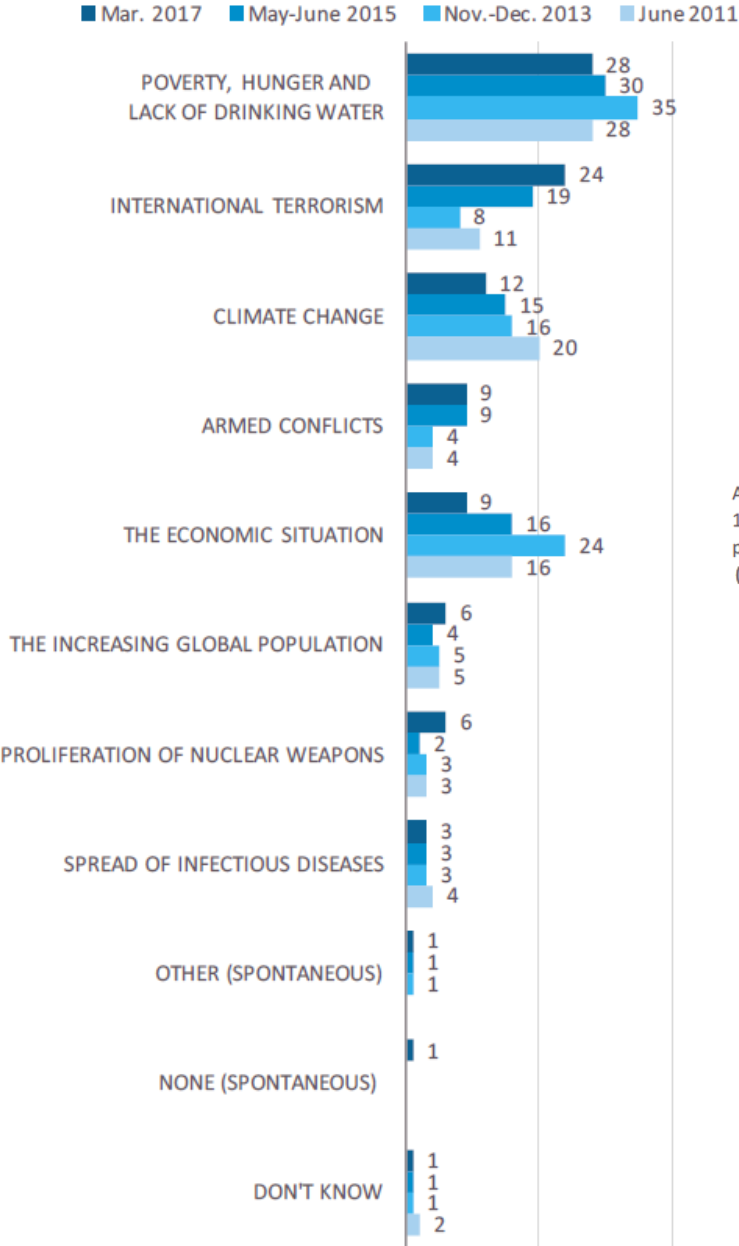




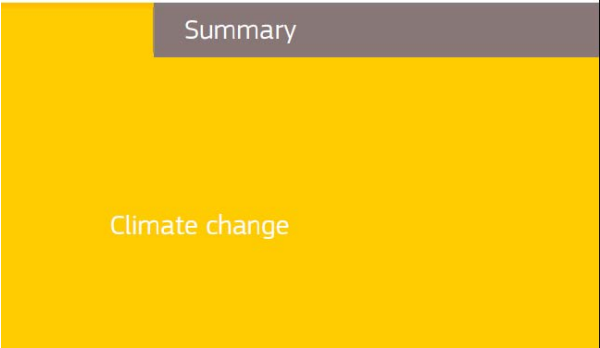
# **Communicating** the risks and opportunities associated with global environmental change

helena martins  
rossby centre | smhi

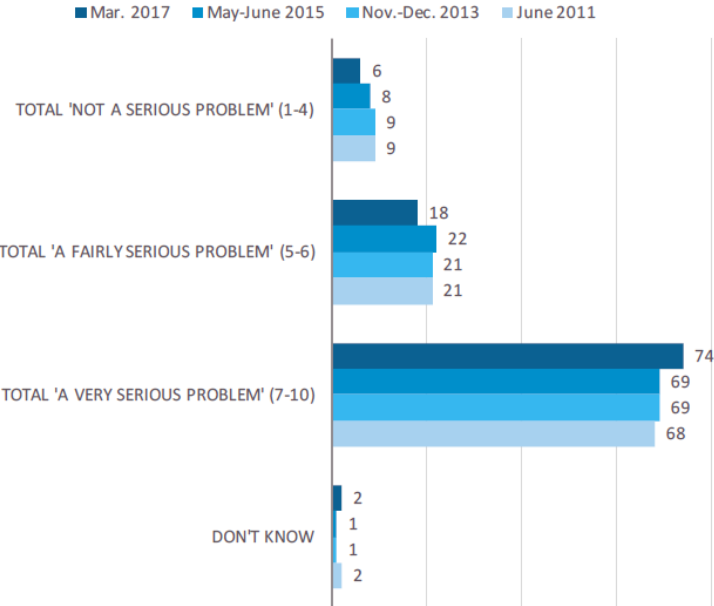
Which of the following do you consider to be the single most serious problem facing the world as a whole?  
(% - EU28)



Special Eurobarometer 459



And how serious a problem do you think climate change is at this moment? Please use a scale from 1 to 10, with '1' meaning it is "not at all a serious problem" and '10' meaning it is "an extremely serious problem".  
(% - EU28)





climate change is |



climate change is **not real**

climate change is **a hoax**

climate change is **real**

climate change is **a myth**

Google Search

I'm Feeling Lucky





Climate change behind extreme weather

Carbon dioxide emissions show big jump in 2010

**GLOBAL CLIMATE CHANGE**

California adopts limit on greenhouse gases

Groundwater depletion detected from space



**OF HOPE**

SEARCHING FOR SOLUTIONS TO THE CLIMATE CRISIS



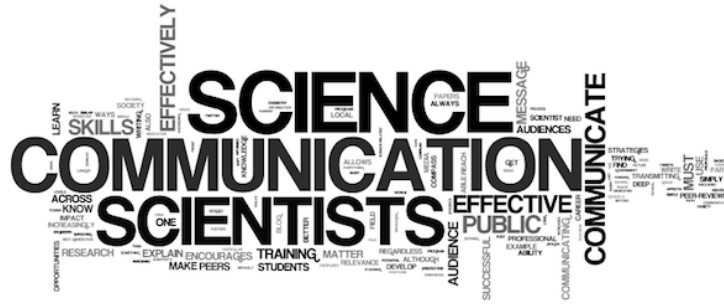
time to bring climate change in from the cold

