

Daniell Webinar 2020

Question & Answer Report

NB: Questions and answers have been edited for clarity and style

How much preparation went into collecting the cores? Was there anything specifically you had to do?

(Prof Caroline Lear) Years of scientific planning across several different countries. I sailed on the ship as a geochemist, but it was wonderful seeing the technology that lets us drill in 4km of water depth!

Precious metal research was mentioned in the introductions, linked to the expansion in electric car production. Are electric cars not just shifting environmental problems? Bicycles are surely the solution?

(Prof Richard Herrington) Bicycles are really good, I agree, but larger forms of transport - cars buses etc - will still be needed. We do need to reduce our 'love affair' with cars, many of which only spend 10% of their time actually on the road, mostly parked in drives!

Are carbon dioxide emissions from cars or emissions from large factories more of a problem?

(Prof Richard Herrington) Transport is a big producer of CO₂, on a par with industry, but energy generation for domestic power and heating is also huge.

Do you believe that individuals' eating choices directly affect the climate eg. veganism? Vegans usually say that if all humans were practising veganism, this would lead to cleaner air.

(Prof Caroline Lear) Absolutely - your diet has a really big impact on your personal carbon footprint :)

Does the production of vegan food have a negative impact on the environment?

(Prof Caroline Lear) I think only rarely. E.g. only a tiny production of soy goes to feeding people. Most of it is fed to cattle. So, it would be hard to blame vegans for those sorts of problems....

How achievable it is to reach zero CO2 emissions?

(Prof Richard Herrington) It is achievable, but it needs a concerted appetite to change rapidly. Sadly, the COVID crisis has to some degree 'frozen' our plans for change.

How does the development of hydrogen fuel change the future, and how sustainable is it really?

(Prof Richard Herrington) Hydrogen is definitely an alternative fuel. It does need to be procured using electricity, so there is the challenge to make sure we make that electricity with renewable methods. Hydrogen (or the compound ammonia, made from hydrogen) is probably the best technology for powering trucks and ships.

Since renewable resources can only provide a relatively small percentage of our energy, and many countries cannot afford enough of it, what is the most realistic option to get off the use of fossil fuels as soon as possible?

(Prof Richard Herrington) Actually the UK is reaching a point where renewables are a large % of the energy budget. There are other technologies, like nuclear, that some scientists are suggesting could replace fossil fuels for days when the wind doesn't blow and the sun doesn't shine. Wave and tidal energy are still largely untested too.

What relative proportions of CO2 are fixed in forests compared to the oceans, and what is the effect of rising ocean temperatures on their ability to dissolve (retain) CO2; and then on seaweed to fix it as more seaweed?

(Prof Caroline Lear) Oceans will continue to absorb CO₂, but the downside is that is causing ocean acidification.

What's something you hear often from the public/government/corporations that's really frustrating?

(Prof Richard Herrington) I am frustrated that the political process in our country means that our politicians only seem to be interested in 5-year plans. The climate issues need 100-year plans (at least!)

What ways are there to remove CO2 from the environment, instead of just reducing our production of it, which could help the climate? Do you think these are tangible possibilities?

(Prof Richard Herrington) Carrie mentioned using an enhanced natural process of rock-weathering that can strip CO₂ from the atmosphere. This is an exciting and natural process that can help us to accelerate atmospheric CO₂ reduction.