

Dirty diesel ‘doubles risk of dementia’

Jonathan Leake and Josh Boswell

February 19 2017, 12:01am, The Sunday Times



Rosamund Kissi-Debrah believes her nine-year-old daughter Ella died because of London’s dirty air

New evidence has emerged to show that diesel pollution can double the risk of getting dementia and may be responsible for as many as a fifth of cases worldwide.

It adds to the growing list of medical conditions linked to air pollution and comes as the government faces legal action for allowing nitrogen dioxide levels repeatedly to breach EU limits around the country.

Poor air quality has previously been more associated with health conditions with sudden onset, such as heart attacks and strokes. The new research shows the consequences of this pollution could be far more long term.

Researchers at the University of Southern California (USC) analysed health data collected over a decade from 3,647 women across America aged between 65 and 79.

The new evidence on pollution

It found that those exposed to levels of air pollution above US legal limits were 81% more at risk of global cognitive decline and 92% more likely to develop dementia-related diseases including Alzheimer's.

If the scientists' findings are replicated in men and women of all ages, air pollution could also be responsible for about 21% of dementia cases, according to the study, published in the Nature journal Translational Psychiatry.

“Air pollution is a global public health issue,” said Jiu-Chiuan Chen, lead author of the paper. “It is well known that outdoor air pollutants kill people and increase the risk of asthma and heart disease. Our study greatly strengthens the emerging evidence that the hazards of air particles extend to brain health, including the dementia risk.”

Dementia and Alzheimer's have overtaken heart disease as the biggest killers in England and Wales, according to ONS figures released last year.

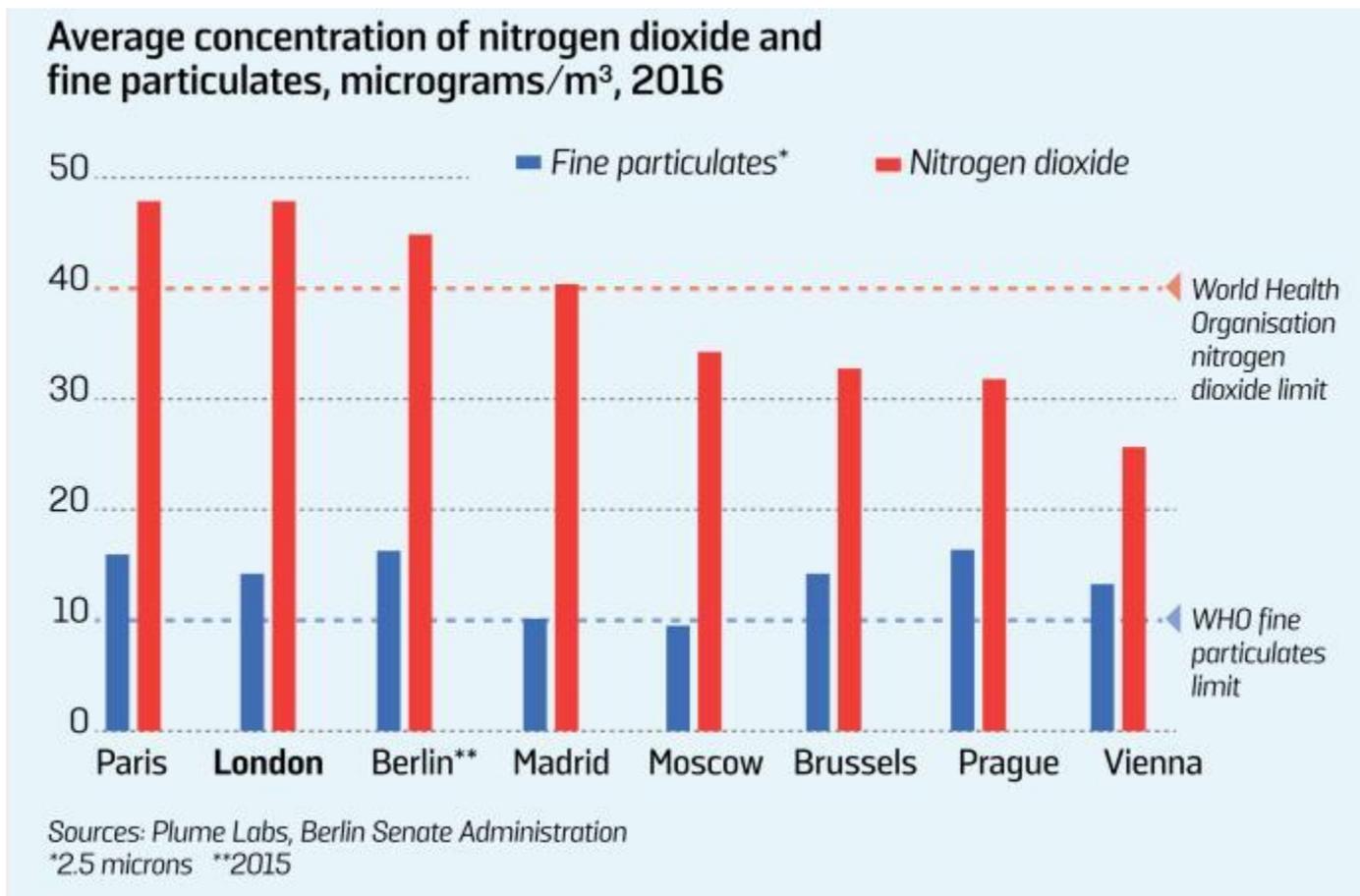
The USC study focused on the smallest particles in air pollution, called PM2.5s. Scientists say these are the most dangerous, as they are small enough to cross from the lungs into the blood and then travel around the body, lodging in organs such as the heart, liver and brain.

