

The American Meteorological Society in collaboration with
the University of Wisconsin-Madison Space Science and Engineering Center

An interview with

Dieter Klaes

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PHILLIPS: My name is Jean Phillips. I am with the University of Wisconsin, Madison Space Science and Engineering Center. I'm here this afternoon with Dieter Klaes. [. . .] It is Wednesday, October 2, 2019, and we are at the Joint Satellite Conference. So let's start back with your early academic career and sort of your path to meteorology.

KLAES: Well, my path to meteorology starts in a way when I was at home as a kid still because I was very fond of aviation—always have been and still am—and I wanted to do something in aviation. To become a pilot was not an option because my eyes were too bad at some stage, so I couldn't become a pilot at that time. Today perhaps it would be possible. But so I thought I'd do something which was related to air traffic, air piloting, aircraft, and that was meteorology. As a kid I built my own barometer and measured air pressure in a jar with a rubber cover, with a straw which showed me the air pressure, and was making long records for a year or so before I then started to read also literature about it. And so that brought me to make studies of meteorology, so I became a meteorologist.

So I went to the University of Bonn and studied meteorology and some side subjects like astrophysics, which I was interested in physics also, of course, because meteorology is atmospheric physics. And before I started to do this, after my high school exam, I went to the local work support chapter, which advises people to work in certain professions, and I got—

PHILLIPS: So it gives you guidance?

KLAES: Give guidance to tell you what is your professional expectation. What can you expect if you do studies of this? What is the career perspective? Are there jobs available? It was not so good because it was always, oh no, so maybe meteorologists are not needed, and there were not so many in the state meteorological service and the armed forces meteorologists needed. But I thought okay, let's see what happens after I finish. So I started, and in fact I became a meteorologist. And during my studies I found a lot of things really which were not obliged to be done, but I was working on Cologne Airport for example, for a while, just to see how it is to do forecasting.

PHILLIPS: So you've been on, sort of the— With your interest in aviation, meteorology, and forecasting, you've been sort of on the user side?

KLAES: I was on the user side, yes, and I thought oh yes, I see how it is. And I liked it. And so it gave me a kind of confirmation [that] it was not a bad thing, what I was doing. It was physics also, there was a lot of mathematics involved, so for me it was not very difficult because I had a very good high school. And so I knew what I needed to know, so it was not difficult to do the studies. And afterwards, well, then came also the period where I thought okay, I could do an academic career. So I started to do a PhD. And then after a year or two, they ran out of money for the project. So then I had to look for a job, and the only jobs really available were the ones in the National Meteorological Service, and I got one! One of the five places which they had in this year. That was in 1984.

And then the good thing there was that they had this education program for new personnel if you went into the service and became a civil servant. And it's a permanent position after some time.

If you pass the trial phase, which is a couple of years, then you become a civil servant for lifetime. So I thought, okay, not too bad a career. And they chose me for the military part of it, so I became later part of the Military Geophysical Service. It was a specific— Also, civil servants [as] a group, we all had a rank as an officer but only in [the] case of war, so we were all civil people but within the military. And for this service, you had the preparation service for two years where you were sent around everywhere to each place which had to do with the Weather Service: three weeks here at an instrument observatory, a couple of weeks on an airfield with helicopters, a couple of weeks or months on an airfield with jets, on a civil airfield—I was in Frankfurt Airport at that time. And at weather school, of course, you learned all the basics of meteorological work in the forecast service: synoptic and drawing weather maps and agrometeorology. All the fields basically were covered. So you were at every place which had to do with meteorology in—at that time it was Western Germany only, there was not the unification still—so in that sense, I got a very broad view of the user side and of the application side also.

PHILLIPS: Interesting. During this time, I want to hear about— So shortly after this is the exchange with the U.S., right?

KLAES: Well that was a bit later.

PHILLIPS: A bit later?

KLAES: It was— That period lasted two years, and then you have to pass a state exam. And then you were sent to a place where you were planned to work for a longer time. So then I went—I believe it was in '86. In '86 I started to work at the German Military Geophysical Office, that was the central part with the forecast center there. And the president of that organization, he always had the philosophy "new people need to do forecast work." So I was working in the forecasting part—

PHILLIPS: So as like a base-level experience you must do that?

