



Why precise and accurate measurements matter

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With whom do you want to have dinner?



a) Celebrity



b) Politician



c) Metrologist





Metrology is all around us





European Commission

All our economy relies on precise and accurate measurements



Energy	
Manufacturer	Fridge-Freezer
Model	
More efficient	A
A	
B	
C	
D	
E	
F	
Less efficient	
G	
Energy consumption kWh/year (Based on standard test results for 24h)	325
Actual consumption will depend on how the appliance is used and where it is located	
Fresh food volume l	190
Frozen food volume l	126

Noise (dB(A) re 1 pW)	
Further information is contained in product brochures	
Norm EN 153 May 1990 Refrigerator Label Directive 94/2/EC	





Metrology also plays a big role in policy-making

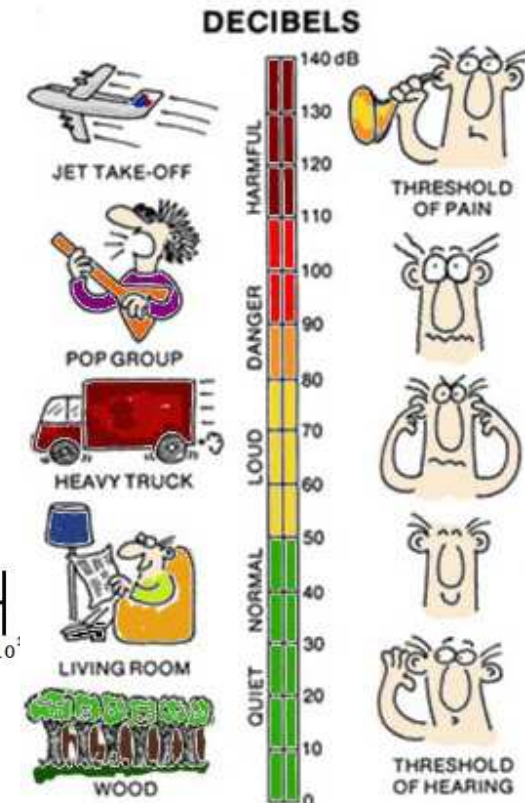
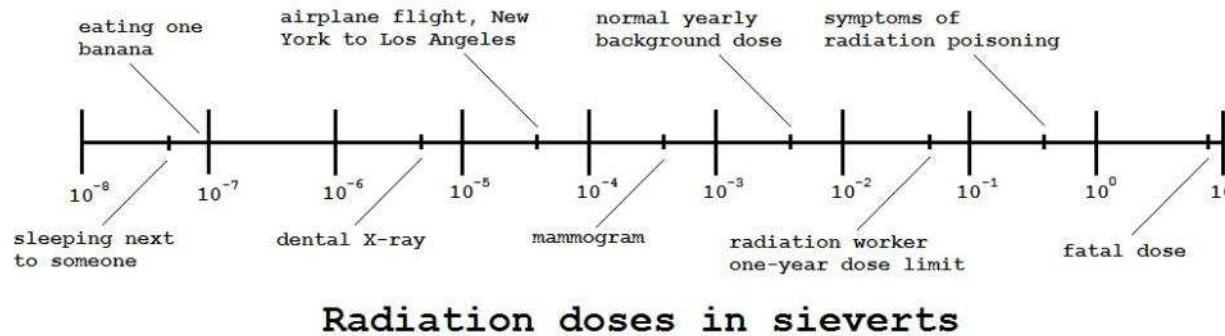
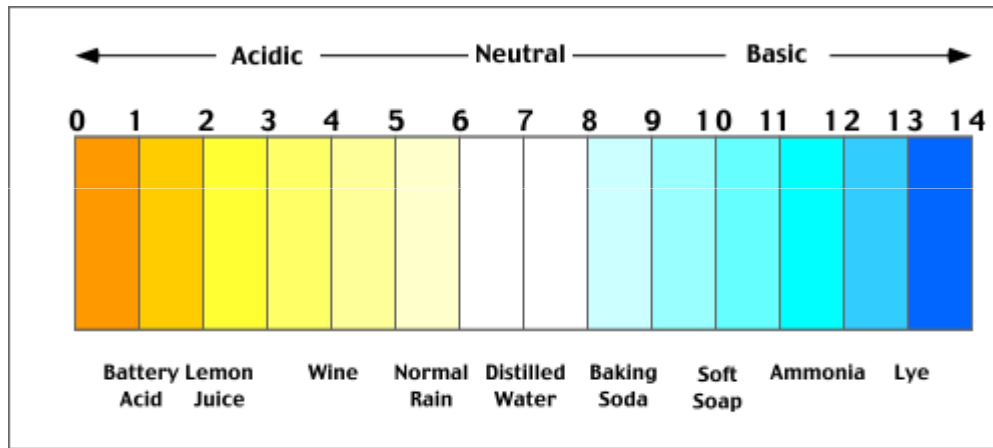