The paper prompted concerns from British scientists, who found air pollution levels in London last month were worse than in the notoriously smog-prone Chinese capital, Beijing.

Readings from the air quality index on January 23 showed 197 micrograms of particulate matter per cubic metre of air ($\mu\text{g}/\text{m}^3$), compared to $190\mu\text{g}/\text{m}^3$ in Beijing.

The UK capital's air pollution levels are so high that in the first week of January they breached EU limits so many times that they exceeded the quota for breaches allowed for the entire year.

The continued breaches led to the European Commission issuing the government with a “final warning” last week, threatening to launch a case in the European Court of Justice if air pollution levels were not substantially reduced in the next two months.



Last week the London mayor, Sadiq Khan, announced a £10 “toxicity charge” to be introduced on October 23 for drivers of the most polluting vehicles.

The fee will be on top of the £11.50 congestion charge, and will affect up to 10,000 vehicles in the capital that do not meet Euro 4 emission standards.

Rosamund Kissi-Debrah, a south London mother who plans to sue the mayor's office for failing to achieve safe pollution levels after her daughter died from a severe asthma attack, said she was unsure how effective the policy would be.

“The £10 charge is great, but from my point of view if you look at what Paris and Madrid are doing, we're miles behind,” she said.

“I don’t know how many people are going to be deterred by the charge. As long as they continue to produce diesel cars, people are going to buy them.”

Kissi-Debrah’s nine-year-old daughter Ella died four years ago this week, after repeated asthma attacks and seizures brought on by a lack of oxygen left her in a coma.

The pathologist at Ella’s inquest said her death may have been due to airborne particles. Her mother believes the capital’s illegal levels of air pollution are responsible.

This weekend, Kissi-Debrah said she was asking for Great Ormond Street Hospital to examine her daughter’s remains to determine what levels of pollution particles were in her body.

“It’s incredibly hard. It’s been four years and still we’ve had no answers. The doctor in Ella’s case has now retired, but it’s always going to be hanging over me until these questions are answered,” she said.

“Scientists say thousands of people die due to air pollution. The problem is, all these people in the studies are faceless, but Ella is a person.

“She wanted to know why she was having such bad attacks, and we promised we would find an answer for her.”

30 comments

Post comment

p stevens

The Horror,The Horror-Colonel Kurtz

John Adsett

Dirty diesel causes floods in California

Dirty diesel causes drought in Brazil

Two more Times headlines in the making?

Stands to reason, dunnit?

Edward Busk

@John Adsett No. Not at all.

The headlines are very clear.

Diesel, though better at reducing CO₂, is very bad for local emissions.

Decent sized studies are coming in and they confirm diesel exhaust is very bad news in cities.

Live and learn. Let's do something about it.

Richard Stout

@Edward Busk @John Adsett

The CO₂ reductions achieved by diesel vehicles (and every other "decarbonization" action) are pointless. We have the nutty "man-made" climate change brigade to thank for this perverse policy and ultimate degradation of the environment.

