

The importance of evidence

*Professor Dame Anne Glover
Vice Principal External Affairs, University of
Aberdeen*

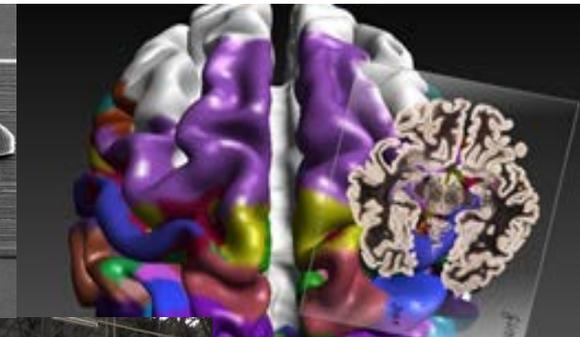
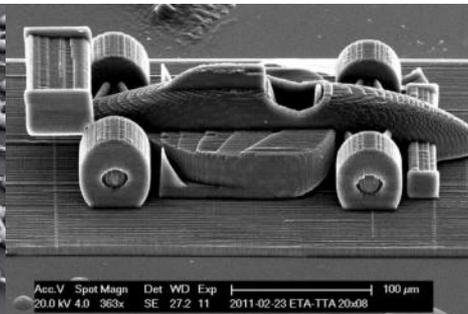
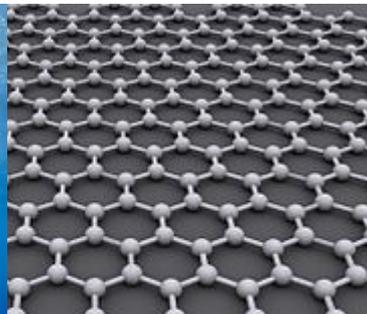
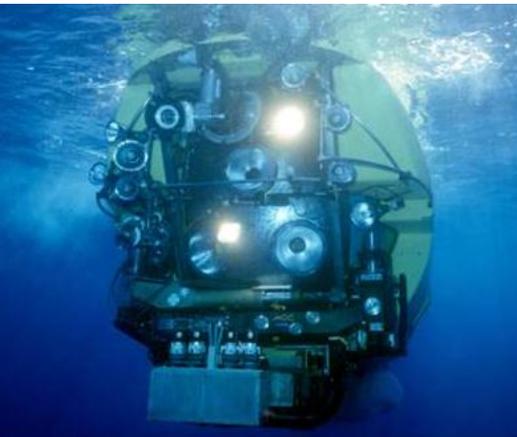
Effective communication is essential



The use and misuse of evidence

- What is evidence?
- Where is our evidence base?
- How can we procure evidence?
- What is credible evidence?
- How do we deal with uncertainty?
- Who might misuse evidence?
- What are the consequences of misuse?

Europe is no. 1 in science, engineering and technology



Europe owns globally unique research infrastructures

*Very Large Telescope (VLT)
Paranal Observatory, Chile 2013*





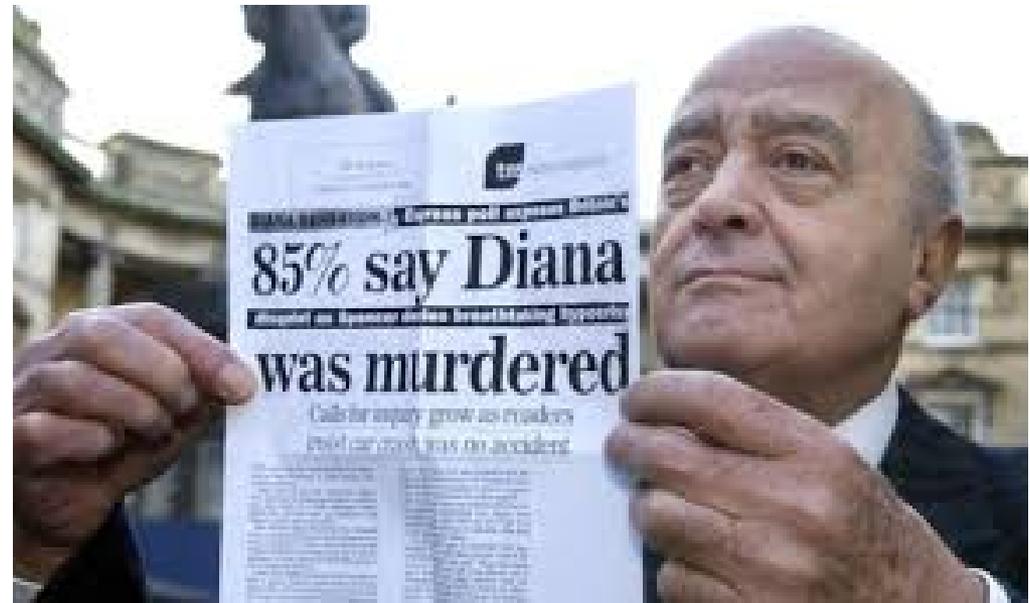
This evidence allows us to tackle global challenges in a rational way



What is credible evidence?