Image credit: ascending-knowledge.com

Image credit: Deafness Research UK



If it is so important, why is meteorology still more popular than metrology?



Image credit: BBC

**The weather changes every day,
standards do not (= newsworthiness)**



**What can you do to convey
the message that precise and
accurate measurements matter?**

1) Speak up

2) Stand up

3) Gang up



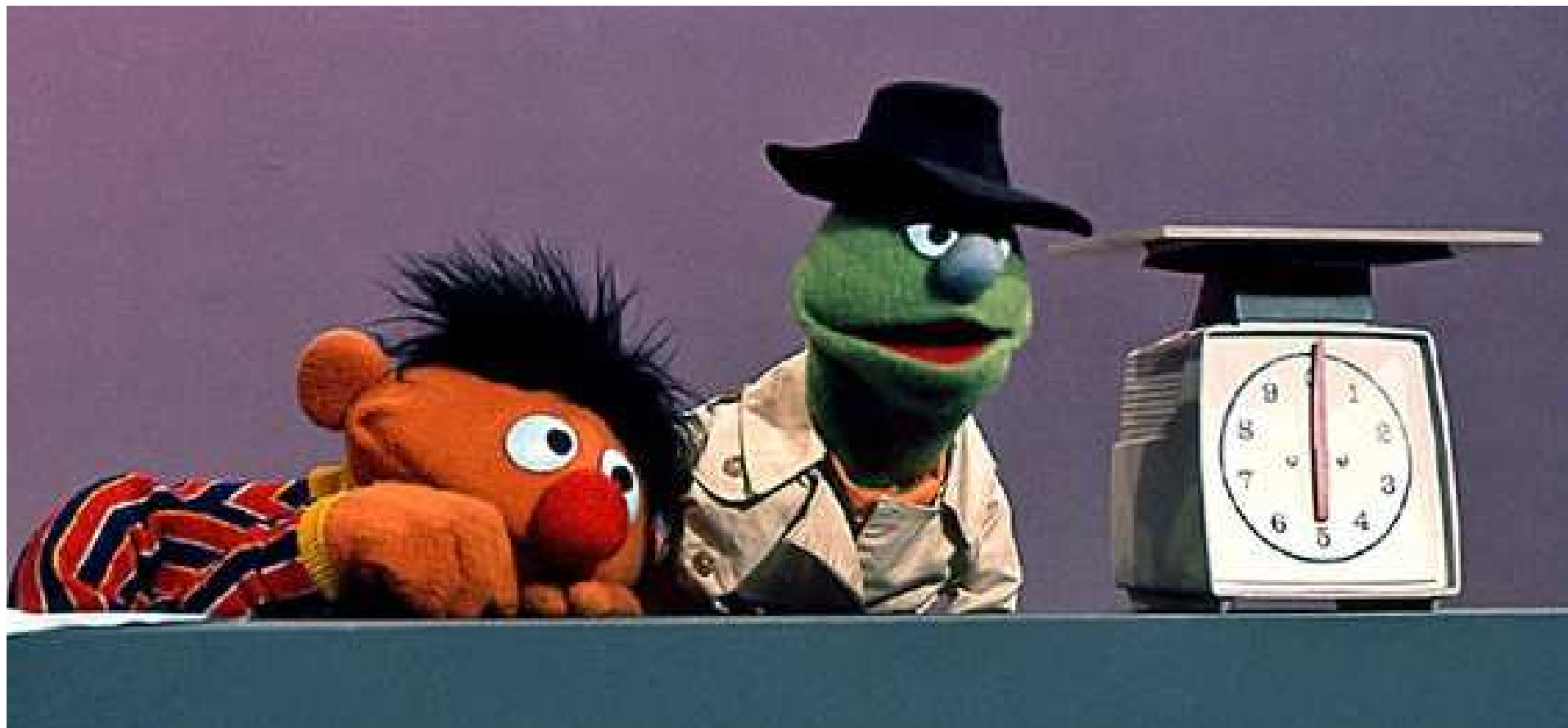


1) Speak up





Communicating metrology starts in preschool



EURAMET General Assembly, Cavtat, 4th June 2014



European
Commission

Speak a language everybody understands!