The dash for diesel amounted to displacing insignificant amounts of a harmless and vital trace gas in our atmosphere with very significant amounts of real pollutants such as NO_x and particulate matter. The "cure" turns out to be far worse than the "disease".

Please read and digest the informed comments by David Wells below.

John Adsett

@Edward Busk

Irony, Edward, irony

Edward Busk

@John Adsett Yes...fair point.

Text

I recall tests made of thousands of School Children's blood in the Stoke Newington area of London, around 40 years ago - so high was the carbon dioxide level found, that the report concluded that brain capacity would be compromised.

Government and Science have too long been in denial.

M Sheridan

@Text

No wish to be pedantic but I suspect it may have been levels of Carbon Monoxide. The pollutant that made petrol cars and Town gas so toxic.

Not a problem with diesels.

David

@M Sheridan @Text Carbon monoxide is produced whenever there is incomplete combustion. Therefore, carbon monoxide can be produced when the fuel/air mixture is too rich in a diesel engine just as it can be in a petrol engine.

M Sheridan

@David @M Sheridan @Text

That's only ever a problem when there is over fuelling. Modern diesels plus not so modern ones don't do that Running either lean or in stoichiometric mode. Any levels of CO produced if any are minimal. From the wiki:-

"For instance, diesel engines produce one-twenty-eighth the carbon monoxide that gasoline engines do"

Doing anything else other than lean defeats the object of using a diesel engine. CO production by diesels has never been much of a problem. But it has been for petrol engines. Reduced by the Catalytic converter. There are plenty of articles like this available:-

<https://www.abe.iastate.edu/extension-and-outreach/carbon-monoxide-poisoning-vehicles-aen-208/>

David

@M Sheridan @David @Text I don't need to trawl the internet to find a response to your comments because I know that when you press the accelerator on a diesel car it causes extra fuel to be injected into the engine cylinders. If a driver calls for more power than the engine can deliver at a particular rpm by pressing the accelerator too hard, there will be incomplete combustion of the fuel. That will cause the production of CO and smoke particulates which are also produced when combustion is incomplete.

M Sheridan 2

@David @M Sheridan @Text

What you say about pushing foot down on the accelerator on modern fly by wire diesels does not actually happen.

The extra fuel injected is under electronic computer control using piezoelectric injectors with common rail pressurised deliver network. The fuel injected is tightly controlled to prevent over-fuelling taking place. There is nothing to be gained in terms of extra power in modern system by over-fuelling, just higher fuel consumption.

The higher CO content from petrol engines is a direct result of the combustion ignition method which can only be reliably obtained at around the stoichiometric level.

Diesels invariably run lean with plenty of excess oxygen present in the exhaust stream. Unfortunately that leads to more NO_x which is a function of the higher temperature combustion process. That can be and is now addressed by modifying combustion parameters carefully and the addition of Selective Catalytic Reduction Catalysts in conjunction with the addition of an aqueous solution of urea into the exhaust stream

Your understanding of modern developments and their effect upon pollutants is not upto scratch.

You seem to want to claim that diesels are NOT far superior to petrol engines when it comes to CO. The fact is they are.

David

@M Sheridan @David @Text MS, you have misinterpreted/misread my comment - I don't know whether diesel engines produce more or less CO than petrol engines. What I do know is that, contrary to your original comment, they do produce it and that under certain circumstances it could be a problem.

I think your responses are mainly plagerised from articles which you have cut and pasted from the internet.

M Sheridan

@David @M Sheridan @Text

"I don't know whether diesel engines produce more or less CO than petrol engines. "

Despite the fact I told you that they do, you damn well should if you are going to pontificate in the way you do.

As A result the CO is not a problem unlike petrol engines. Read the damned educational article.

Plagiarised is what you mean and entirely from the understanding of combustion processes extending back over 50 years. Modern advances in diesel technology are in the process of being applied to petrol engines as well. Particulate and NOx production are not confined to diesel engines. They extend to modern petrol engines as well.

As for pollution sources you might want to study this fairly recent UK government document :-

https://uk-air.defra.gov.uk/assets/documents/reports/cat07/1609130906_NAEI_AQPI_Summary_Report_1990-2014_Issue1.1.pdf

Bernadette Bowles

@Text Not actually the problem currently in the news, is it? Modern well-maintained engines of any kind with functioning catalytic converters are not producing Carbon Monoxide (not dioxide - diesels produce less of that, but it's a problem for the climate, not the human lung, given that all animals produce it). Poorly maintained engines fail MOTs, and blocked catalytic converters make the car undriveable before it has a chance to fail.

