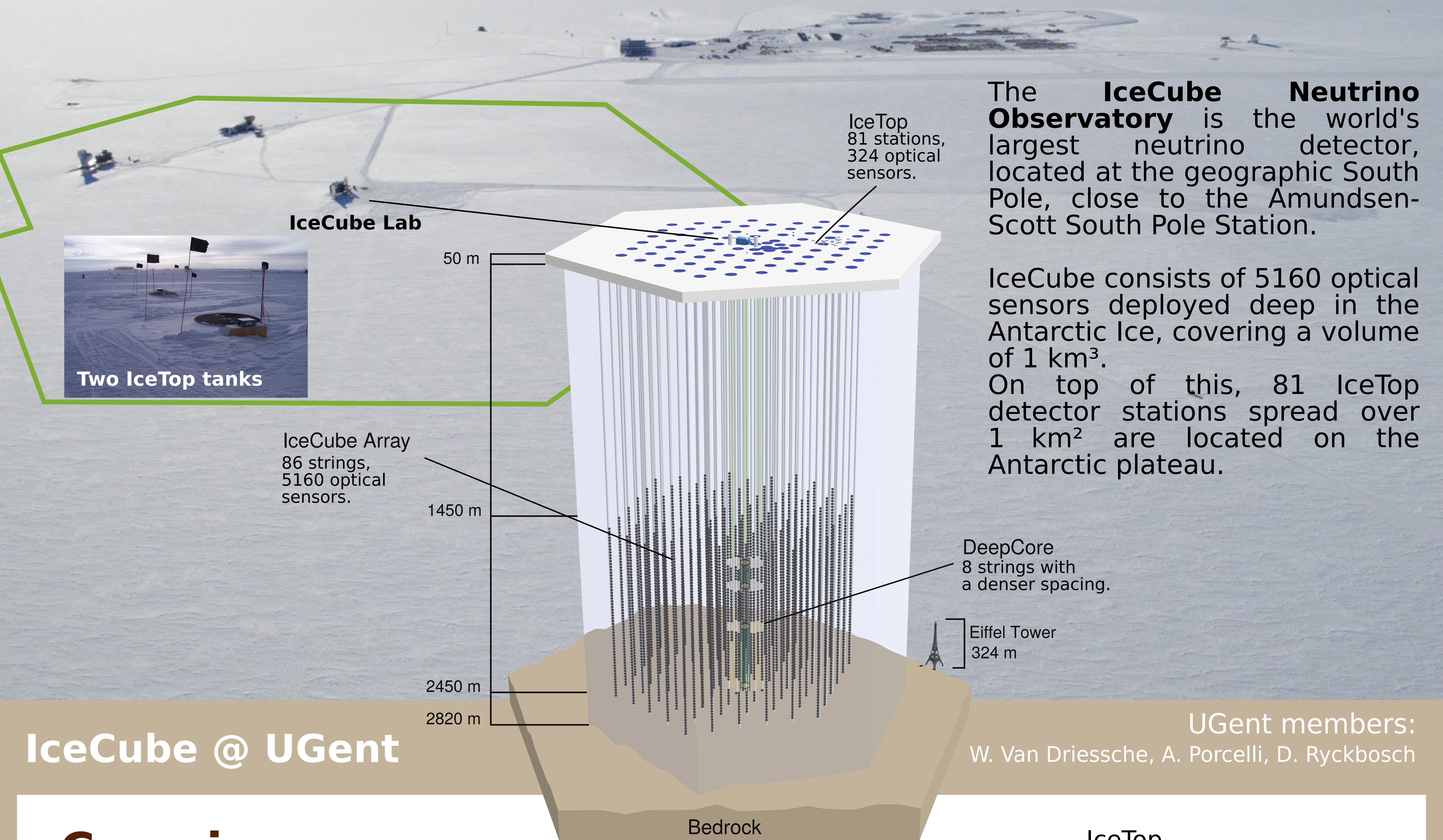


# ICECUBE

SOUTH POLE NEUTRINO OBSERVATORY



## UNIVERSITEIT GENT



The **IceCube Neutrino Observatory** is the world's largest neutrino detector, located at the geographic South Pole, close to the Amundsen-Scott South Pole Station.

IceCube consists of 5160 optical sensors deployed deep in the Antarctic Ice, covering a volume of 1 km<sup>3</sup>.