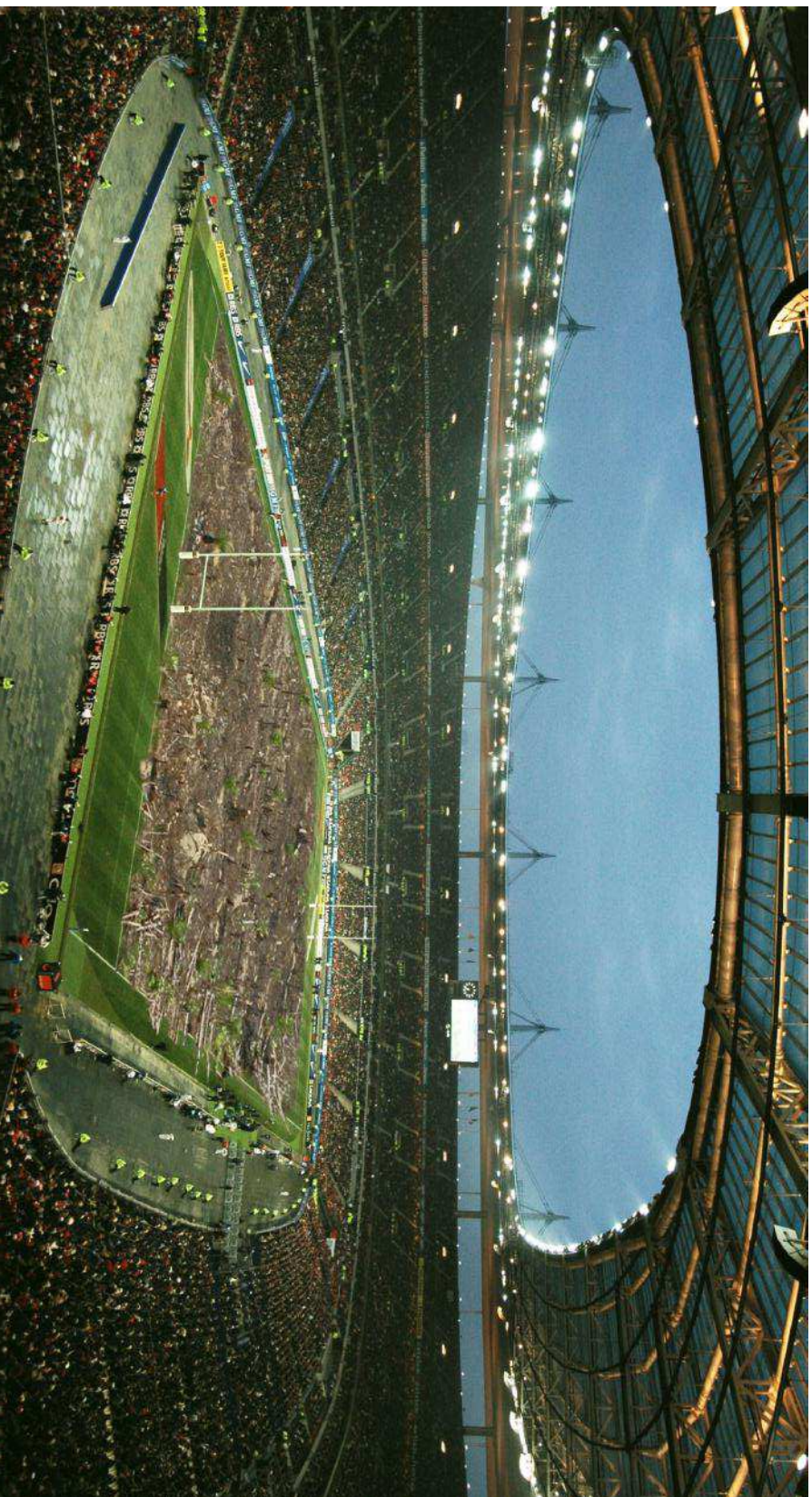


Photo credits: Background Stadium Thomas Faivre-Duboz,
forest taken from H.-D. Viktor Boehm (globalcarbonproject),
Photo montage by Alan Belward, Joint Research Centre



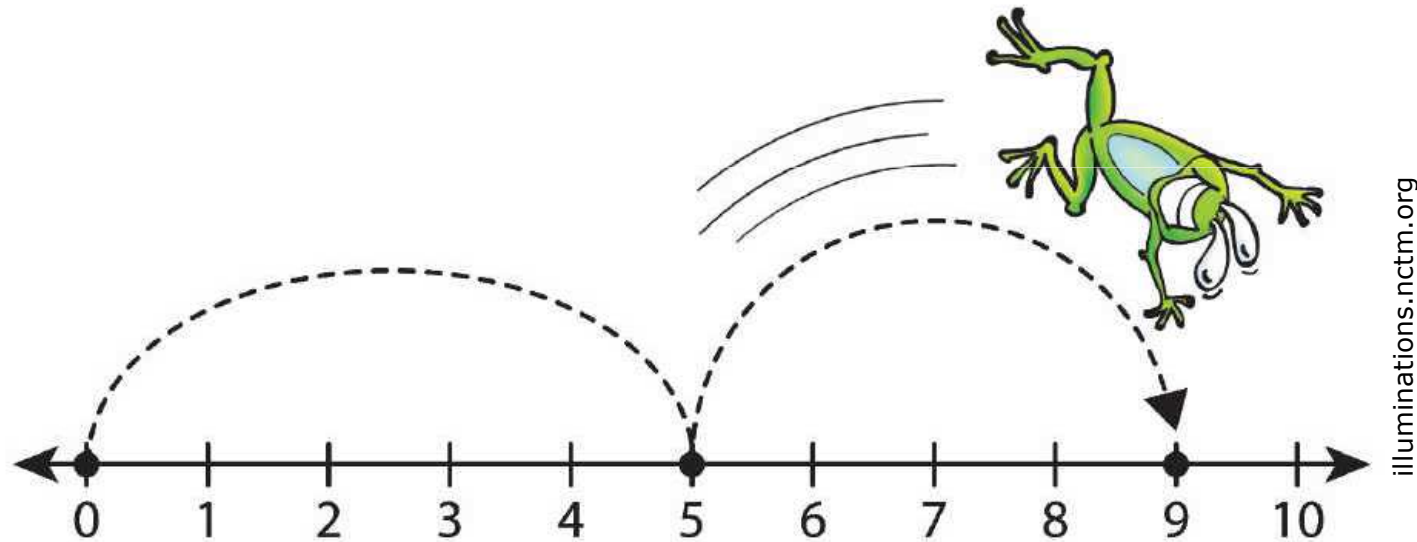
Don't be afraid of communicating numbers – actually, people like numbers

	3							
			1	9	5			
	9	8					6	
8				6				
4					3			1
				2				
	6					2	8	
			4	1	9			5
							7	





**But numbers are a means to an end –
they will make an impact only if...**



...you tell a good story!





Normally, such a message would only interest a narrow expert community

We have observed a new boson with a mass of
 $125.3 \pm 0.6 \text{ GeV}$
at
 4.9σ significance



CERN, 04/07/2012



Fabiola Gianotti



Why did this particular measurement create such a huge media hype?



