

# Online Geospatial Education in Africa through the OpenEdX Platform: Possibilities and Limitations



**Dr. Thomas J. Ballatore**

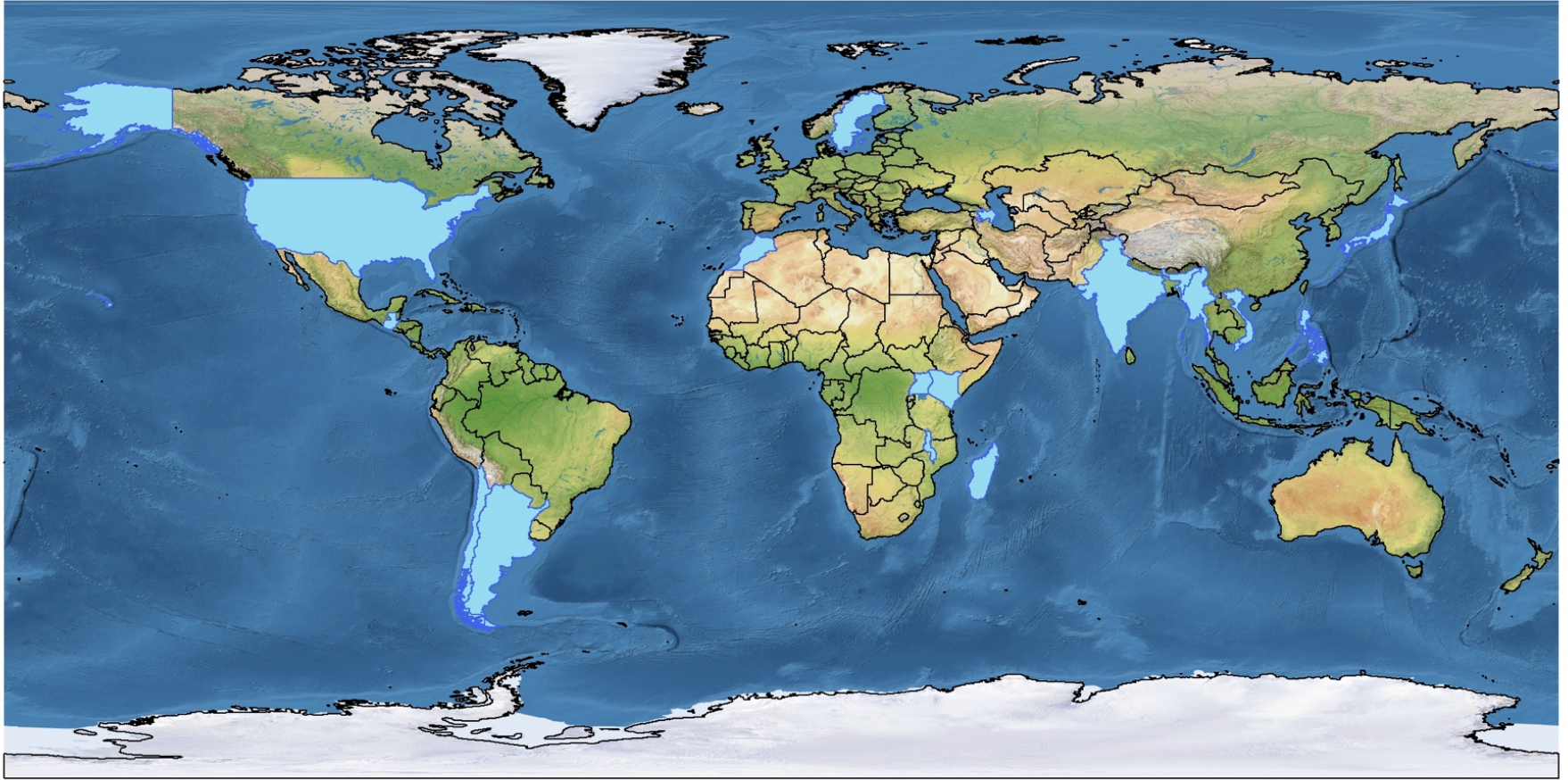
Lake Basin Action Network (LBAN), Shiga, Japan