Daniel Patrick Moynihan
1927-2003



From The Courier 2013

Testing the evidence

nature

SEARCH JOURNAL

Go

Journal Home
Current Issue
AOP
Archive

THIS ARTICLE ▾

Download PDF
References

Export citation
Export references

Send to a friend

More articles like this

Table of Contents
< Previous | Next >

article

Nature 337, 611 - 615 (16 February 1989); doi:10.1038/337611a0

Radiocarbon dating of the Shroud of Turin

P. E. DAMON¹, D. J. DONAHUE¹, B. H. GORE¹, A. L. HATHEWAY¹, A. J. T. JULL², T. W. LINICK³, P. J. SERCEL⁴, L. J. TOOLIN¹, C. R. BRONK⁵, E. T. HALL⁶, R. E. M. HEDGES⁷, R. HOUSLEY⁸, I. A. LAW⁹, C. PERRY², G. BONANI¹⁰, S. TRUMBORE¹¹, W. WOELFLI¹², J. C. AMBERS¹³, S. G. E. BOWMAN¹⁴, M. N. LEESE¹⁵ & M. S. TITE¹⁶

¹Department of Geosciences, University of Arizona, Tucson, Arizona 85721, USA

²Department of Physics, University of Arizona, Tucson, Arizona 85721, USA

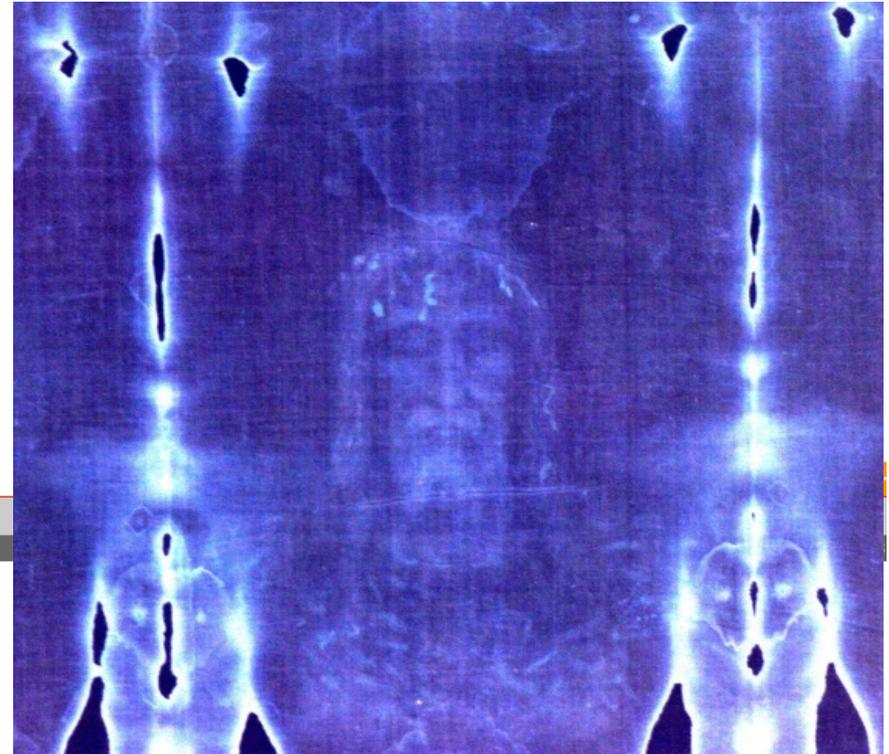
³Research Laboratory for Archaeology and History of Art, University of Oxford, Oxford, OX1 3QJ, UK

⁴Institut für Mittelenergiephysik, ETH-HÖnggerberg, CH-8093 Zürich, Switzerland

⁵Lamont-Doherty Geological Observatory, Columbia University, Palisades, New York 10964, USA

