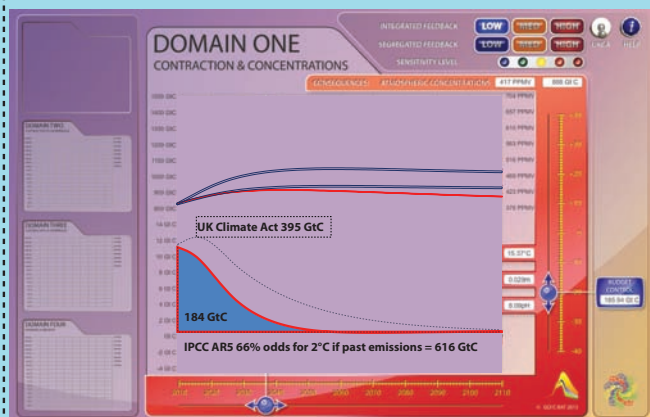


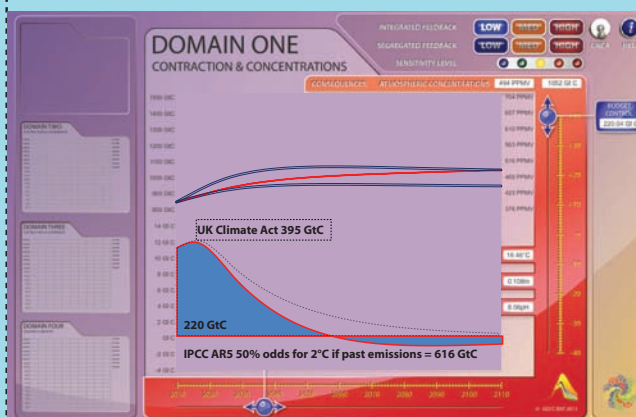
IPCC AR5 Carbon Budgeting for 2 Degrees Celsius

IPCC AR5 3 'Probability' Levels for 2° C	Cumulative Emissions 1800 - 2011	Plus "Non-CO2-Forcings in RCP 2.6" [these still exclude major feedbacks.	Balance	Emitted Already since 1800	<i>Final Residual IPCC Emissions Budget Balance</i>	<i>For 2° Celsius reduce UKCA Emissions Budget [395 GtC] by these amounts . . .</i>
33%	1,560 GtC	880 GtC	680 GtC	616 GtC	264 GtC	131 GtC
50%	1,210 GtC	840 GtC	370 GtC	616 GtC	224 GtC	171 GtC
66%	1,000 GtC	800 GtC	200 GtC	616 GtC	184 GtC	211 GtC

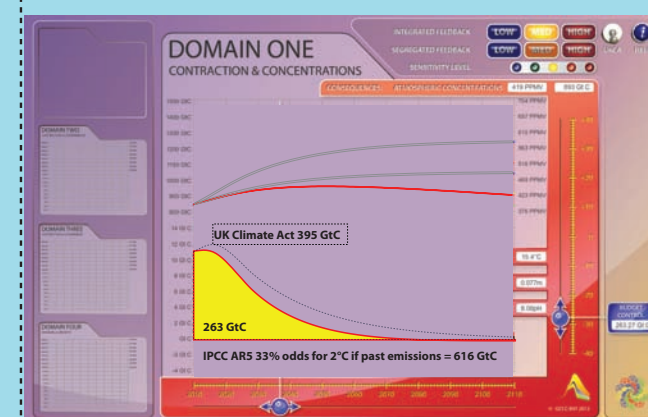
**CBAT LOW Budget
Integrated Feedback
Slider Position -20
184 GtC**



