199,446	5.54%	0.85%
North America	366,600,964	4.75%	0.63%
Oceania	42,128,035	0.55%	1.34%

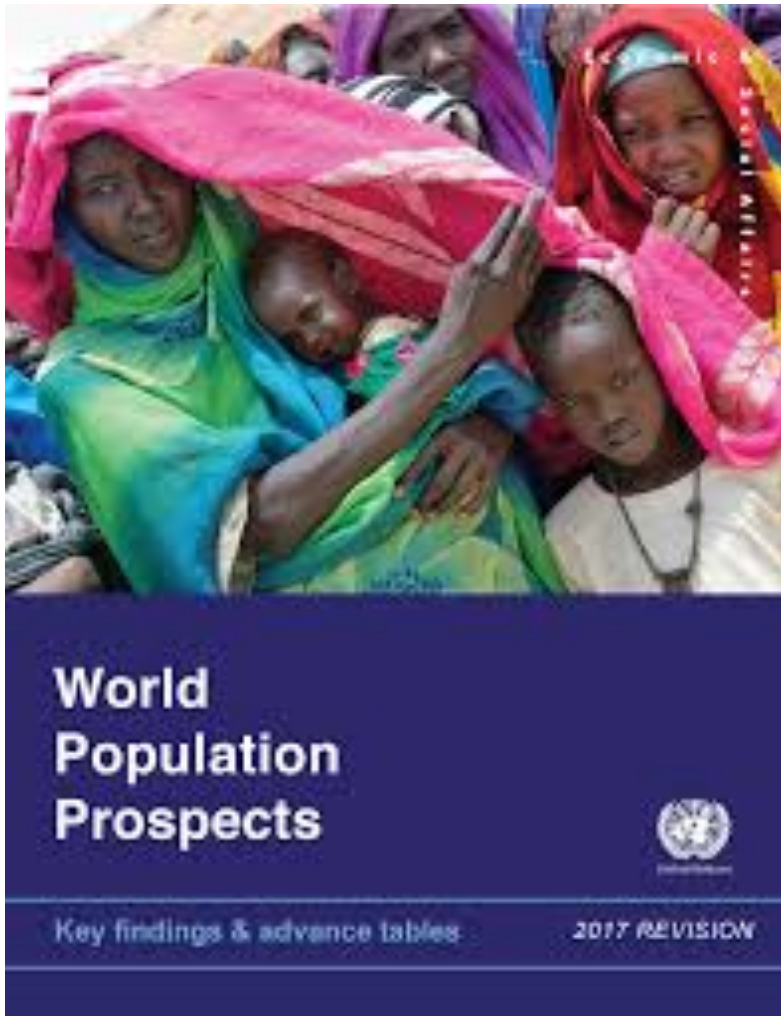
<http://worldpopulationreview.com/continents/>

**Africa is growing
the most . . . by
far**



Growth projections by the United Nations





*World Population Prospects:
The 2017 Revision, Key Findings
and Advance, by the United
Nations*



A FAMOUS REVELATION FROM THE UN IN 2017

*Among the ten largest countries worldwide, Nigeria is growing the most rapidly. Consequently, the population of Nigeria, currently the world's 7th largest, is projected to surpass that of the United States and **become the third largest country in the world shortly before 2050.***



In addition, Africa is rich in natural resources

According to the Japanese Foreign Ministry,

Africa accounts for

- ◆ 89 percent of the world's platinum,
- ◆ 60 percent of its diamonds,
- ◆ 53 percent of the cobalt,
- ◆ 37 percent of the zirconium, and
- ◆ 34 percent of the chrome.

https://en.wikipedia.org/wiki/Tokyo_International_Conference_on_African_Development

[Tokyo International Conference on African Development](https://en.wikipedia.org/wiki/Tokyo_International_Conference_on_African_Development)

<https://qph.fs.quoracdn.net/main-qimg-befe02512aa5bc04b91b8b9ecd033440>



So Africa will have a population boom in the coming decades. ? ? ?

Will it have an economic boom ?

? ? ? ? ? ?



http://www.baltic-course.com/files/multi/2017-08/170825_ekonom_boom.jpg



I will not make a comment about that because economic growth forecasts are notoriously inaccurate.



