Utilization of Earth Observation Data in Flood Monitoring and Assessment: GMES - CSSTE Consortium Capacity Building Efforts

by
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Who are we & What we do?

AFRICAN REGIONAL CENTRE FOR SPACE SCIENCE AND TECHNOLOGY EDUCATION – ENGLISH (ARCSSTE-E)

REGIONAL CENTRE FOR SST EDUCATION - ENGLISH

Post Graduate Diploma Programme (PGD) and MTech (Space Science and Technology)
...Building Indigenous capacity

PGD in 6 options: RS/GIS, Satellite Communication, Space and Atmospheric Science, Satellite Meteorology. GNSS & Space Law

- Curriculum under development
  - Space Engineering
  - Microgravity studies
 - **Duration:** 9 months

Masters

- **Duration :18-month MTech. (SSTA) in five key areas of Space Science and Technology (SST) Education**
- **Collaborating University: Federal University of Technology, Akure (FUTA)**

Distribution of PGD Participants by Course Option (2001 – 2020)

|	
Remote Sensing & GIS	385
Basic Space & Atmospheric Science (BSAS)	25
Satellite Communications	153
Satellite Meteorology	13
Global Navigation Satellite System	17

NB: 18 of the 24 Anglophone countries have participated in the Programme to date with a total of 592 to date.
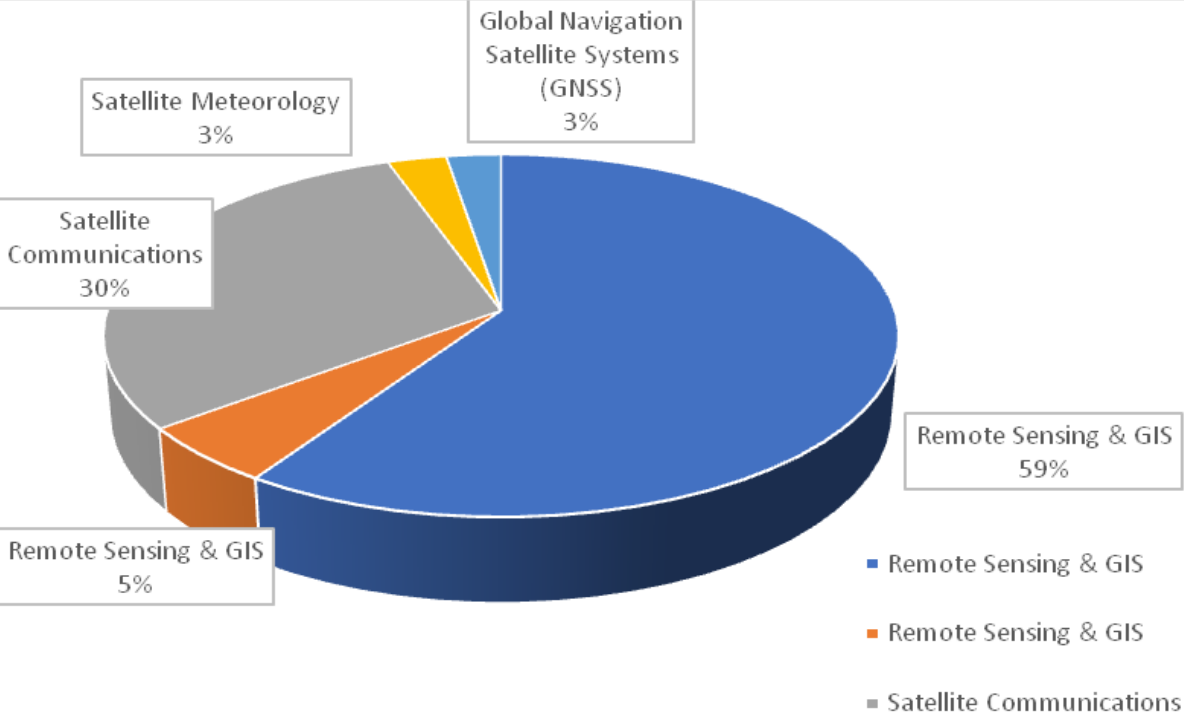
32 Participants are currently on the Programme for 2021/22 session

