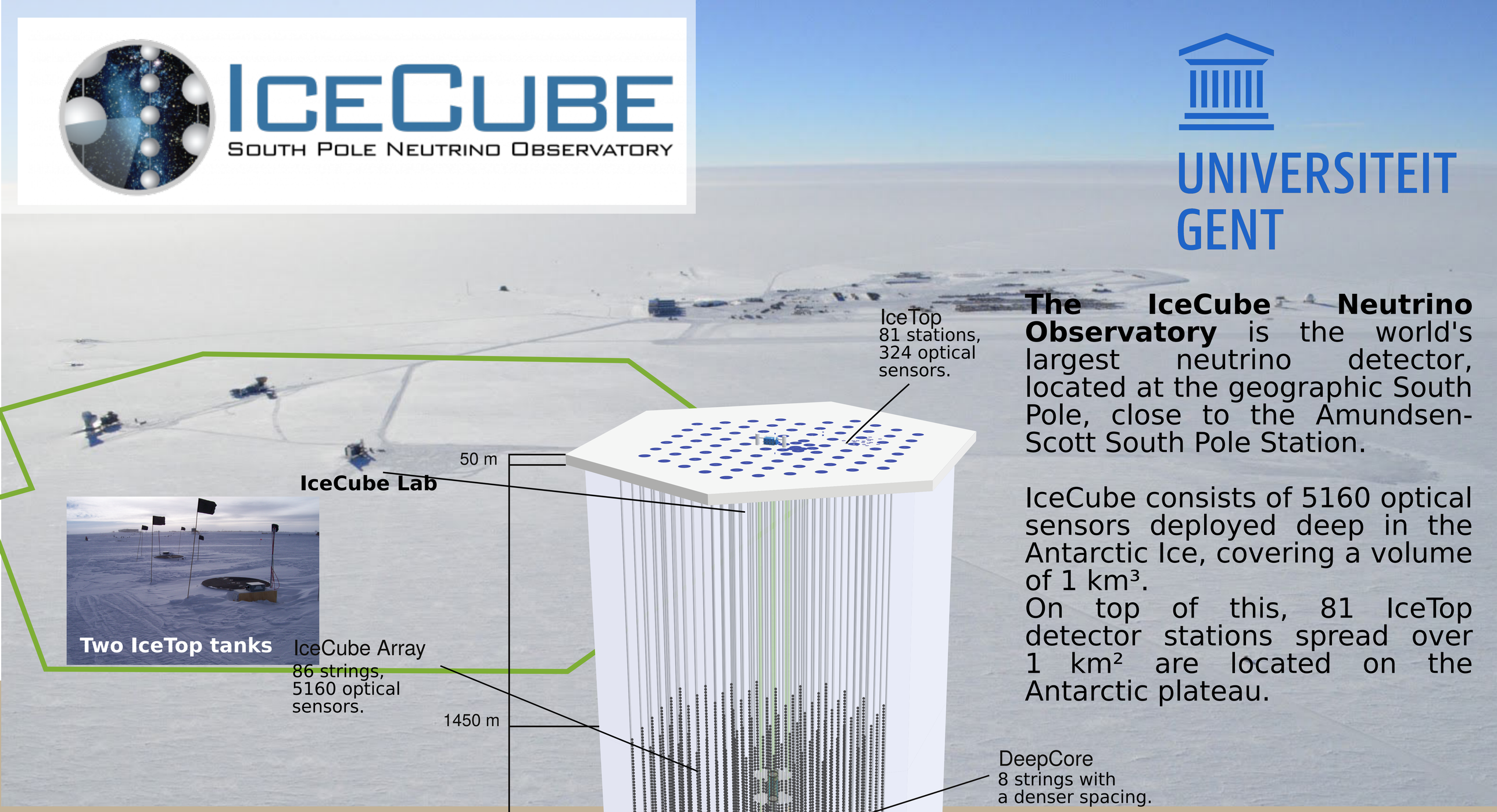
IceCube
South Pole Neutrino Observatory

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 km³.
On top of this, 81 IceTop detector stations spread over 1 km² are located on the Antarctic plateau.