But the following is a fact from the **THE ECONOMIST** (22 June 2019; page 54):

“The combined economy of Africa’s 54 countries is smaller than that of France.”



of it, somewhat puzzling. Sub-Saharan Africa, with a billion people, generates less electricity than South Korea. Nigeria, the region's most populous country, produces



-- from Page 39
of

The Economist December 16th 2017



Being poor is no fun, but there is one big plus:



<https://sibiztrends.com/wp-content/uploads/sites/21/2019/01/0vJXeVc2002gBpyvd.jpg>

It is possible to enjoy huge economic growth rates because you start from a low base

(This cannot be enjoyed in rich nations, however.)





**SOON TO
TAKE PLACE**

**Now I will shift over to
TICAD 7**





https://smedia2.intoday.in/btmt/images/stories/investment_660_083017023050.jpg

**Any nation whose
annual per capita
income is below
5000 USD is
attractive to
investors
(high risk, high
return)**



← This Yomiuri newspaper article is from July of last year.

It discusses **TICAD 7**, and it points out that Japan's governmental and private sector investments will total around **US\$30 billion during the next three years.**

アフリカ開発会議 来年8月
政府調整 大型行事考慮 準備本格化へ
2018.7.2 YOMIURI

政府は、2019年に横浜で開催する第7回アフリカ開発会議（TICAD）の時期を8月下旬とする方向で調整に入った。近く外務省内に事務局を設け、準備を本格化させる。

19年は、4月30日の天皇陛下の退位や5月1日の皇太子さまの即位・改元に関連した皇室行事のほか、6月28～29日に大阪市で開かれる主要20か国・地域（G20）首脳会議など、外国の行事が予定されている。TICADの開催時期はこれらと近接することを避けるため、8月下旬にすることが望ましいと判断した。

安倍首相は16年にケニアで開かれた前回会議で、3年間で官民総額300億（当時のレートで約3兆円）規模を投資すると表明した。政府は国際社会での存在感を高めるため、第7回会議で同水準以上の支援を打ち出すことを検討している。

TICAD
アフリカ開発会議（TICAD＝Tokyo International Conference on African Development）日本やアフリカ諸国の首脳らがアフリカの社会基盤の整備や感染症対策の強化などを議論する国際会議。日本が主導して1993年以降、3～5年の間隔で開いている。

読売新聞

2019.8.15

日本企業拠点 5年で4割増

YOMI-URI
中国に後れ
2019.8.15

国内市場の縮小に直面する日本企業にとって、アジアに次ぐ巨大市場としてのアフリカの重要性は増している。外務省によると、アフリカに進出する日本企業の拠点数は2017年時点で795か所と、5年間で約4割増えた。

ただ、貿易・投資関係で日本の存在感が高まっているとはいえない。日本からの主な輸出品は自動車や機械類だが、アフリカの輸入総額に日本が占める割合（17年）は2%に満たない。首位の中国は16%を占めており、アフリカの輸出先としてもトップだ。

安倍首相は3年前のTICAD首脳会合で3年間に官民合わせて300億ドル（約3兆1700億円）規模の投資を表明したが、民間投資の伸び悩みを指摘する声もある。

アフリカ諸国は投資環境の改善に取り組んでおり、5月にはアフリカ大陸自由貿易圏の設立協定が発効した。運用が始まれば世界最大級の自由貿易圏が出現し、ビジネスチャンスが広がる期待がある。

← According to this recent newspaper article, due to Japan's shrinking domestic market, companies are looking at markets that are growing.

In 2017, there were 795 Japanese firms operating in Africa. That is a 40 percent increase over the tally in 2012.

TICAD



TICAD

= Tokyo International Conference on
African Development

**The objective of TICAD:
“To promote high-level policy
dialogue between African leaders
and development partners.”**



TICAD's past has been this

TICAD I	(1993) in Tokyo
TICAD II	(1998) in Tokyo
TICAD III	(2003) in Tokyo
TICAD IV	(2008) in Tokyo
TICAD V	(2013) in Yokohama
TICAD VI	(2016) in Kenya (5000 delegates)
TICAD VII	(2019) in Yokohama, this month



https://rikkyo-mib.jp/wp-content/uploads/bfi_thumb/abe-africa-1024x915-fxc511uuqg8g038ao3ehjn502pslokq65qhj58g.jpg





TICAD VI took place in Nairobi, Kenya - the first time outside of Japan.

It attracted some 30 African Heads of State and Government, 70 Chief Executives of Japanese companies and over 7000 participants, making this the highest number of participants ever in a TICAD summit.