learn to adapt to it

Standard policy analysis: Floods and the climate

tide has turned with climate change warnings





# why is science communication important?

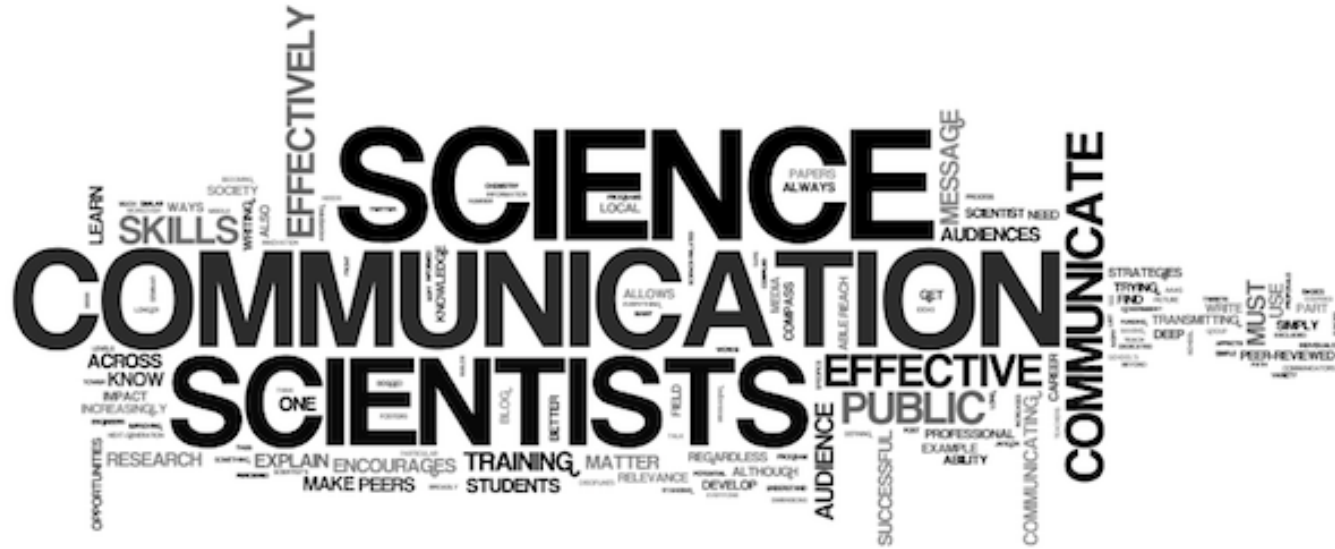
Effective communication of science gives people **accurate information** upon which to **base decisions**. By making science accessible, science communicators help counter the misinformation which clutters public debate.

But few people base their decision making on just being presented with good science. The communicator's message must have **meaning**, be **useful** and acknowledge the **needs, aspirations and concerns** of each audience.

*Jesse Shore, President of the Australian Science Communicators Forum*







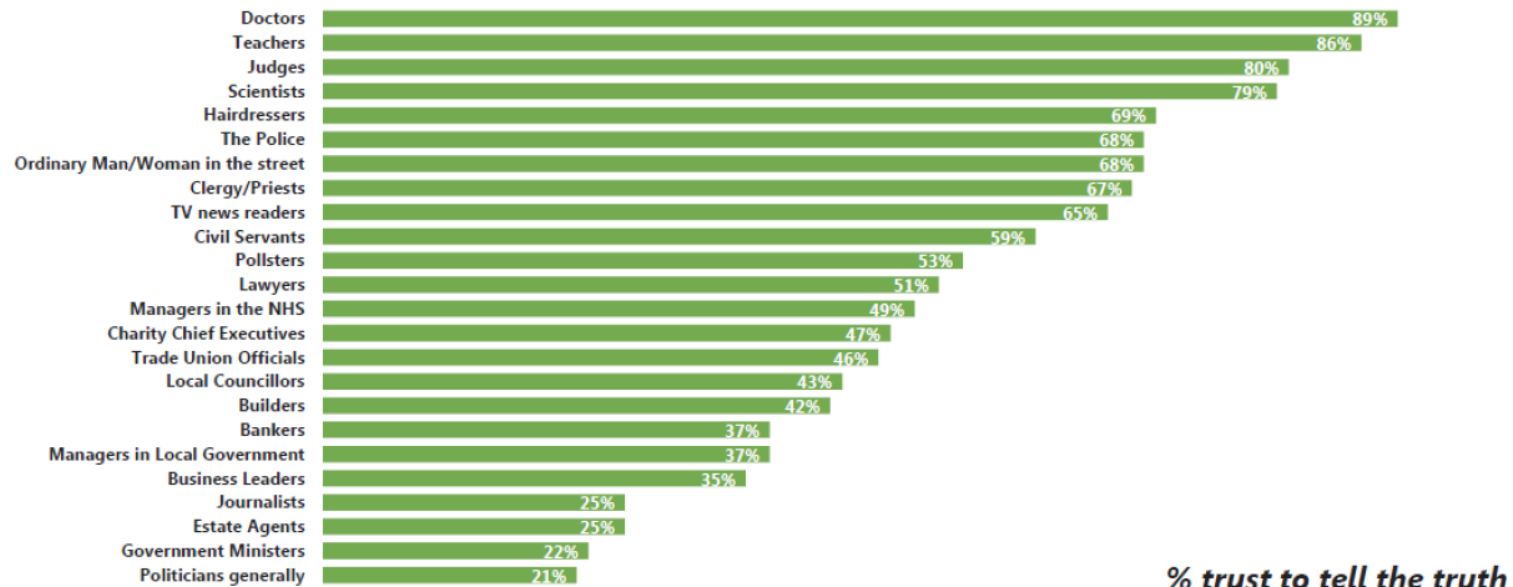
# Why should I as scientist engage in science communication?

Why should I as scientist engage in science communication?