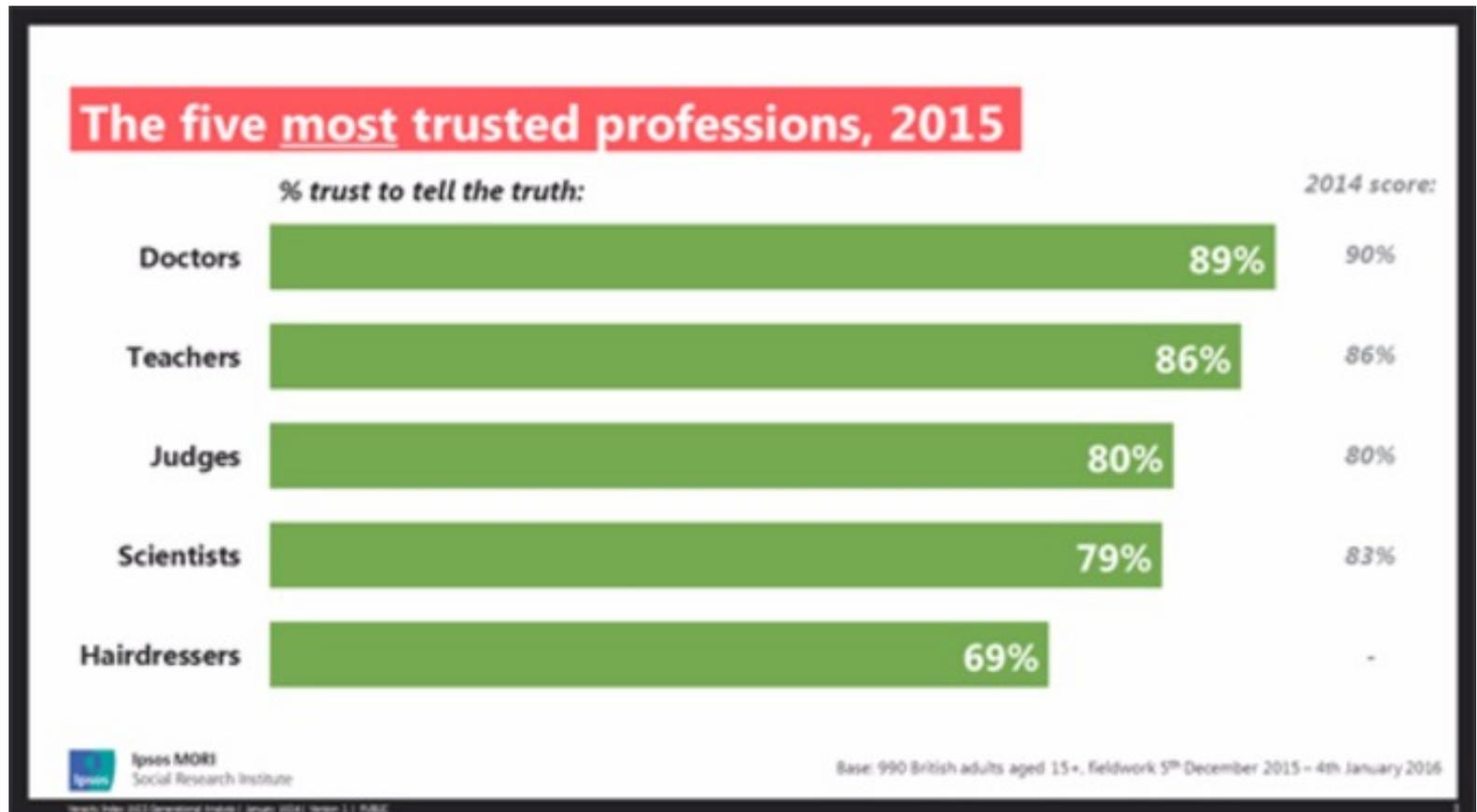
⁶Research Laboratory, British Museum, London, WC1B3DG, UK

⁷Present address: Institut für Mittelenergiephysik, ETH-Hönggerberg, CH-8093, Zurich, Switzerland.



Very small samples from the Shroud of Turin have been dated by accelerator mass spectrometry in laboratories at Arizona, Oxford and Zurich. As controls, three samples whose ages had been determined independently were also dated. The results provide conclusive evidence that the linen of the Shroud of Turin is mediaeval.

Whose evidence do we trust?



	Trust to tell the truth	Do not trust to tell the truth	Don't know	Change in trust since 2014
	%	%	%	%
Doctors	89	10	1	-1
Teachers	86	11	3	0
Judges	80	16	4	0
Scientists	79	15	6	-4
Hairdressers	69	23	8	N/A
The Police	68	29	3	+2
The ordinary man /woman in the street	68	26	6	+6
Clergy/priests	67	27	6	-4
Television news readers	65	30	5	-2
Civil Servants	59	32	8	+4
Pollsters	53	34	13	+2
Lawyers	51	41	8	N/A
Managers in the NHS	49	43	8	0
Charity chief executives	47	43	10	N/A
Trade union officials	46	42	12	+7
Local councillors	43	50	7	N/A
Builders	42	51	7	N/A
Bankers	37	59	5	+6
Managers in Local Government	37	53	10	N/A
Business leaders	35	55	10	+3
Journalists	25	70	5	+3
Estate agents	25	68	7	+3
Government Ministers	22	72	6	+3
Politicians generally	21	74	5	+5

How does society get evidence?

Find a Job | Our Papers | Feedback Tuesday, Jan 2

MailOnline

Home | U.K. Home | **News** | Sport | U.S. Showbiz | Femal | Health | Science | Money | Right

News Home | Arts | Headlines | Pictures | Most read | News Board

Uncovered, the 'toxic' gene hiding in GM crops: Revelation throws new doubt over safety of foods

- EU watchdog reveals approval for GM foods fails to identify poisonous gene
- 54 of the 86 GM plants approved contain the dangerous gene
- Gene found in food for farm animals producing meat, milk and eggs
- Biotech supporters argue there is no evidence that GM foods are harmful

By SEAN POULTER, CONSUMER AFFAIRS EDITOR
 PUBLISHED: 18:20 EST, 21 January 2013 | UPDATED: 03:02 EST, 22 January 2013

Comments (76) | Share | Tweet (118) | Like (1.9k)

A virus gene that could be poisonous to humans has been missed when GM food crops have been assessed for safety.

35p GET YOUR DAILY EXPRESS FOR JUST 35p
 SAVE 85p A WEEK ON YOUR DAILY & SUNDAY EXPRESS

DAILY EXPRESS

OUR brilliant astrologer Lori Reid reveals how your life is going to change NOW

Anger as Britain's EU bill doubles

SALT BANNED IN CHIP SHOPS

Daft health police wreck the nation's favourite treat

By Chris Nixon

SALT shakers are being removed from fish and chip shops in a hasty state ruling on what we can eat. The move, which is supposed to be part of a strategy to bring down the level of obesity in the UK, has been criticised as 'daft'.