**CBAT LOW Budget
Integrated Feedback
Slider Position +40
220 GtC**



**CBAT MEDIUM Budget
Integrated Feedback
Slider Position -28
263 GtC**



<http://www.gci.org.uk/CBAT/cbat-domains/Domains.swf>

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DOMAIN ONE

CONTRACTION & CONCENTRATIONS

INTEGRATED FEEDBACK

SEGREGATED FEEDBACK

SENSITIVITY LEVEL

LOW

MED

HIGH

LOW

MED

HIGH



UKCA



HELP



CONSEQUENCES: ATMOSPHERIC CONCENTRATIONS

494 PPMV

1052 Gt C

1500 GtC

1400 GtC

1300 GtC

1200 GtC

1100 GtC

1000 GtC

900 GtC

800 GtC

14 Gt C

12 Gt C

10 Gt C

8 Gt C

6 Gt C

4 Gt C

2 Gt C

Gt C

-2 Gt C

-4 Gt C

UK Climate Act 395 GtC

220 GtC

IPCC AR5 50% odds for 2°C if past emissions = 616 GtC

704 PPMV

657 PPMV

610 PPMV

563 PPMV

516 PPMV

469 PPMV

423 PPMV

376 PPMV

16.46°C

0.108m

8.06pH

+40

+30

+20

+10

0

-10

-20

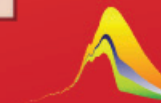
-30

-40

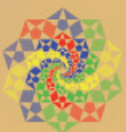
BUDGET CONTROL

220.04 Gt C

2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110

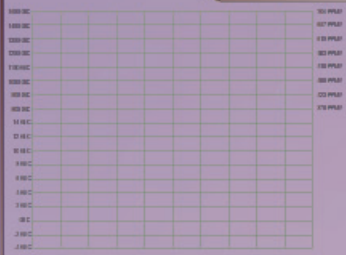


© GCI C-BAT 2013



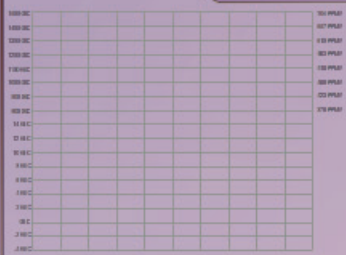
DOMAIN TWO

CONTRACTION & CONVERGENCE



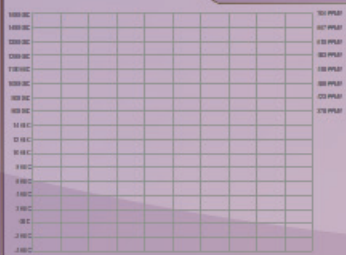
DOMAIN THREE

CONTRACTION & CONVERSION



DOMAIN FOUR

DAMAGES & GROWTH



DOMAIN ONE

CONTRACTION & CONCENTRATIONS

INTEGRATED FEEDBACK

SEGREGATED FEEDBACK

SENSITIVITY LEVEL

LOW

MED

HIGH

LOW

MED

HIGH



UKCA



HELP



CONSEQUENCES: ATMOSPHERIC CONCENTRATIONS

419 PPMV

893 Gt C

1500 GtC
1400 GtC
1300 GtC
1200 GtC
1100 GtC
1000 GtC
900 GtC
800 GtC
14 Gt C
12 Gt C
10 Gt C
8 Gt C
6 Gt C
4 Gt C
2 Gt C
Gt C
-2 Gt C
-4 Gt C