# trust

## Veracity Index 2015 – all professions overview

*"Now I will read you a list of different types of people. For each would you tell me if you generally trust them to tell the truth, or not?"*





# Nations Unies

## Conférence sur les Changements Climatiques 2015

COP21/CMP11

Paris France







**Colin Jones**

CRESCENDO Project Coordinator  
 ✉ colin.jones@metoffice.gov.uk  
 🌐 www.metoffice.gov.uk/research/pec  
 📍 National Centre for Atmospheric Science (NCAS), University of Leeds (UNIVLEEDS), based at Met Office Hadley Centre (MOHC), UK



**Alberto Muñoz**

CRESCENDO Project Manager  
 ✉ alberto.munoz@metoffice.gov.uk  
 in  
 📍 National Centre for Atmospheric Science (NCAS), University of Leeds (UNIVLEEDS), based at Met Office Hadley Centre (MOHC), UK



**Pierre Friedlingstein**

RT1 leader  
 ✉ P.Friedlingstein@exeter.ac.uk  
 🌐 www.exeter.ac.uk/research/research  
 in  
 📍 University of Exeter (UNEXE), UK



**Veronika Eyring**

RT3 leader, ESMValTool PI  
 ✉ Veronika.Eyring@dlr.de  
 🌐 www.pa.op.dlr.de/~VeronikaEyring  
 📍 Institute for Atmospheric Physics (DLR), Germany.



**Reto Knutti**

RT3 leader  
 ✉ reto.knutti@env.ethz.ch  
 🌐 www.iac.ethz.ch/people/iac/person-  
 in  
 📍 Institute for Atmospheric and Climate Science (ETH), Switzerland



**Alexander Löw**

WP7 leader, ESMValTool developer  
 ✉ alexander.loew@imu.de  
 🌐 www.geographie.uni-muenchen.de/  
 📍 Ludwig Maximilian University (LMU), Germany



**Parvatha Suntharalingam**

RT1 leader  
 ✉ P.Suntharalingam@uea.ac.uk  
 🌐 www.uea.ac.uk/environmental-sciences  
 📍 University of East Anglia (UEA), UK



**Victor Brovkin**

WP1 leader  
 ✉ victor.brovkin@mpimet.mpg.de  
 🌐 www.mpimet.mpg.de/en/staff/victor  
 📍 Max Planck Institute for Meteorology (MPG), Germany



**Laurent Bopp**

WP2 leader  
 ✉ laurent.bopp@lscce.ipsl.fr  
 🌐 www.lscce.ipsl.fr/Phoceal/Pisp/index.  
 📍 Institut Pierre-Simon Laplace (IPSL) - CNRS, France



**Peter Cox**

WP8 leader  
 ✉ P.M.Cox@exeter.ac.uk  
 🌐 www.exeter.ac.uk/research/inspiration  
 📍 University of Exeter (UNEXE), UK



**Bill Collins**

WP9 leader  
 ✉ w.collins@reading.ac.uk  
 🌐 www.met.reading.ac.uk/userpages/bj  
 📍 University of Reading (UREAD), UK



**Jason Lowe**

RT4 leader  
 ✉ jason.lowe@metoffice.gov.uk  
 🌐 www.metoffice.gov.uk/barometer/p  
 📍 Met Office Hadley Centre (MOHC), UK



**Fiona O'Connor**

WP3 leader  
 ✉ fiona.oconnor@metoffice.gov.uk  
 🌐 www.metoffice.gov.uk/research/our  
 📍 Met Office Hadley Centre (MOHC)



**Tatiana Ilyina**

RT2 leader  
 ✉ tatiana.ilyina@mpimet.mpg.de  
 🌐 www.mpimet.mpg.de/en/staff/tatiana  
 📍 Max Planck Institute for



**Chris Jones**

RT2 leader  
 ✉ chris.d.jones@metoffice.gov.uk  
 🌐 www.metoffice.gov.uk/research/our  
 📍 Met Office Hadley Centre (MOHC)



**Detlef van Vuren**

RT4 leader  
 ✉ detlef.vanvuren@pbl.nl  
 🌐 www.pbl.nl/en/about/pbl/employees  
 📍 DRI, Netherlands Environmental



**Keywan Riahi**

WP10 leader  
 ✉ riahi@iiasa.ac.at  
 🌐 www.iiasa.ac.at/web/home/research  
 📍 International Institute of Applied



**Till Kuhlbrodt**

WP11 leader  
 ✉ t.kuhlbrodt@reading.ac.uk  
 🌐 www.met.reading.ac.uk/~till  
 📍 University of Reading (UREAD), UK



**CRESCENDO**

<http://crescendoproject.eu/>



**Sönke Zaehle**

WP4 leader  
 ✉ szaehle@bgc-jena.mpg.de  
 🌐 https://www.bgc-jena.mpg.de/bgir  
 in



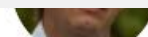
**Roland Seferian**

WP5 leader  
 ✉ roland.seferian@meteo.fr  
 🌐 www.cnr-met-meteo.fr/spip.php  
 📍 Centre National de Recherches



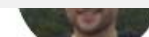
**Ken Carslaw**

WP6 leader  
 ✉ K.S.Carslaw@leeds.ac.uk  
 🌐 www.see.leeds.ac.uk/people/k.carsl  
 📍 University of Leeds (UNIVLEEDS).



**Ralf Döscher**

WP12 leader  
 ✉ Ralf.Doescher@smhi.se  
 🌐 www.smhi.se/en/research/research



**Stefan Lange**

RT5 leader  
 ✉ slange@pik-potsdam.de  
 🌐 https://www.pik-potsdam.de/memb



**Asher Minns**

RT5 leader  
 ✉ A.Minns@uea.ac.uk  
 🌐 www.tyndall.ac.uk/people/Asher-Mi

# Why should I as scientist engage in science communication?

# It's part of a scientist's everyday life

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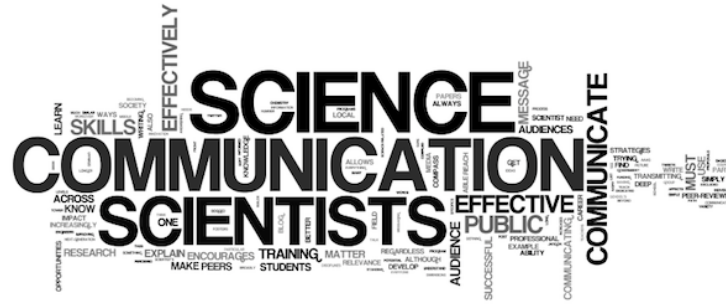
 *Guest Blog*

## Effective Communication, Better Science

Science communication is part of a scientist's everyday life. Scientists must give talks, write papers and proposals, communicate with a variety of audiences, and educate others.

