MITgcm/ECCO Gulf of Guinea Simulation

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Outline of Presentation

1. Introduction
2. Recap of the MITgcm
3. Regional Gulf of Guinea Configuration
4. Conclusion and Recommendation

Introduction

Underlining principles for driving an Ocean Model.

- ⋆ Grid.
- ⋆ Bathymetry.
- ⋆ Initial conditions (initial temperature and salinity).
- ⋆ Boundary conditions (atmospheric surface conditions and lateral conditions.)

Massachusetts Institute of Technology general circulation model (MITgcm)

The MITgcm is a numerical model designed to study and analyze the behaviours of ocean, climate and atmosphere. The following steps are involved in installing and running the MITgcm:

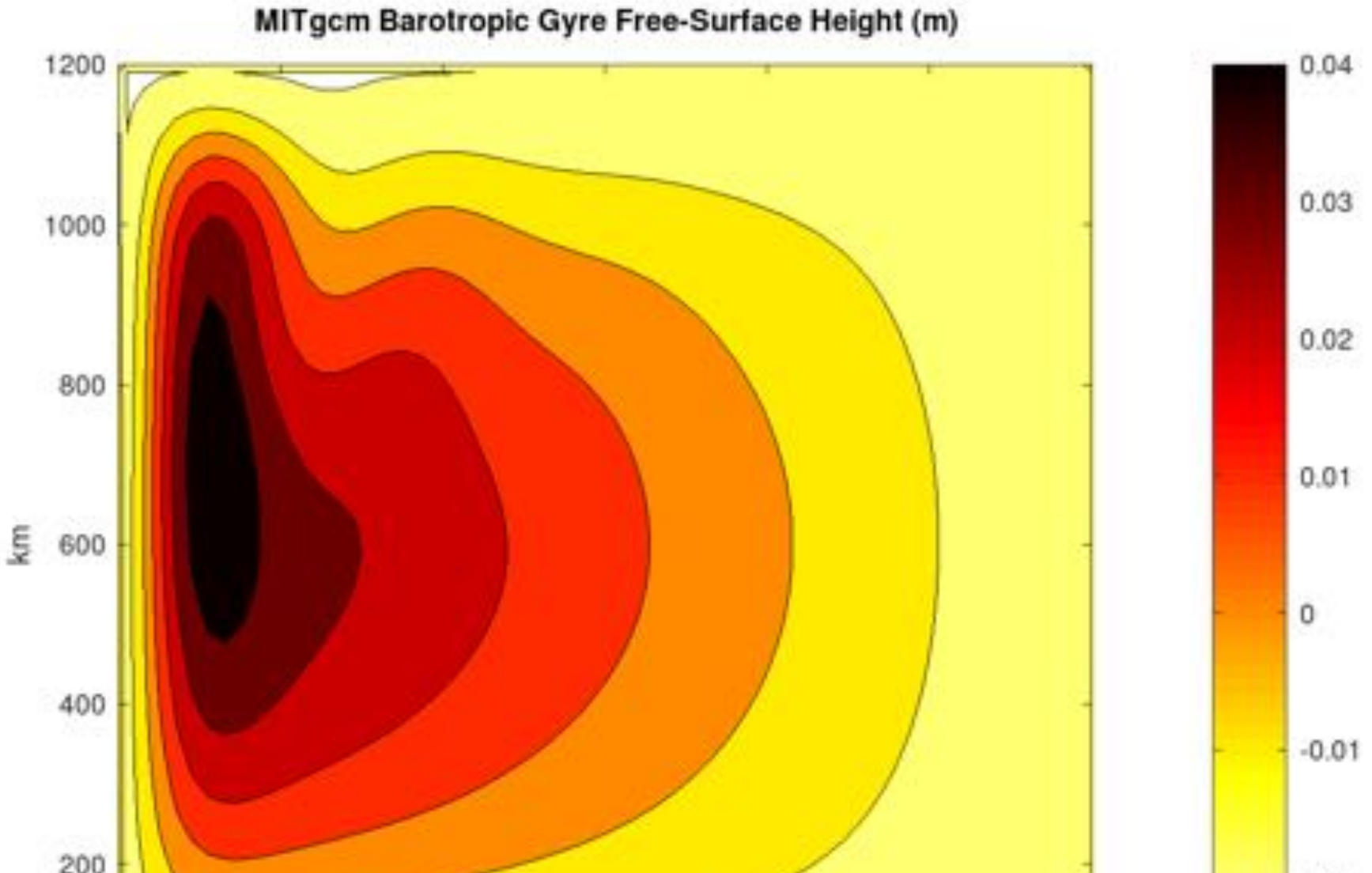
- Before running MITgcm, you need a Linux or Unix -based operating system (OS).
- Linux OS has a compiler called gfortran for compiling codes.
- Download MITgcm from the link https://mitgcm.org.