TICAD VI in Kenya (2016)





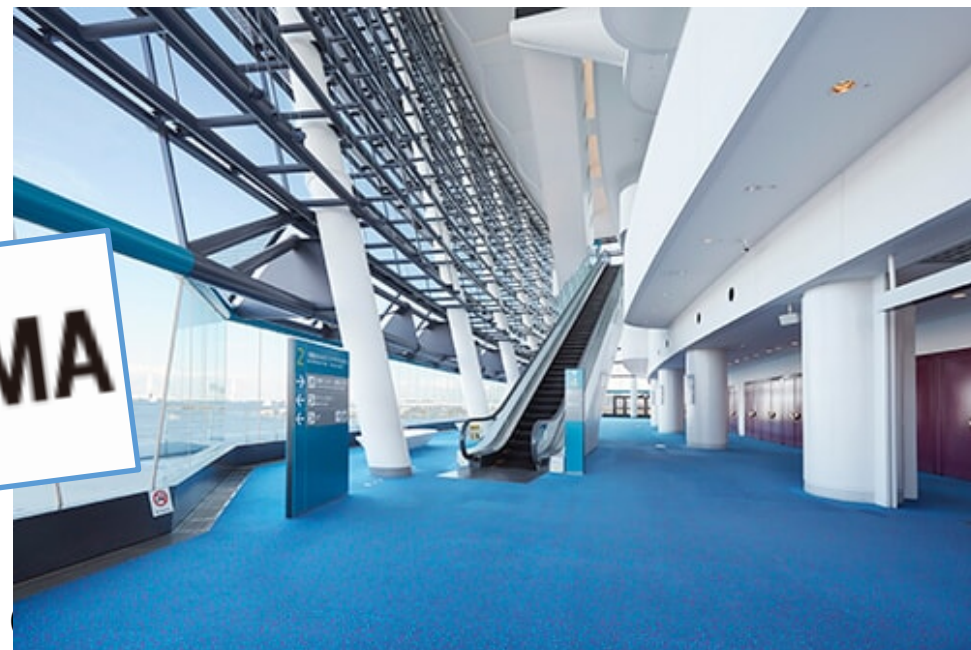
The venue of
TICAD 7

PACIFICO
Yokohama is
one of the
largest
convention
complexes in
the world.



PACIFICO YOKOHAMA

. Maeda - 2019 Summer



This TICAD will have a space forum for the first time:

Time	Name of Seminars and Symposiums	Name of the Main Organizer
18:00~19:30	Africa Space Forum - space inclusion by applying space technology	Cabinet Office, Ministry of Internal Affairs & Communication, Ministry of Foreign Affairs, Ministry of Education, Sports, Science & Technology, Ministry of Economy, Trade & Industry, Japan Aerospace Exploration Agency(JAXA)
28 Aug. 2019 Annex Hall・F203		

This forum explores the potential of enhancing Japanese-African space cooperation, focusing on the examples of space utilization familiar to African people such as the use of micro-satellites which will lead to transfer of technology, and the application of space technology to solve social challenges in such areas transfer as global health, forestry, agriculture and infrastructure monitoring.

Organized
by:



内閣府
Cabinet Office



総務省

Ministry of Internal Affairs and Communications



経済産業省

Ministry of Economy, Trade and Industry



外務省
MOFA Japan



文部科学省

MEXT

MINISTRY OF EDUCATION,
CULTURE, SPORTS,
SCIENCE AND TECHNOLOGY-JAPAN



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後半

Second half of my presentation



The installation in Côte d'Ivoire



Building the foundation for the sensor house in Ivory Coast (the University of Cocody) on 29 August 2006.