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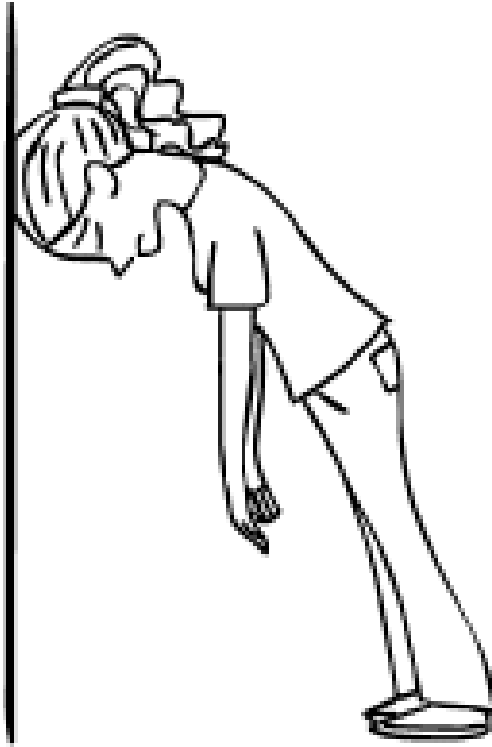
By Mónica I. Feliú-Mójer on February 24, 2015



“I think communication should be a fundamental part of any scientists training as frankly it benefits your own science. Science, in my mind, has always been about two things, discovery and communication. As scientists we have to learn how to emphasise with a public audience for them to fully understand and to acknowledge the ideas we are seeing. The broader audience science can reach, the bigger the benefit in terms of the new ideas you are transmitting as a scientist.”

*Marcus Peter Francis du Sautoy*, Simonyi Professor for the Public Understanding of Science and a Professor of Mathematics at the University of Oxford.





How can I as a scientist best communicate my science?

Science communication is about  
**engagement** with your audience!



keep it simple





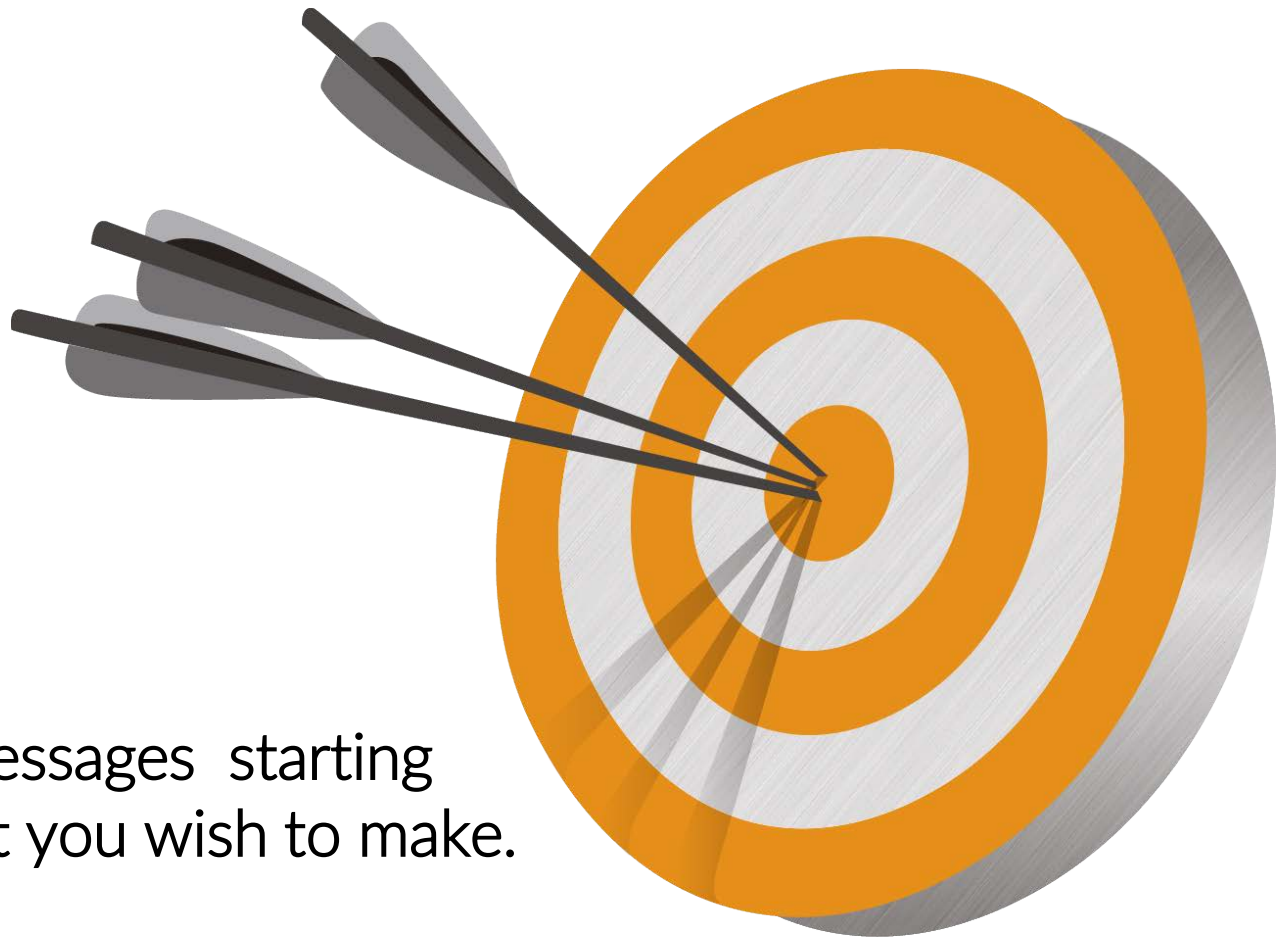
get to the point





Scientist and the public have different communication styles, while scientists often start by placing research in context, the public wants to know the key point at the start!