KLAES: Yes, yes, yes. And at that time, it was a really interesting thing that brought me the capability to make decisions, really, because we had to advise, besides other things, the search and rescue helicopter pilots—which was not mainly for flights to accidents or so, but it was more transporting patients with specific problems, like burned people, or people who were—

PHILLIPS: Oh, for medical transport.

KLAES: Medical transport. Which always is several hours flight to a specific hospital. It was very often during [the] night. And it's always a life at stake. So then you have to make the decision, well, you have to advise for the decision whether that flight is possible or not. And if the flight is not possible, probably somebody would have to die or—

PHILLIPS: And did you go on those flights, then, or just—?

KLAES: I didn't, it was— You could not go on these flights when a patient was there. But I flew with the pilots afterwards, just to see how it is, and we got a lot of opportunities to fly with them

also. Before, during this education period before, I had a lot of opportunity when I was on an airfield to fly with people. And I took very, very many interesting helicopter flights, also. You see how different it is, for example, what you see as an observation on the screen and the reality. Like, for example, visibilities. We'd get the report at ten kilometers, and in reality, it's only five or something like that if you are in the cockpit. So that helped me later when I had the pilot on the phone to judge to give them advice. And it was always something that— This is what many people don't know: it's not just [that] you tell the pilot, "Yeah, you can fly" or not, it's all recorded. It's like we record, it's recorded—

PHILLIPS: The record—

KLAES: Yes. The record of what you said, of what you wrote down because every pilot has to fill out a sheet with what you said, with the weather message, and I have to fill it out as well, and all the data were also captured. So everything which was in the computer was also captured. Every phone was also registered, so—

PHILLIPS: So if there was ever any question—

KLAES: First question was what is the weather, yes. But we get used to it. I mean, it was not really something which is stressful. But it also— It taught you also to make a balanced decision, really, because there were some people who were over-cautious. They never let somebody fly. And there were other people who said, "Oh, these are the best pilots. They'll do the job." And so it all depends. I mean, really, so—

PHILLIPS: So you would have been— This is— You're still pursuing your PhD at this point?

KLAES: No, the PhD was over, but I did then start a PhD out of university. But that was later on when I was in the exchange program. I continued to work at this PhD. And then also the professor wanted to change the subject when everybody thought I could just submit it. So I had to restart it over again, and I did it then at the University of Paris. But there I had to start over again in the sense that because you need to be enrolled in the what they call Ecole Doctorale for two years, so I was doing two years [of] really no coursework, but I had to be enlisted there and—

PHILLIPS: —research.

KLAES: —research and had to do some projects, and that was already when I worked already for EUMETSAT [European Organisation for the Exploitation of Meteorological Satellites] at that time. But I was spending three years every weekend and every free time for doing this.

PHILLIPS: So what was the research that you were doing? You switched from, you said you were—

KLAES: Yeah, it was something which was related to satellite meteorology, so that was something. When I was doing forecasting, they had satellite data from a reception station at that time. We had received NOAA HRPT [High Resolution Picture Transmission] data for, I think it

was NOAA-8 or -9 or something. I think it was -8 or -9? And you got these pictures as paper copies. So you received it, there was a reception station, direct readout, and the night shift would receive them, would print one of the channels, and usually infrared channel during night and the visible during day. And with the tube mail, you got it then on your desk as a meteorologist, and it was a resource for the advisory for pilots, for example, for the forecasts.

And what we did have was we would have, at that time I think it was the only thing which existed in the world, a graphic system where we had all meteorological information on the screen: all models, several models from the European Weather Services, model output with the isolines, the synop measurements. So we would display the model, the station model really. You saw the winds, the pressure, pressure tendency, everything. And there was also the warnings that were blinking if you were past thresholds. And you could call all of this with a tablet [interface], with a pen, and the only thing which was not there was satellite information. So I say that because that was my job which took me out of the forecast work—

PHILLIPS: To bring in the satellite data.