Figure 1: Virtual Box Interface

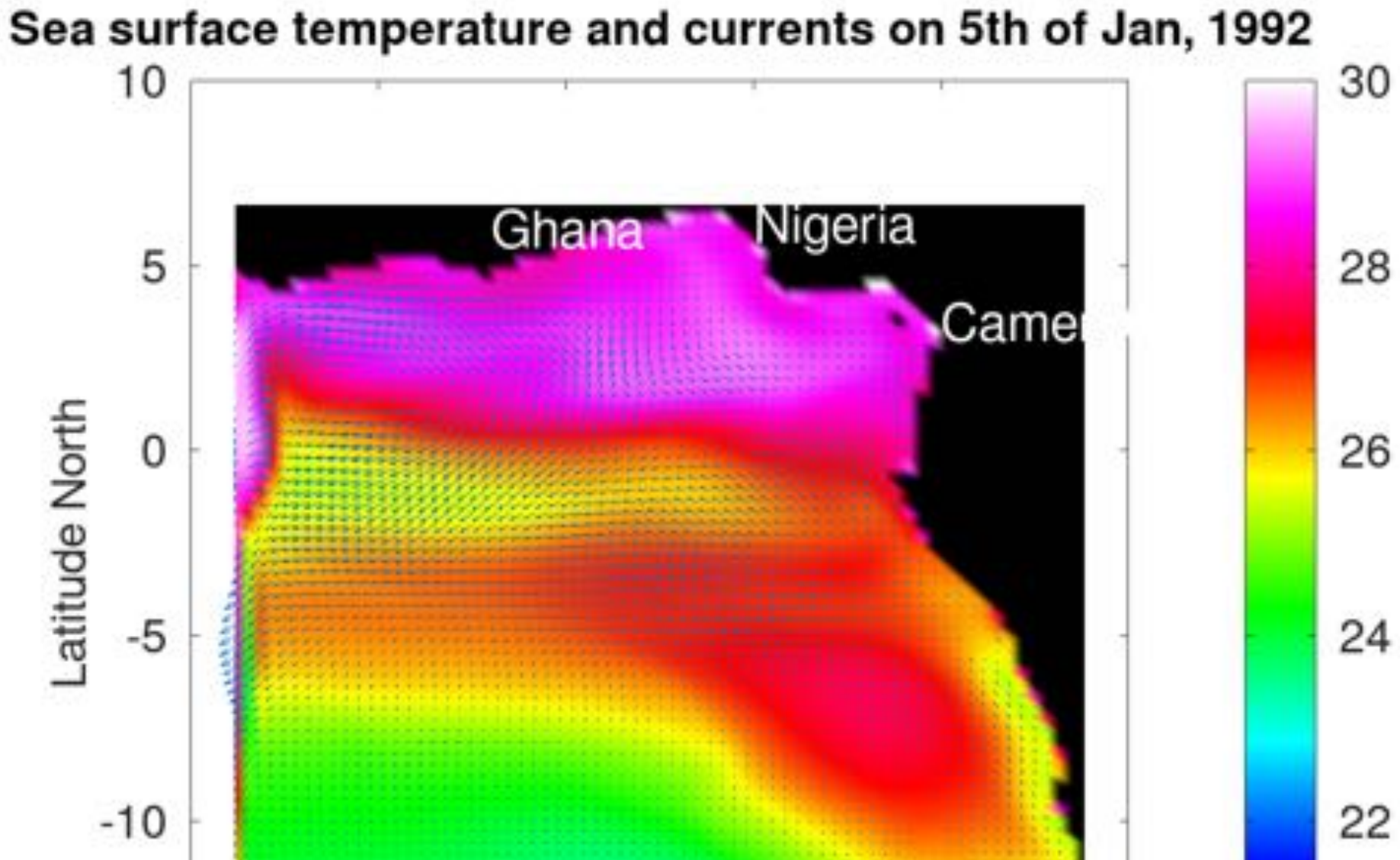
Figure 2: MITgcm

Figure 3: MITgcm tutorial

Running the MITgcm Model on a test example..