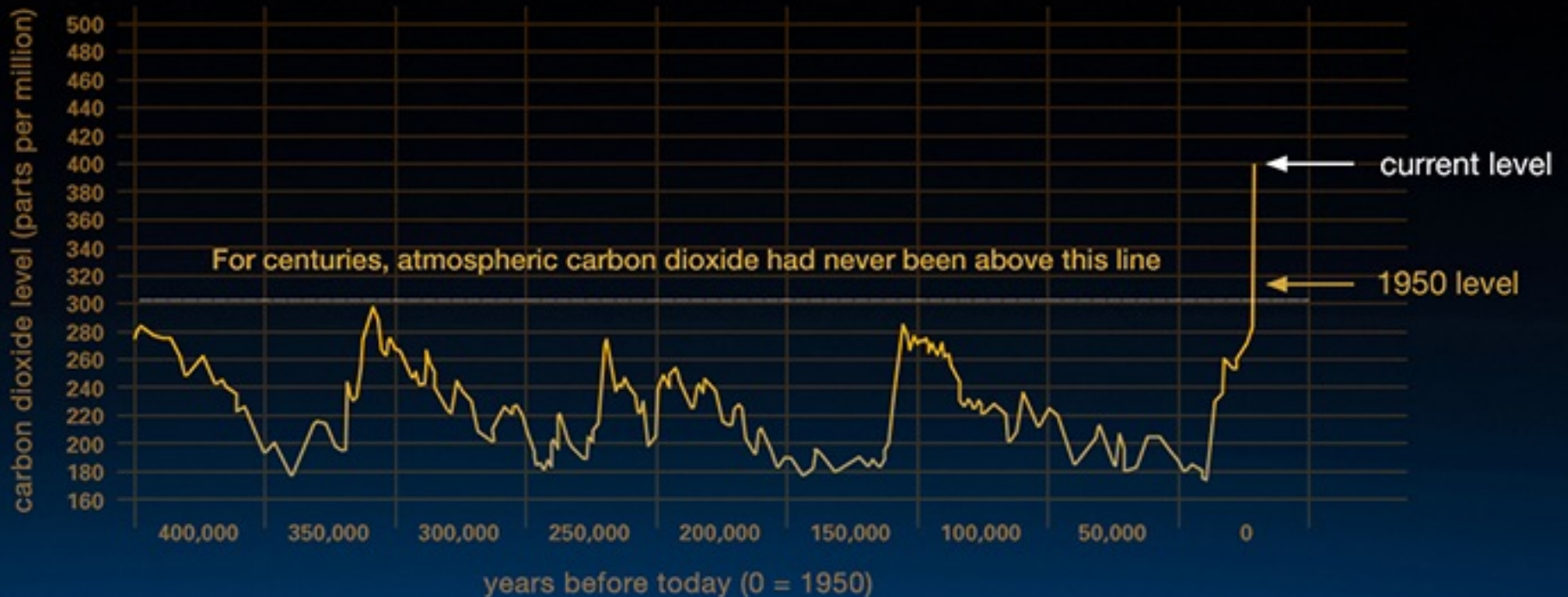
# get to the point



Focus on 3 core messages starting with the main point you wish to make.

Reality

1. Climate scientists agree: human-caused climate change is real.





Risk

2. Climate impacts are expected; there is a risk of abrupt and irreversible changes.



## Response

3. The sooner we act, the lower the risk and cost.  
And there is much we can do!

**Make Your Home More Energy Efficient**

**Get informed**      **Eat less beef**

**Shop less**

**Recycle waste and reuse pre-loved items**

**Make Your Lifestyle Greener**

**Choose renewable power**

**Reduce car emissions**

**Educate Future Generations**

**Get Involved In The Fight Against Climate Change**



Reality

1. Climate scientists agree: human-caused climate change is real.

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Response

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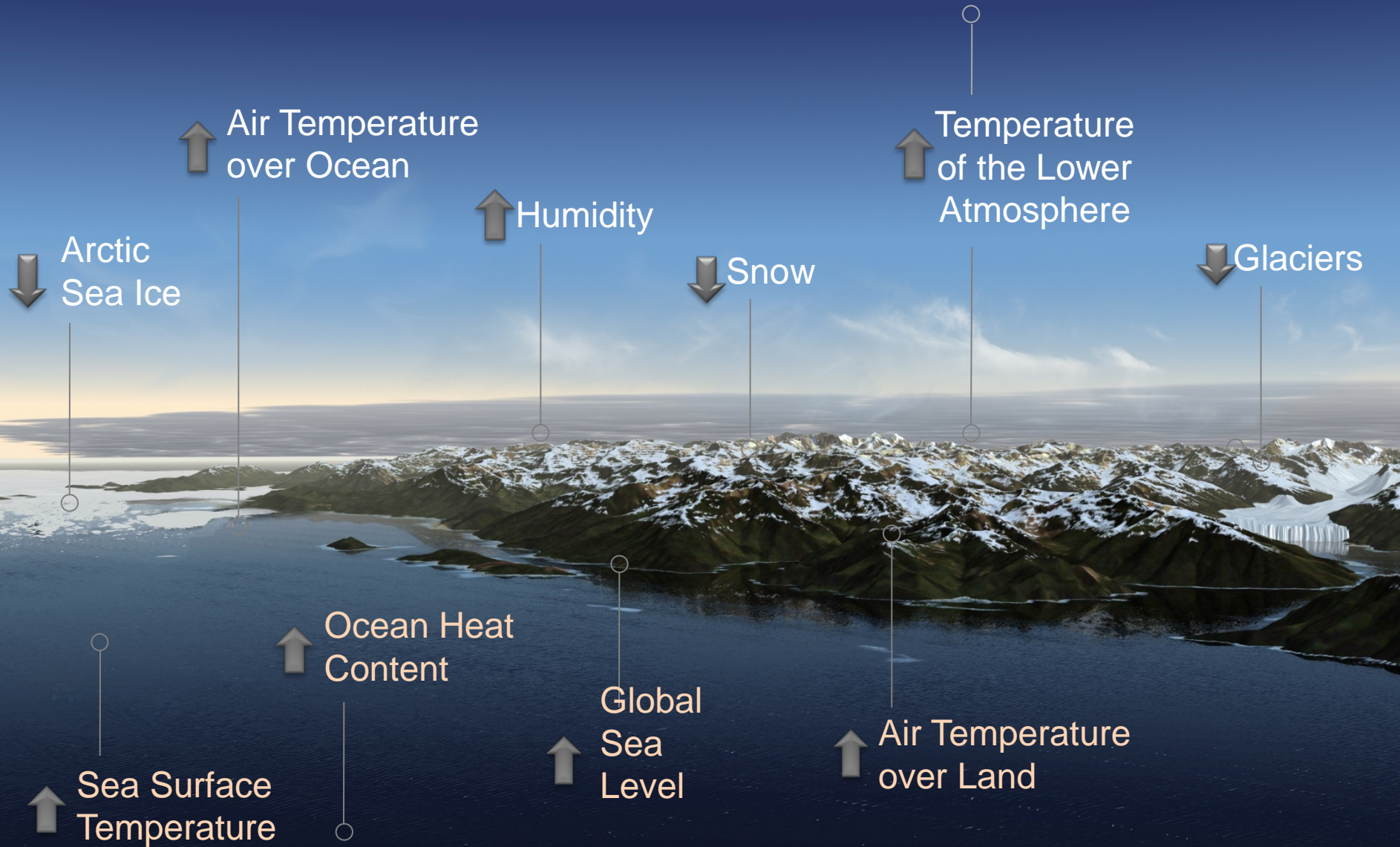
Communicating the **risks** and **opportunities** associated with global environmental change.