2001	6
2002	3
2003	19
2004	0
2005	24
2006	46
2007	26
2008	33
2009	40
2010	27
2011	33
2012	40
2013	33
2014	41
2015	27
2016	27
2017	22
2018	27
2019	56
2020	62

Pie chart:
- Remote Sensing & GIS — 59%
- Remote Sensing & GIS — 5%
- Satellite Communications — 30%
- Satellite Meteorology — 3%
- Global Navigation Satellite Systems (GNSS) — 3%

Legend:
- Remote Sensing & GIS
- Remote Sensing & GIS
- Satellite Communications

CSSTE CONSORTIUM - PARTNERS
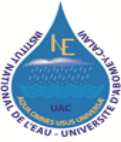
INE-NWI – National Water Institute, Benin **– Prof. Sintondji**

UG – University of Ghana, Department of Earth Sciences, Ghana **– Prof. Sandow M. Yidana**

VBA – Volta Basin Authority, Burkina Faso **– Robert Dessouassi**

CSIR-WRI – Council for Scientific and Industrial Research-Water Research Institute, Ghana **– Dr Emmanuel Obuobie**

ISESTEL - Institut Supérieur d'Etudes Spatiales et Télécomunications, Burkina Faso **– Dr Patric Sanou**

CURAT - Centre Universitaire de Recherche et d'Application en Télédétection, Cote d'Ivoire **– Prof Marc Youan Ta**

Centre for Space Science and Technology Education in English, Nigeria **– Dr Ganiy Agbaje**
Consortium Lead and Regional Implementation Centre (RIC)

Geographical coverage

ISESTEL, Burkina Faso

Volta Basin Authority, Burkina Faso

Africa

COTE-D'IVOIRE

University of Ghana Ghana

CSIR-WRI GHANA

INE BENIN

Consortium Leader
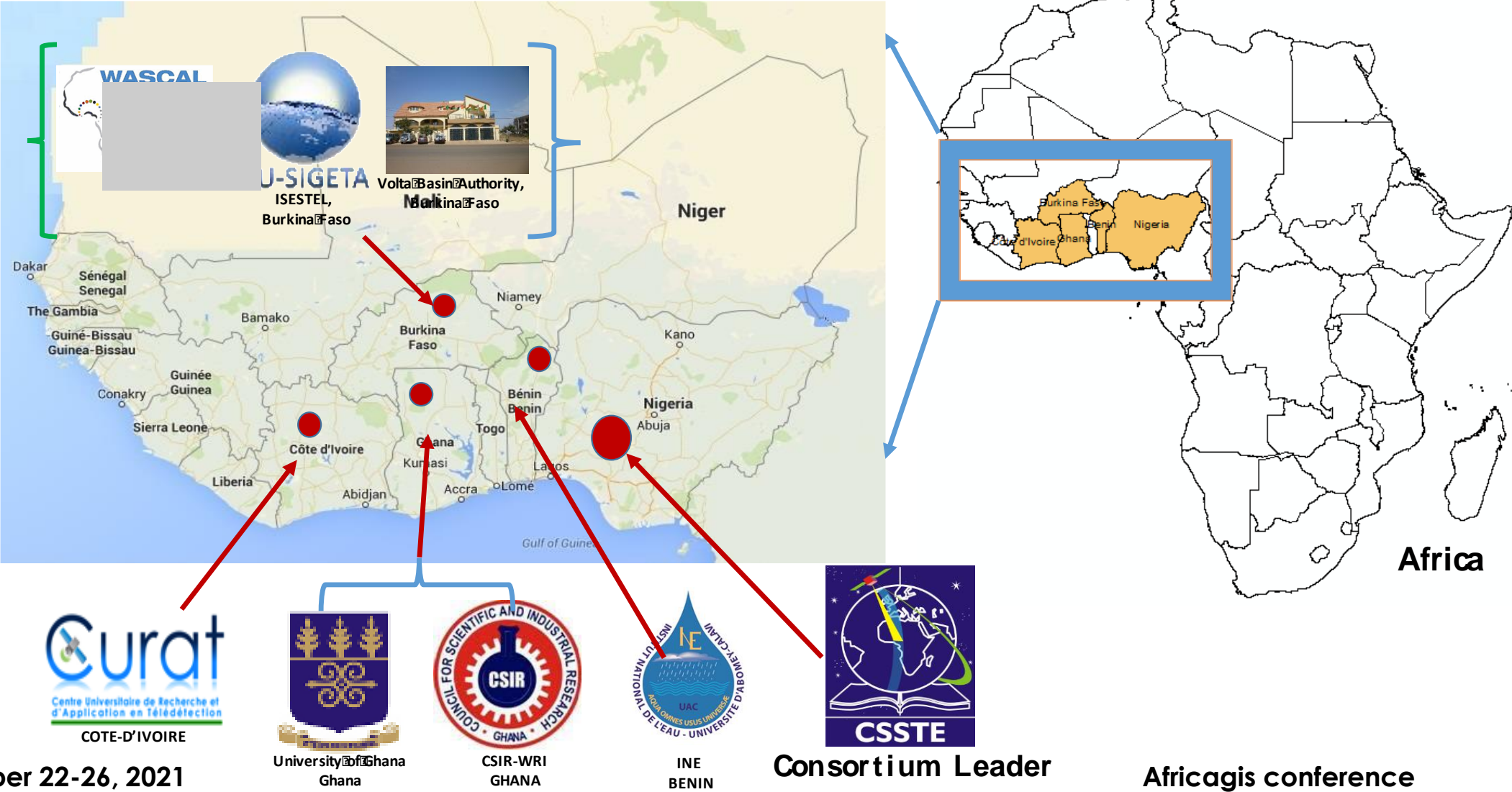
Multi-scale Flood Monitoring and Assessment Services for West Africa (MiFMASS) - CSSTE Connsortium Project