KLAES: Yes, which took me out of the forecast work because they were searching for somebody doing this, and since I had done my master thesis with a radiative transfer model, they thought, "Oh yes, you know already radiative transfer, so you could probably do the satellite thing." So and then there was a competition for this position—it was a new position—and I got it. So that was my task then from '87 to basically—I've made it in three years to build up this system. Because it's kind of a mini ground segment which I made, really, for receiving the NOAA [National Oceanic and Atmospheric Administration] satellites, getting the data, process[ing] this data. I had to do the orbit prediction, I had to do the calibration of the data, and I had to do the display and the integration into the existing graphic system, with one programmer, who was really great, who was a great person. We did a lot of courses and learned a lot about computers. And so I got the necessary courses. It was Digital Equipment at that time, with the computer, so I was very often in Munich to have a class on that. So we were really specialists for this overall.

And we had a lot of work with the Americans also because we had an American company who had helped the main contractor in Germany to build the system. They were experts in the graphics system, which was RAMTEK [company based in California] at that time. That was the only graphic system where you could address each bit plane individually. And they used 8 bit planes for the normal information, and then I got another 8 bit planes with the new graphics, the [new] RAMTEK graphics system, for the satellite information. And we hired this person, who was a one-person company in Silicon Valley, to do the graphics programming because he knew the system. So that was a really great time. And for the hardware, we went around for displays. We went to the West Coast and to the other graphics manufacturers to look [at] what we would build in addition, and we stuck with RAMTEK. And it was really a good project.

PHILLIPS: And so this is while you were still finishing your PhD, during this entire project.

KLAES: Yeah, the PhD was going on in the background, more or less. But I wanted to have it, so as something I started it, and I have worked so much in this exchange program. The exchange

program came afterwards.

PHILLIPS: Okay, so this is the exchange program for the Air Force.

KLAES: The exchange program was a result of my doing this project successfully. I applied for this exchange program, and I got a place. There was one place per year. And so that's the way I came to the Boston area. And that was really great because it was a lab where I didn't have really a specific task in the sense that I had to do an operational task. So what I was tasked for was to do soundings, vertical soundings. And that was something with the graphics system where I installed the satellite information. It was more for visual information of AVHRR [Advanced Very High Resolution Radiometer] data. So the forecasters had—when it was working, in 1990, 1989-1990—they had, five minutes after the overflight of the satellites, they had an image on the screen, it was mapped, and I could put all the other information on top of it. So nobody had that before, at least in Europe. I don't know about the United States. And everybody came to see the system, and half a year later everybody had it as well, so— [laughs].

And what I did afterwards in the frame of this period here, I worked with a French lab at LMD (Laboratoire de Météorologie Dynamique) in Palaiseau who had a vertical profiling software. Like in the U.S. it was the Wisconsin package, but they had the 3I (Improved Initialisation Inversion). So basically in the end, I had both of them because I joined the TOVS [Television infrared observation satellite Operational Vertical Sounder] conference. And I brought that on the screen as well. And so I had done the results of this TOVS data, in addition to the images, and people could, if they wanted, could see thicknesses with frontal systems and things like that over the Atlantic before we got all the messages of the weather ships, for example. So it was an additional forecast aid.

PHILLIPS: You mentioned TOVS, and I understand you've been a steadfast supporter of that group and probably other groups like it, and talk a little bit about the role that these collaborations play.

KLAES: Yeah, the collaboration is absolutely important, because— With this group I learned about it already early. I was, when I was doing my studies, I was working in Berlin also, at the University, with Eberhard Reimer, but it was just I worked as a support of another project, so just doing computation work. But I learned that he was going to the first TOVS conference. And it was just decided—it was 1983 I think—and then I forgot it again. And then when I was doing this other work at the military for the satellite integration, and saw that I could work with the TOVS data. I thought, "Yeah, ok, yes, I could go to this conference." Because there was the number five [TOVS conference] coming up in 1989, and it was in Toulouse, and I had started the cooperation with the people in Paris. And Alain Chedin, who was the head of this group, he was one of the co-chairs together with Paul Menzel at that time. And I was allowed to go to this conference. Really, that's how I learned— I think it was 50 people at that time [that] were around, and it was all the leading people in the field. And so you got to know them.

