On a balloon at an altitude of 5,000 meters, Victor Hess discovers highly "penetrating radiation" coming from outside our atmosphere, currently known as cosmic rays.

Using a newly invented cloud chamber, Dimitry Skobelzyn observes the first ghostly tracks left by cosmic rays. Walter Bothe and Werner Kolhorster verify that the tracks are curved, showing that cosmic rays are charged particles.

Wolfgang Pauli postulates a new particle with no charge and no mass. This particle would carry the missing energy in beta decays measured by Otto Hahn and Lise Meitner almost 20 years previously. Enrico Fermi will later name it the "neutrino."

Enrico Fermi put forth an explanation for the acceleration of cosmic rays: protons speed up by bouncing off moving magnetic clouds in space. Exploding stars are believed to act as such cosmic accelerators, but they cannot account for the highest energy cosmic rays.

Frederick Reines and Clyde Cowan report the first direct evidence for neutrinos.

Hint: This is where our story starts.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: Over 70 years later, muons produced by cosmic rays are observed in Lake Baikal.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: A bit more than 25 years later, neutrinos are detected.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: This happens 11 years before Greisen predicts that neutrinos could become a new tool for both physics and astronomy.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: Nine years later, the first atmospheric neutrinos are observed.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Kenneth Greisen & Frederick Reines propose a new type of detector to search for very high energy neutrinos in an underground mine. Greisen predicts that the detection of neutrinos produced by or in coincidence with cosmic rays will become one of the tools of both physics and astronomy in the next decade.

Moisey Markov proposes installing detectors in a lake or a sea to determine the direction of charged particles, such as muons produced by the interaction of incoming neutrinos, with the help of Cherenkov radiation.

First detection of atmospheric neutrinos occurs almost simultaneously in a South African gold mine and in the Indian Kolar Gold Fields mine.

Raymond Davis, Jr. and John N. Bahcall successfully detect the first solar neutrinos in the Homestake experiment in South Dakota.

The Deep Underwater Muon and Neutrino Detector (DUMAND) project begins with the aim of building a cubic-kilometer neutrino telescope in the Pacific Ocean, off the shore of Hawaii, five kilometers beneath the surface.

Hint: Almost 20 years later, Chudakov proposes using the deep water of Lake Baikal as a detector.

IceCube South Pole Neutrino Observatory

Hint: And almost 30 years later, Halzen and Learned propose the same technique but in the polar ice.

IceCube South Pole Neutrino Observatory

Hint: A little more than 50 years earlier, radiation coming from outside our atmosphere is first detected with a balloon.

IceCube South Pole Neutrino Observatory

Hint: Three years earlier, atmospheric neutrinos are detected, but it takes another 19 years to observe neutrinos from a supernova and still 26 more years to record the first flux of extraterrestrial high-energy neutrinos.

IceCube South Pole Neutrino Observatory

Hint: IceCube, the first cubic kilometer detector ever built, is completed 34 years later.

IceCube South Pole Neutrino Observatory

Baksan Neutrino Observatory begins operation in the Caucasus Mountains in Russia.

Alexander Chudakov proposes using the deep water of Lake Baikal in Siberia to build a neutrino detector.

The first shallow-site experiment with small phototubes is tested in Lake Baikal.

The first stationary string is deployed in Lake Baikal, which records the downward moving muons produced by the interaction of cosmic rays in the Earth's atmosphere. Fifty days later, it is no longer working due to several technical issues in both the cables and the sensors.

DUMAND's first single prototype string, suspended from a ship, is successfully operated.

Hint: This is the first neutrino observatory built in Russia, almost 20 years after M. Markov proposes using Cherenkov radiation to build underwater neutrino detectors.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: Approval for the Lake Baikal experiment, home of the second neutrino observatory in Russia, comes about nine years later.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: It takes another 12 years to deploy the first sensors in the polar ice.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: This is 35 years after Fermi proposes a mechanism for very high energy cosmic rays.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Hint: This is 11 years after the project begins, and 27 years after the oceans are proposed as great locations for neutrino detectors.