- **Aim**
  - ➢ To enhance the efficiency of flood monitoring, assessment and management in West Africa by providing Earth Observation (EO) based services on near real time basis to disaster management organizations and boosting their human capacity to adapt to these services.

 - ➢ **Specific Objectives**
  - ➢ Establish and updatable flood event database
  - ➢ Provide DMOs timely information before, during and after flood events
  - ➢ **Strengthen the capacities of DMOs and other target groups (Farmers, Local residents along flood plains) in the use of Earth Observation data for Flood monitoring, Assessment and management**
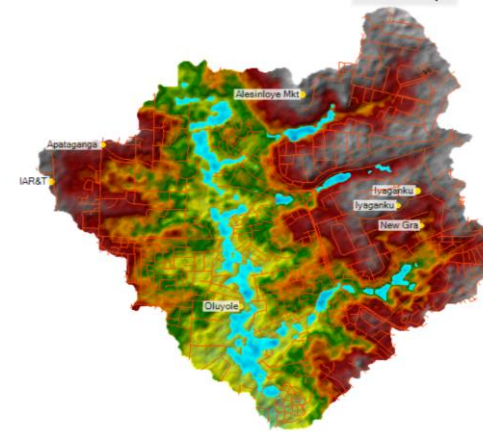
Products and Services
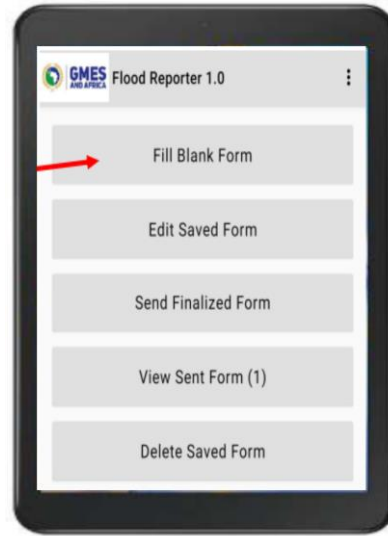
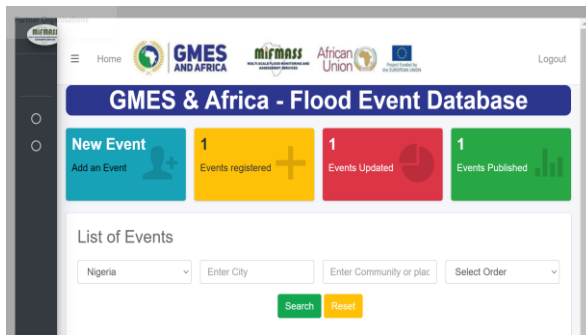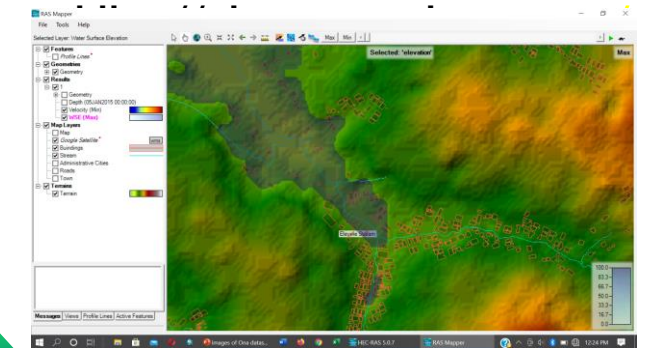Flood Reporter App
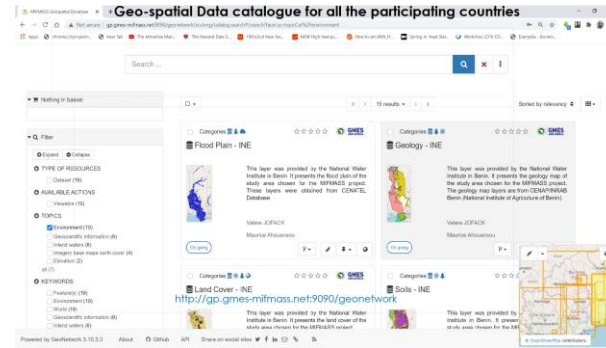
Geospatial database
gmes-mifmass.net/index.php/geodatabase/

warning (SMS)

- Over 500 participants from 16 Organizations
- 8Training workshops
- 6 MSc. degrees

Capacity development

http://gmes-mifmass.net/

Flood damage assesment & management

Training Series

| S/N	Course	Date Held	No of Participants	No of Males/Females	Mode
1	**Flood Database Management**	**26th-28th November, 2019**	**26**	**21/5**	onsite
2	**Acquisition and Use of Sentinel 1,2 & 3 Data:Processing and application**	**18th – 19th August, 2020**	**62**	**54/8**	Online
3	**Flood Monitoring and Forecasting Modelling**	**9th – 11th February, 2021**	**97**	**78/19**	Online
4	**API development interfacing services into information on mobile apps,**	**23rd – 25th February, 2021**	**112**	**92/20**	Online/
5	**Acquisition and Processing of Drone Data and Application**	**20th – 22nd April, 2021**	**87**	**71/16**	Online
6	**Techniquesfor sharing, validating and disseminating products**	**12th-13th October, 2021**	**73**	**48/25**	Online
7	**Estation installation, Operations and Troubleshooting**	**20th-21st October, 2021**	**76**	**46/30**	Online
8	**Collaboration with DMOs and testing of Assessment systems**	**15 - 16th, November 2012**	**70**	**49/21**	online