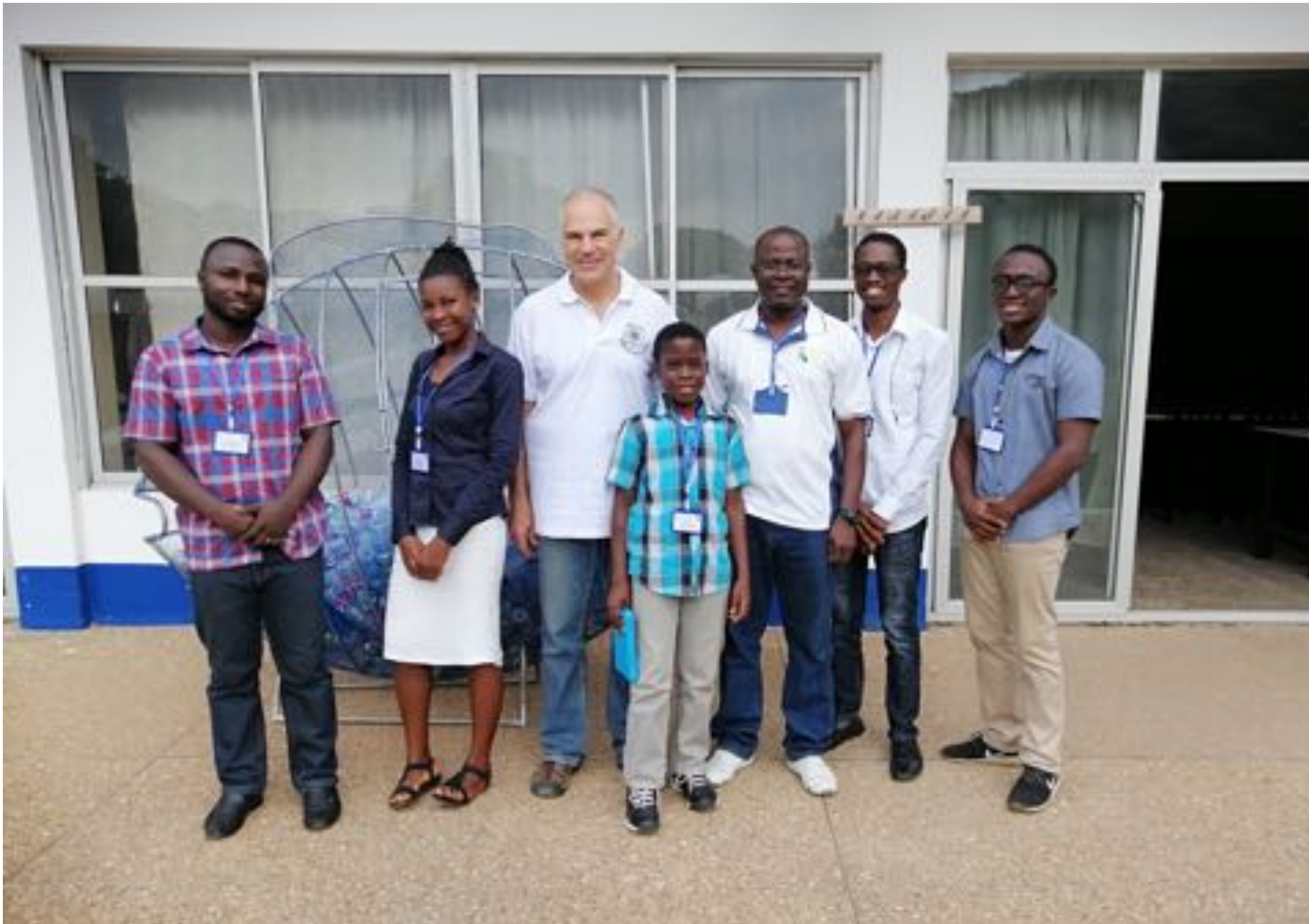
Running the Gulf of Guinea using MITgcm Model.



Limitations.

- You need a good programming background.
- In Octave and Python.
- You need a computer with good processing speed.

Conclusion

- We looked at the steps involved in running the MITgcm model.
- We worked on a barotropic gyre test example.
- Finally, we carried out a numerical simulation on the Gulf of Guinea coast.

THANK YOU