I didn't have a lot to show, but it was something which brought me to this group. And since then I think I have only missed two of the conferences because of the launches of our satellites where I had to be. But otherwise I was at each of the groups. The new developments which emerged

from this with using, for example, radiances to be assimilated into models and things like this, that was something which accompanied us. You learned, and then that's— Also for me later as when I worked on the satellite field, I knew that these were the data you had for the people from your satellites also. And you knew everybody, more or less, who was somebody in the field who was using the data, and they could give you feedback: how good is what you've done, and what do you need, what do you have to change, what was wrong, what didn't work, where was the quality not right—

PHILLIPS: So still very close communication with your—

KLAES: Very, very— Still today. I mean, we had that for our launches. We had always users which we called Cal/Val (Calibration and Validation) users—I'm jumping a little bit ahead—which were from numerical weather prediction centers or research parts in the universities who got our data early. We did not give the data to everybody, but a couple of users could get the data. They could assimilate that in their system, analyze what the good things and shortcomings are, and we got feedback, yes, that they were good enough. It was later part of the Cal/Val (Calibration and Validation) report, and when it was good it helped us to say, "Okay, we'll give the data out early." And we decided we'd get pre-operational/operational user data, and we kept that until recently. Metop-C [Meteorological Operational Satellite-C], we had the same approach. That was really something which was, for me, really a natural thing to do. I hope it will go on similar to that in the next generation also.

PHILLIPS: It sounds like you've had— you've of course met many people over the course of your career. Can you talk about some of those people who were your mentors and how they influenced you?

KLAES: Well, I never had a classical mentor, in the classical sense, but—

PHILLIPS: Many people have said that.

KLAES: Yes [laughs], that is something— If I had a mentor, I think it was Alain Chedin who was the director of my thesis also. He was helping me to get the thesis through in the end, and he told me, "Look, why don't you come to Paris University and do it here?" And so I did it. And finally I got my PhD at the University of Paris-7 (The Université Denis Diderot at the time, today Sorbonne), which was not what I ever had thought I would do. And I had to do it in French. I had to write it in French. I had to do the defense also in French. So if somebody was my mentor, it was him. And also Noelle Scott, who was his coworker, because they were also the originators of the 3I program which I used also for the thesis. But I also used the software from Wisconsin, the international TOVS [Television infrared observation satellite Operational Vertical Sounder] package (ITPP = International TOVS Processing Package), for example. Hal Woolf was mentioned, and Bill Smith, of course. So all these people I always met, and they influenced me of course also with their knowledge, and also by the example they have done, and a lot of people who are leaders in the field. Also John Eyre. So it's always good to exchange with these people. With Bill, I was a co-chair of the subgroup, working group of advanced sounders for many years.

PHILLIPS: With Bill Smith?

KLAES: Bill Smith, yes. And so that was something which was very fruitful. And you see these people, and it's like you're coming to a family. And that was something. You had always the opportunity to ask these people if you needed advice or you saw what they did and said, "Okay, yes, that's what you need to take into account." So from that point of view, it was really something that was coming also naturally in the course of the years, that you became an international person or you would not think about that it could be otherwise.

PHILLIPS: And do you see that kind of cooperation continuing?

KLAES: Yes, it has continued throughout my career, and it is also— There's two aspects. The way I came to EUMETSAT was also something which was not expected—that was after my stay in the U.S. Because I had a very good boss in Hanscom [Phillips Laboratory at Hanscom Air Force Base formerly, Air Force Geophysics Laboratory], Bill Snow, and he made it possible that I could travel everywhere where I wanted. So I went to all the labs, all the research institutes which were interesting, also with colleagues of course. I was at the Global Weather Center, Kansas Severe Storm Center, or whatever you name. From that time I knew— I think I visited 32 of the states in that year. It was quite a very good thing. You saw what these people did, and from that point of view— also people from EUMETSAT, which I met or who saw me at some of the conferences. Because I had a lot of freedom also, I was able to write a lot of papers during this year. I wrote eight papers, I think, if I recall it correctly, in that year.