Participants Attendance

Participants Attendance at Training
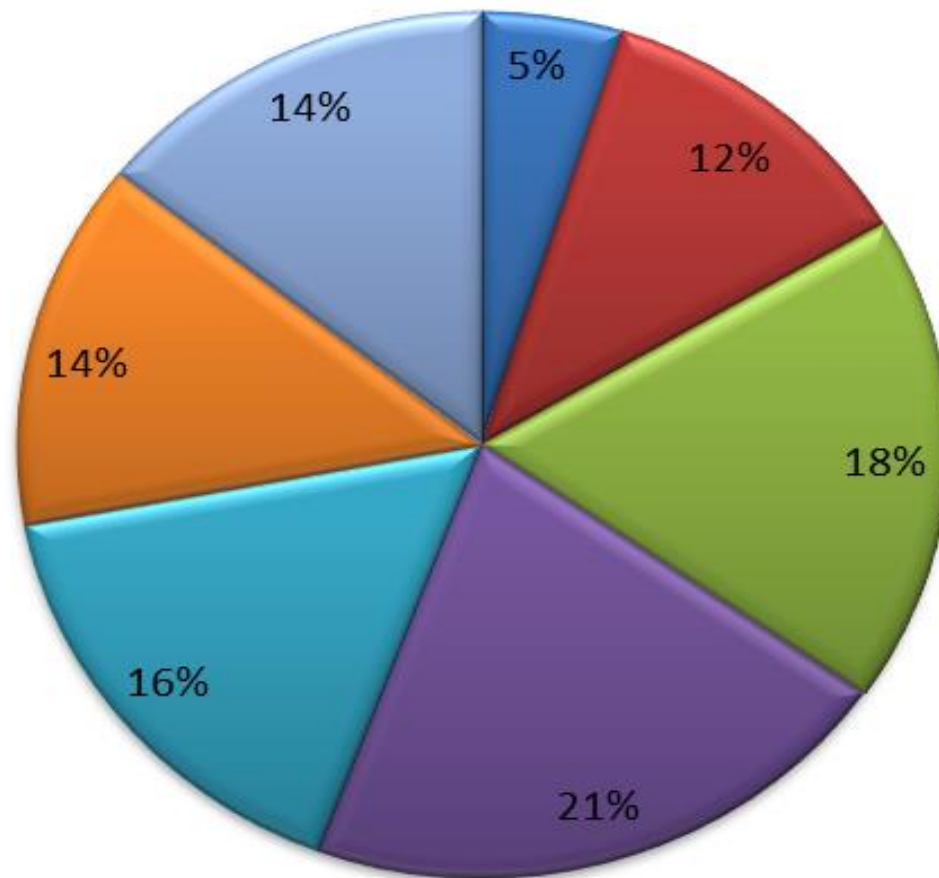
- ■ 1 Flood Database Management
- ■ 2 Acquisition and Use of Sentinel Data
- ■ 3 Flood Monitoring and Forecasting
- ■ 4 API development interfacing services
- ■ 5 Acquisition and Processing of Drone Data
- ■ 6 Techniques for sharing products
- ■ 7 Estation installation, Operations and Troubleshooting

