**About this time last year I posted a video describing the looming menace of a potentially very strong El Nino event bubbling up in the South Pacific.**

**The projections of knock-on effects in the earth’s atmosphere were all just a little bit disturbing at the time, and judging by last year’s record temperatures, it looks like those fears were well founded.**

**We’ve just witnessed a twelve-month global average surface temperature of more than one-point-five degrees Celsius above pre-industrial levels for the first time in recorded history, rising to almost one-point-eight degrees Celsius in February twenty-twenty-four. In that same month, the average surface temperature here in EUROPE was recorded at three-point-three degrees Celsius above eighteen-fifty to nineteen hundred levels.**

**So, the burning question (if you’ll forgive the unfortunate pun) is does this mean we’ve now reached the catastrophic climate cliff edge of so called Abrupt Global Warming that many have been predicting?**

**Or, is this just a very unwelcome blip in the data?**

**Hello and welcome to Just have a think,**

**Quick 101 on that Abrupt Global Warming thing. A few years back, some climate observers started pointing to events like accelerated melting of polar ice sheets and glaciers, changes in ocean circulation patterns like the Atlantic Meridional Overturning Circulation, or AMOC, and the increasingly rapid release of greenhouse gases from permafrost and methane hydrates. Palaeoclimatological data derived from ancient ice cores suggests that events like these in the distant past preceded very abrupt global warming, resulting in rapid and dramatic changes to the global climate system.**

**The modern theory of Abrupt Global Warming, or AGW is somewhat at odds with the more gradual global warming trend currently predicted by many climate models and real-world observations made over the past century. While the world’s self-appointed ‘foremost authority’ on the subject, the Intergovernmental Panel on Climate Change or IPCC, does** **acknowledge the possibility of AGW as a component of the broader spectrum of climate change, and even discusses the potential for abrupt and irreversible changes in its assessment reports, it nevertheless points to what it says is a consensus view that gradual global warming is the more immediate and predictable threat. Many climate scientists and activists don’t share that level of optimism however, and there are increasingly vocal suggestions that the IPCC has completely ignored crucial indicators, not least the methane being released from those hydrates that I mentioned a moment ago. I’ve made several videos examining these conflicting views over the past few years, and I’ve left links to those videos in the description section below.**

**The point is, it’s not really all that surprising that many folks believe the rollercoaster of human self-destruction is now heading vertically downwards to a section of the track where the track runs out and the tarmac starts.**

**So, is it true? Well, the somewhat disappointing answer is that no-one really knows for sure, do they? Let’s start with the World Meteorological Organisation, or WMO.**

**In March twenty-twenty-four they published this analysis informing us that the twenty-twenty-three / twenty-twenty-four El Niño was one of the five strongest on record and will continue to impact the global climate well into the second half of the year, despite the fact that it is now weakening.**

**The last strong El Niño was in twenty-sixteen, when average global temperatures reached one-point-one degrees Celsius above pre-industrial levels. What’s causing some anxiety in the climate science community now is that twenty-twenty-four beat that record into a cocked hat. The inference being that in relative terms, El Niño alone cannot fully explain the extraordinary temperatures we’re now seeing in our oceans and atmosphere.**

**The secretary general of the WMO, Celeste Saulo, has explicitly said that while El Niño contributed to record land surface temperatures last year, the main culprit is still the combustion of fossil fuels putting unsustainable levels of greenhouse gases into the atmosphere.**

**Interviewed by the Guardian newspaper recently Saulo added that the OCEAN temperatures are even more worrisome.**

**“The January twenty-twenty-four sea surface temperature” she said “was by far the highest on record for January. This is worrying and cannot be explained by El Niño alone.”**

**Now you might say, ‘well look at the scale on the left-hand side of the graph. Hasn’t it been deliberately zoomed in to make the difference look as dramatic as possible? After all what’s a degree or two between friends?’**

**And that is indeed one of the major hurdles that scientists face when they try to ring alarm bells about our changing climate. You and I can experience temperature changes of ten, fifteen, maybe even twenty or more degrees Celsius from one day to the next and it doesn’t stop us taking the kids to school and doing the weekly shop does it? So, what’s the problem? Well Professor Johan Rockstrom from the Potsdam Climate Institute in Germany, gave us a fairly good steer on that during his Planetary Boundaries presentation to the 2023 Frontiers Forum in Montreux, Switzerland…**

 **“Look at the green line. How the planet is dancing. Oh yes. Solar forcing, volcanic eruptions earthquakes. In and out of cold ice ages and warm inter-glacials. But not at one time, as far we understand today, did we reach two degrees. It’s only in the Quaternary that we have a reference point for a climate that has had any assemblance of the living planet that we depend on for our future. So, this graph in itself, I would argue, is enough for climate action, because we’re following a pathway that takes us to 2.7 degrees in only 70 years! I mean that is undoubtedly, without any hesitation in science, a catastrophe!”**