And then I went back to Europe after that year was over, and suddenly I got a call from EUMETSAT, "Ah, don't you want to work for us?" [Laughs.] That was not easy to decide because I had a permanent position, a lifetime position, but I decided yes, I'll do this. It was an opportunity which came. So that would be something I would advise people: if there is something like this coming, you have to think about is it something which you really want to do and interesting, [and] take it.

PHILLIPS: Take the chance.

KLAES: Take the chance.

PHILLIPS: Paul Menzel says if there's a fork in the road, take it.

KLAES: Yes [laughs]. Yes, yes. And I never regretted it. I mean, it was not easy. I had to give up basically the comfort to have— I mean, I could have gone back also. I'm still on leave from this position after thirty years, but it's of course an illusion. The institution where I was doesn't exist anymore. So there's no going back. And in Germany it's not like— You'd have to start where you stopped, so I would not advance in my career equivalent too. But it's only a side aspect, I'm here and I couldn't go back. So, but we have— In EUMETSAT, I was a contractor first, so I was not a staff member. I became a staff member only in '94. And I started in '92 as a contractor to write software, and that's how AAPP, the ATOVS [Advanced Television infrared observation satellite Operational Vertical Sounder] and AVHRR Preprocessing Package, went into life—

PHILLIPS: Was developed.

KLAES: That was my first job at EUMETSAT. I was the coordinator of development. It was developed by people who are now part of the NWP [Numerical Weather Prediction] SAF [Satellite Application Facility, a decentralized unit of the EUMETSAT Polar System Ground Segment that includes member states and international research organizations] in EUMETSAT, several weather services, and ECMWF [European Centre for Medium-range Weather Forecasts]. But I organized a lot of meetings, I think it was thirteen or something like that, meetings at EUMETSAT where we coordinated who did what and the planning of the software and all those kinds of things. And it was my team at that time, and after that at EUMETSAT we distributed the first three versions, because it was because the— before the NWP SAF took that over. They didn't have the infrastructure at that time to do that really, but we had it at EUMETSAT. And now they do it since it's [been] a long time. And that was something that would pave the way also to what we did then afterwards when I became the program scientist for EPS [EUMETSAT Polar System]. And we had the basis of the software already with prototypes and things like that. So it came along and something good turned out of it.

PHILLIPS: So you've already said that a piece of advice you would give to younger people is if an opportunity comes, then take it. Along that same line, how are we doing, or what do we need to do differently to attract curious minds to this area of science?

KLAES: It's difficult. I think we're not public enough. The publications we do are very specific, and they are in a "closed," quotation mark, circle of journals, publications, and so on. And so not everybody reads this, I think.

PHILLIPS: They're academic.

KLAES: They're academic, or they are specific to remote sensing. So probably we need to more do public outreach.

PHILLIPS: So it's more about communication.

KLAES: Communication to people. I've done that in EUMETSAT. Very often we have visitor groups and also young people, so whenever I have time, I do the presentations for that. We have some professional services who do that, but very very often I have done this.

PHILLIPS: It's wonderful for them to see someone like you.

KLAES: Yes. People like it, yes. It's something. I like it as well. I have— When I come back in October, I have another group coming. It's very often now. It's getting better. Colleagues ask me, "Oh, I have some people who are interested in what we do, can you do a presentation?" And I say, "Yes, I can do it. Of course, if I have time." Or also VIPs are coming, and sometimes I'm asked to guide them, or open days, things like this. I really support this. And I'm quite lucky because I'm a French person also, so I can talk in French and English and German. So there's a big palette of people who can get from me some guided tour. And it's really interesting. People are really interested, it's not— it's just they need to know that there is something. And

EUMETSAT, we were for a really long time not really known in Darmstadt where we're located, but it's getting better.

PHILLIPS: But you were this global place, but yet at home not known.

KLAES: Yes. Yes. Exactly. Of course, the European Space Agency is much more known because they have more. They have space science, they do missions to other planets and things like that. We do earth observation and operational service, but if you show it to people, it's something which is really marvelous.

PHILLIPS: Well, and it's something that impacts everyone.

