

Bert Holtslag: 'We now understand the atmosphere much better'

Silent revolution in meteorology

Weather forecasts have improved dramatically in recent decades, says the departing professor of Meteorology, Bert Holtslag. 'I call it a silent revolution because almost no one outside meteorology has noticed although the impact is huge.'

text Roelof Kleis *photo* Aldo Allesie

The weather during the photoshoot at the WUR weather station in the fields between Wageningen and Rhenen is not his favourite type. Grey skies, blustery and quite cool. Not the 25 degrees with sun and cumulus clouds that professor of Meteorology Bert Holtslag (66) calls 'his kind of weather'. But then it is autumn. And it was predicted. Sorry, forecast. 'Meteorologists don't predict the weather, they make forecasts.' And those forecasts have improved immensely in the four decades or so that Holtslag has been in the business.

In the farewell lecture that you will be giving next week, you call it a silent revolution. Why?

'Huge progress has been made in meteorology. We now understand the atmosphere much better. The forecast for a week's time is now just as accurate as the forecast for a couple of days was 40 years ago. That's the silent revolution. Silent because it happened gradually and almost nobody outside the field has noticed. And a revolution because the impact is huge. When I started in this field over 40 years ago, it was still quite common to draw weather maps based on observations. Now all that is done with models, and everyone can see it in no time with loads of detail on their mobile phones.'

As a conscientious objector, you went to work for the Royal Dutch Meteorological Institute (KNMI). So was meteorology just a matter of chance?

'No. I deliberately looked for an appropriate alternative national service. My degree in applied physics at the technical college focused

heavily on technology and measurements, which I found boring. I wanted to use that knowledge and do something with the environment. That made me think of the weather and the climate. There's also the fact that I grew up in Borculo, which was hit by a tornado in 1925. You can still see that history in the town, for example in the cyclone park. My interest was stoked further by the course *The Weather and Us* that was broadcast on TV back then. I've still got the syllabus in a bookcase somewhere.'

You stayed with the KNMI and worked on a PhD at Wageningen. Quite something for a technical college graduate.

'That became possible when the legislation on doctorates changed in 1985. If you had completed a four-year degree programme at an applied college, you could start a university PhD. Almost no one does that now, but I was one of the first back then. The professor of Physics and Meteorology in Wageningen at the time, Bert Wartena, said I had some good material that could be turned into a PhD.'

NEW ÉLAN

In 1999, Holtslag moved to Wageningen, where the new professor and chair holder faced a difficult assignment. The Meteorology and Air Quality subgroups had to be merged and substantial cuts had to be made. 'A testing task, but we managed it successfully. After that dip in 2000, the chair group has grown and grown. I think I gave the group new élan and focus. We now have two chair holders; there are personal professors, professors by special appointment and our very

capable staff.' The group's growth and its success are what Holtslag mentions first when asked about his 'gems'.

And what is your scientific legacy?

'I've authored or co-authored more than 150 peer-reviewed articles. The articles that deal with an application in particular are frequently cited. I've always liked applying scientific insights. You can combine the development and utilization of knowledge really well, for example in estimating evaporation from crops using simple techniques. I've also worked on models for the weather and the climate and made a substantial contribution to the better understanding of interactions between the Earth's surface and the atmosphere. In recent years, my group has done a lot on the weather and the climate in cities. I also set up an international research programme for the systematic comparison of atmosphere models.'






‘Climate change has given our discipline a real boost’

Just when you think you’ve figured it out, the climate is changing. What does that mean for your discipline?

‘Climate change has given our discipline a real boost. It raises a lot of questions and that’s good news for us. It has also produced new knowledge. The further you look, the more you see. When I started out 40 years ago, it was already clear something was going on with the climate and the relationship with greenhouse gases. Then in 1990 you had the first IPCC report (Intergovernmental Panel on Climate Change, ed.). These days, we know enough about what we need to do to slow down global climate change, but it is not so clear what that means for the Netherlands or specific regions. There *are* regional climate scenarios, but they could definitely be improved.’

Do we understand the weather?

‘We increasingly understand how the atmosphere works and how that affects the weather and the climate. Nowadays we have 14-day weather forecasts worldwide with a resolution of 10 kilometres. We can also produce increasingly detailed forecasts on a small scale. We are already forecasting the weather in Amsterdam on a scale of 100 metres. 100 metres! The city can do with forecasts like that, especially on hot summer’s days.’ 

Bert Holtslag will be giving his farewell lecture on Thursday 10 October at 16:00 in the Aula.

BERT HOLTSLAG (BARCHEM, 1953)

1972-1976	Technical College (HTS), Enschede
1977-1988 and	1991-1999 Researcher at the Royal Netherlands Meteorological Institute (KNMI)
1989-1990	Researcher at the National Center for Atmospheric Research (NCAR) in Boulder, Colorado, USA
1993-1999	Part-time professor of Meteorology at Utrecht University
1999-2005	Professor of Meteorology and Air Quality, WUR
2005-2019	Professor of Meteorology, WUR

Bert Holtslag is married with two sons. He is a member of the KNMI supervisory board and an elected fellow of the American Meteorological Society. Jordi Villa will take over from Holtslag as the chair holder.