**Dr. Lydia Olaka**

University of Nairobi, Nairobi, Kenya



LAKE BASIN  
**LBAN**  
ACTION NETWORK



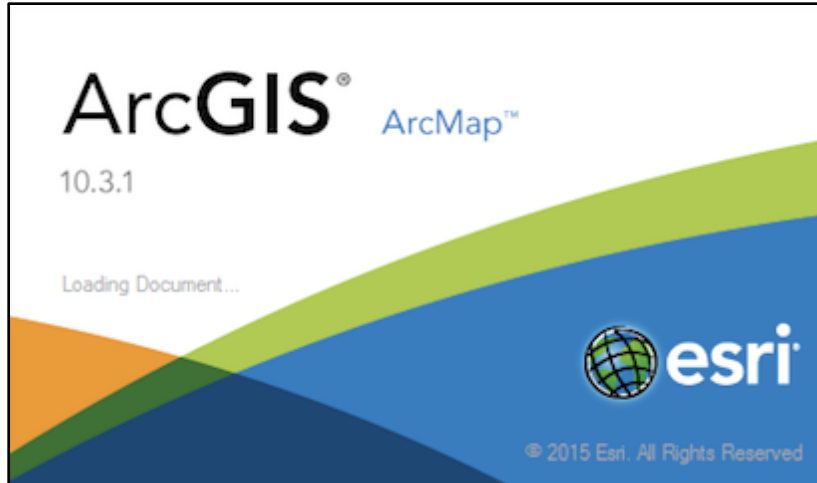
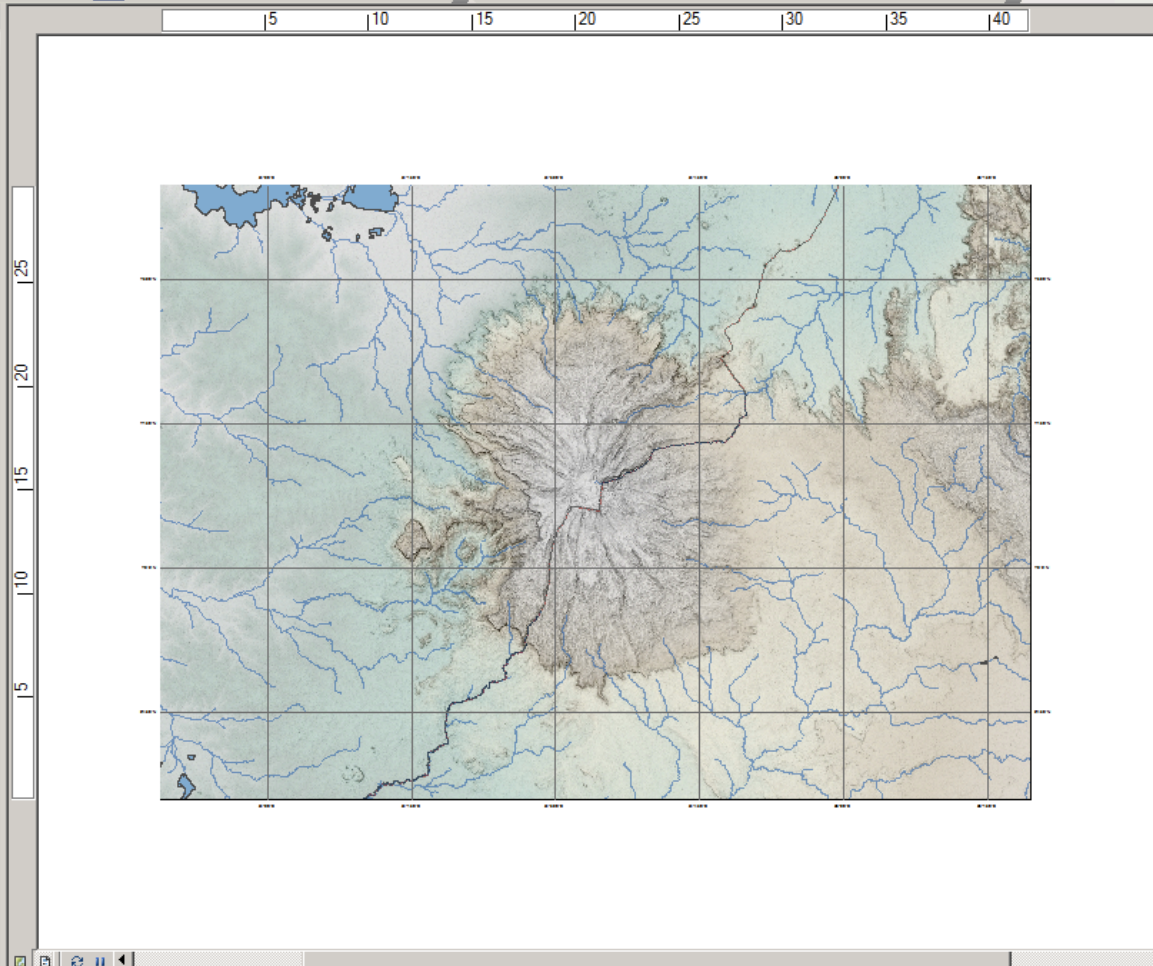