KLAES: It impacts everyone, and everybody recognizes himself [or] also herself there. That's really— It's something I support. And so I think we got some young people to become interested through these kind[s] of activities. When Tillmann Mohr was the Director General, we had also highly gifted people who were selected from Hessian Schools [in the German State of Hessen] of just the state we are in, and they came to us for a week, and we had to show and teach them what we are doing. And that was also something I participated in that was quite interesting to do, it was— Also, you learn always something from the people who come.

PHILLIPS: Yes, yes, from the questions they're asking.

KLAES: Yes. And it's really fruitful, and it's a very satisfactory thing, also, for us—for me at least. You see that what you do makes sense, and is also important.

PHILLIPS: Yes. So one of the things I noticed is that, well, you are a scientist, you are a painter, you are a musician—

KLAES: Yeah, but only a very bad one [laughs].

PHILLIPS: Nevertheless.

KLAES: Yes, I do it for my pleasure.

PHILLIPS: We judge ourselves more harshly.

KLAES: I couldn't go onstage I think, but I do it for me and for the family.

PHILLIPS: But how do those areas inform each other in your life? I mean, they're connected in some way.

KLAES: They are connected in a way, yes, that is true. I mean— But I've seen it also, they are related to each other. When I do music, I am [in a] much better mindset than if I don't do it. But otherwise if I have so much work, I have no idea what I have to paint. So I have not painted since a couple of years [ago], now, because I was so busy with the satellites where I had ten hour days, and for a long time even more. So when you go home, you don't start to paint because the

brain is empty. So the only thing I ever paint is a picture for my wife for her birthday every year, but that's all I did.

Before, between the launch and permission of Metop-A [Meteorological Operational satellite-A] and -B [Meteorological Operational satellite-B], I had some time, really a lot of time. It was really a good period. I painted a lot of paintings. I had a couple of exhibitions and time to organize it, and I had also ideas to do it. And I had a lot of time. I learned to play the clarinet and the saxophone at that time. So now I still do it, but I'm not missing it in a sense, [rather] I miss the time I could do this. But I'm not getting worse, that was my amazement. I took the instrument and could play for Christmas, for example, no problem. That was for my family. But it's also—I'm commuting to Paris every weekend because my family lives in Paris, and I work in Darmstadt. So it's quite an additional—

PHILLIPS: A lot of travel time.

KLAES: Travel time, yes. It's a day or a day and a half of time which you lose on the weekend. But it's all right. I mean, we have decided it a long time ago, and [I've been] doing it a long time now. At some stage it will end, so there will be some new period in my life. But I've seen this: at some stage you start to miss, really, miss the leisure parts. And you need to do some effort to find the time for it, really. And that's at the moment the stage I'm in. We finished the commissioning period of Metop-C, so I think I will get some time [Note: retired in 2021].

PHILLIPS: You'll get back to that.

KLAES: Yes. And painting comes then automatically if you don't— If I'm not overworked, the ideas come back. So I'm not worried about this, really.

PHILLIPS: Well, there's been so much research looking at relationships between art and science. Maybe science is an art in itself.

KLAES: Yes, it's related. You get ideas also in science. Yes. Things get easier, also. It was a relief. For me it's quite fruitful.

PHILLIPS: So is there anything that we didn't touch on that you would like to talk more about, or—?

KLAES: It's difficult to say. I mean, I think the advice we have already mentioned for young people. And I think they should just keep an open mind. I mean, it's easy said, but nobody should be afraid to make a decision to do something else. So I have always done something else if I didn't like anymore what I did before, or if it was changing in a way which I didn't want to go. I kind of said, "Okay, I need to find something different." That was, in a way, also coming naturally around. So it was—I was always lucky in that sense, and I was always, when I thought okay, how—I mean, when I had finished this project for the integration of the satellite processing system, I got this place in the exchange program. The exchange program was very, very nice. I just met people which I have seen thirty years ago here again.

PHILLIPS: Yes.