**Rockstrom goes on to point out that temperatures over the last eleven thousand years or so are even narrower, only varying by plus or minus zero point five degrees Celsius. During that extraordinary period of stability, we humans have mastered agriculture, built cities, and developed complex societies and civilisations.**

**Modern humans simply have no experience of anything different, and we certainly have no experience of adapting to higher temperatures while simultaneously trying to support more than eight billion human people.**

**But have we entered a new and even more abrupt phase of global warming, as some observers fear? Well maybe not, according to the well-known climate scientist Zeke Hausfather. He recently told the Guardian newspaper that even though global sea and surface temperatures were “quite high”, they were still well within the projections of climate models. He said**

**“We don’t have any strong evidence yet from observations that suggests the world is warming faster than anticipated given human emissions.”**

**And what about that weakening of El Nino that I mentioned earlier? Can we expect some relief from these insane temperatures in the coming months?**

**Well, maybe. This chart of global average LAND surface temperatures shows us that while twenty-twenty-four certainly started out high, we’re now nudging back to twenty-twenty-three levels. That feeds into this projection chart from the US National Oceanic and Atmospheric Administration, or NOAA, suggesting that the ENSO system is likely to shoot straight through a neutral phase later this year and go directly into a strong La Nina phase, which WILL begin to supress global temperatures. That’s a bit of a double-edged sword though I’m afraid, because La Nina conditions also tend to mean less wind shear in the Atlantic Ocean. Less wind shear in the Atlantic means tropical cyclones can develop much more easily. Combine that with extremely high sea surface temperatures pumping unusually large amounts of energy into those tropical cyclones and you’ve got yourself the perfect storm - just in time for hurricane season in the Caribbean and Gulf of Mexico.**

**It’s all a bit of a mine field really, isn’t it? And as usual, opinions on the subject are becoming ever more polarised. Some folks argue that the technical genius of the human mind will outsmart nature and keep us within our planetary boundaries without making any changes at all to our way of life. Others insist that we’ve already fallen of the cliff of doom and we should all just sit down, give thanks for what we’ve had, and kiss our sorry asses goodbye.**

**The slightly less dramatic answer probably lies somewhere in the middle, doesn’t it? We know we should have started addressing greenhouse gas emissions about forty of fifty years ago when Exxon’s own geologists told their bosses about the problem. But we didn’t. And we also didn’t address the unsustainable acquisition of forestry land for agriculture, which is an almost equally strong climate driver. So, now we’re on a path to at least two-point-seven degrees Celsius of warming in the lifetime of our kids and grandkids. The challenge must surely be to make what looks like a fairly catastrophic future become as ‘un-catastrophic’ as possible. That means our world leaders need to stop throwing stones at each other and start cooperating on a global scale project of adaptation to cope with what’s coming, and mitigation to keep future consequences to a minimum. Mitigation means a rapid end of fossil fuel combustion. It probably doesn’t mean a rapid end to the extraction and refining of crude oil though – at least not in the next few decades anyway, because when we’re not burning it, we use it for almost everything that makes out modern, increasingly urban societies liveable. According to experts like Mike Berners Lee and others though, mitigation also means a radical change to land use and agriculture and a general overhaul of the way we grow food and the way we distribute it and consume it. These are choices we can start making on a voluntary basis right now, or we can wait until nature makes the choices for us. What we can be fairly certain about is that option two will be significantly more painful that option one!**

**Now, I know these videos are regarded by some viewers as being contentious at best and downright alarmist at worst. They certainly always provoke quite a lively chat down in the comments section below that’s for sure, so if you’re feeling the burning urge to provide me with a small piece of what’s on your mid then why not pop down and leave your thoughts there now, and I’ll be interested to see what the consensus view looks like.**

**That’s it for this week, though. A massive thank you, as always, to the amazing group of people who steadfastly support the work at this channel via the Patreon platform. That support means I never have to be a slave to the dreaded YouTube algorithm, and I can keep ads and sponsorship messages out of your way. If you find this sort of content interesting and helpful, then you can get exclusive early access to all my videos, pick the brains of fellow Patrons in discussion forums AND have a direct influence on the direction of the channel’s content by visiting patreon.dot.com forward slash just have a think.**

**And if you don’t want to miss out on notifications of new videos each week, then make sure you select the absolutely totally free option of clicking on that subscribe button and switching on all notifications, which you can do down there somewhere or by clicking on that icon there.**

**As always though, thanks very much for watching! Have a great week, and remember to just have a think.**

**See you next week.**