

Topic 5c - Course round-up

So Mark and Rosemary, we've reached the end of the course now. And we're hoping that the learners have got a different picture of the world satellite data that's available. Now we talked a little about the start about your view of the atmosphere, but tell me how-- what you're hoping that they see in all this data that they now know about. Maybe Mark first.

So I think the hope is that they've seen the range of products that are available and the range of applications that data from satellites plus also aircraft and balloons and that are made at the surface, how they contribute to our understanding of the atmosphere, and how-- and it's composition and how that's changing.

And Rosemary, what do you hope that people have taken away from it?

I'm hoping people come with more enthusiasm for the subject, that they might want to actually even investigate data themselves. So from my perspective, working here at EUMETSAT, I'm very interested in that people might want to look at the satellite data. And they can get that directly from our archive.

They can even get it in near real time with having a small reception station at home perhaps. And that would be a really nice thing to think people would want to do. So if anybody has that kind of level of enthusiasm, you can find information on the course website about how to access data and what you could look at.

And this is an important point, isn't it? Because we've talked a lot about all the wonderful information that's available, and the various places it comes from. But when it comes to practically, what can you do next?

There's a couple of levels, aren't there? There are the forecasts, and then the actual data. Mark, can you sort of describe those two levels and where people can find information?

So we provide the information from the forecasts and actually, some of the observations on our-- through our data catalogs.

So that's CAMS, for example.

And this is-- yeah. This is all from CAMS. And there's also a means of accessing the data through for example, the climate data store, where users can go and access data through their computers without ever having to download data. And then they can plot it and manipulate it and visualize it how they want.

And Rosemary, for people who sort of start on this process, so you know, there's a business that would like to use data, but doesn't know how to get started or how to get help, what's available to them?

Yeah. I think the best thing to do if you want to start looking at our data and you don't know how is really to contact our help desk. We have a user help desk which has a very simple email. It's ops@eumetsat.int.

And if you put a query there, they will look at who the best person is to help you. And they'll provide you with information and some feedback on your question. So I think that's the best place to go.

Going through this course, we have heard a lot of acronyms. There's a lot of organizations. And it sounds as though this is very complicated structure, but actually, they're part of the same thing, aren't they? We have these sensors that have specific expertise on fire, on volcanoes, on pollution. But they're all-- they're part of the same system, aren't they?

So it's important not to see them as separate difficult things, that they're all offering different services. And they're all freely available. And that's very important, isn't it, Mark?

That's right. The key points of the Copernicus program is to provide free open access data for everybody.

And how do you think this is going to change the way things happen in the future? So we've talked about for example, it being important for business and economics, but in practice, how would society change? You know, as these data products, as the information from Copernicus becomes more common, what might the world look like in the future? Can you sort of imagine if everyone used the satellite data, what might society look like in the future? Perhaps Rosemary, you got some ideas.

I would think if people can get that higher level of awareness and a better understanding of what's available and what we know and maybe even what we don't know about the atmosphere and the processes in it, I think that would change also the dialogue about things that may be policy relevant or things that we have to change from a social point of view to improve a local environment or the bigger environment. But I think also, we should really be getting data that will inform stronger policy decisions. So we can have a better underpinning of the decisions we're trying to make in the future.

And Mark, in particular are there apps you would like to have on your phone? Or there are services that you think you know, in 10 years' time, we will take it for granted that we can look at the pollution right where we are now. You know, what sort of things do you see coming down the line?

Well, in terms of apps, these things are already existing. In terms of people taking Copernicus data and CAMS data and putting it into air quality forecasting, and using that in apps-- and there are a number of these that already exist. But as Rose says also on the policy really the

way that these data can really affect how we live our day to day lives is through policy. And indeed, CAMS already has these policy products as we've already seen. And those policy products are driving how governments and policy makers understand where air pollution in a particular city is coming from, and how they can deal with that and how they can mitigate that.

And thinking now about we share a planet. No one's gone to Mars yet, so we're all here on Earth. And the atmosphere is a shared resource. And it's one of the things I think that's coming from-- that we've learned along the way in this course is that we are still learning about the atmosphere at the same time as learning how we're changing it.

And this is such an important thing for our civilization. Just talk a little bit about the bigger picture. We have a responsibility to use this data. It's not just a nice toy. It is a responsibility, isn't it?

Yeah. I think it's a big responsibility in the sense that we have to look at the overall long term health of the planet. We have a look at how things are really going to be maintained in the future. And if we don't try and further our science and further our understanding, we're not going to be in a position to do that. We're not going to be in a position to guarantee we're not doing some kind of irreparable damage to the planet that we basically rely on for everything. So it's very important.

And Mark, what do you think about that responsibility?

One of the key things is in understanding atmospheric composition, and how that's changing is to have long term consistent measurements using satellites and other instrumentation to really have a long term record in a consistent means. And this is one of the main things that we can do in CAMS is we run re-analysis, where we take all of this data from different sources and put them into a consistent framework to provide the best information of how the atmospheric composition has been changing over a number of years, and how that could then change into the future. And then to Copernicus, the sentinel program of satellites, this is designed to do exactly that, to provide information from multiple satellites, so the same kind of instruments over a long period of time so we can really understand how it's changing.

So if you had a final message for people on this course, they've learned all this information, they know what's available. The future is looking very positive in terms of what we do know and what we will be able to know. What's the final take home? Have you got a thing that you care about more than anyone else that people finish this course with a thought to finish it all off? Rosemary?

I think I would just like to see them looking to really, the wealth of data that's coming our way and all of the services and apps and products that we can make for them. I think I would like that sense of anticipation and forward looking view, because I think we have more data

coming than we almost know what to do with.

And Mark, how about you?

And I would echo the same thing. I think being able to take lots of different information from different sources and bringing it together to understand all the components of the atmosphere, and how that interacts with the climate and the way that we live our lives. I think this is a really important point of the information in this course.

And for me, the message this course has shown so strongly is that this is about people. There's all the science. It's fabulous. There's lots of things to be curious about. But fundamentally, the reason for understanding up there is that it affects us down here.

And I hope learners take away that it matters. We all breathe the atmosphere. We all take it into ourselves every day. And it's keeping us alive. So worth having all this information.

Yeah.