**JUST DO IT.**

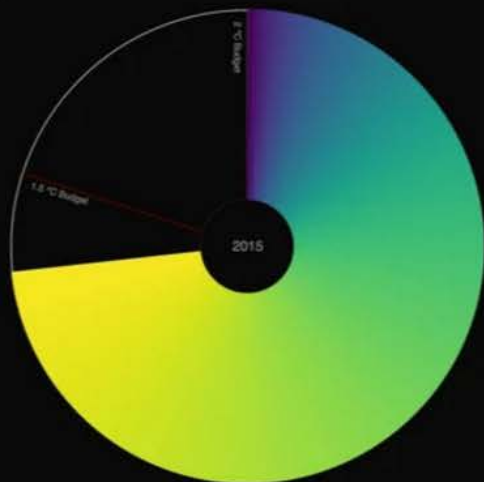
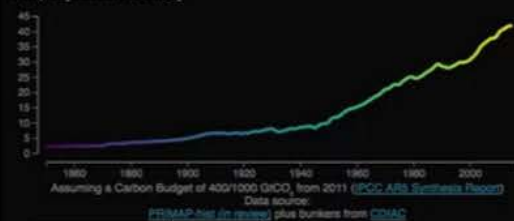
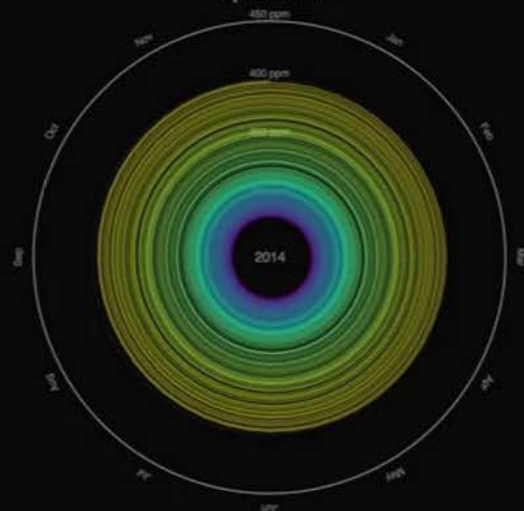
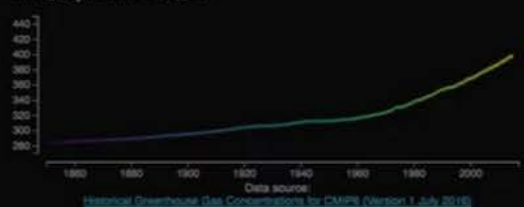


# Signs of a warming world

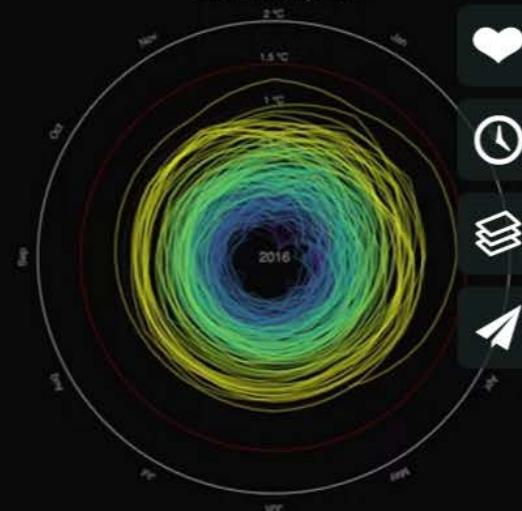


# *tips for an awesome powerpoint presentation*

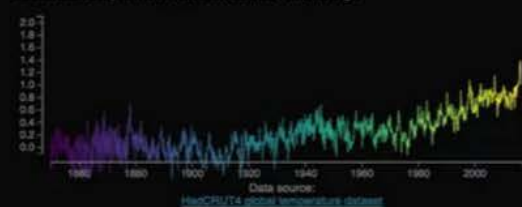
Carbon Budget

Yearly CO<sub>2</sub> Emissions in GtCO<sub>2</sub>CO<sub>2</sub> ConcentrationMonthly CO<sub>2</sub> concentration in ppm

Global Mean Temperature



Global Mean Temperature in °C relative to 1850 - 1900 average



00:28

Original Climate Data by [NOAA](#) and [NASA](#) and [NASA](#)  
 processed with Carbon Budget and temperature model by

[Climate Change and Energy Institute](#) and [Climate Change and Energy Institute](#)  
[Data Processing](#) - [Source Code](#)

HD



**JUST DO IT.**



**I DID IT.**







**It's the science  
stupid!**



SO SAD, SO TRAGIC...  
WONDER WHY?



**Love them. Protect them.**

**Never inject them.**

**There are NO safe vaccines!**

**Chronic Ear Infections**

**ADD**

**Allergies**

**Asthma**

**Autism**

**Death**

**Diabetes**

**Meningitis**

**Polio**

**Seizures**

**SBS**

**and SIDS are caused by adverse reactions to vaccine poisons.**



He's one of the busiest men in town. While his *list* may say *Office Hours 2 to 4*, he's actually on call 14 hours a day.

The doctor is a scientist, a diplomat, and a friendly sympathetic human being all in one, no matter how long and hard his schedule.

