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IceCube DOM test

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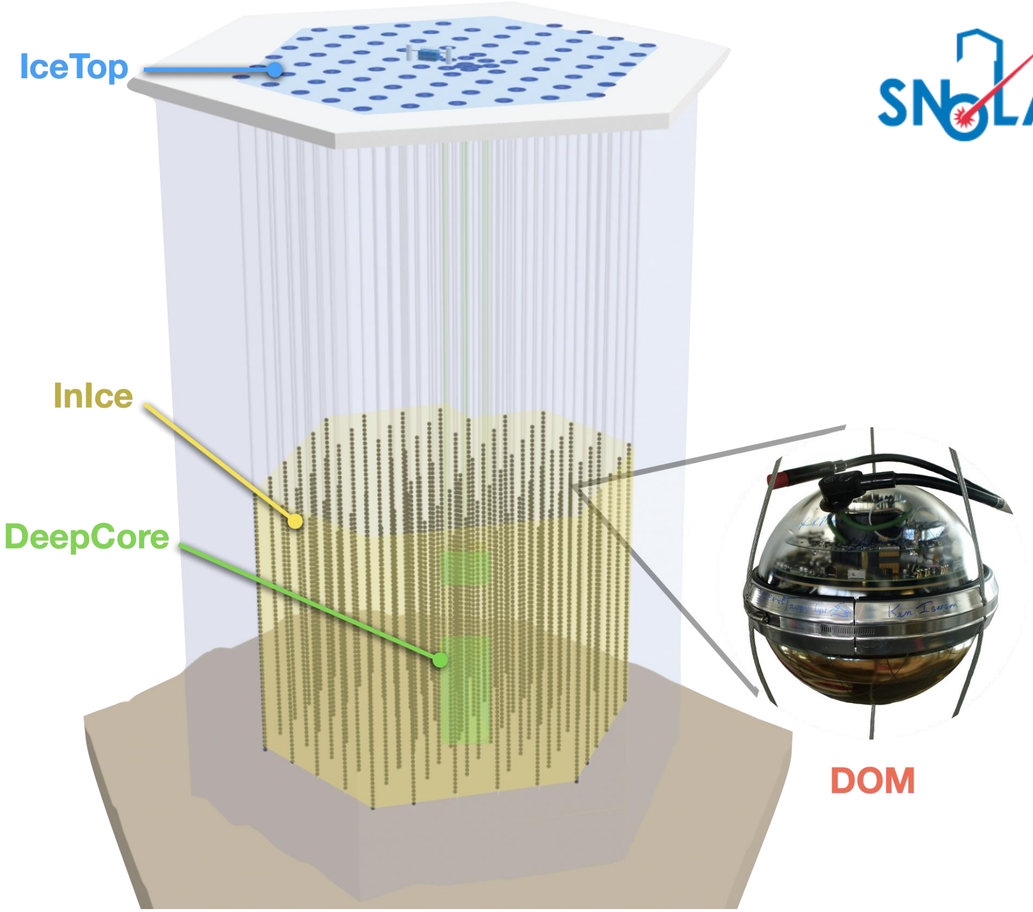
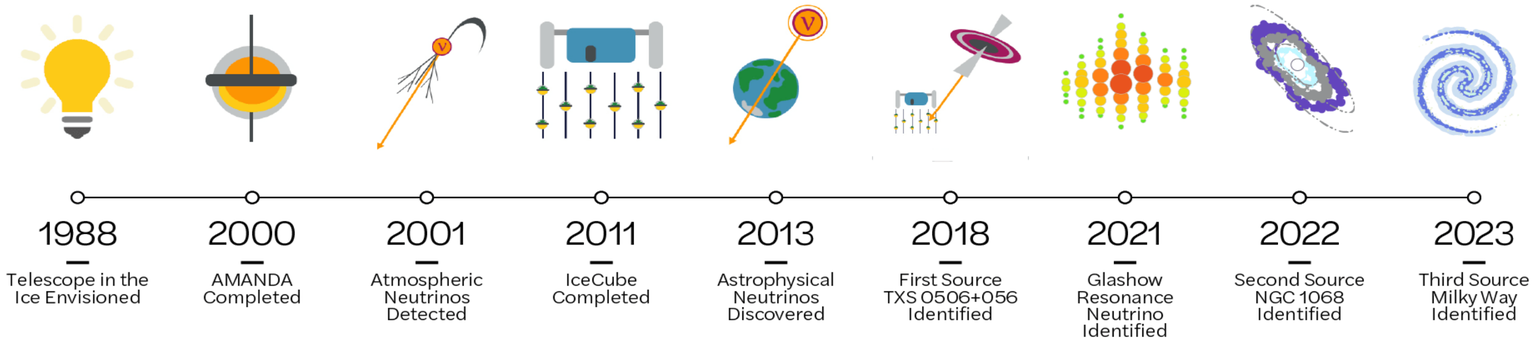
IceCube Overview

IceCube is a cubic kilometre neutrino observatory located at 1.5 km under the South Pole, designed to observe high-energy neutrinos (> few tens of GeV)

IceCube consists of 5160 digital optical modules(DOMs), each containing a 10-inch PMT