Particulates and NOX emissions are completely different; they were known to be dangerous to humans in high concentrations years ago, but by the mid-90s diesels were believed to have become so clean and efficient that they emitted too little to be a problem - and they've become cleaner since. Sadly, we now know that the airflow in urban areas concentrates pollutants, so that the lower amounts emitted by more modern diesels remain a problem in cities. The most modern diesel engines in lorries, buses and so on are almost totally clean - but the AdBlue technology to achieve that level is physically large, and cut-down versions to fit cars make them very clean, but less so than commercial vehicles. So they are still not ideal for those who live or work in cities.

Edward Busk

@Bernadette Bowles @Text I enjoy your posts Bernadette. Always clear and succinct; well informed.

Diesel owners love their cars. I get that. They thought they were doing the right thing buying one but now it turns out they were misinformed. They've gone from virtuous to maligned and they are trying to ignore & twist the facts.

I would strongly argue that modern diesels are not clean at all in cities. Once they warm up they are clean, but most urban journeys have a large part where the car is not warm - especially in winter.

M Sheridan

@Edward Busk @Bernadette Bowles @Text

Once Petrol engines are fully warmed up their catalysts are fully functional.

When a diesel starts up the particulate trap function from that moment on. When fully warmed up the pollution control system is fully functional

It can be argued that that a cold start diesel engine produces fewer toxic pollutants than a cold start petrol engine as a result.

Edward Busk

@M Sheridan @Edward Busk @Bernadette Bowles @Text Did those nice chaps at VW tell you that?

Just before they went to jail for lying.

M Sheridan

If this *report* is true then those of us brought up in the dark pollution filled days pre implementation of the Clean Air Act of 1956 should be long gone.

Bernadette Bowles

@M Sheridan We do have more people from those days with dementia. However, the incidence also increases with age, and there are more older people than ever before, so an increase is to be expected. But, which of the possible pollutants over the years is responsible, if any? Diesel cars have only become common over the last 20 years - probably less in the US, who've always gone for petrol, and where this study was done. Older diesel vehicles were very dirty, but almost all were commercial vehicles. Trains, planes, coal and wood fires, industry - all putting pollutants in the air. Back when people with dementia were growing up, lead was in petrol, and caused problems for city children then - which is why it was removed. Suggesting that the diesel pollutants are the problem may be stretching the evidence - if the people studied lived in cities all their lives, those cities were more polluted by a

number of different things when they were children, and that may be the source of the problem rather than more recently discovered pollutants.

David Wells

@Bernadette Bowles @M Sheridan Lead, Co2 and NOX. Lead in petrol was in fact just one more scare story. Once the Tetraethyllead got roasted in the combustion chamber being heavy it fell to the ground and never did any harm. Most if it all of the problems with lead were caused by people who handled lead in any manufacturing process. They would handle the product and then eat their sandwiches for lunch without adequately washing their hands and it went home on their clothes and that is how most of the contamination was caused. But when the fantasists got their head around lead being put in petrol they campaigned until it was replaced with benzene which is a known carcinogen which is now always in the air and when air gets into your car the benzene is freely adsorbed and stays in your car forever.

Co2 is not an issue for the climate that is just one more scare story but people just parrot what they hear without ever caring to check the data. The planet has warmed but by just 1.4f in 165 years. The rate of rise in temperature was the same between 1910 and 1940 as it was between 1970 and 2000 yet Co2 could not have been an issue until after 1980. Between 2000 and 2010 100,000 billion tons of Co2 was emitted nearly one third of all Co2 ever emitted yet the trend in temperature from 1997 for 18 years and 6 months remained flat. The IPCC Co2 hypothesis asserts that if Co2 rises then temperature will exhibit a rapid and immediate linear response but it didn't. There has been no statistically significant warming for 23 years and 3 months. Has it never crossed your mind to ask why when the greenies say we have 24 hours to save the planet or the next dangerous tipping point is next week have

four decades of tipping points past without event that just maybe its a hoax?

We only have as many diesels now because the EU got obsessed with Co2 as the pillar of their environmental policy and a diesel engine can easily be made more Co2 efficient than a petrol engine. But when you substantially increase the compression ratio of a diesel engine to emit less Co2 you automatically increase emissions of particulates and nox, simple engineering fact. But what the EU and the automotive industry never disclosed is that when you increase the compression ratio the particulates become nano sized making them more easily respirable and being much sharper and finer they get deep into your lungs. Forget nox and it is not the particulates per se it is what the particulates are coated with. The particulates are liberally coated with all of the toxic compounds generated by the combustion process.