ICECUBE SOUTH POLE NEUTRINO OBSERVATORY

Neutrinos coming from a supernova, named SN 1987A, are accidentally observed by Kamiokande II in Japan, the Irvine-Michigan-Brookhaven detector in the US, and the Baksan Neutrino Observatory in Russia.

The Baikal experiment is approved as a long-term project to build a full-scale high-energy neutrino detector via steps of intermediate detectors of growing size.

Francis Halzen and John Learned propose the detection of high-energy neutrinos in deep polar ice.

DUMAND is approved for construction.

A fledgling collaboration of physicists, including Francis Halzen and Bob Morse at UW–Madison, proposes the Antarctic Muon and Neutrino Detector Array (AMANDA), at the South Pole.

Hint: This happens at the same time that the first prototype string for DUMAND is deployed from a ship, and 26 years before IceCube announces the observation of the first flux of very high energy neutrinos.

Hint: DUMAND is approved two years later, and IceCube construction starts in 16 years.

IceCube South Pole Neutrino Observatory

Hint: This is the beginning of IceCube's history. First there is AMANDA, then IceCube. Amanda is completed 12 years later, and IceCube 10 years after AMANDA.

IceCube South Pole Neutrino Observatory

Hint: Fourteen years have passed since the project's beginning, and only five years later it is cancelled.

IceCube South Pole Neutrino Observatory

Hint: This is year 78 of our history, still 23 more years until the end.

IceCube South Pole Neutrino Observatory

The first sensors of the AMANDA detector are deployed at depths between 800 and 1000 meters in Antarctica's ice sheet. Air bubbles from firn ice originally at the surface are found at this depth, which makes particle track reconstruction impossible.

The DUMAND project is cancelled, after the first string of photodetectors deployed on the ocean bottom develops short circuits in the instrument that prevent communication with the installed apparatus.

A second set of sensors for AMANDA is deployed at a depth of 1500–2000 meters, and this time AMANDA proves to be a viable option for detecting very high energy neutrinos.

NT200, the first underwater neutrino telescope, is completed in Lake Baikal, an array of 192 sensors carried by eight strings.

AMANDA is completed, with 19 strings and about 700 sensors buried below 1,500 meters of Antarctic ice.

Hint: One or two years later, DUMAND also faces problems, which end in the cancellation of the Russian cubic-kilometer neutrino detector.

IceCube South Pole Neutrino Observatory

Hint: First is DUMAND, then Baksan, followed by Baikal. All of these projects start within a few years of each other, about 20 years before now.

IceCube South Pole Neutrino Observatory

Hint: In five years, AMANDA is completed.

IceCube South Pole Neutrino Observatory

Hint: Markov first proposes building this underwater detector 38 years earlier.

IceCube South Pole Neutrino Observatory

Hint: This happens 70 years after Pauli predicts the existence of neutrinos.

IceCube South Pole Neutrino Observatory

The construction of the IceCube Neutrino Observatory begins. The transition from AMANDA to the first cubic kilometer neutrino detector has already begun.

The new Gigaton Volume Detector (GVD) for Lake Baikal is designed, which could become the first underwater cubic-kilometer detector.

AMANDA is switched off after over a decade of data-taking, having provided record limits on fluxes for cosmic neutrinos and excluded the most optimistic models for neutrino production in cosmic sources.

IceCube is completed at the South Pole, with over 5,000 sensors distributed on 86 strings and deployed at depths between 1,500 and 2,500 meters.

The IceCube Collaboration announces the observation of the first flux of extraterrestrial high-energy neutrinos.

Hint: This is 56 years after the first neutrinos are detected, and still nine years before the announcement of the first flux of very high energy neutrinos.

Hint: Twenty-seven years prior, Chudakov proposes Lake Baikal as a great location for a neutrino detector, just after the Baksan Neutrino Observatory starts operations.

Hint: DUMAND, starting deployment on the ocean bottom at the same time as AMANDA, is cancelled 14 years earlier.

Hint: This happens exactly 22 years after a neutrino detector in the polar ice is first imagined.

Hint: The success of IceCube builds on the success of AMANDA, whose first sensors are deployed 20 years before this discovery.