Battle for Liz's £1 billion fortune



EXCLUSIVE: Liz Taylor with Michael Butler who gave her many valuable jewels over 18 years of marriage

30p GET YOUR DAILY EXPRESS FOR JUST 30p
 SAVE 65p A WEEK ON YOUR DAILY & SUNDAY EXPRESS

DAILY EXPRESS

Gadgets to fight the flab

Davina: Why too much TV is bad for my children

SNOW CHAOS

And they still claim it's global warming

Slimming splits up EastEnders couple

Sold out! Flights and buses full as Romanians head for the UK

PARNA SOFIA LONDON

0700 18998

Wage rates 'are five to six times higher' over here

Call for tougher controls on migrants in Germany

EXCLUSIVE: DEPRESSION CLUE TO BRIDGEND DEATH RIDDLE

SUICIDES LINKED TO MOBILE PHONE MASTS'

By Lucy Johnston

THIRTEEN years of death among young people in Bridgend's mobile mast could be linked to radio waves from dozens of mobile phone transmitter masts near the town's town.

Dr Roger Coghil, who sits on a Cornwal advisory committee on mobile radiation, has discovered that all 13 youngsters who have killed themselves in Bridgend, South Wales, over the past 18 months lived in the same three parishes.

He has questioned worldwide studies linking intensity of mobile to depression. Dr Coghil's work is likely to trigger alarm and lead to closer scrutiny of the safety of masts, which are being sited in popular buildings such as schools and hospitals.

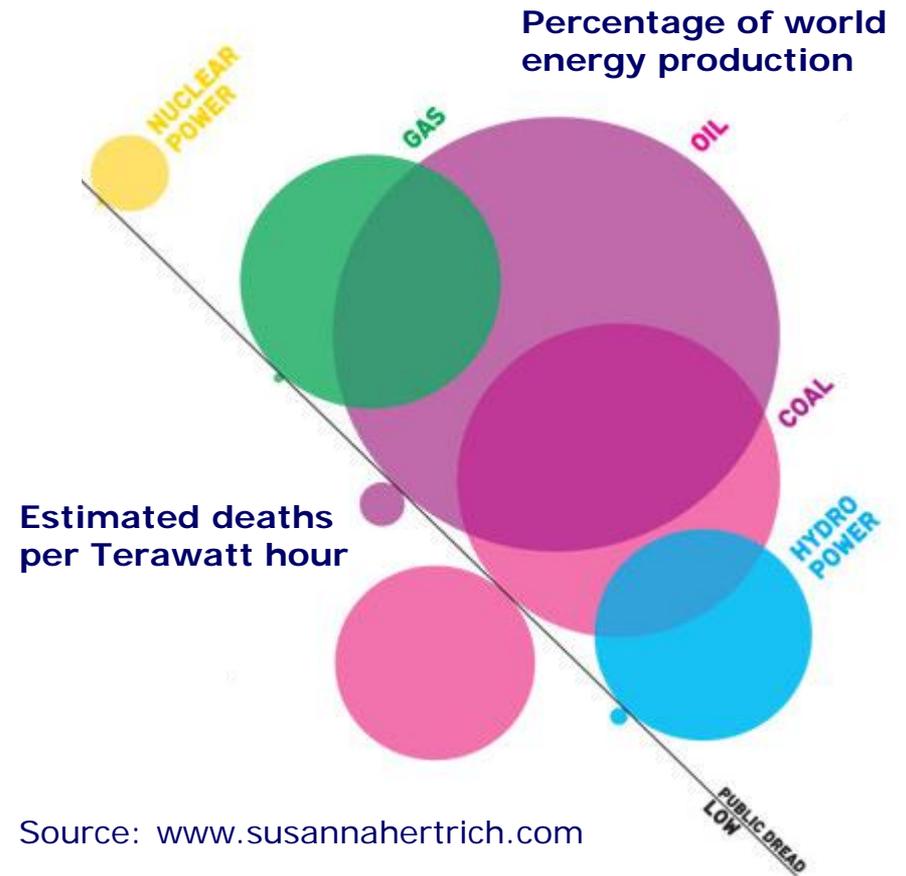
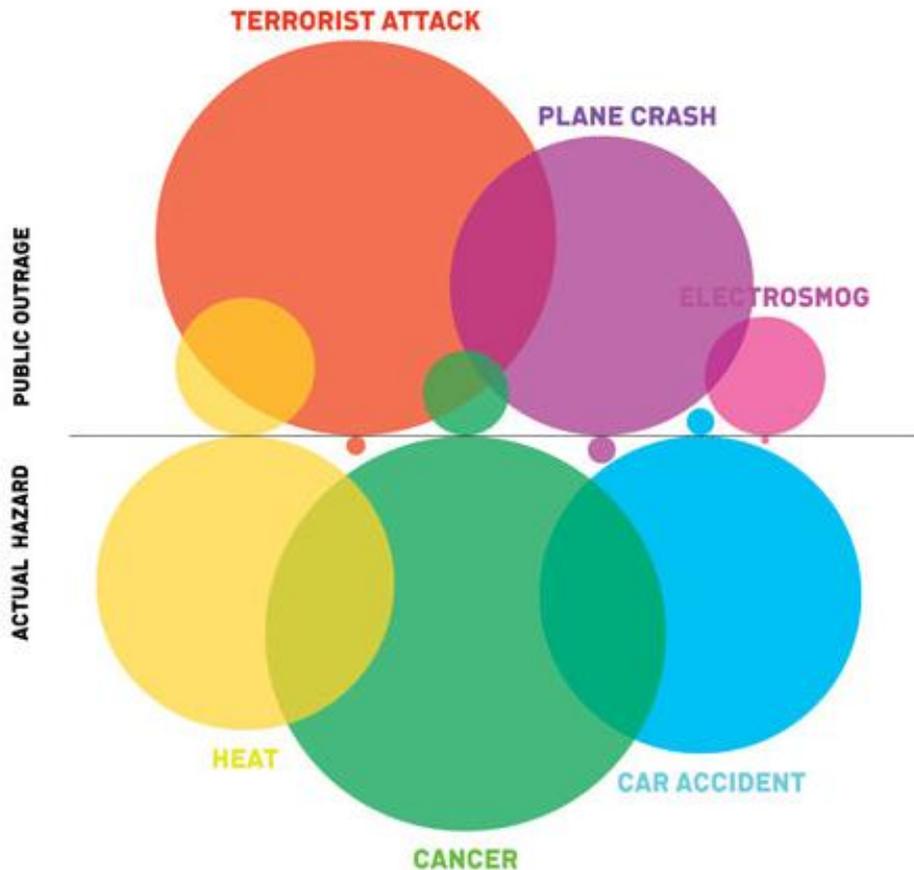
It is also likely to fuel more campaigns against placing masts close to public places on health grounds.