EURAMET General Assembly, Cavtat, 4th June 2014



It was all about emotions!





Precise and accurate measurements can be very emotional



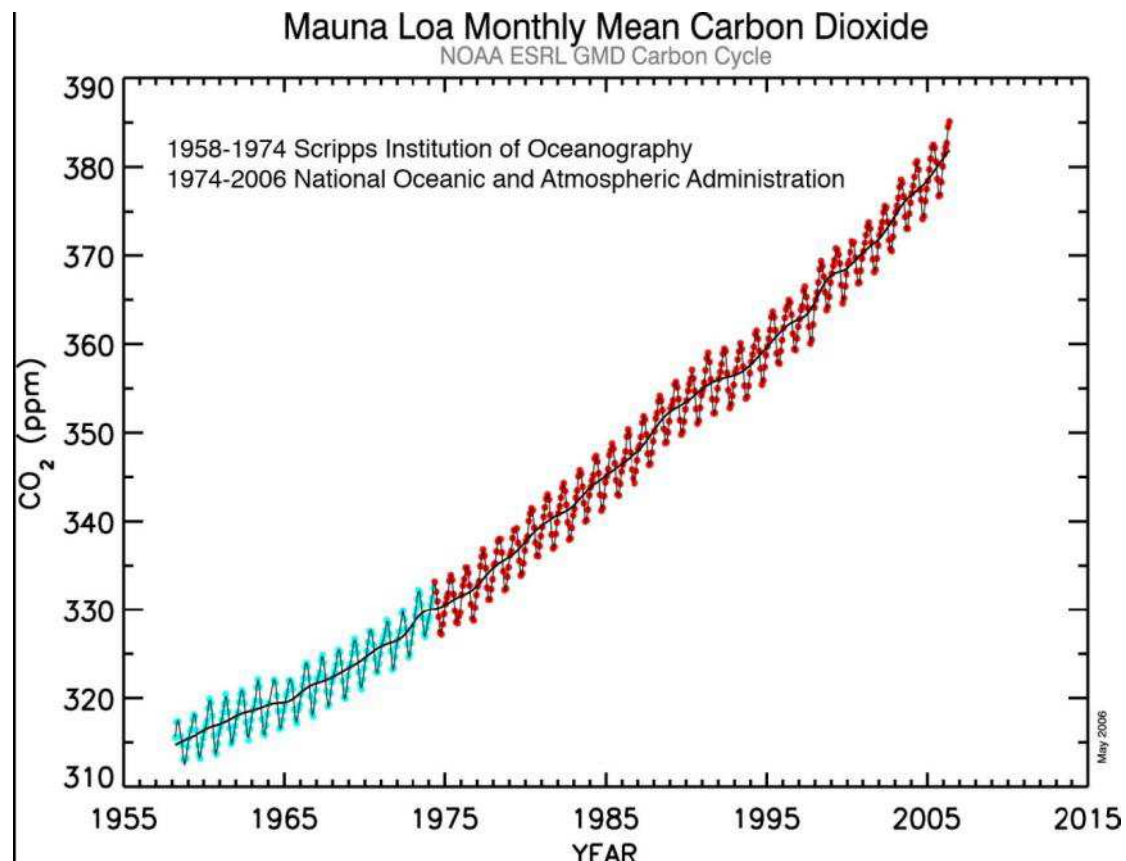


2) Stand up





