Today, climate research is dominated by the use of computer models. Introduced in the 1950s and 60s they have since gained high epistemic authority in producing climate knowledge. As this talk will show, the emergence of climate modelling as a hegemonic research tool and the shaping of modern climate science was not a linear development but a result of a competition between various approaches from different disciplines and “cultures” within climate research. While some traditional climatologists observed the rising authority of models with scepticism and feared the marginalization of their own approach, others tried to incorporate the novel ideas into their classical understanding of climate. In my presentation I zoom into the German climatological community and discuss these cultural shifts and challenges within the field between the 1930s and 1970s. The historical perspective reveals how climate knowledge production was shaped by the broader socio-political context, how epistemic authority was negotiated in the field, and how the changes in climate research went hand in hand with a changing understanding of climate.