*According to a recent Nationwide survey:*

# MORE DOCTORS SMOKE CAMELS THAN ANY OTHER CIGARETTE

DOCTORS in every branch of medicine—113,097 in all—were queried in this nationwide study of cigarette preference. Three leading research organizations made the survey. The gist of the query was—What cigarette do you smoke, Doctor?

*The brand named most was Camel!*

The rich, full flavor and cool mildness of Camel's superb blend of choice tobaccos soon to have the same appeal to the smoking tastes of doctors as to millions of other smokers. If you are a Camel smoker, this preference among doctors will hardly surprise you. If you're not—well, try Camels now.



Your "T-Zone" Will Tell You...

**T for Taste ...  
T for Throat ...**

that's your  
proving ground  
for any cigarette.  
See if Camels  
don't suit your  
"T-Zone" to a "T."

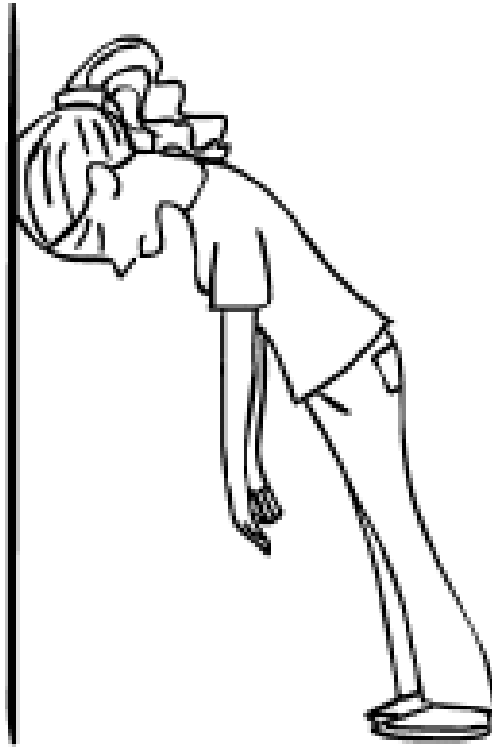


# CAMELS

*Costlier Tobaccos*

# Worldviews, ideologies and attitudes

- many of the arguments about 'scientific' controversies are not really about 'science', and climate change is no exception
- what climate change deniers really oppose is not climate science but what they see as its policy implications
- again, understanding that climate change scepticism will not be overcome by a more forceful presentation of the science is a critical first step



What can I do about it?



Know your audience and their values so you can frame your message in the right way



Uncertainty about climate change is higher among people with right-leaning political values

## Conservative narratives for embedding uncertain messages about climate change

The following narratives are recommended by COIN in their 2012 report, *A new conversation with the centre-right about climate change: Values, frames and narratives*.<sup>18</sup>

### Putting the 'conserve' into conservatism

Conservatives tend to value the aesthetic beauty of nature. Use this as a way of anchoring a wider conversation about climate risks.

"The **landscape and countryside** of our country is something we should all be proud of, and work together to protect. Over the years, we have cleaned up our rivers, banished smog from our cities, and protected our forests. Climate change poses **new dangers** to the countryside we value so much: more frequent and extreme flooding, disruption to seasonal changes, and the wildlife which depends on them. Our cities too will become congested and polluted without a shift to clean energy. So the only **responsible** course of action is to reduce the risks we face from climate change."

Climate policies may seem to threaten the 'status quo', which is a key centre-right concern. But climate impacts are more of a threat.

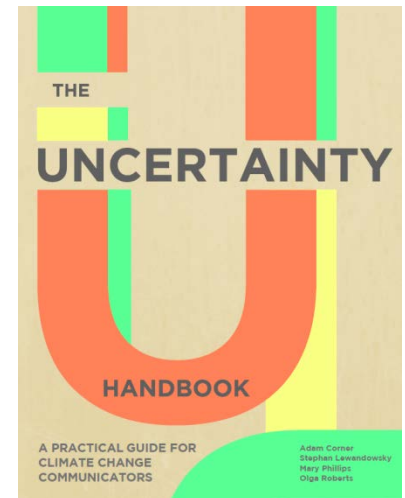
Being responsible and risk-averse is something most centre-right citizens are likely to endorse.

### A safe, secure and healthy future

Many people are proud of the industrial revolution and all it has achieved. Rather than demonise it, recognise it – and the new opportunities offered by renewables.

"During the **industrial revolution** we built our countries using our natural resources — coal, oil and gas — and we led the world into a new, prosperous era. But we are also rich in the natural resources that will meet the challenges of the 21st century: clean technologies that won't damage our health or spoil our environment. To keep the lights on, we must make ourselves more **resilient**: our future security rests on renewable energy sources that will never run out, and will provide safe, secure, long-term jobs and opportunities for engineers, labourers, technicians, scientists and tradespeople."

Resilience and security are core centre-right values.