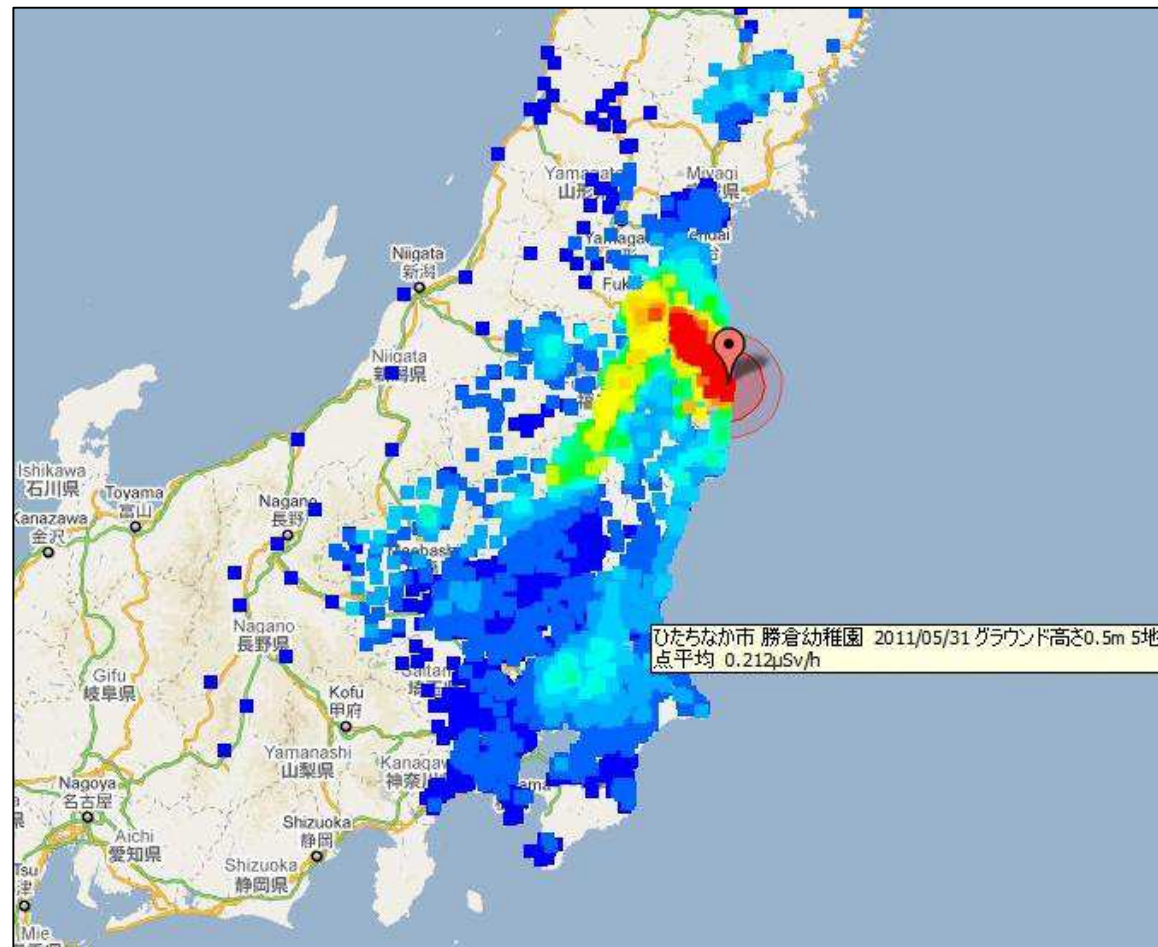
Measurements can tell very powerful stories





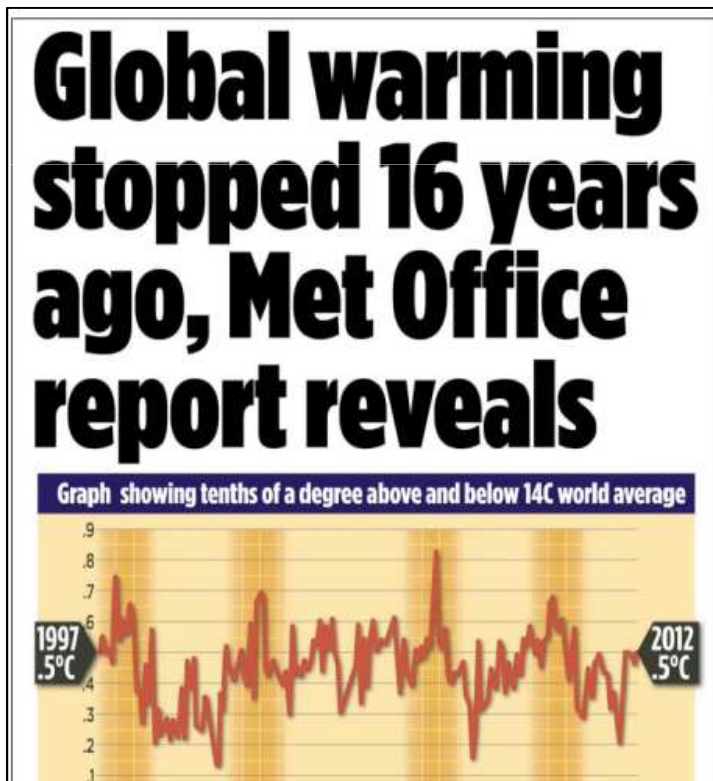
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Some of these stories may be inconvenient

