OBITUARY

Bert Bolin (1925–2008)

Pioneering climate scientist and communicator.

As the first chair of the Intergovernmental Panel on Climate Change (IPCC), and one of the first scientists to understand the environmental impact of carbon dioxide produced by human activities, Bert Bolin left an indelible mark. A pioneer of climate science, he died in Stockholm on 30 December 2007, aged 82.

Bolin was born in Nyköping, Sweden, on 15 May 1925. He completed his PhD at the University of Stockholm in 1956, and was within five years professor of meteorology there — a post he held until his retirement in 1990. During that time, he published more than 160 papers related to the meteorology and chemistry of the atmosphere, contributing to an improved understanding of numerical weather models and acid deposition.

As early as the 1950s, Bolin started to study the natural carbon cycle. His fundamental research advanced our understanding of the fate and transformations of carbon dioxide, not only in the atmosphere, but also in the oceans and in the terrestrial biosphere. He was among the first scientists to recognize the significance of changes in ecosystems for atmospheric carbon dioxide, and that deforestation in particular was contributing to the observed increase. He was also one of the first to go public with his concerns: in May 1959, he travelled to Washington DC to warn the National Academy of Sciences that a 25% increase in carbon dioxide in Earth's atmosphere by the end of the century could have serious consequences for the temperature of the planet.

Bolin rapidly acquired a reputation as an eminent organizer and leader of cross-border scientific collaborations. In 1963, he became involved in setting up an international effort to study the general circulation of the atmosphere. This work led to the formation of the International Council for Science's (ICSU's) committee on atmospheric sciences in 1964, of which Bolin became the first chair. That committee's work resulted in the establishment three years later, by ICSU and the World Meteorological Organization, of the Global Atmospheric Research Program — GARP.

The timing of this move was especially significant: the availability of the first information on Earth from space was exciting meteorologists across the world, owing to the unprecedented opportunity it offered to study the atmosphere as a whole.

This ambitious goal was supported by the rapidly growing potential of computers to perform large-scale modelling. Bolin chaired GARP from 1968 to 1971, bringing together scientists from around the world at the height of the cold war. Under his aegis, GARP became an acclaimed international research programme that contributed much to our understanding of weather and climate.

In 1983, Bolin began a project supported by the United Nations Environment Programme to explore the links between the physical climate system and global ecosystems. The result was the foundation, under the auspices of ICSU, of the International Geosphere–Biosphere Programme, which brought about a new level of integration between physical, chemical and biological perspectives of the global ecosystem. Bolin's particular insight was to comprehend the magnitude of the problems faced by the scientific community in working across disciplinary boundaries, as well as to envisage how these problems might be solved.

These were qualities that served him well in the role for which he will undoubtedly be best remembered — as the first chair of the IPCC, from 1988 to 1998. His reputation as a brilliant and honest scientist, who listened to and respected diverse views, attracted the best and the brightest of the scientific community to the IPCC, and the fledgling panel rapidly gained the attention of the politicians to whom its reports were

addressed. Bolin's quiet, soft-spoken style earned him the trust and respect not just of government officials who already recognized the threat of human-induced climate change, but also of those who vehemently challenged the idea that Earth's climate was even changing, let alone whether humans were involved. These same 'soft' skills helped him nurture talent in his own research team in Stockholm, where he was a mentor to many young researchers who have since become leading climate scientists.

Rarely does a single individual change the world, but Bolin's work as a scientist, as an organizer of major international research programmes and as leader of the IPCC has certainly changed the way we think about the world. That we are now aware of the potentially catastrophic impact of human activities on Earth's climate, and of the need to make the transition to a low-carbon economy and to protect our natural forests, is in no small part down to him.

Without his leadership of the IPCC, the 1992 Rio de Janeiro Framework Convention on Climate Change and the 1997 Kyoto Protocol would have taken longer to negotiate. His vision was central to all of the achievements for which the IPCC was jointly awarded the 2007 Nobel Peace Prize along with the former US vice-president Al Gore. Bolin was by then too ill to attend the ceremony but, as Gore wrote to him: "Bert, without you we would not have come to where we are today."

Brilliant yet humble, Bert Bolin was an excellent communicator, a leader despite his natural shyness, and one who always gave credit to others rather than to himself. A world-class scientist, a man of great integrity, a great organizer and an inveterate optimist, he was above all a nice guy who just enjoyed singing in his choir at home in Sweden. Isaac Newton famously said that we in science all stand on the shoulders of giants. For those of us who knew and worked with Bert at the IPCC, he above all was the giant upon whose shoulders we stood.

Bob Watson

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