

Mikhail Budyko

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Mikhail Ivanovich Budyko (Russian: Михаил Иванович Будыко) (20 January 1920 – 10 December 2001) was a Russian climatologist and one of the founders of physical climatology. He pioneered studies on global climate and calculated temperature of Earth considering simple physical model of equilibrium in which the incoming solar radiation absorbed by the Earth's system is balanced by the energy re-radiated to space as thermal energy.

Ethnically Belarussian, Budyko earned his M.Sc. in 1942 from the Division of Physics of the Leningrad Polytechnic Institute. As a researcher at the Leningrad Geophysical Observatory, he received his doctorate in physical and mathematical sciences in 1951. Budyko served as deputy director of the Geophysical Observatory until 1954, as director until 1972, and as head of the Division for Physical Climatology at the observatory from 1972 until 1975. In that year he was appointed director of the Division for Climate Change Research at the State Hydrological Institute in St. Petersburg.

Budyko's groundbreaking book, *Heat Balance of the Earth's Surface*, published in 1956, transformed climatology from a qualitative into a quantitative physical science. These new physical methods based on heat balance were quickly adopted by climatologists around the world. In 1963, Budyko directed the compilation of an atlas illustrating the components of the Earth's heat balance.

He was the first researcher to discuss the role of humans in Pleistocene megafauna extinction.

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Predictions

In 1972, Budyko calculated that a mere few tenths of one percent increase in solar radiation input could melt the icecaps. Moreover, his models similarly indicated that a 50% increase in atmospheric CO2 would melt all the polar ice, whereas reduction of the gas by half "can lead to a complete glaciation of the Earth." Due to the rising use of fossil fuels, at some time "comparatively soon (probably not later than a hundred years)... a substantial rise in air temperature will take place." As early as 2050, Budyko calculated, the Arctic Ocean's ice cover could be melted away entirely.^[1]

Mikhail Budyko

Born	28 July 1920 Gomel, Byelorussian SSR
Died	10 December 2001 (aged 81) Saint Petersburg, Russia
Residence	Saint Petersburg
Nationality	Russian
Fields	Climatology
Institutions	Main Geophysical Observatory (1972–1975) Russian State Hydrological Institute (1975–2000)
Alma mater	Leningrad Polytechnic Institute (M.Sc.; 1942)
Known for	Important research on global climate and the Snowball Earth hypotheses

Climate engineering

Budyko is believed to have been the first, in 1974, to put forth the concept of artificial solar radiation management with stratospheric sulfate aerosols if global warming ever became a pressing issue.^[2] This climate engineering proposal has been dubbed "Budyko's Blanket" in his honor.^[3]

Biography

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3. Nature’s View of Geoengineering (<http://freakonomics.com/2012/05/30/natures-view-of-geoengineering/>)

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