But your angst should not be directed at VW or any other automotive manufacturing it should be directed straight at the EU because if there is any fallout from the current situation - which is overblown - then the EU is responsible and our own government for just accepting the EU environmental gospel and using it not to prevent global warming because it wont but using it as another way of raising taxation.

Andrew Neil Sunday Politics 18th January in discussion with Prof Tony Frew of Royal Sussex health made it clear that if you remove all vehicle traffic from our roads air pollution would only fall by 2ug/m3 because again contrary to the doomsayers vehicles are not the major or predominant cause of air pollution they are just a convenient target promoting the notion of a easy political fix for Sadiq Kahn because they couldn't care less about the real causes because they are mostly - like climate change - beyond the control

of humanity but politicians don't like admitting that. They will ban diesels and cars in general and promote that as a short term political fix but the problem will remain. Air pollution in the UK is very close to the Gothenburg protocol and the word is not death but premature death. Prof Frew said that removing all traffic might cause someone to live for an extra 30 days or leaving it in place might deprive you of 30 days.

8,000 years ago the temperature was 2C warmer than today with Co2 at 200ppm today we are 2C colder with Co2 at 406ppm. Never ever trust the media instead of reporting the real story they take a snippet of supposed reality and blow it out of all proportion purely for sensation and promoting of gloom and doom because they still believe that sells papers.

David Wells

Edward Busk

@David Wells @Bernadette Bowles @M Sheridan David I see you haven't bothered to look at NASA's website on climate change.

The rate of change continues to accelerate upward, each decade faster than the last.

As we get better processing power and more satellite coverage we can measure and predict increasing temperatures with ever higher accuracy.

As to diesel output go for a walk on Oxford Street then blow your nose. Then go for a walk on the South Downs and blow your nose. Your hanky will be black in only one case, whatever mendacious old plod has to say on the matter.

Just because you choose to get your scientific data from the big oil climate change deniers it doesn't mean you are right.

Here is the NASA site. <https://climate.nasa.gov/vital-signs/global-temperature/>

Richard Stout

@Edward Busk @David Wells @Bernadette Bowles @M Sheridan

The more accurate satellite temperature record shows little to no warming trend for the last 20 years - which is why NASA ignores the satellite data.

David Wells

@Edward Busk @David Wells @Bernadette Bowles @M Sheridan Hi Edward we are at the fag end of a 50 million year cooling period and each successive modern warm period is cooler than the previous warm period Minoan Roman and Medieval look at Greenland ice core data 8000BC - 2000AD.

NASA and NOAA both use GHCN data which they have direct access to and where a warming trend did not exist have carefully massaged the data using algorithms to create a warming trend. When warmists refer to the hottest year Eva in the instrumental record you need to understand that the instrumental record is only 120 years long and for 80 years of that only covered 25% of the planet. Now we have 39 years of satellite data and the "raw" data is open source and administered by Dr's John Christy and Roy Spencer who are vehemently opposed to fiddling with the data. NASA and NOAA never cite satellite data even though the advanced micro wave sounding units are mounted on NASA and NOAA satellites.

This is because Dr's Spencer and Christy developed the methodology and software of using the advance micro wave units to measure temperature over 360 degrees of the planet 24/7. And this data tells a completely different story to the story the Co2 fanatics want you to believe.

Big oil climate change deniers, you jest? Climate change has been happening for 4.5 billion years it would be rather foolish to deny the blindingly obvious wouldn't it?

Temperature has always risen before Co2 that is simple physics not deniable.

The lag time is upto 800 years.

Temperature rose at the same rate from 1910 to 1940 as it did between 1970 and 2000 yet Co2 could only have been an issue after 1980. Between 2000 and 2010 100,000 billion tons of Co2 was released nearly one third of all Co2 ever emitted.

The IPCC Co2 hypothesis asserts that if Co2 rises then temperature will exhibit a rapid and immediate linear response, it didn't. From 1997 for 18 years and six months the trend as established by satellite data remained flat.