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Catalog

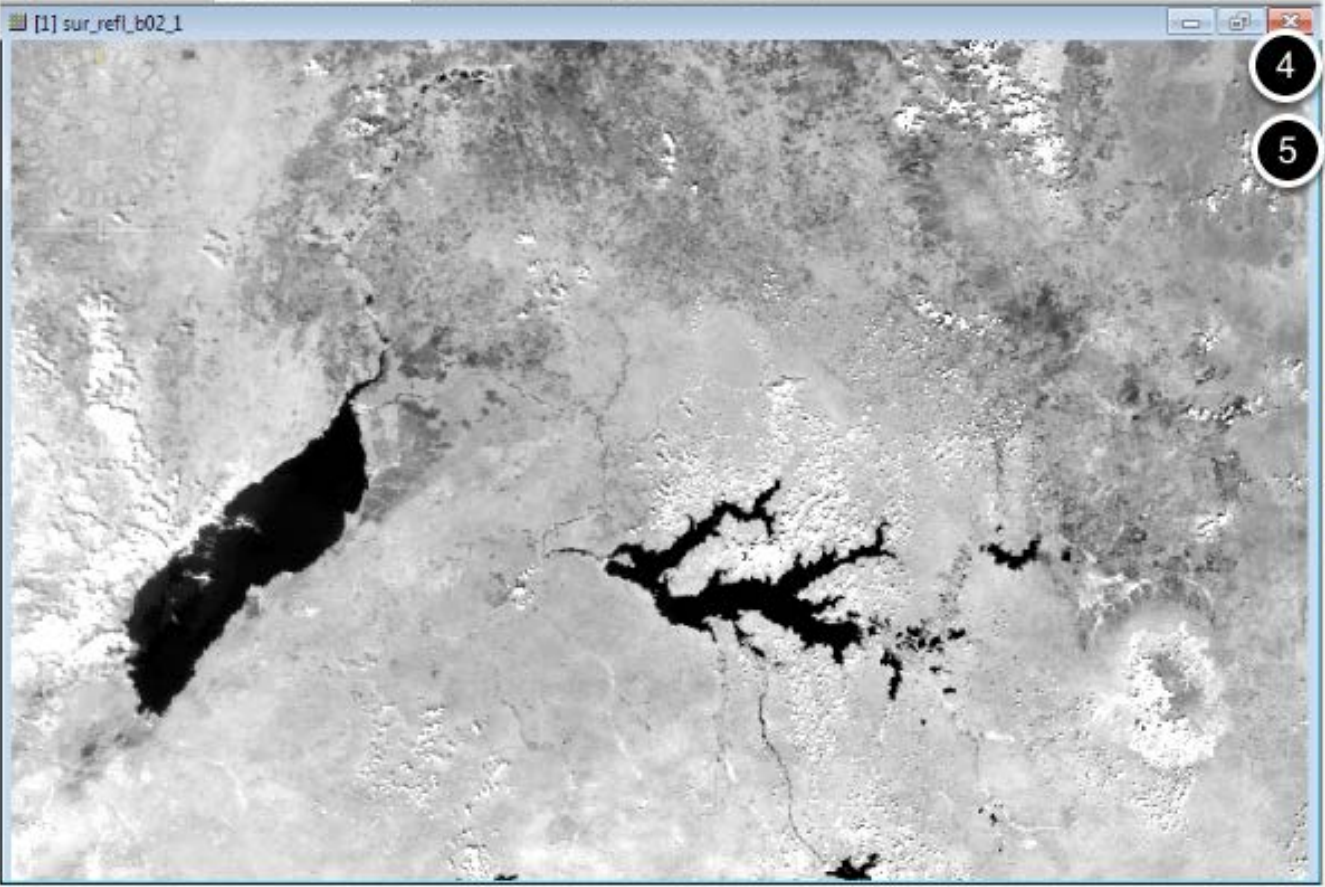
- Location: Home - ElgonAtlas\GIS
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Products View