704 PPMV
657 PPMV
610 PPMV
563 PPMV
516 PPMV
469 PPMV
423 PPMV
376 PPMV

+40
+30
+20
+10
0
-10
-20
-30
-40

15.4°C

0.077m

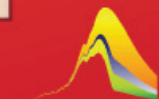
8.08pH

UK Climate Act 395 GtC

263 GtC

IPCC AR5 33% odds for 2°C if past emissions = 616 GtC

2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110

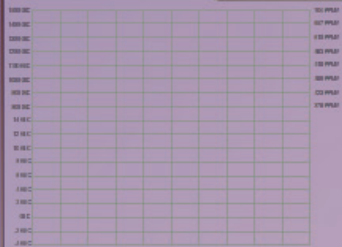


© GCI C-BAT 2013



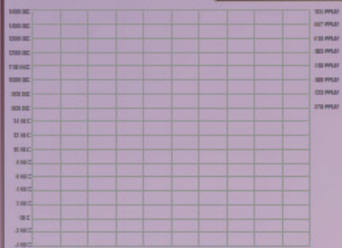
DOMAIN TWO

CONTRACTION & CONVERGENCE



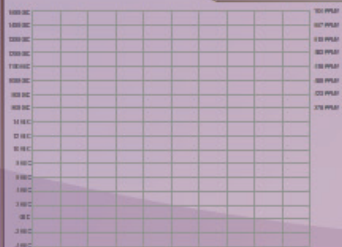
DOMAIN THREE

CONTRACTION & CONVERSION



DOMAIN FOUR

DAMAGES & GROWTH



BUDGET CONTROL
263.27 Gt C

IPCC AR5 WG1 final published the words/numbers quoted in the coloured box below. These were in the 'Summary for Policy Makers' & this is what their policy-relevant statement means - emit 46-126 GtC less than the UK Climate Act Budget [395 GtC] to keep under 2°C.

Three Probability Levels	Cumulative Emissions 1800 - 2011	Plus "Non-CO2-Forcings in RCP 2.6" [these still exclude major feedbacks.	Balance	Emitted Already since 1800	<i>Final Residual IPCC Emissions Budget Balance</i>	<i>For 2° Celsius reduce UKCA Emissions Budget [395 GtC] by these amounts . . .</i>
33%	1,560 GtC	880 GtC	680 GtC	531 GtC	349 GtC	46 GtC
50%	1,210 GtC	840 GtC	370 GtC	531 GtC	309 GtC	86 GtC
66%	1,000 GtC	800 GtC	200 GtC	531 GtC	269 GtC	126 GtC

NB IPCC's "*Non-CO2 Forcings in RCP 2.6*" [et al] are the 'Non-CO2 Gases'. However, it should be clearly noted that the RCPs still OMIT most feedback effects. In other words the real prognosis for 'climate-control' is actually worse than the IPCC AR5 has suggested.

Using CBAT [pp 2-5] IPCC 'Final Residual Balances' are compared with rates of C&C in the UK Climate Act [UKCA]. UKCA proposed an Emissions Contraction Budget of 395 GtC & Convergence by 2050. <http://www.gci.org.uk/CBAT/cbat-domains/Domains.swf> GCI proposes a Contraction Budget of 200 GtC with negotiations for an accelerated rate of Convergence [example used suggests equal entitlements by 2020].

IPCC AR5 Working Group One [WG1] Summary for Policy Makers [30 09 2013] says: -

"Limiting the warming caused by anthropogenic CO2 emissions alone with a probability of: -

1. >33%,
2. >50%, and
3. >66%

to less than 2°C since the period 1861–1880, will require cumulative CO2 emissions from all anthropogenic sources to stay between: -

1. 0 and about 1560 Giga-tonnes Carbon [Gt C]
2. 0 and about 1210 Gt C, and
3. 0 and about 1000 Gt C since that period respectively.

These upper amounts are reduced to about: -

1. 880 Gt C,
2. 840 Gt C, and
3. 800 Gt C respectively, when accounting for non-CO2 forcings as in RCP 2.6.

An amount of 531 [446 to 616] Gt C, was already emitted by 2011."

DOMAIN ONE

CONTRACTION & CONCENTRATIONS

INTEGRATED FEEDBACK

SEGREGATED FEEDBACK

SENSITIVITY LEVEL

LOW
MED
HIGH

LOW
MED
HIGH

LOW
MED
HIGH

UKCA

HELP

CONSEQUENCES: ATMOSPHERIC CONCENTRATIONS 422 PPMV

897 Gt C

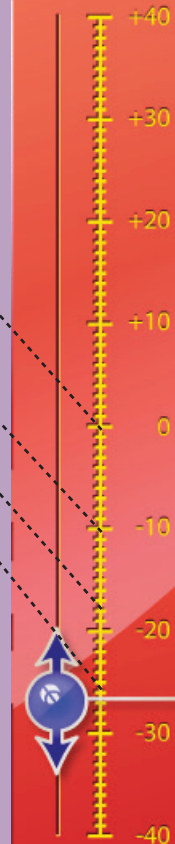
UK Climate Act 44% Probability for 2° 395 GtC