Dr Coghil said last night there was strong circumstantial evidence that the masts may have triggered depression in those from Bridgend who took their lives. They include Emily Hughes, 16, who hanged herself from a shower rail in February last year while on holiday in Falmouth, Kent. Dr Coghil said "There

TRIN TO PAGE 4

Interpretation of evidence

- risk and risk perception are two different issues



Source: www.susannahertrich.com

**The best way to combat
"gut feelings" is using
scientific evidence.**

**Scientific evidence is sound
and peer-reviewed.**

**It evolves over time, but it
doesn't change from one
government to the next.**



Policies which are based on facts are more sustainable than those which are based on fiction



Aral Sea, 2000

Picture credits: NASA, Elena Senao

Aral Sea, 2012

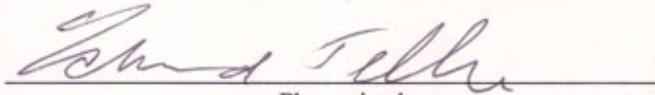
Distortion of evidence

31,487 American scientists have signed this petition, including 9,029 with PhDs

Petition

We urge the United States government to reject the global warming agreement that was written in Kyoto, Japan in December, 1997, and any other similar proposals. The proposed limits on greenhouse gases would harm the environment, hinder the advance of science and technology, and damage the health and welfare of mankind.

There is no convincing scientific evidence that human release of carbon dioxide, methane, or other greenhouse gases is causing or will, in the foreseeable future, cause catastrophic heating of the Earth's atmosphere and disruption of the Earth's climate. Moreover, there is substantial scientific evidence that increases in atmospheric carbon dioxide produce many beneficial effects upon the natural plant and animal environments of the Earth.


Please sign here

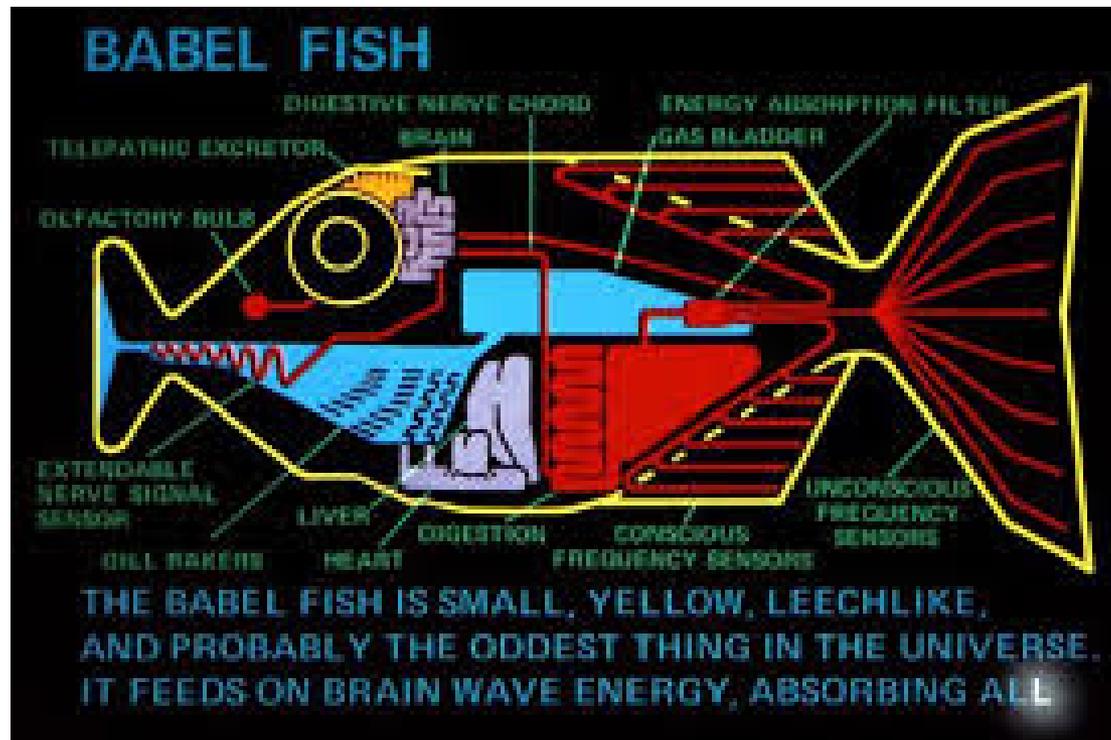
Please send more petition cards for me to distribute.