Africa - G. Maeda



**My
personal
experiences
in Africa**

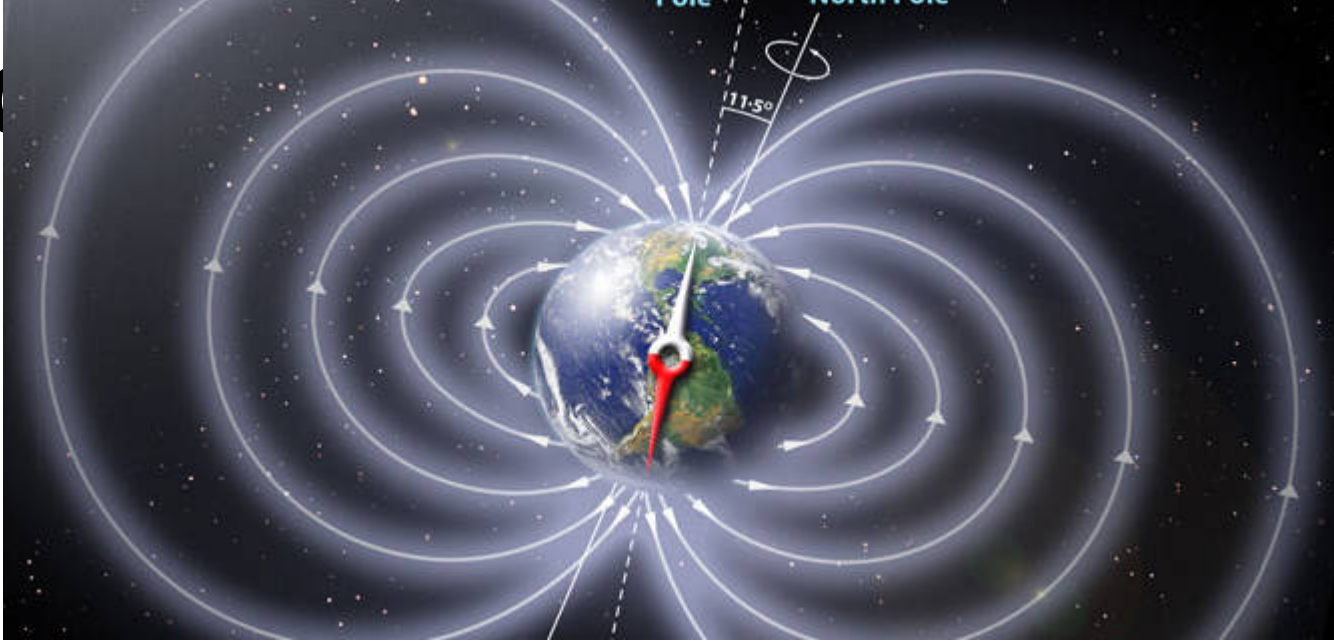


I worked at a space weather research center at Kyushu University from **2005 to 2015** as an engineer. My job was to help students install magnetometers all over the world.

My center installed 72 magnetometers over a 15-year period. I was directly engaged in half of those installations.



What does a magnetometer 磁力計



https://www.nasa.gov/sites/default/files/styles/ubernode_alt_horiz/public/images/608139main1_geomagnetic-field-670.jpg

It is extremely sensitive to **changes** in the Earth's magnetic field.

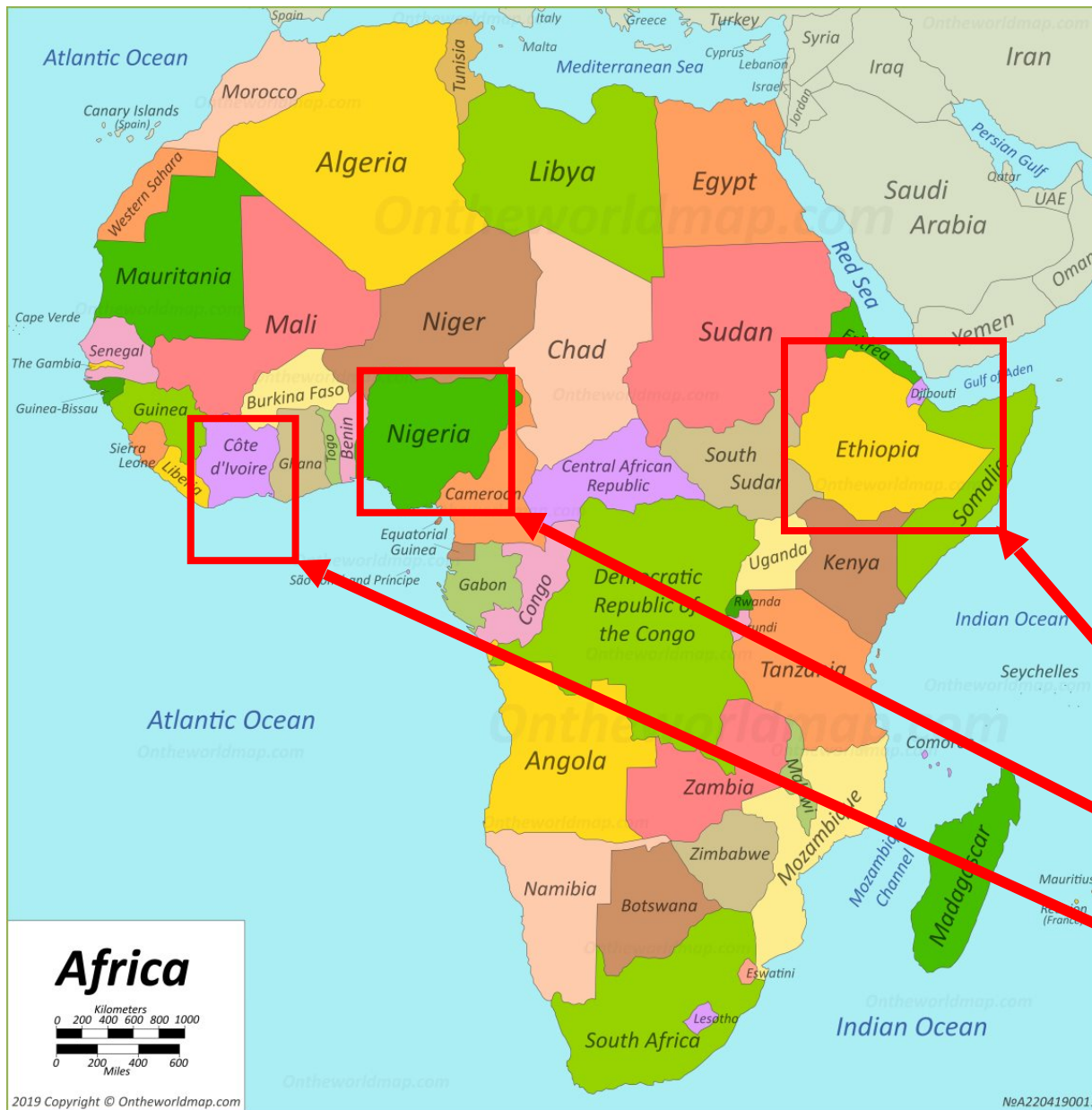
The changes are usually due to space weather activities.



