

“Everything Atmospheric, Everywhere, Always”

Entrepreneurs at the cutting edge of atmospheric research, 1900-1960



Alt atmosfæriske, overalt, alltid Alles atmosphärische, überall, immer
Tout atmosphérique, partout, toujours

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The MIT Press
Cambridge, Massachusetts
2015

Everything Atmospheric, Everywhere, Always

“The goal of meteorology is to portray everything atmospheric, everywhere, always.” This striking proclamation of 1960 by John Bellamy and Harry Wexler captured the excitement of the moment, three months after the successful launch of TIROS 1, the first weather satellite. In a larger historical sense, meteorological researchers, everywhere, always, held this sentiment, especially those who looked expectantly to the expanding capabilities of atmospheric science and technology in the first six decades of the twentieth century. Mobility and innovation were crucial to the co-evolution of meteorological knowledge and imagination placing local situations and institutions into larger geographical and ideational contexts. This presentation focuses on three generations of scientific *entrepreneurs* — personified by Vilhelm Bjerknes, Anne Louise Beck, Carl-Gustaf Rossby, Harry Wexler, and their associates — who invested their life energies in advancing the cutting edge of atmospheric research. Their lives span a full century, from the birth of Bjerknes in 1862 to the death of Wexler in 1962; their work spans a period of technological flux, from Marconi wireless and the Wright Flier to digital computing and weather satellites, from Roentgen and Becquerel rays to outdoor nuclear testing; and their aspirations were seemingly unbounded in pursuit of a Laplacian programme of precise measurement and perfect prevision. The main story line highlights the moving seminar centred on Bjerknes (from Paris to Oslo), his students Beck (the first person to attempt to bring Bergen methods to the USA), Rossby (from Bergen via the USA to Stockholm), and his student Wexler (from Cambridge via Antarctica to the world). Their insights and the institutions they founded, derived largely through their travels and career trajectories, established the foundations of the modern atmospheric sciences. Yet severe theoretical and practical constraints on this overall programme derive from warnings on the limits of prediction issued by Henri Poincaré in 1900 and by Edward N. Lorenz in 1960.