Since then there has been no statistically significant warming for 23 years and 3 months. Peter Stott of our Met Office admitted a few weeks ago that the "pause" never went away. But scientifically speaking there has been no warming since 2000. The steps that you refer to evolved by careful manipulation of the numbers in Excel by websites who need you to believe in Co2 induced warming to stay in business.

The big money is on the side of green advocacy which in America is worth \$3.3 trillion annually. The reason the denier word came into existence was simply because green advocacy could not deny the veracity of satellite data so they switched narrative from CAGW to climate change which gave them the option of citing every weather event as evidence of climate change. But it also gave them the option of abusing their challengers as climate change deniers bearing the same distasteful sobriquet as a holocaust denier. They could not deny the evidence so instead metaphorically speaking they decided to shoot the messenger and deny free speech in spite of the first amendment.

Note your email and I will send you chapter and verse if you are interested?

Edward Busk

@David Wells @Edward Busk @Bernadette Bowles @MSheridan It's funny. I used to agree with you. But I started researching more.

I'm 50 years old. I've lived in the US for the last ten. Here we are with another super warm Feb. It's going to be 68 tomorrow...

Last year was crazily warm.

The year before was crazily warm.

I remember very clearly that it used to be cooler. Less extreme. But as the rate of change increases we keep getting more of these anomalies. Warmest christmas day on record, again. Check. Ice sheets melting further, check. Species moving north, check. Should I disbelieve the evidence of my own skin & eyes?

Are you saying that all these agencies are just making it up? That the ice cores don't show CO2 levels heading upwards? That the calculations are all wrong? That the AAAS is just wrong. NASA is lying. Why? Would NASA bother to lie? They're not in the green business.

That the ice levels aren't melting?

That extreme rainfall events aren't happening?

The giant money remains in the oil business. See Rex Tillerson. Exxon Mobil alone is some 3000 million dollars per year, and you think green is the big industry?

Big oil is using the tobacco and sugar industry playbook to cast doubt on the vast consensus of scientific opinion. Human based climate change is predictable, measurable & provable.

But please do post a link to your sources; I would be interested to look.

M Sheridan

@Bernadette Bowles @M Sheridan

As regards Dementia one material removed from local water supplies purification system off the Pennines is Aluminium Sulphate.

Al was present in quite large amounts in our local water supply coming from the Pennines. Discoloured by peat Aluminium Sulphate was used to flocculate the particles and cause it to separate out. This left higher levels of Al in the now clear water for consumption.

It was reported that my area and others had higher than average rates of dementia. The water supply in our and other areas no

longer comes from the Pennines and has not for some considerable time.

I noticed recently after a recent fault was reported fairly locally, that a modern water treatment plant in Mossley supplying Thameside still from the Pennines, uses a polyelectrolyte instead of Al Sulphate.

<http://www.doveheritage.com/water-treatment-works/>

David Wells

@M Sheridan Correct. I drove 60,000 plus miles a year in the UK for 30 years and for 15 years drove another 5,000 miles a year for fun on Honda's and Kawasaki's and at 69 I am still here, fingers crossed. My Sister in Law moved from London to Ringmer in Sussex at age 25 having already given up light smoking and immediately on arrival in Ringmer began having lung infections which she had every year until she died from bronchiastatis - last year.

I think that there are a considerable number of academics and news papers fearing that after four decades of spurious tipping points about Co2 that the catastrophic climate gambit is wearing a bit thin so they have decided to turn their attention to air pollution as a new 21st century frightener to gain traction on the notion that humanity is destroying the planet. Disregarding the fact that had it not been for what was down here we wouldn't have an atmosphere up their without which we certainly would die.

If we could move to Mars it would take at least 15 million years to throw enough s..t into the air to create an atmosphere similar to ours sufficient to sustain a population.

Ho Hum??

Edward Busk

@David Wells @M Sheridan Again. Go read the website. NASA has some terribly clever chaps. Why are they all lying? Why have they decided to "ignore the satellite data"?

You can prove to think you're better educated than the scientific community if you will. Free country.

I had a Fireblade and a GPZ1100, plus a 900R for a while. Love me some decent iron! I had a Ducati 916 too - in London. And an R1. Had a souped up 911 too. I have a Volvo estate and a lexus hybrid now - neither get close to their claimed mileage.

As to fighteners...I do take your point. But I like to think that we listen to science and improve our lives as a result. I don't think we can selectively choose to believe and deny scientific consensus.

Sorry about your sister. In no way proves your point though.

Robert Blake

Move out of London?

Text

@Robert Blake Many are.