**My first trip to Africa
was in 2006.**

**Prof Yumoto, Dr Kaki-
nami, and I, installed
our first
magnetometers in**

- ① Ethiopia**
- ② Nigeria, and**
- ③ Ivory Coast.**



← Magnetometer sensor in Addis Ababa, university campus

The installation in



G. Maeda, local graduate student, and Dr Kakinami 柿並, on 20 August 2006 on the campus of Addis Ababa University →

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磁力計の設置は重労働です!!!

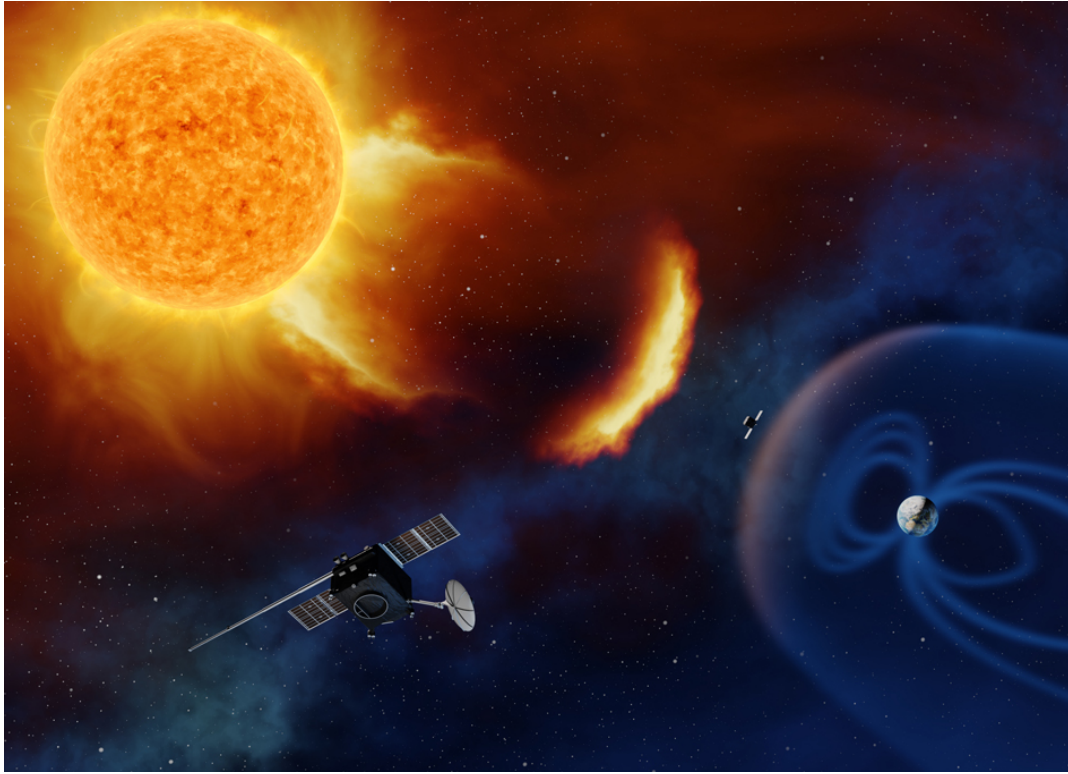