My academic degree is B.S. M.S. Ph.D. in the field of PHYSICS

No scientific consensus on GMO safety

- 313 signatories on January 2015 (www.ensser.org)
 - EASAC (29 member academies) American Association for the Advancement of Science
 - American Medical Association
 - American Society for Microbiology
 - Australian Academy of Sciences
 - Brazilian Academy of Sciences
 - British Medical Association
 - Chinese Academy of Sciences
 - Council for Agricultural Science and Technology
 - European Commission
 - European Food Safety Authority
 - Federation of Animal Science Societies
 - Food and Agriculture Organization of the United Nations (FAO)
 - French Academy of Science
 - Indian National Science Academy
 - Institute of Food Technologists
 - International Council for Science (ICSU)
 - International Union of Food Science and Technology
 - Italian National Academy of Science
 - Mexican Academy of Sciences
 - National Academies of Science (United States)
 - Organization for Economic Cooperation and Development (OECD)
 - Pontifical Academy of Sciences
 - Royal Society (United Kingdom)
 - World Health Organization (WHO)
 - <https://gmoanswers.com/ask/there-list-all-organizationsscientific-bodies-have-approved-safety-gmos-2014>

Can scientists have a key role in ensuring that policies are more evidence-based?



How to ensure evidence matters

- Communicate what we do and why
- Demonstrate relevance to a broad audience
- Speak to the media
- Speak to policymakers and politicians
- Speak to the general public
- Speak to NGOs
- Speak.....

Be honest about the facts you have and those you don't have!

"I am taking a
shot in the dark
here"

"I am almost certain,
but there are still a
few remaining doubts
to clear up"