KLAES: And the next job came around. I was never thinking about working for EUMETSAT, but then I thought, "Okay, why not?" I was— At the German Military Geophysical Office I was also doing something for the library. I was translating abstracts into German from French or from English, and they were mainly for remote sensing stuff. And that was so much satellite work, and that was also what I'd choose, and they gave me always the articles which came in for the catalog. And at some stage I thought, "Okay, now I know enough to participate in some of this." And the offer came around to work for EUMETSAT. So it was really something which one was triggering the other or vice versa.

PHILLIPS: If Jinny had been here, she would ask you, how do societies like the AMS [American Meteorological Society] figure in your career?

KLAES: Well, AMS was quite important for me because that was, in a way, the starting point of my international career in the sense that the first really big conference I attended was the AMS conference in London, 1990, I think it was. Yes, I think it was. And I was— Also coincidentally, it was— I had something to show because I had finished a system. I could show it works, and I had a paper, it was accepted. Then the only barrier was whether I would be allowed to travel there or not. And they wouldn't allow me to travel there on government money, so then I asked, "Can I pay for myself?" They said yes, and then I went.

That was my first international talk, besides what I did at university, but really where I decided I'd go to this conference. And since then, I have been to so many conferences. And I'm an AMS member. I don't remember how long, but I think that was since the '90s. I don't remember when I really became a member, but it was— '94? No, it was '84. I was a member already when I was at university because there was also this immense offer of information through the Society. I mean, for me, I was loving the bookstore, for example. That was something— I think I have a meter or two of books from the AMS, at home. Just also things which are not directly related to work, but also historical things like how D-Day would work and all these kind[s] of things. That was something you get only to know if you are part of the Society. You wouldn't really find it in a bookstore.

PHILLIPS: That's right.

KLAES: So that was— For me it's important. I'm not a member of too many societies. I'm a member of the German Meteorological Society as well, I was a member of the French Meteorological Society, but at some stage I stopped doing it because I couldn't go to any of their meetings, but I will rejoin them I think [after] going back to France. But for me, it was very important to see that there was also a community which is looking at many aspects of public life, also political aspects, like, I mean, climate change is now of course the leading subject for many of us, but it was also a lot of other things which were really important. Specific fields where I was not really involved, but when I wanted to know something [about], like Radar Meteorology. So you can always find information to enrich your knowledge. If you go to a conference like this one, there is such an immense amount of information coming, so you have to choose. But it is something, you always go home and have learned something. I go to the SPIE [Society of Photo-

optical Instrumentation Engineers] conference in San Diego whenever I have the time in the summer, and it's, for me, to get the latest, really, on all what optical stuff is doing, so that's really enriching.

PHILLIPS: Are you coming back for the Annual Meeting?

KLAES: I'm not sure I will be allowed to come because there's usually other people going there, but this year I really insisted that I could go. I wanted also to show something, one of our satellite systems, for the hundred years and also for this conference, which is Joint—I have participated in all the Joint Conferences. I used also sometimes to be on the board, so I served on the board also in the past, but in the recent years it didn't turn out because the subjects were different. So it was not so much important, but it was interesting to help to generate the program and to do the talks and sessions and things like that. It's also something which young people—I think they should try to get into these kind[s] of things, to chair sessions and to participate in stuff.

PHILLIPS: Well, yeah, and I think at the annual conference there's more opportunity for that.

KLAES: Yes, yes, it's much bigger.

PHILLIPS: There's a student conference there. It's much bigger, and it's during January when most students are on break.

KLAES: Yes, that's true, yes. It's really good, yeah. That student conference is also something that is really good, yes. Otherwise I don't know, I—

PHILLIPS: You have an illustrious career.

KLAES: Yes, I like it [laughs].

PHILLIPS: It's very clear that you like it.

KLAES: Yes, I'm still enjoying it after all these years. It's not that—I need to retire at some stage in the future, but next year I still work, but at 65 I have to retire from EUMETSAT, so—But no worries [laughs]. I will have enough to do. So that's nothing. I won't fall into a hole. [They laugh.]

PHILLIPS: Well, thank you very much for sitting down with me this afternoon.

KLAES: You're very welcome. I hope it helps.

PHILLIPS: Absolutely it helps.

[END OF INTERVIEW.]

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