The sensor house construction in Ilorin on 24 August 2006.

The installation in
Nigeria



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Space weather research
requires space-based
observation as well as
ground-based observation
地上観測

https://s3.amazonaws.com/images.spaceref.com/news/2018/ooFuture_lagrange_mission.jpg

**Magnetometers are
not located
randomly.**

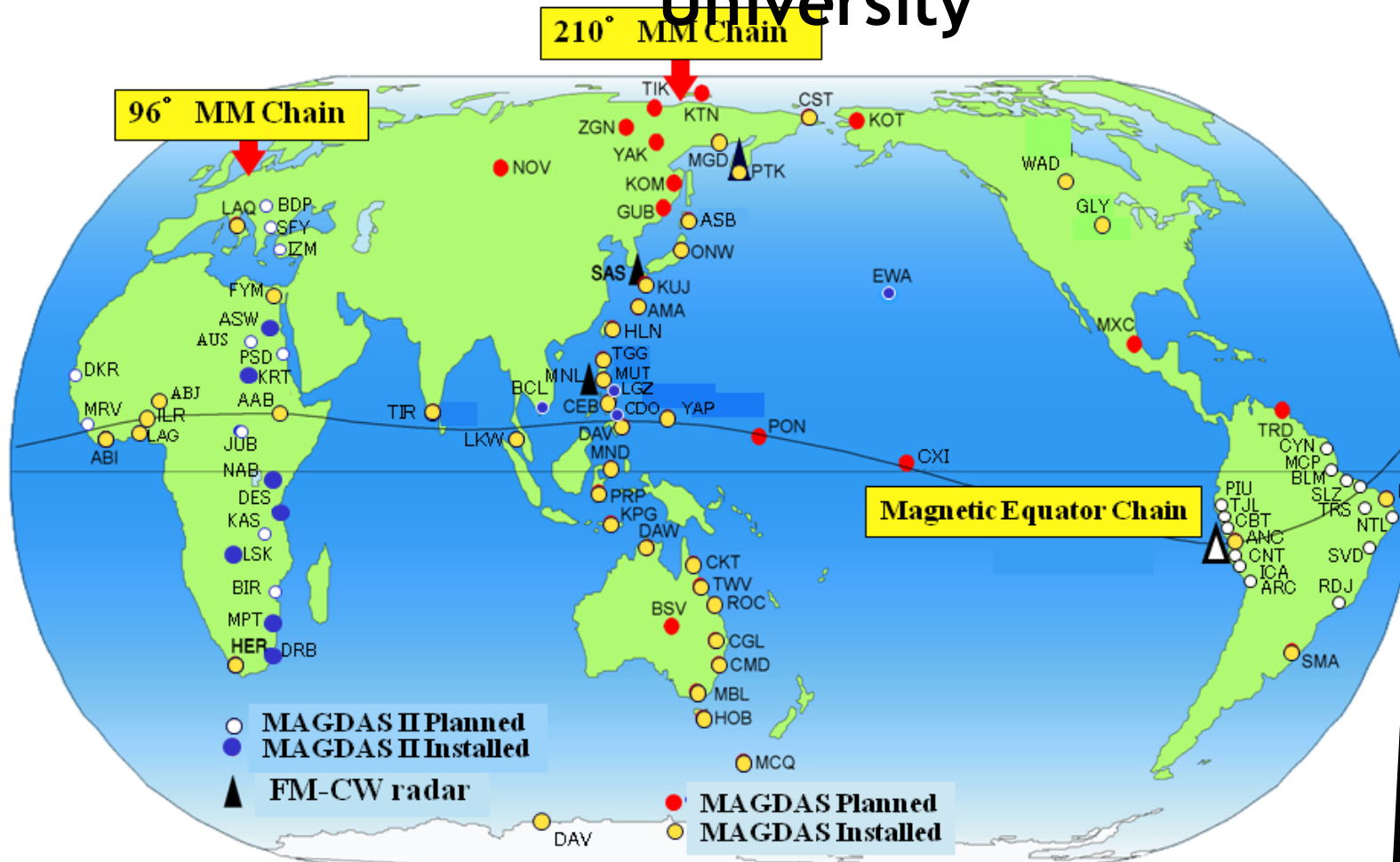
**They are installed
along the magnetic
equator or along
meridian chains
- see the next**