Gender distribution of Participants
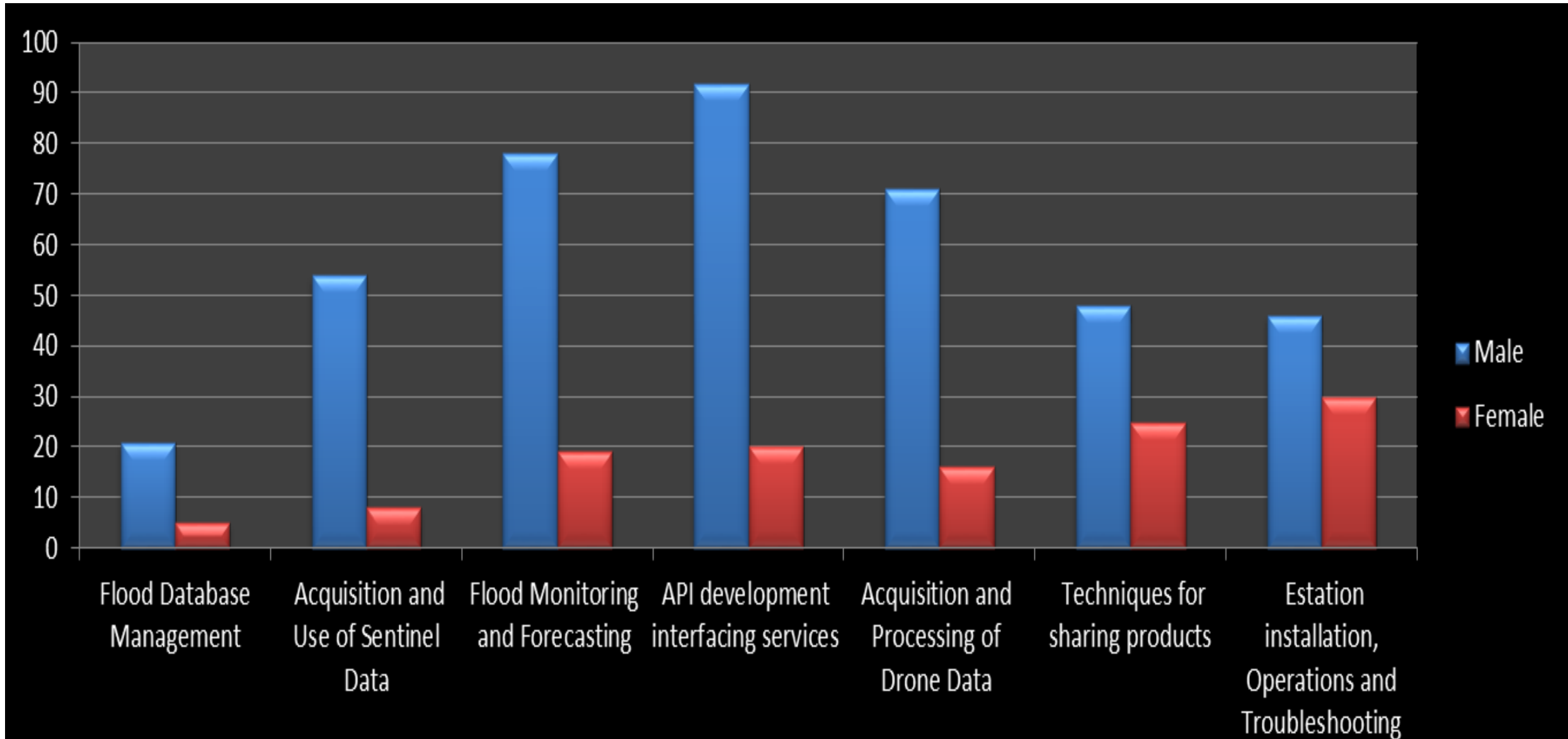
Country Distribution of participants