- Bands
  - num\_observations\_500m
  - sur\_refl\_b01\_1
  - sur\_refl\_b02\_1**
  - sur\_refl\_b03\_1
  - sur\_refl\_b04\_1
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  - state\_1km\_1



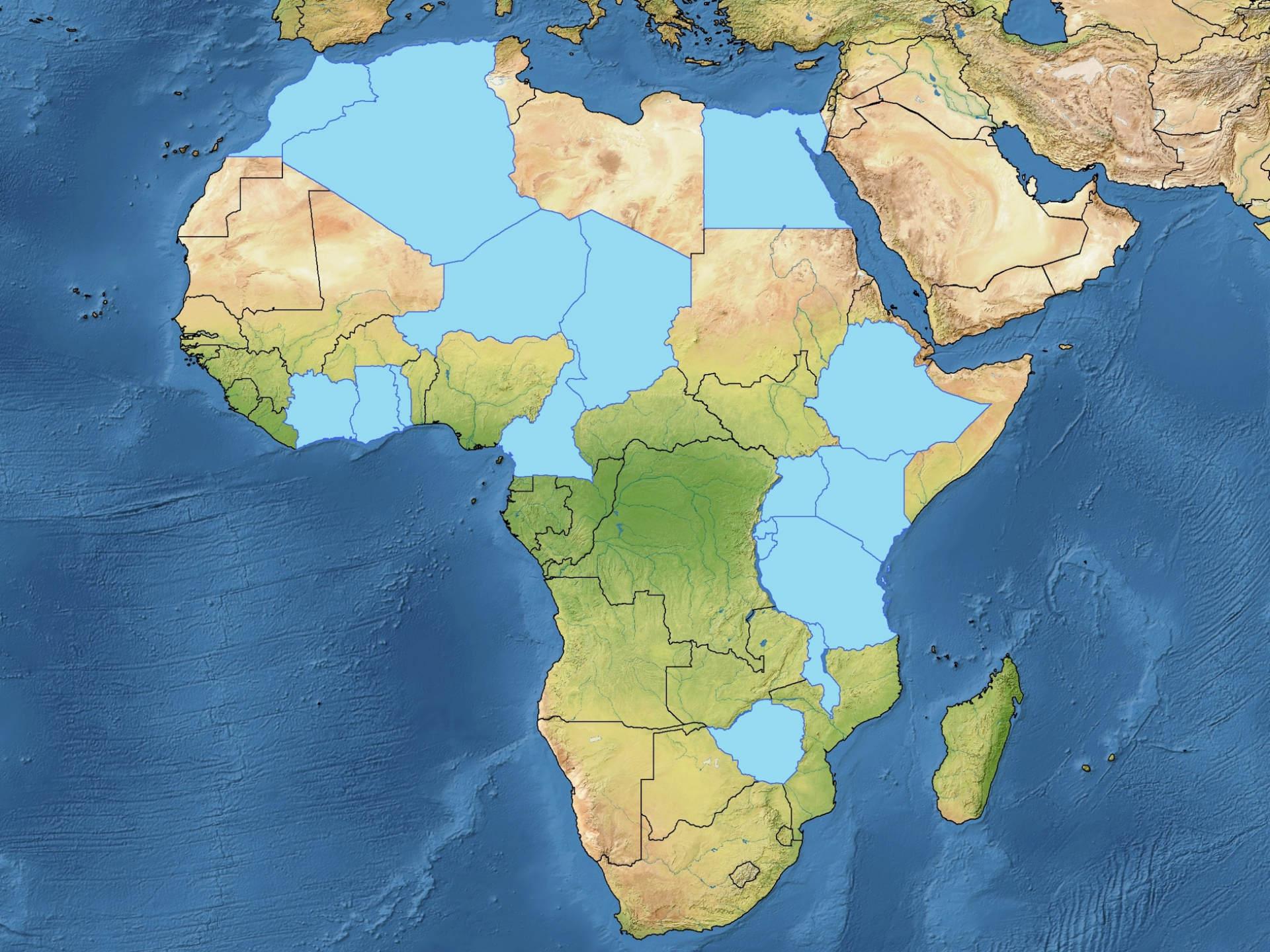
Navigation

1 : 723.3 0°

Navigation Colour Manipulation











Man standing and speaking into a microphone.

FOSAG  
Hybrid Solar Solution  
Energy Storage  
Power Quality







# The problem...

1. *Reach more people*



## Sudan Travel Warning

LAST UPDATED: JUNE 15, 2015

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The Department of State warns U.S. citizens of the risks of traveling to Sudan. We urge U.S. citizens to avoid all travel to the Darfur region of Sudan, and to Blue Nile and Southern Kordofan states, and advise U.S. citizens to consider carefully the risks of travel in other areas of Sudan. This supersedes the Travel Warning issued on October 30, 2014.



## Somalia Travel Warning

LAST UPDATED: OCTOBER 1, 2015

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The U.S. Department of State continues to warn U.S. citizens to avoid all travel to Somalia. This replaces the Travel Warning dated October 24, 2014, to update information on security concerns.