Magnetometer installation strategy of Kyushu University



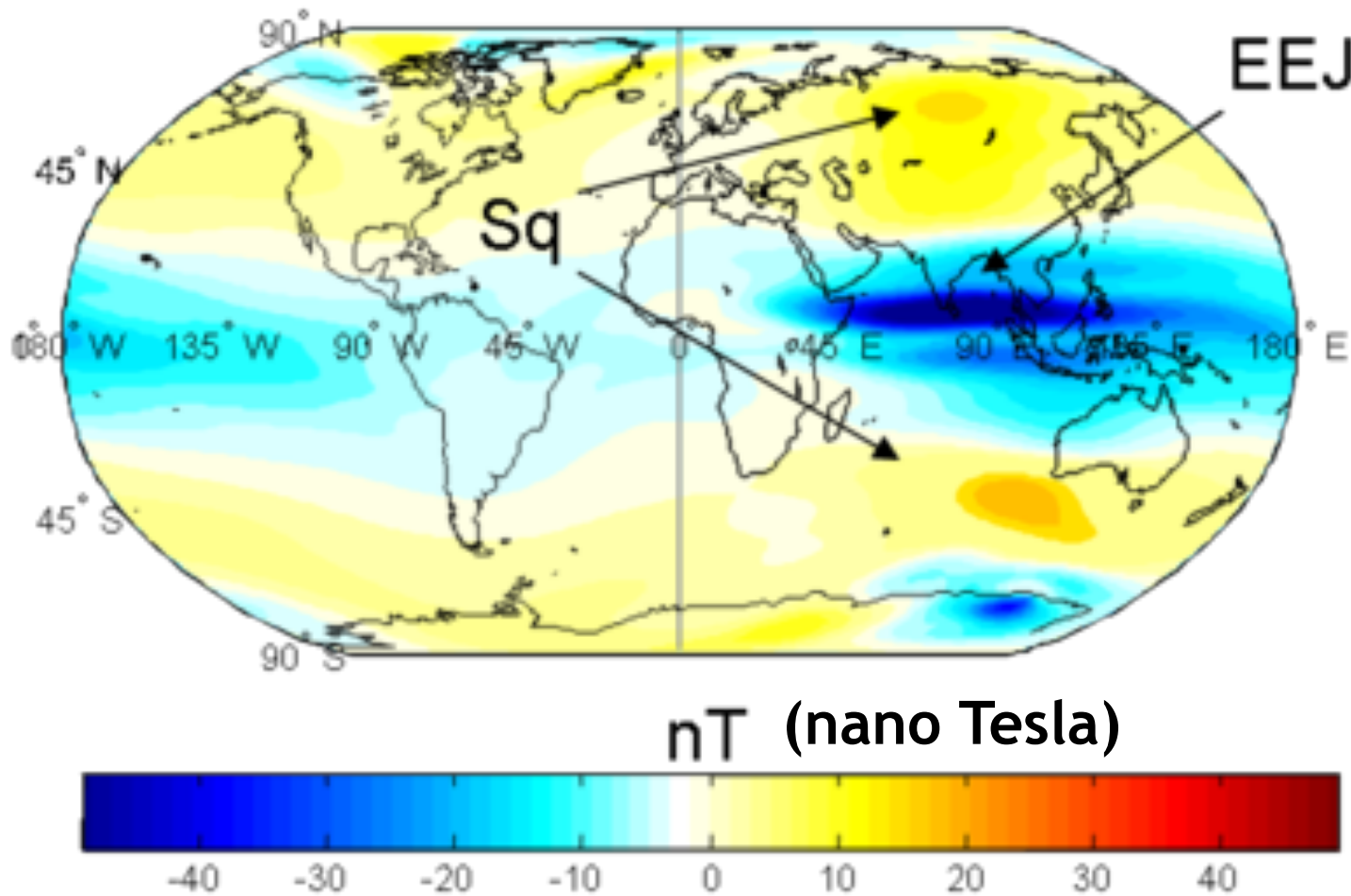
KYUSHU
UNIVERSITY



**Kyu Dai installed
along three
chains:**

- ① Magnetic equator
- ② 210_deg MM chain
- ③ 96_deg MM chain





There are many, many research topics in the field of space weather. One is the study of

EEJ

From: https://en.wikipedia.org/wiki/Equatorial_electrojet or Equatorial ElectroJet.

