

# The science behind the Durban talks

What do researchers do at the United Nations climate talks, and why do they bother?

Jeff Tollefson

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## DURBAN, SOUTH AFRICA

Negotiations under the United Nations Framework Convention on Climate Change are highly political. For two decades, they have been going around in circles on the same basic questions: who must do what to combat global warming, and where will the money come from? Current talks in Durban, South Africa, aim to come up with a successor to the Kyoto Protocol for stabilizing emissions. They are driven and informed by scientists through projects such as the Climate Action Tracker, an effort to inject scientific analysis and fresh climate-modelling data directly into the negotiations. Climate Action Tracker is run by a partnership involving Climate Analytics in Potsdam, Germany; Ecofys in Utrecht, the Netherlands; and the Potsdam Institute for Climate Impact Research. *Nature* talks to three scientists about their work on the project.

**Bill Hare** is a physicist who serves as director and senior scientist at Climate Analytics.

**Niklas Höhne** is a physicist who serves as director of energy and climate policy at Ecofys.

**Marion Vieweg** is an economist and climate-policy analyst with Climate Analytics.

### What does Climate Action Tracker do?

**Höhne:** Countries have put forth pledges on how much they want to reduce emissions, and we quantify those pledges, add them all up and see whether they will be sufficient [to meet the international target of keeping warming below 2 °C in the twenty-first century]. And we have found clearly that they are not sufficient.

**Hare:** Some countries have argued that there are an infinite number of pathways to the 2-degree increase, so we are going to be showing work, from the scientific literature and our own analysis, demonstrating that the pathways are rather limited.

### When you talk about being on a path to two degrees, what does that mean?

**Höhne:** The question that is asked here a lot is what would happen if we went along with the low-ambition pledges until 2020 and still want to meet the 2-degree target. Is that possible?

**Vieweg:** The different paths have different costs and risks. If we delay, we will have to rely more on technologies that are unproven, that are only in the development stages. We don't know how that will work out in practice.

### The world is currently emitting the equivalent of 48 gigatonnes of carbon dioxide per year. How big is the gap between what has been pledged and what needs to be done by 2020 to meet the 2-degree target?

**Hare:** You need to be at something like 44 gigatonnes of CO<sub>2</sub> emissions in 2020, and there is a gap of between 6 and 11 gigatonnes [between that and what we expect emissions will be in 2020].



C. Baxter/Climate Action Tracker

The Climate Action Tracker team is working to ensure that climate talks in Durban, South Africa, are based on scientific data.

### Interview with Bill Hare

Bill Hare, director of Climate Analytics, tells *Nature's* Jeff Tollefson what it's like to be a scientist at the Durban meeting.

**Höhne:** That's quite substantial. The European Union's emissions are 5 gigatonnes, by comparison.

**Vieweg:** And if we calculate temperature from that, we get way beyond 3 °C. [Climate Action Tracker's latest estimates, released on 6 December, [predict a rise of 3.5 °C](#)].

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### **How do you estimate countries' emissions?**

**Hare:** That is one of the most uncertain parts of the whole exercise. In some cases we know countries' goals, policies or aspirations, and in others we don't. Where we know about those aspirations, we assume that they might be met. Where we don't, we've made the assumption that they have followed the business-as-usual path.

### **How do you translate politics into computer code?**

**Hare:** To answer certain kinds of questions, we have to encode in the model all of the quaint rules of the Kyoto Protocol system, and then all of the quaint rules that parties want to have. And then we have to make sure that it is robust, so it's rather intense coding work for the team.

### **What kind of questions are you analysing?**

**Hare:** The vulnerable countries might come and say, "What if we actually accept this deal, how much warming would there be?" We also have to try to understand what countries mean, because they don't say, "We propose to reduce emissions by a certain percentage against this year using all of these sources." They are usually much more obscure.

**Vieweg:** It's actually one of the reasons that Climate Action Tracker started. To try to make sense of these very obscure trends, to untangle them, make them comparable and add them up.

### **How do you deal with uncertainties, confusion and outright disagreements about who is proposing to do what in the negotiations?**

**Hare:** It requires quite a rigorous approach to making sure that all of your data sources are correct and that your interpretations of what the parties mean are correct. You may discover that there actually isn't a clear idea, or that they didn't communicate it well. Or sometimes, without naming countries, clarity is not the objective.

### **Is it stressful?**

**Hare:** It's a lot of pressure on people to get these numbers right. There is even more pressure than submitting a journal article, where you get reviews and you can go and check everything.

**Vieweg:** Here, if you press the button it's out there in the meeting.

**Hare:** It's out there, and the Americans, for example, will jump up and say, "This is wrong, you haven't got our most recent data." That hasn't happened to us, by the way, but we have seen it happen to others.

### **It would be easy to get jaded by the process. Why do you come to the talks?**

**Hare:** We have some young PhD students and postdocs who come here and work like dogs. It is part of making their work relevant. There are many leading scientists coming here and actually advising delegations, because they know the importance of doing it.

**Höhne:** If you care about the climate, this is the place to be, even if it moves at a glacial pace. This is a political process, but it is based on scientific input. It is asking for scientific input, and so bringing that knowledge here is important.

**Vieweg:** And even if the process is going at such a slow pace, the potential impact is so large.

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## **References**

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1. doi:10.1038/4641126a