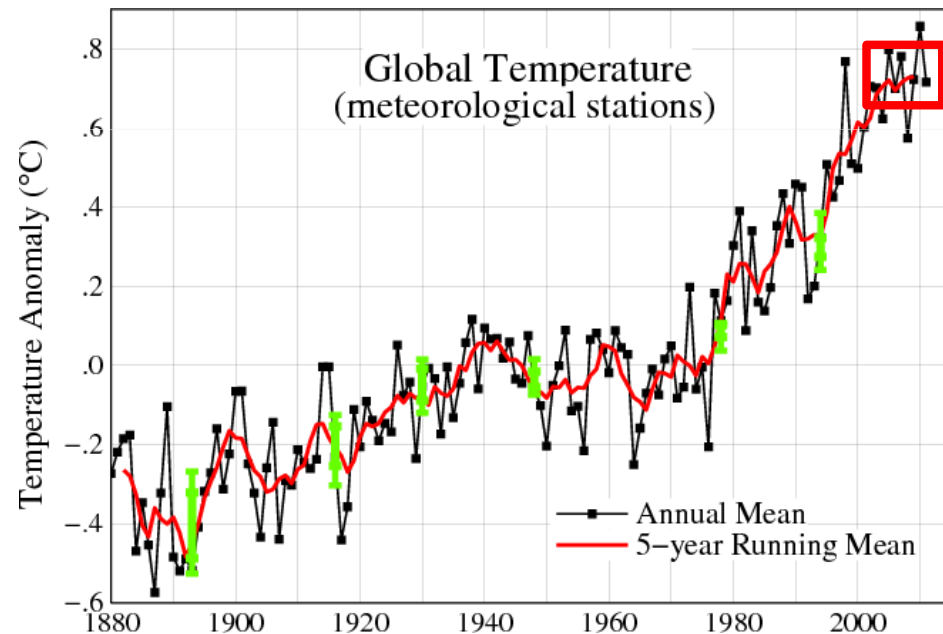




Accurate measurements are not always reported in an accurate manner – don't allow science to be misused