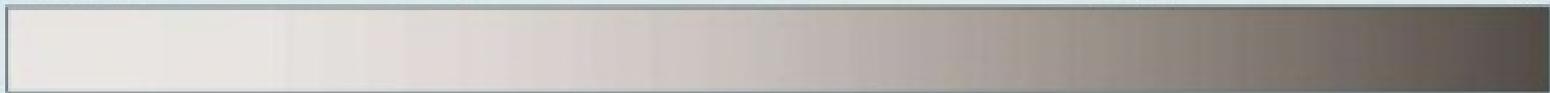
Remote

Unlikely

Even
chance

Probably,
Likely

Almost
certainly

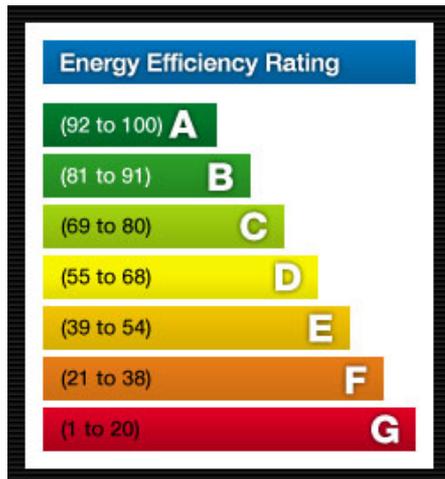




**Show empathy
for public
concerns!**

Offer options for action rather than claiming to have the ultimate solution

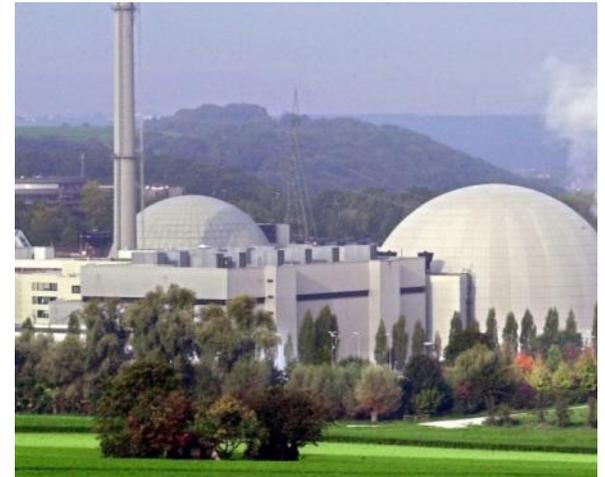
Option A



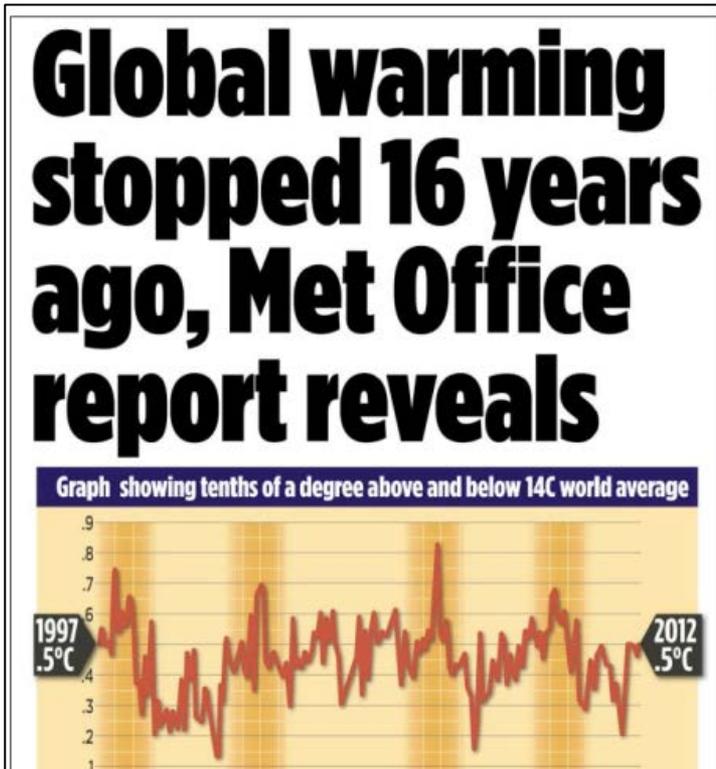
Option B



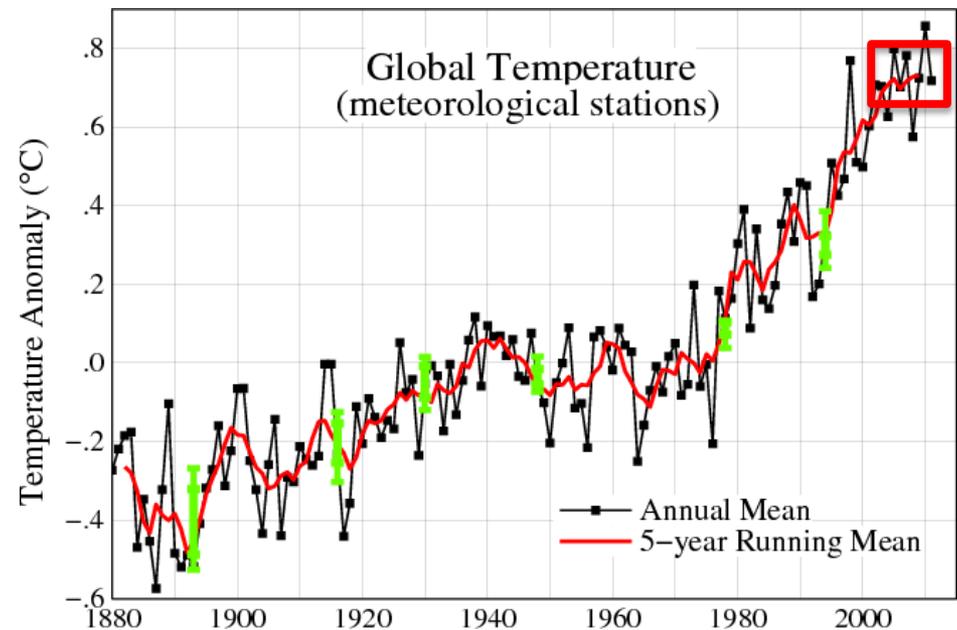
Option C



Scientists need to raise their voice when science is being misused



Daily Mail, 13 Oct 2012

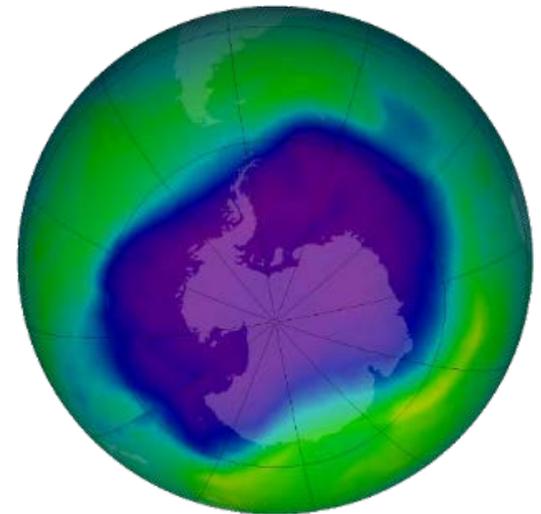
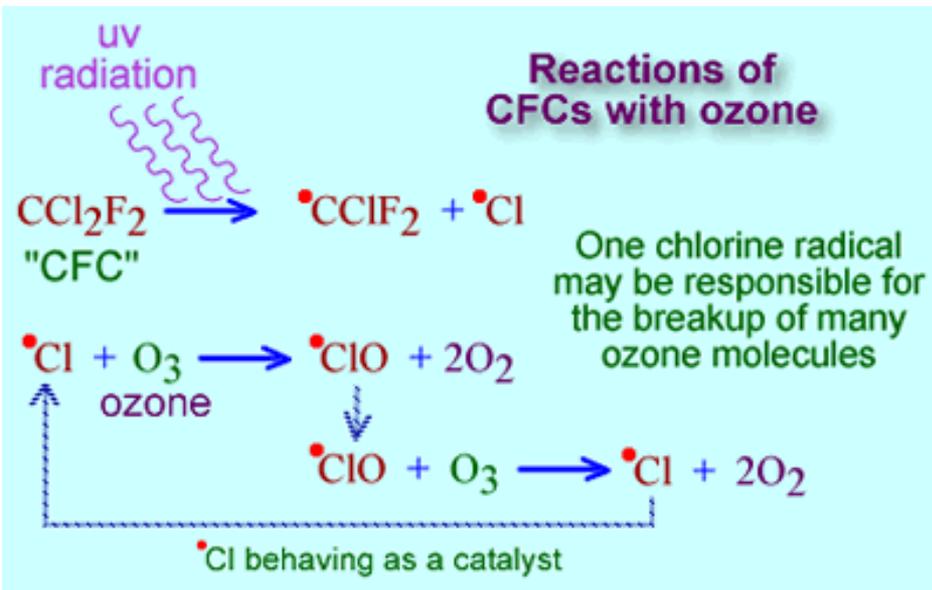


