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Headline: The world's biggest climate report explained as a movie release

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The world’s top climate body is about to release the fourth and final report in an epic series. We know the plot, so why tune in for the fourth instalment? Eloise Gibson explains.
Haven’t we just had an epic three-part trilogy of major climate releases?

Yes, but this is the One Ring to Rule Them All – a master summary of many reports by the Intergovernmental Panel on Climate Change before it.

Or, for a better Lord of the Rings analogy, the reports on the physics, human impacts and solutions that came out in August 2021, February 2022 and April 2022 respectively were a sprawling three-part epic in the style of Peter Jackson.

The summary due for release in the early hours of Tuesday (NZT) is an attempt to make it all a bit more like a movie based on a Michael Lewis book (think MoneyBall, or The Big Short). In comparative terms (and this is all very relative, when you’re talking about the IPCC), this is the pacey but definitive account of around eight years of climate research.

While the tone certainly won’t be as thrilling as a Lewis book-turned-movie, the sheer level of ambition, volume of evidence and do-or-die stakes can’t be rivalled.

What’s going to happen in this 4th instalment exactly? Surely pundits must have their hunches.

We have more than a hunch – the report has to be based solely on the evidence in the past three reports. There won't be any surprise plot twists.

What’s interesting about the summary report (called a Synthesis Report) is watching how a crowded, conflict-ridden and powerful writers’ room (featuring representatives of every world government as well as leading scientists) decide to tell the story.

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It's also a chance to re-up findings that might have had an unlucky run at the box office, for example, the second chapter, which coincided with Russia's invasion of Ukraine.

A quick summary of the plot so far …

Episode I. The physical science report

This is the one with all the evidence linking greenhouse emissions to temperature rise, which is no longer being phrased as "virtually certain" or various degrees of "likely" but simply stated as absolute fact – an unusual step for the notoriously cautious science body.

When our story begins, warming is unprecedented for the previous 2000 years and very probably longer – people are now living on the hottest planet human civilisation has ever experienced. This episode contains a lot of new evidence about changes in extreme events, aka the bits of climate change that kill people directly (as opposed to more sneakily through something like disease or crop scarcity).

This evidence was clearest with extreme heat but also fairly certain when it came to the global increase in heavy rain (though some parts of the world, especially the global south, desperately need more research).

Episode I also covered the likely impact of heating on tropical cyclones, which, while not more common, are likely getting stronger and wetter on a global scale.

This first chapter also laid out the future temperatures modelled on top of the 1.1C we've had already. The short version: Every added 0.5C increases intense heat waves, heavy rain and drought, and every tonne of CO2 matters.

A big piece of good news: we don't seem to have yet passed any of the tipping points where we couldn't stop heating by stopping emissions, according to Friederike Otto of Imperial College London, one of this report's authors.

Episode II. Impacts on people

The backbone of this one's plot is pretty simple: we can and should protect ourselves, but we can only adapt up to a point, and we're already nearing some of the limits.

We're also doing lots of expensive things that make us actively less prepared: building seawalls that accidentally trap storm run-off inside them, investing in fossil-fuel-creating infrastructure that locks in further heating for decades, putting more houses on flood-prone land.

Food and water insecurity, water – and insect-borne diseases, economic suffering and worsening physical and mental health – all these get worse the longer we keep heating the planet, said Winston Chow of Singapore Management University and Vanesa Castan Broto of the University of Sheffield at a recent briefing on this report.

Episode III. Mitigation: How to stop this

If this was an asteroid movie, the menacing colossus would be visible with the naked eye in the skies by now – but instead of scientists scrambling for never-before-tried ways to stop it, the solutions are right there, only governments aren't willing to use them.

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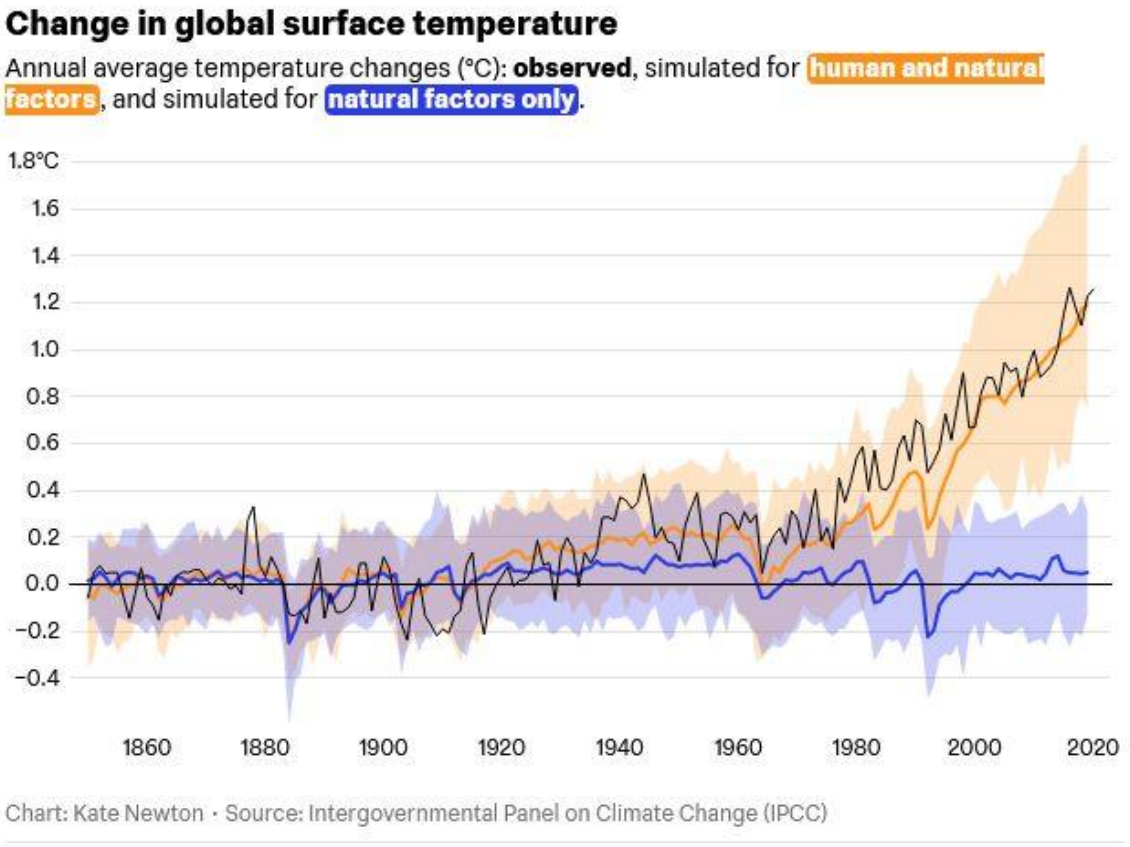
The decade to 2019 produced the highest annual greenhouse gas emissions in human history, with a slight improvement in that the rate of increase was slowing. Covid did have an impact of up to 20% lower emissions, notably in transport, said Raphael Slade of Imperial College London (who was involved in writing this report), in a recent briefing. But it was temporary.