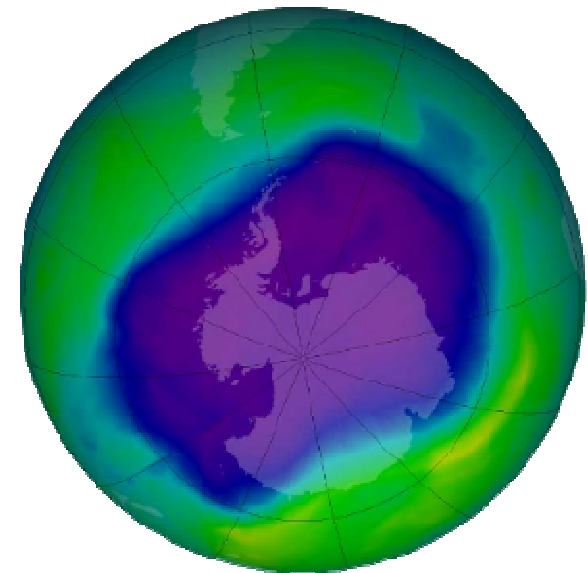
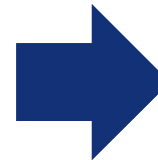
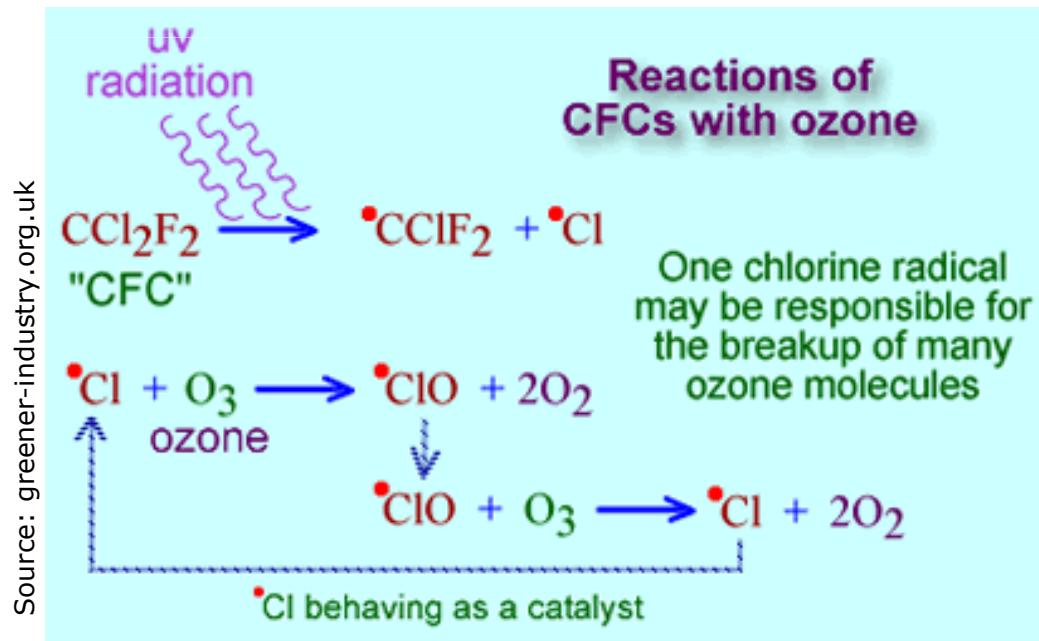
Daily Mail, 13 Oct 2012



Source: Goddard Institute for Space Studies



Talk more about scientific consensus: it's boring for a scientist, but it's a tool that can change the World!



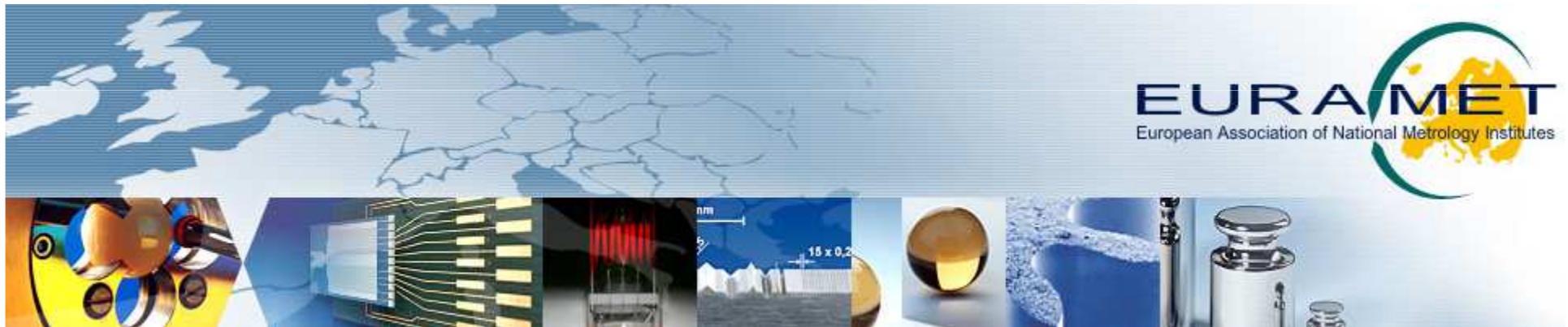


3) Gang up





Make a joint effort to shout loud about metrology



You are a small community, but you have a huge impact on Europe!





Tell people how life would be without precise and accurate measurements





Thank you for your attention!



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