

London & South of England Evening Meeting: Rising Seas – The Case for Moving to Higher Ground



Institute of Physics on Caledonian Road, London

Tuesday 12 November

On the 12 November 2019, the branch hosted its first event at the prestigious new Institute of Physics on Caledonian Road, London. The presentation was given by leading oceanographer, consultant and expert on sea level rise, John Englander. A broad marine science background coupled with explorations to Greenland and Antarctica enables John to see the big picture of sea level rise and its societal impacts.

Today, John works with businesses, governmental agencies and communities to understand the risks of increased flooding due to rising seas, extreme tides, and severe storms, advocating for “intelligent adaptation”. As a conduit for information on this critical subject, he has founded the non-profit, Rising Seas Institute.

John’s fascinating talk, was deliberately given in plain clear English. The world is confused by messages regarding, plastic, CO₂, carbon, floods, sea ice melting etc. The result can be people thinking that re-using a plastic bag will suddenly halt the melting of ice in Greenland. The presentation’s aims were to focus attention on what is likely to happen in time frames that people can understand ie within their expected life spans or before their house loan is paid off.

The presentation was not given to panic the world but to give a message to be more prepared. In John’s words this means for planning for a sea level rise of 1m now but ideally consider 3m.

Coastlines have not changed for the last 5000 years and this leads to complacency that they will not change now. In fact, they have changed dramatically through the last four ice ages, sea level fluctuating by over 150m in the last 125,000 years. Coming out last ice age, sea level rose by 50cm a decade. The migration of animals depicted our movie screens is based on fact!

John Englander explained why the rate of rising seas will likely increase exponentially. Recent developments in Antarctic ice core analysis now give a clear log of CO₂ and temperature through the ice ages. Human industrial output of CO₂ has now exceeded the maximum in the warm periods between ice ages and is still on an exponential increase. This has switched the ice age cycle, instead of starting to cool into another ice-age we are continuing to warm. The Arctic and Northern latitudes have taken the brunt of climate change with temperature increasing by 3 deg Centigrade already. Sea ice melting actually causes the sea level to drop, but now we have an Arctic Ocean that is dark water absorbing heat rather than an ice sheet reflecting it. Thermal expansion of the oceans from this heat absorption is a key reason for sea level rise.

There was an excellent round table discussion following John’s presentation on how society comes to terms with the sea level rise. In reality, even if some of the world is in denial of the causes of climate change, humans now need to respond to the consequence of the current level of green house gases (GHG) in the atmosphere. Climate repair was discussed, though some ideas would require geoengineering on a vast scale, like coating the arctic ocean with reflective glass beads. Singapore is already planning for a 4m rise in sea level, even poor communities in Bangladesh have developed effective floating islands to live on, so there is some hope! The discussion touched on another exponential effect: that of release of methane from melting permafrost which is 30 times more potent as a GHG than CO₂. But at this point the meeting adjourned for some welcome cheese and wine!

John Englanders bestselling book, *High Tide On Main Street: Rising Sea Level and the Coming Coastal Crisis*, clearly explains the science, the impending devastating economic effects and the opportunity to design for a more resilient future. *Moving to Higher Ground*—the title of his next book, is coming out in 2020.

Moreover, the core presentation slides, are available on <https://www.johnenglander.net/select-slides-to-share/> for us all to understand and share. IMechE, also have just published a very informative brochure entitled "*Rising Seas: The Engineering Challenge*".

Report by Richard Binks

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