Coincidentally, the sum of the last 10 years' worth of emissions also happens to roughly equal the emissions budget we have left before hitting 1.5C of post-industrial heating. Stopping short of that requires a cut of at least 43% by 2030 and emissions peaking globally by 2025 (on average, that is, including both rich nations and fast-developing, poorer countries).

Whatever happens, we'll need to suck some carbon back out of the air – mainly through proven methods like tree-planting, but possibly also using riskier, unproven and sometimes sci-fi-esque technologies. In a desperate plot turn, some scientists are investigating shooting things into the air to stop the impact.



Does it have a happy ending? Well, it could. Keeping heating to less than 2C works out cheaper than living with the consequences of not doing that, the report concluded. For the first time, policies to stop emissions – carbon pricing, support for technology, and performance standards, for example – showed up in the data as having had a noticeable impact.

The asteroid would be closer by now if governments hadn't already done some good things, in other words. There was an uplifting subplot about renewables, which got cheaper at a speed researchers wouldn't have predicted ten years before.

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But we need to take the brakes off. Keeping heating inside the safest-still-available zone of under 1.5C is no longer a matter of endlessly weighing up alternatives for slashing emissions. It's a case of doing Everything Everywhere All at Once.
Surely an epic this crucial has offshoots between instalments

Correct! As well as the big trilogy, there are various spin-offs tackling topics like melting ice, and the stakes involved in keeping heating inside 1.5C. If the episodes above were the main movies in the Star Wars franchise, these would be the ones in the middle – Solo, The Mandalorian, Rogue One and so on. These, too, form part of the epic tale, and will be summarised in the synthesis.
What do these big shots think of New Zealand?

Important question. Short answer, we're faring better than Australia, but that's hardly something to be proud of.

Why put out a 4th instalment if we already know the plot?

The important thing about this summary-of-summaries is that governments and scientists have to agree on the wording.

That's true of the previous reports as well – but this time governments and researchers are agreeing on a grand summary of everything we've learnt in eight or so years of research, based on literally thousands of pieces of evidence. At the end, you have a document that forms a kind of agreed statement of evidence for the world's governments for the next several years.

Naturally, the process is exhausting and fraught. Top researchers from all over the planet spend long hours working on it at unsociable hours during the year, and the final negotiations go on for at least a week. This one is running over schedule, suggesting things are tense in there ('there' being the inside of a plenary meeting in Interlaken, Switzerland).

Sometimes, country representatives fight for watering down the language on the need to cut out fossil fuels, or, in New Zealand's case, to take out recommendations for 'plant-based' diets from top-line summaries. The researchers' job is to keep this in check, and to make sure the story that comes out is actually true to real life events.
Is it time for a new director for this slow-motion disaster movie?

Possibly.

Hoesung Lee, formerly an Exxon company economist, as well as a Distinguished Research Fellow at the Korea Environment Institute and top environmental and energy adviser to the South Korean government, has overseen this round, known as AR6. Tuesday's final instalment will bring an end to this round of assessments and signal the start of a new assessment series, AR7, with a newly-elected leadership team, meaning the top job may be up for grabs. It hasn't been a smooth run – at one point scientists stopped writing the latest instalment at one point, seemingly in protest about the process.

This is very likely the last report we'll see during the time window for keeping global heating inside 1.5C.

Each AR (Assessment Report) cycle takes around six or seven years. By the time we see the next series, we'll either have done that or failed, and scientists will be assessing and grappling with the consequences. Even if we've narrowly overshot the goal, but kept well under 2C, the tone of this epic could turn more upbeat.

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Stay tuned. We'll have a report on the summary – and a series of simple charts – ready on Tuesday morning, New Zealand time.