Source: Goddard Institute for Space Studies

If you don't act, who will?

We should talk more about scientific consensus – it's a powerful tool!

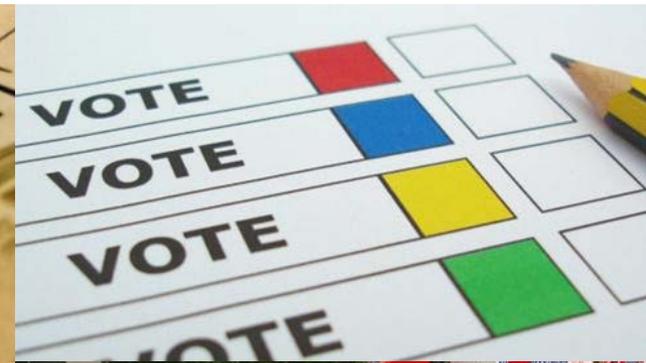
greener-industry.org.uk



Scientists should ask politicians to be transparent about their motivation when they choose to ignore the scientific evidence

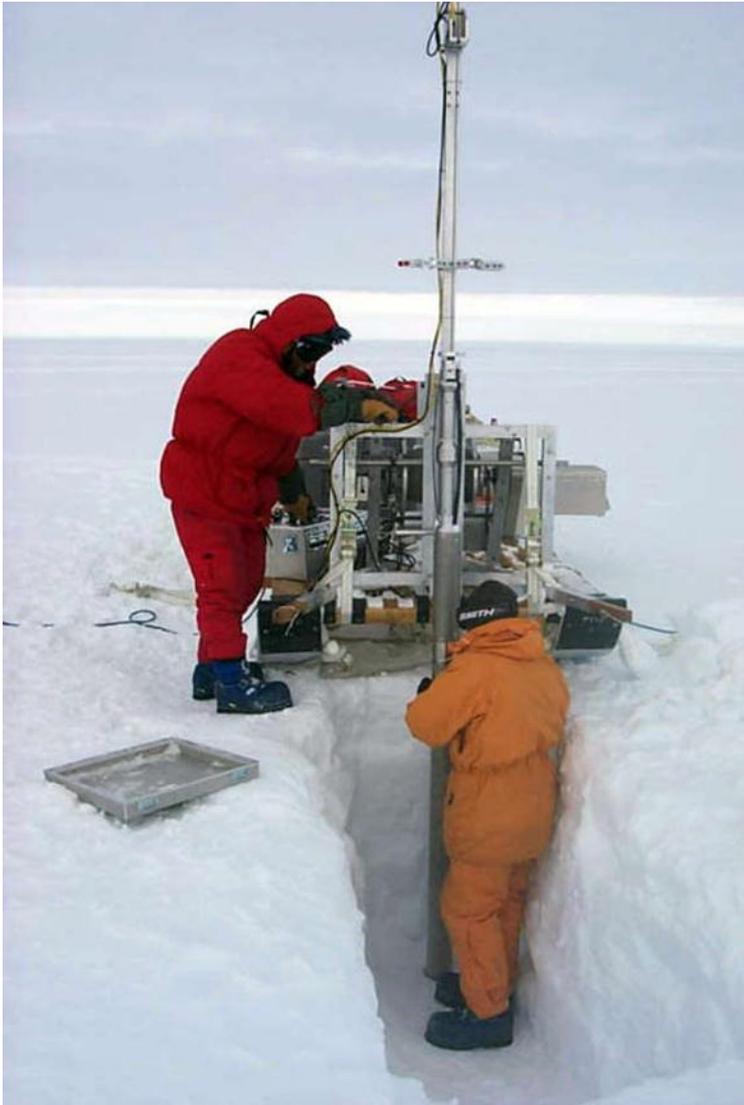
Ethics

Ethics in business
moral principles
rules and regula
of right conduct
values that gui



**It takes a lot of effort
to generate scientific
evidence.**

**We should make
the best use of it.**



Thank you for your attention!

www.scientistsforeu.uk



SCIENTISTS FOR EU

E-mail: l.a.glover@abdn.ac.uk

Twitter: [@AnneGlover_EU](https://twitter.com/AnneGlover_EU)