On top of this, 81 IceTop detector stations spread over 1 km<sup>2</sup> are located on the Antarctic plateau.

**IceCube @ UGent**

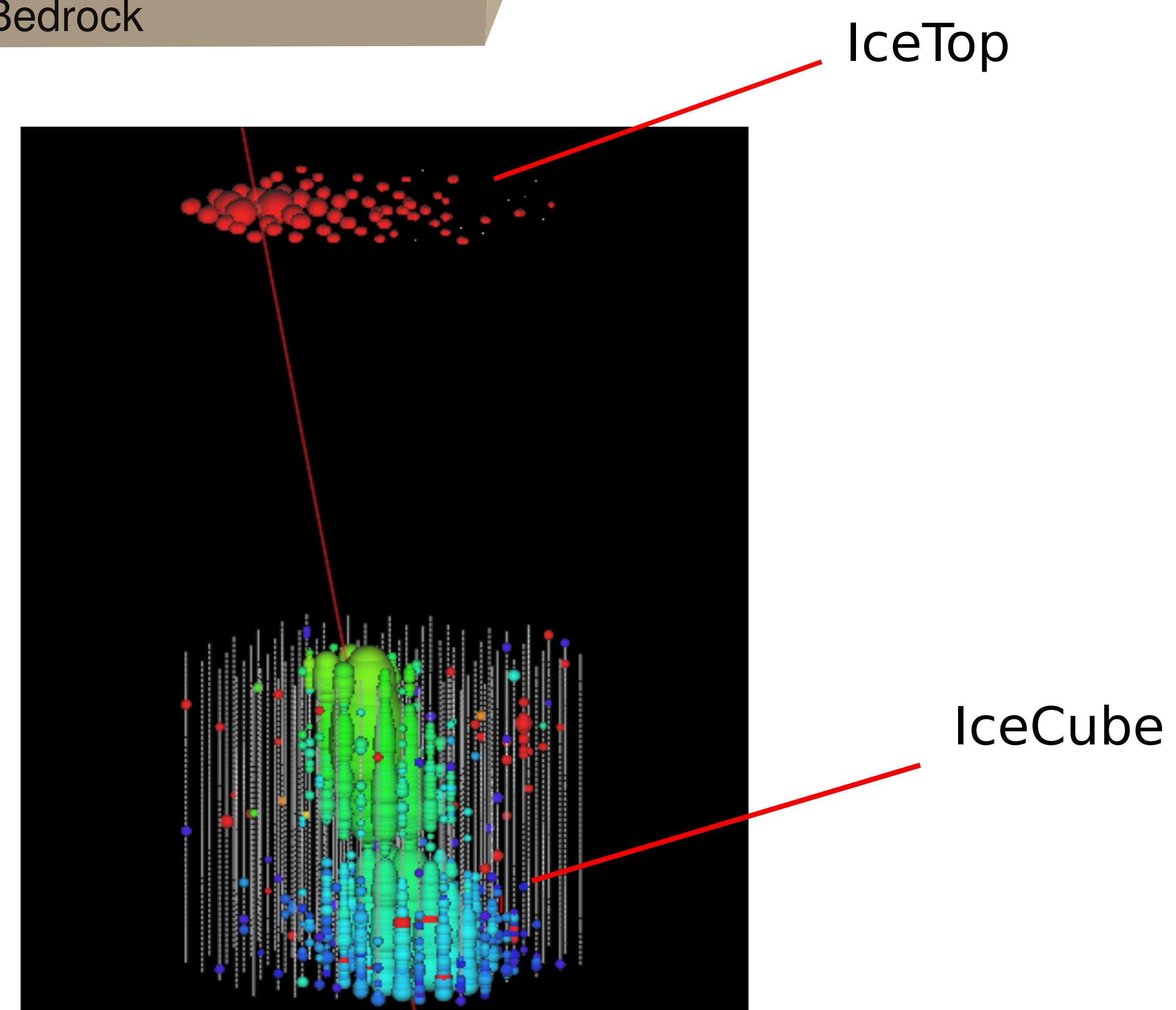
UGent members:  
W. Van Driessche, A. Porcelli, D. Ryckbosch

## Cosmic rays

Cosmic ray air shower detection with energies from  $(1 - 1000) \times 10^6$  GeV