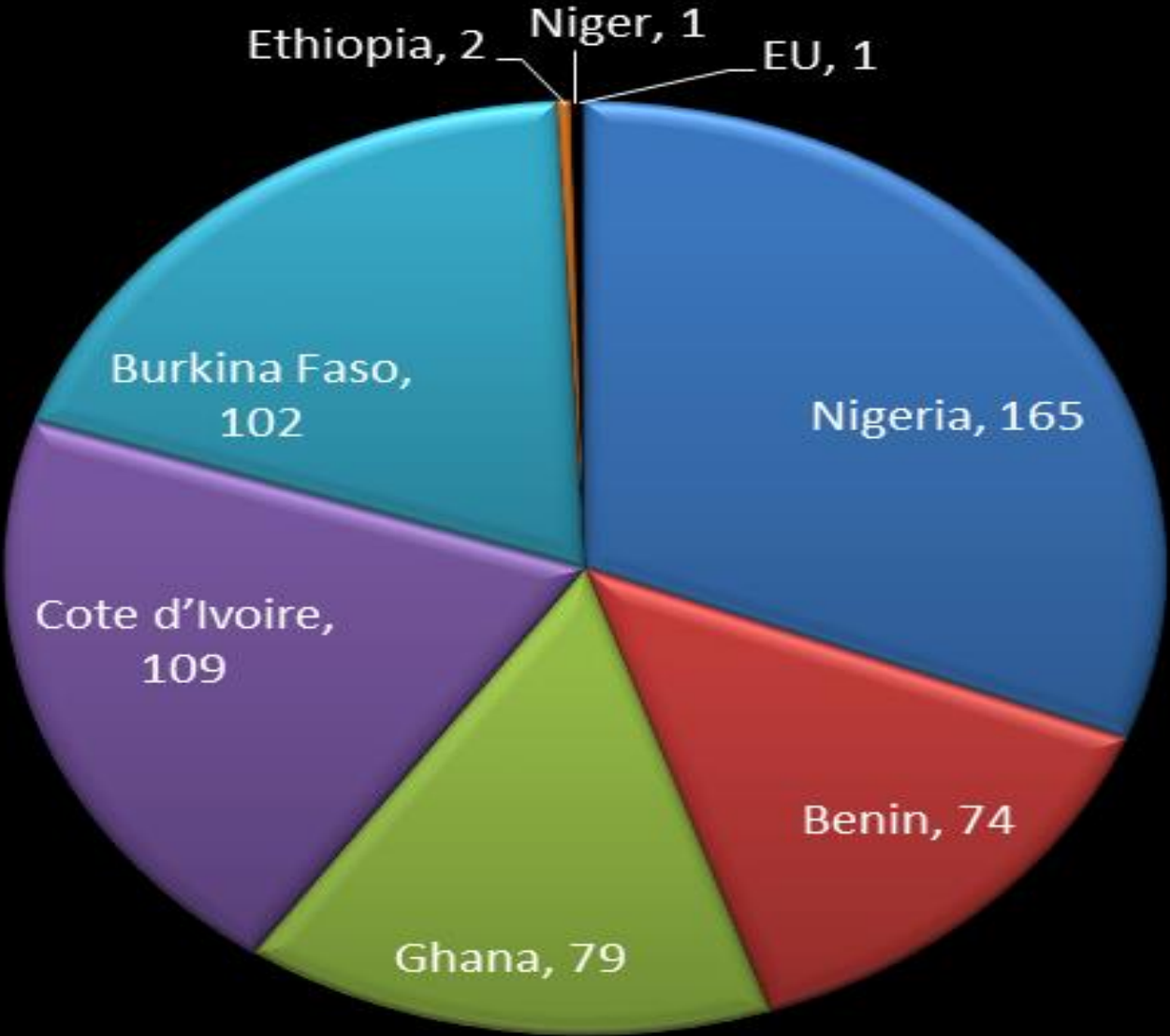
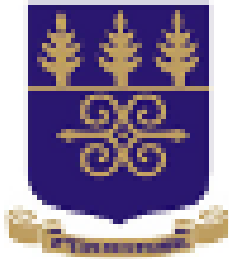# Long Term Training - 6 Masters students