Overcome the “psychological distance” of climate change







## ALL THE THINGS WE LOVE ARE AFFECTED BY CLIMATE CHANGE



### COFFEE

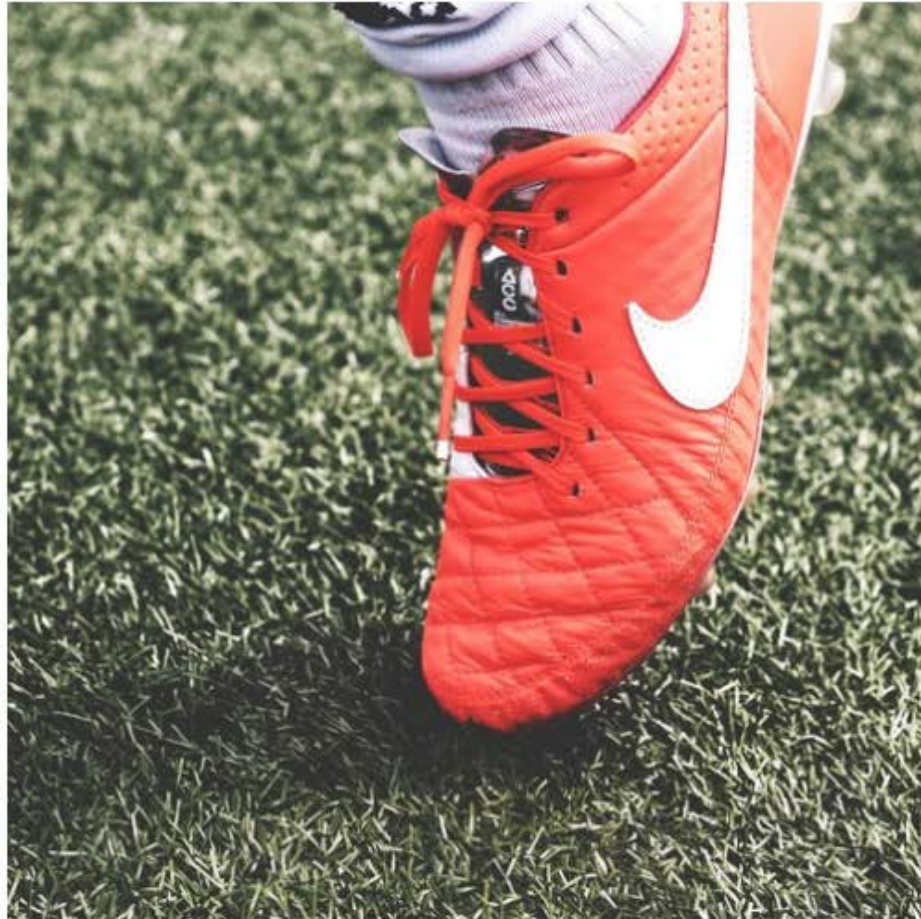
"What's climate change got to do with coffee, I hear you ask? Well, the changing weather patterns across regions such as South America are threatening coffee harvests. Crops are falling prey to disease, and farmers are facing failed harvests year after year.

I love coffee, and I also love to think that by drinking my daily Fairtrade latte (or 3!) I'm supporting farmers around the world to make a fair living. But their livelihoods are increasingly threatened by our changing climate, so now I'm going to do something about that too."

*Luke, Plymouth (more information)*



ALL THE THINGS WE LOVE ARE AFFECTED BY CLIMATE CHANGE



### **RUGBY**

"I love rugby union, the kind that is played with 15 players on a pitch. I used to play when I was younger but I've been very busy with work, and now mostly watch it on TV.

Climate change could make it a lot more difficult to play rugby in some areas of Great Britain, Ireland and in other parts of Western Europe, such as France. In January, many rugby pitches across England and Wales were flooded after torrential rains, rendering them unplayable for several weeks. It's about time we do something about climate change so rugby players across the world can continue to enjoy their favourite sport."

*Olivier, London (more information)*





## ALL THE THINGS WE LOVE ARE AFFECTED BY CLIMATE CHANGE

### MY SON

"As I hold my one month old son in my arms I begin to think about what I can do to make his world a better place.

The future is uncertain – and perhaps scary – but we can take steps now which will increase the chances that many of the things we take for granted today will still be around in the future. We can no longer pass the task to subsequent generations."

*Ray Dhirani, Woking (more information)*





## ALL THE THINGS WE LOVE ARE AFFECTED BY CLIMATE CHANGE

### FISHING

"I am a fisherman. My wife, May May and I live in a house on stilts above the water in Tacloban, Philippines.

In November 2013 I lost my boat and fishing equipment during the typhoon Hayian. My boat was damaged and I haven't recovered anything so I cannot fish.

Now I earn a living selling scrap metal that I find along the shore in Anibong Bay. I wear a diving mask and flippers made from salvaged wood and I collect metal from under the water in two fridges that I found after the storm and tied together to form a floating raft.

I don't really have another option. I will try to save some money to have my boat back because fishing is my livelihood."

*Joel Vilamor, Philippines (more information)*



# Don't focus on “doom and gloom”

GET THE LATEST ON CLIMATE SOLUTIONS



Germany's Transition From Coal To Renewable Energy Offers Lessons For The Rest Of The World



How to Talk to Your Friends About the Climate Crisis – According to Science



Five Cities that Reap the Co-Benefits of Climate Action



The Business of Saving the World: Four Ways Indian Companies Are Fighting Climate Change

Extreme weather can be a powerful opportunity to engage with climate change



**Donald J. Trump** ✓

@realDonaldTrump

 **Follow**



It's really cold outside, they are calling it a major freeze, weeks ahead of normal. Man, we could use a big fat dose of global warming!



# ?

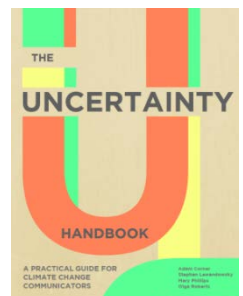
Is the extreme weather we are experiencing due to climate change?

## DON'T say

“No single weather event can be attributed to climate change.”

## DO say

“As the Earth warms there is more moisture in the air, which increases the chances of intense rainfall. So this flood is consistent with what scientists have long been predicting.”



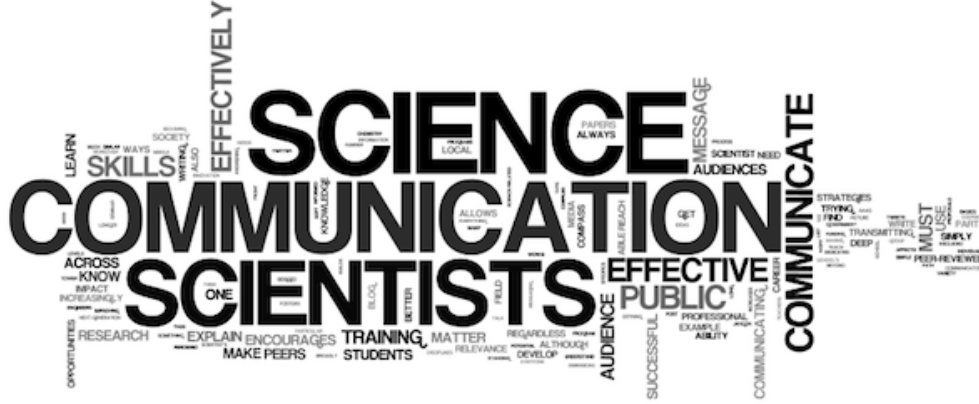




**JUST DO IT.**



**I DID IT.**



- It is important for scientists to be able to communicate to the public
- Communication to a layperson audience is difficult
- Communication is a difficult skill that many practicing scientists lack, likely due to the combination of increased specialization over time and the absence of formal training in science communication.

## How can the scientists learn these skills?

Incorporating formal communication training into undergraduate and graduate curricula for aspiring scientists will enhance the quality of discourse between scientists and the lay public.



merci!