IceCube @ UGent

UGent members:
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Cosmic rays

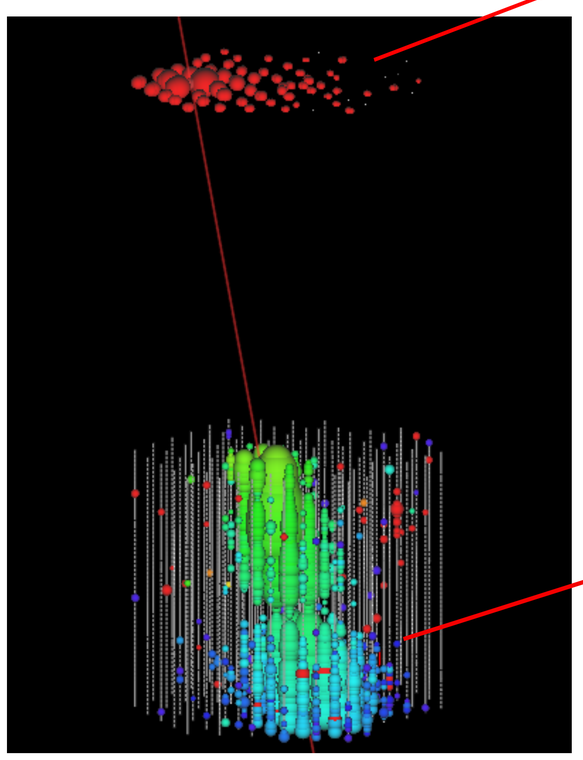
Cosmic ray air shower detection with energies from (1 - 1000) x 10^6 GeV

Hybrid detection technique:

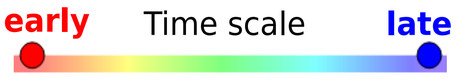
- Ultra relativistic cosmic ray interacts with atmosphere -> secondary particles
- Energy reconstruction using particle density distribution seen by IceTop
- Many relativistic muons can reach the detector simultaneously -> muon bundle
- Mass sensitivity from high-energy muon bundle through IceCube

Subjects

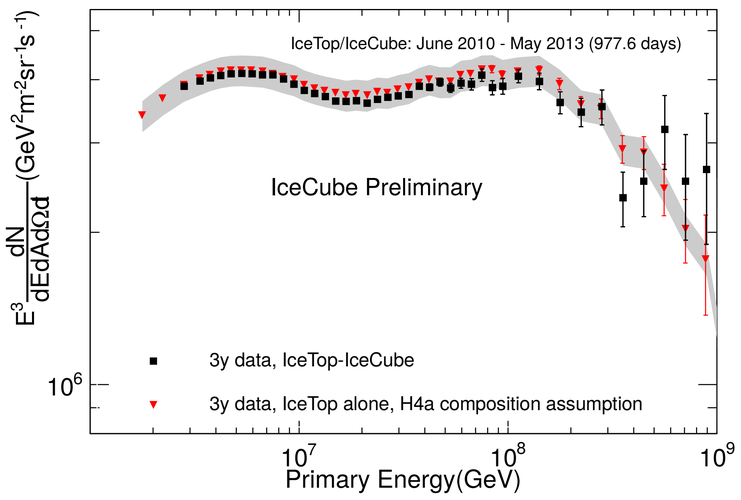
- Influence of hadronic interaction models used in air shower simulations
- Calibration of the absolute energy scale of the IceTop detector



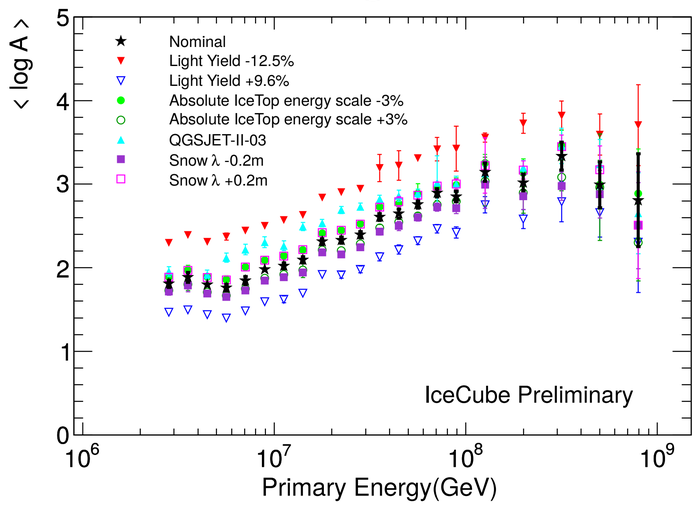
Cosmic ray event



Energy spectrum



Average mass



IceCube Gen 2