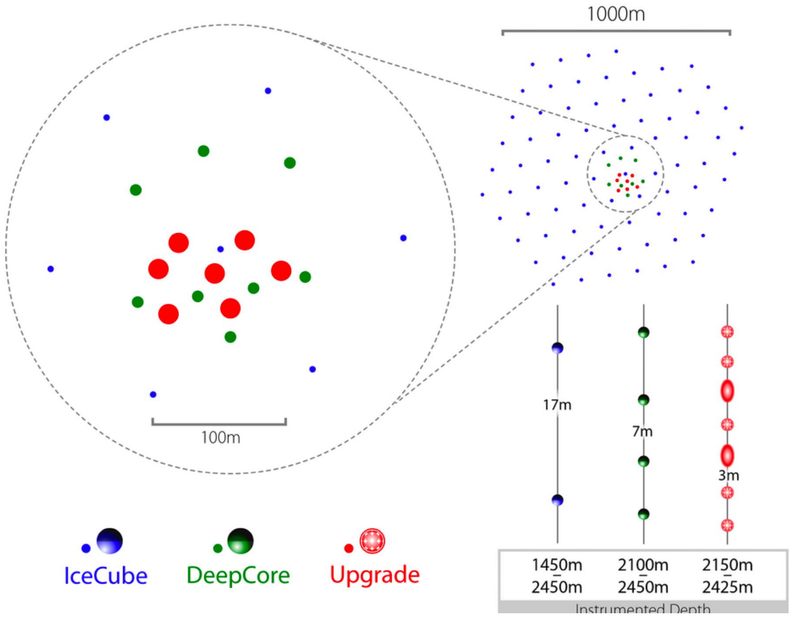


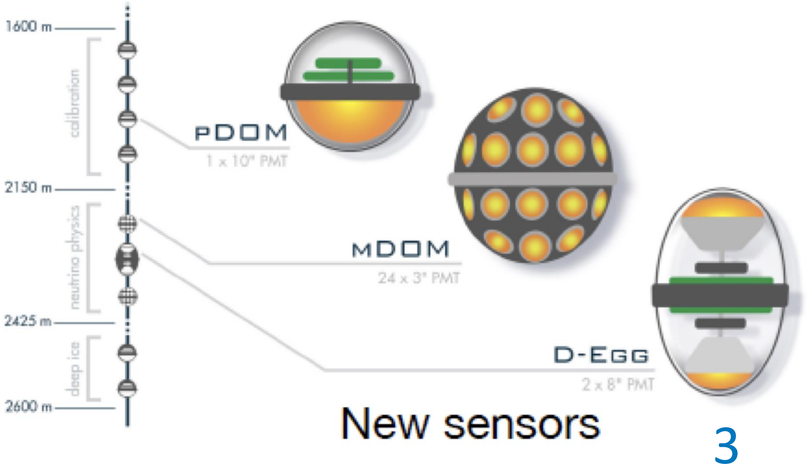
IceCube Upgrade & DOM test

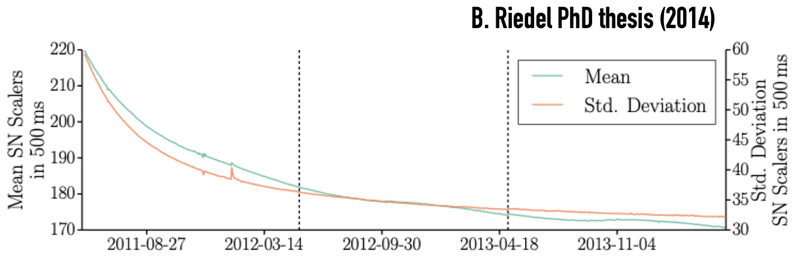
Seven denser strings with new DOMs will be deployed in the 2025-26 season.

Drilling test and cabling work were successfully finished in the 2024-25 season.

SNOLAB test is to understand the background noise profile of new DOMs at underground







Collaboration for SNOLAB DOM test

Queen’s University team is responsible for measuring the long-term trend of the DOM background at the SNOLAB. We work together with the IceCube colleagues (Chiba, Munich, WIPAC).

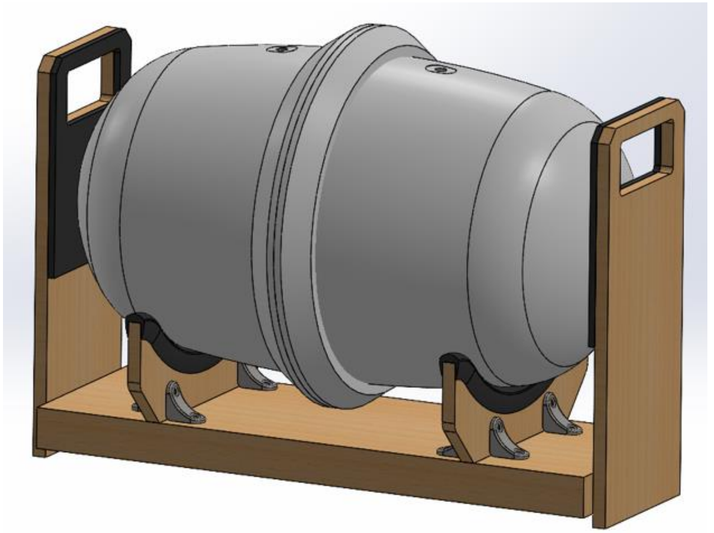
Experiment Status

Measuring D-Egg at the ground level at Queen's University

- Overall, it is going smoothly.
- We have received D-Egg from Chiba.

  The Chiba team trained HQPs at Queen's to operate D-Egg with the IceCube Upgrade DAQ system.

D-Egg mechanical holder design done



Regularly talking with SNOLAB coordinator (Rejean Castilloux)

Schedule impacts & milestones

Feb.: Mechanical supporter fabrication

Mar: Remote data-taking script complete

Apr : 1-2 week in-situ monitoring at Queen’s University

May*: Packing for deployment

* This schedule may get delayed by ~2 months if we decide to take the water test at Havard in May (schedule discussion on-going)

Conclusion

The experiment preparation is smoothly progressing.

Slowed down a bit due to the semester, but it should be ready to be delivered by May.

Ongoing discussions on the other DOM test, but that won’t change the initial DOM delivery plan