*Hybrid detection technique:*

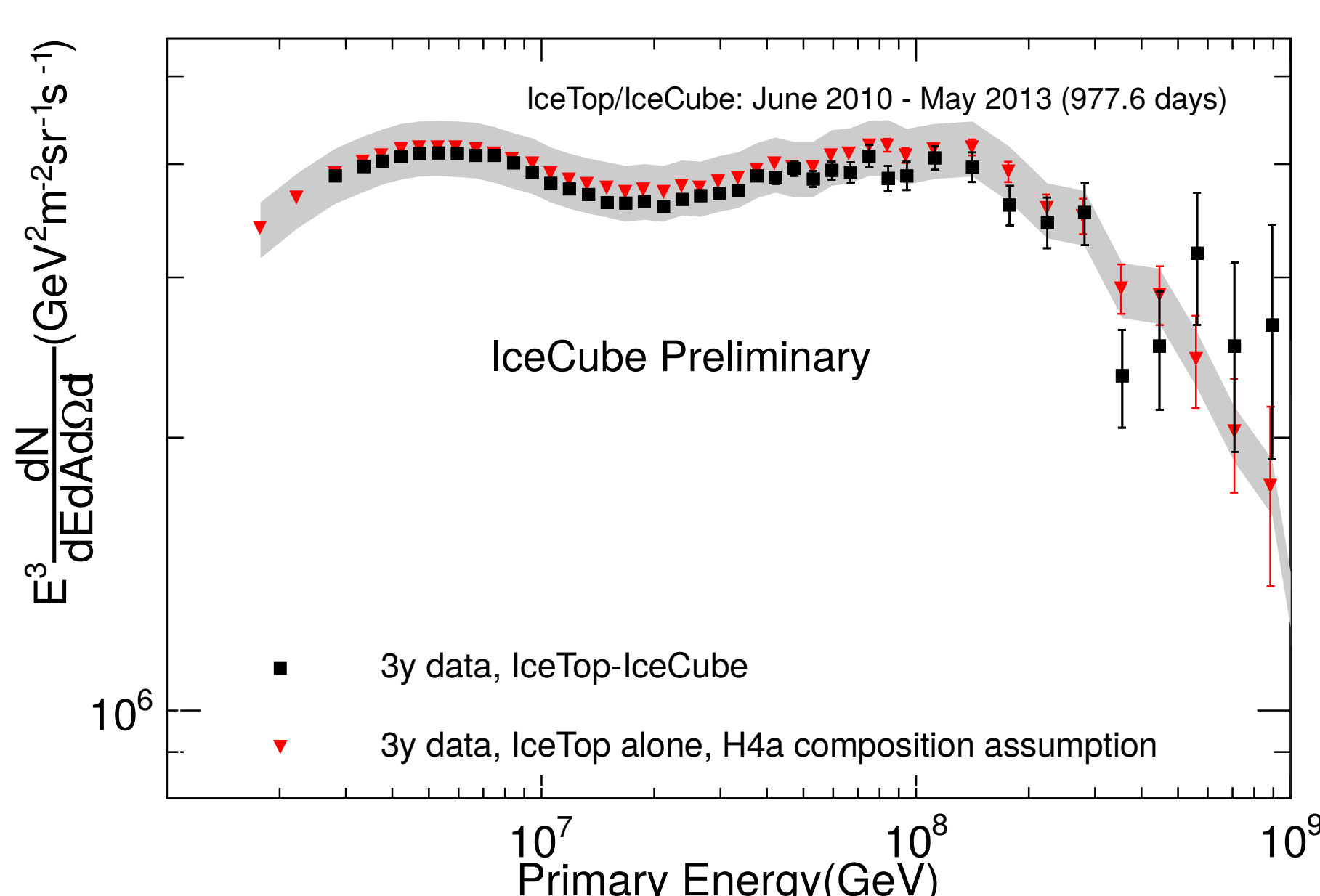
- Ultra relativistic cosmic ray interacts with atmosphere -> secondary particles
- Energy reconstruction using particle density distribution seen by IceTop
- Many relativistic muons can reach the detector simultaneously -> muon bundle
- Mass sensitivity from high-energy muon bundle through IceCube



**Cosmic ray event**

early Time scale late

## Energy spectrum



## Average mass