## Burundi Travel Warning

LAST UPDATED: MAY 14, 2015

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The U.S. Department of State warns U.S. citizens against all travel to Burundi and recommends that U.S. citizens currently in Burundi depart as soon as it is feasible to do so. As a result of



## Eritrea Travel Warning

LAST UPDATED: MAY 6, 2015

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The U.S. Department of State continues to warn U.S. citizens of the risks of travel to Eritrea. The Government of Eritrea continues



## Republic of South Sudan Travel Warning

LAST UPDATED: JULY 1, 2015

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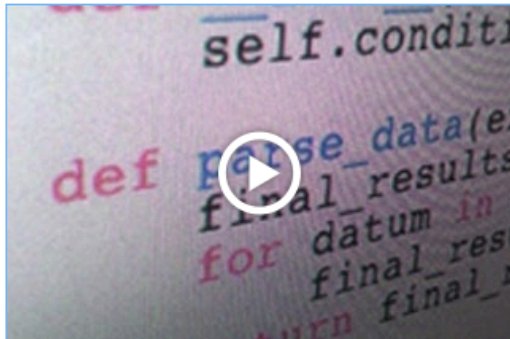
The U.S. Department of State warns U.S. citizens against travel to the Republic of South Sudan. The U.S. Embassy in Juba continues



# The problem...

1. *Reach more people*
2. *Replicate our collaborative in-person learning experience in a digital program*

# Our model class...



## Introduction to Computer Science and Programming Using Python

6.00.1x is an introduction to computer science as a tool to solve real-world analytical problems.