The equatorial electrojet (EEJ) is a narrow ribbon of current flowing eastward in the day time equatorial region of the Earth's ionosphere.



Dar Es Salaam (DES)



Khartoum (KRT)



Nairobi (NAB)



Tanzania

Sudan

Kenya

Dr Fujimoto (now at Kyutech, Iizuka) installed in these three countries in 2008



Lusaka (LSK)

Base of Data
Logger Hut



Durban (DRB)



Maputo (MPT)



Data
Logger

Base of
sensor.



Water bottles for
temperature
stabilization

Zambia

South Africa

Mozambique

I was in charge of these installations in
2008



**During 2006-2015, the Kyu Dai
magnetometer group installed**

14

**real-time magnetometers in
Africa.**



Summary of MAGDAS Equatorial Stations in Africa

FIVE, FROM WEST TO EAST

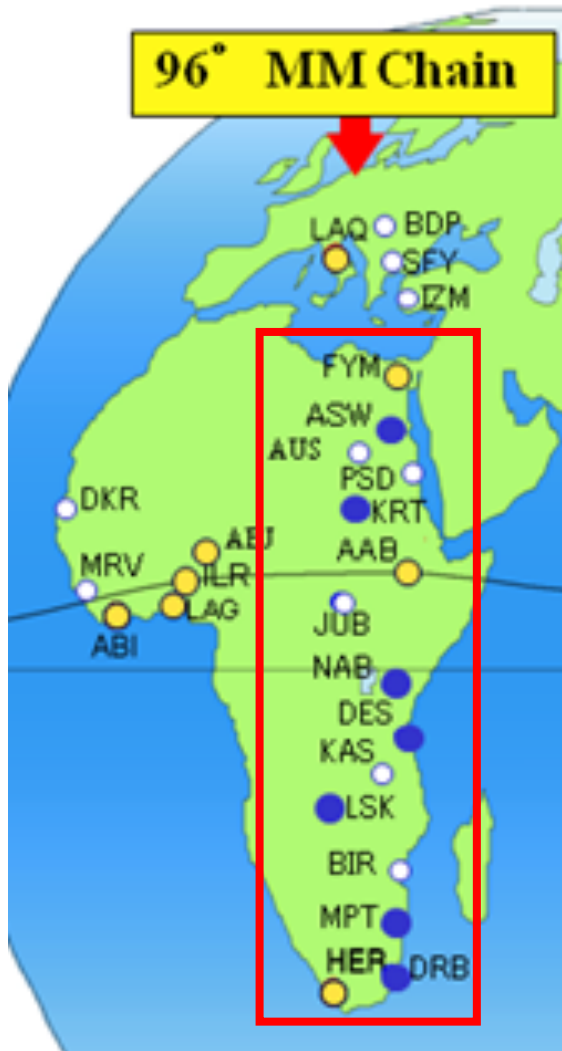


Station Code	Country	Year of Installation	MAG-DAS type	Institute	Person of Highest Authority
ABJ	Cote D'Ivoire	2006	MAG-9	University de Cocody	Dr Vafi
LAG	Nigeria	2008	MAG-9	Redeemer's University (RUN)	Prof. Kolawole
ILR	Nigeria	2006	MAG-9	University of Ilorin	Dr Adimula
ABU	Nigeria	2010	MAG-9	National 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

NINE, 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



That's the end of my Africa ~~presentation.~~

**Now, a word of
thanks to Prof.
Dianne
DeTurris.**



**Dianne
Sensei
arrived on
10th June
with her son
Leo
(see next
page).**





Leo

A few days later, her husband also arrived in Kitakyushu.





**Dianne Sensei
often lunched
with students,
but she also
lunched often
with staff.**





豚カツ

She often
made her own
bento お弁当
lunch。

Ton-katsu is
among her
favorite okazu.





We
celebrated
海の日
in her
office (15
July).





Poster session
of the 2019
SEIC course on
**“Rocket
Propulsion”**.
Each student
made a poster.



31 July 2019



So Dianne Sensei:
***Thank you for your
academic
contributions to
SEIC this summer!***

-- from everyone at Cho Lab