NIGERIA

ADERUNGBOYE KEHINDE
OLUWASINA
Institution: ARCSSTE-E/FUTA

EBIJUOWORIH, EFARI JOY
Institution: ARCSSTE-E/FUTA

Long Term Training - 6 Masters students

GHANA

**YEBOAH FELICIA
COURSE: MPHIL
HYDROGEOLOGY
Institution: UNIVERSITY
OF GHANA**

CÔTE D'IVOIRE

**Laurent
Institution: Centre
Universitaire de Recherche et
d'Application en Télédétection
(CURAT)**
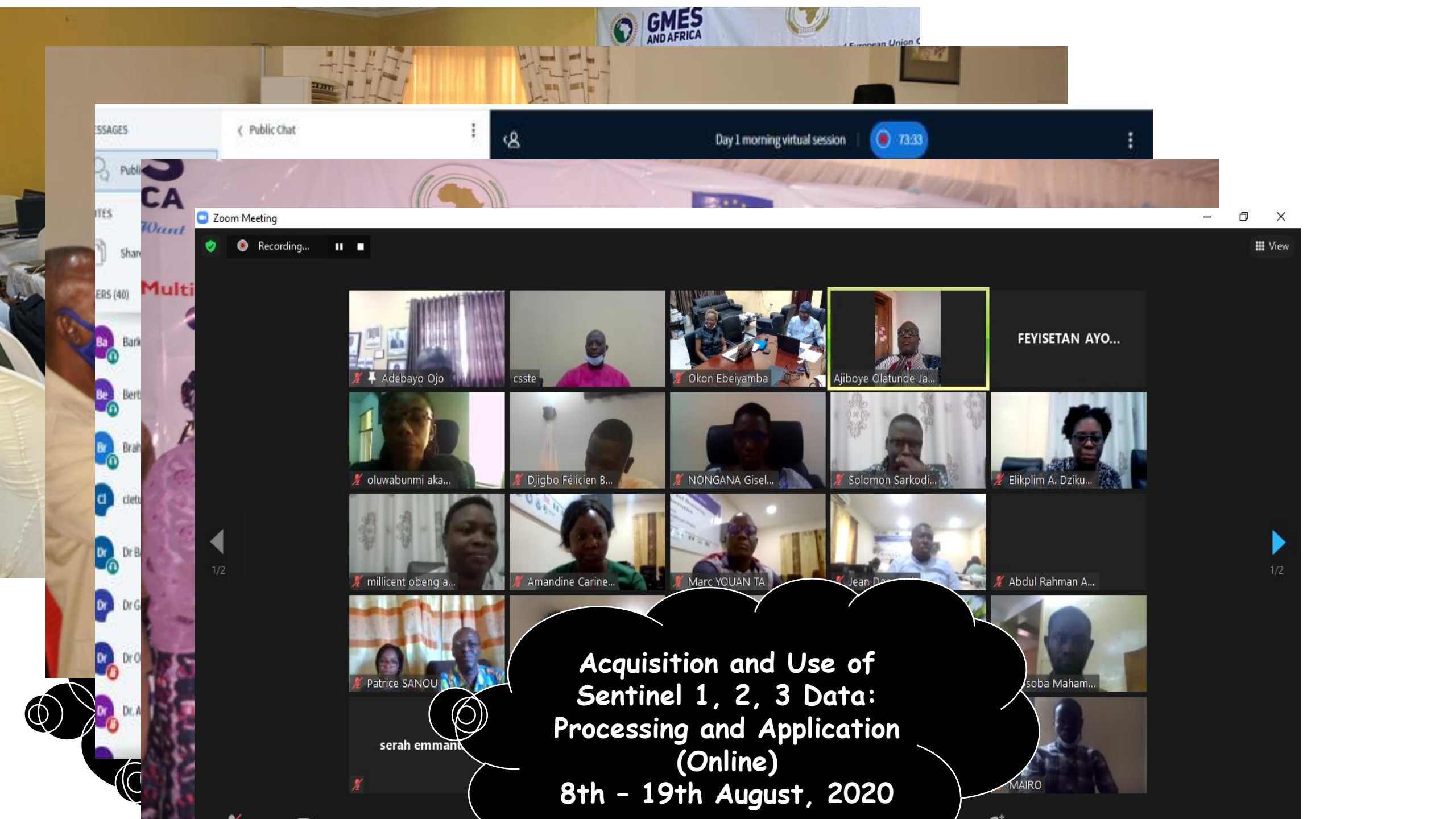
Long Term Training - 6 Masters students

BURKINA FASO

YAMEOGO PÉLAGIE
Institution: INSTUT
SUPERIEURD'ETUDEIT

BENIN Republic

HOUINATO MARJOËL ARMÉLÈK
KOUDID
Institution: University of Abomey-
Calavi, Benin Republic.

Acquisition and Use of
Sentinel 1, 2, 3 Data:
Processing and Application
(Online)
8th – 19th August, 2020

Conclusion

- In summary:
  a) **6 Masters degree** were Trained across **5 Partner countries.**

- b) Over **600 participants capacity** have been enhanced through the **8 short term training** in usage of EO data for Flood monitoring across 7 countries,

- c) Robust **elearning platform available** for **continous** online training.

Thank you for listening