In Session

Started on August 26, 2015

[Enroll Now](#)

I would like to receive email from MIT and learn about its other programs.

### About this course

This course is the first of a two-course sequence: Introduction to Computer Science and Programming Using Python, and Introduction to Computational Thinking and Data Science. Together, they are designed to help people with no prior exposure to computer science or programming learn to think computationally and write programs to tackle useful problems. Some of the people taking the two courses will use them as a

[See more](#)

### What you'll learn

- A Notion of computation
- The Python programming language
- Some simple algorithms
- Testing and debugging

Length:	9 weeks
Effort:	15 hours/week
Price:	FREE Verified Certificate option closed
Institution:	MITx
Subject:	Computer Science
Level:	Introductory
Languages:	English
Video Transcripts:	English




▸ Overview

▸ Entrance Survey


▸ Week 1

▾ Week 2

**Lecture 3 - Simple Algorithms - Time 56:38**

Lecture Sequence 

**Lecture 4 - Functions - Time 56:51**

Lecture Sequence 

**Problem Set 1**

Problem Set due Sep 11, 2015 at 23:30 UTC 

**Problem Set 2**

Problem Set due Sep 14, 2015 at 23:30 UTC 

▸ Week 3



### LECTURE 3 INTRODUCTION - TIME 1:07





Courseware

Updates & News

Calendar

Wiki

Discussion

Progress

▸ Overview

▸ Entrance Survey

▸ Week 1

▾ Week 2

**Lecture 3 - Simple Algorithms - Time 56:38**

Lecture Sequence



**Lecture 4 - Functions - Time 56:51**

Lecture Sequence



**Problem Set 1**

Problem Set due Sep 11, 2015 at 23:30 UTC

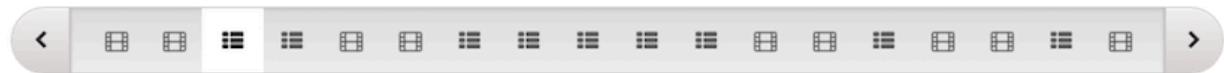


**Problem Set 2**

Problem Set due Sep 14, 2015 at 23:30 UTC



▸ Week 3



L3 PROBLEM 1 (5 points possible)

**ESTIMATED TIME TO COMPLETE: 8 minutes**

Below are some short Python programs. For each program, answer the associated question.

Try to answer the questions without running the code. Check your answers, then run the code for the ones you get wrong.

This question is going to ask you what some simple loops print out. If you're asked what code like this prints:

```
num = 5
if num > 2:
    print num
    num -= 1
print num
```

write what it prints out, separating what appears on a new line by a comma and a space. So the answer for the above code would be:



**Survey of 14  
countries**

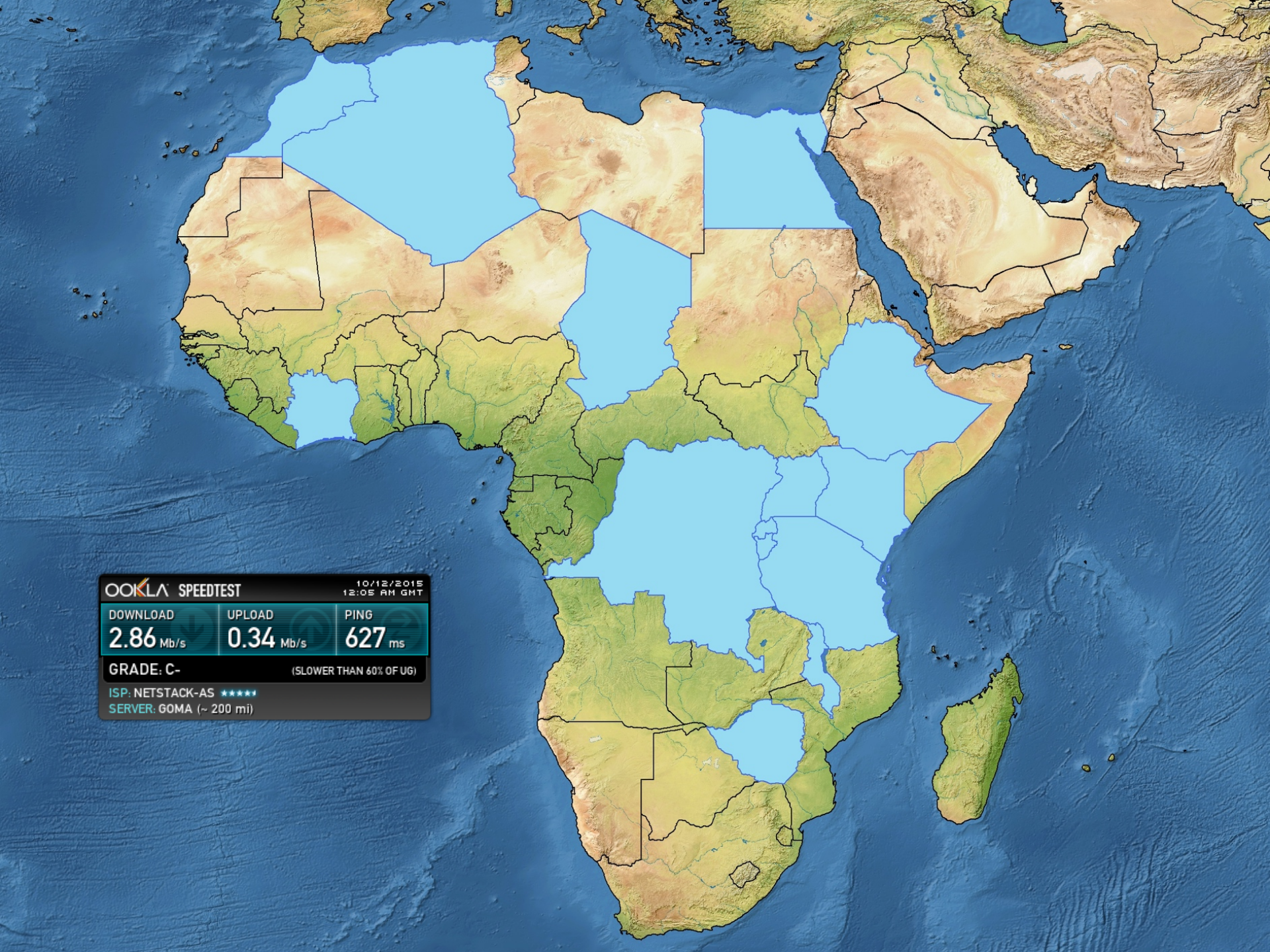


# Factors affecting the use of OpenEdX in Africa for Geospatial Education

## 1. *Internet*

- *Slow speeds, frequent service interruptions*





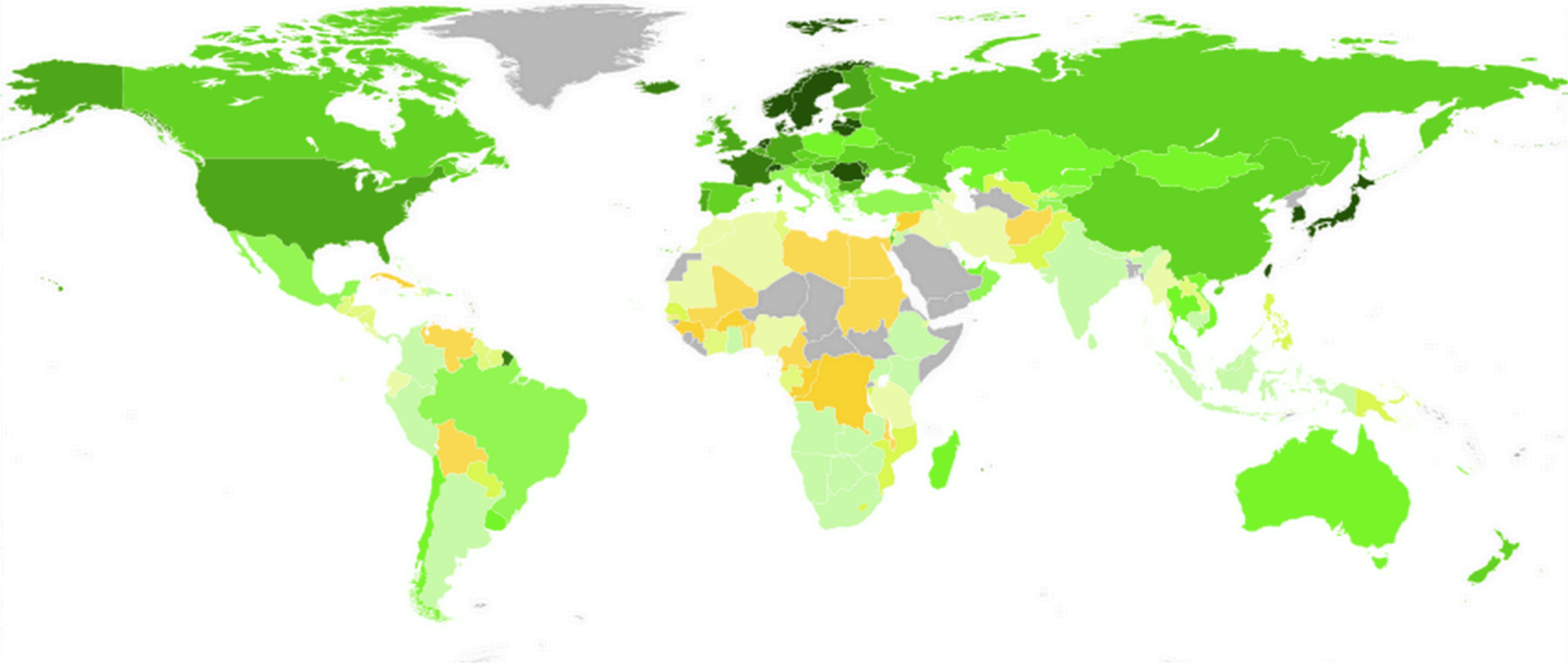
**OOKLA SPEEDTEST** 10/12/2015  
12:05 AM GMT

DOWNLOAD	UPLOAD	PING
<b>2.86</b> Mb/s	<b>0.34</b> Mb/s	<b>627</b> ms

**GRADE: C-** (SLOWER THAN 60% OF UG)

ISP: NETSTACK-AS ★★★★★  
SERVER: GOMA (~ 200 mi)







# Factors affecting the use of OpenEdX in Africa for Geospatial Education

## 1. *Internet*

- *Slow speeds, frequent service interruptions*

## 2. *Power*

- *Frequent power cuts*

## 3. *Hardware*

- *Older machines, insufficient RAM*

## 4. *Computer Skills*

- *Lack of “fluency” with computers*

# Factors affecting the use of OpenEdX in Africa for Geospatial Education

## 5. *Credentialing*

- *Certificates are really important*

## 6. *Language/Culture*

- *Working with different languages; semi-literate stakeholders*

## 7. *Pedagogy*

- *Videos, multiple choice, problem sets  
\*and\* evaluation of geospatial outputs*