IPCC AR 5 33% Probability for 2° 349 GtC
SUMMARY FOR 50% Probability for 2° 309 GtC
POLICY MAKERS 66% Probability for 2° 269 GtC

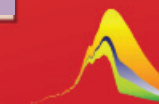
14.0 Gt C
12.0 Gt C
10.0 Gt C
8.0 Gt C
6.0 Gt C
4.0 Gt C
2.0 Gt C
0.0 Gt C

2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110

Less 46 GtC
Less 86 GtC
Less 126 GtC



BUDGET CONTROL
267.98 Gt C



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DOMAIN TWO

CONTRACTION & CONVERGENCE

10000 GtC	10000 GtC
9000 GtC	9000 GtC
8000 GtC	8000 GtC
7000 GtC	7000 GtC
6000 GtC	6000 GtC
5000 GtC	5000 GtC
4000 GtC	4000 GtC
3000 GtC	3000 GtC
2000 GtC	2000 GtC
1000 GtC	1000 GtC
0 GtC	0 GtC
-1000 GtC	-1000 GtC
-2000 GtC	-2000 GtC
-3000 GtC	-3000 GtC
-4000 GtC	-4000 GtC
-5000 GtC	-5000 GtC
-6000 GtC	-6000 GtC
-7000 GtC	-7000 GtC
-8000 GtC	-8000 GtC
-9000 GtC	-9000 GtC
-10000 GtC	-10000 GtC

DOMAIN THREE

CONTRACTION & CONVERGENCE

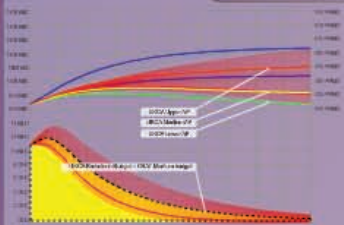
10000 GtC	10000 GtC
9000 GtC	9000 GtC
8000 GtC	8000 GtC
7000 GtC	7000 GtC
6000 GtC	6000 GtC
5000 GtC	5000 GtC
4000 GtC	4000 GtC
3000 GtC	3000 GtC
2000 GtC	2000 GtC
1000 GtC	1000 GtC
0 GtC	0 GtC
-1000 GtC	-1000 GtC
-2000 GtC	-2000 GtC
-3000 GtC	-3000 GtC
-4000 GtC	-4000 GtC
-5000 GtC	-5000 GtC
-6000 GtC	-6000 GtC
-7000 GtC	-7000 GtC
-8000 GtC	-8000 GtC
-9000 GtC	-9000 GtC
-10000 GtC	-10000 GtC

DOMAIN FOUR

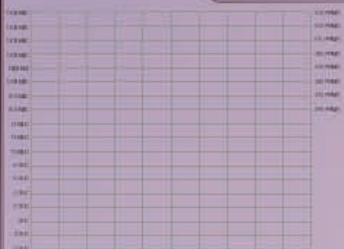
DAMAGES & GROWTH

10000 GtC	10000 GtC
9000 GtC	9000 GtC
8000 GtC	8000 GtC
7000 GtC	7000 GtC
6000 GtC	6000 GtC
5000 GtC	5000 GtC
4000 GtC	4000 GtC
3000 GtC	3000 GtC
2000 GtC	2000 GtC
1000 GtC	1000 GtC
0 GtC	0 GtC
-1000 GtC	-1000 GtC
-2000 GtC	-2000 GtC
-3000 GtC	-3000 GtC
-4000 GtC	-4000 GtC
-5000 GtC	-5000 GtC
-6000 GtC	-6000 GtC
-7000 GtC	-7000 GtC
-8000 GtC	-8000 GtC
-9000 GtC	-9000 GtC
-10000 GtC	-10000 GtC

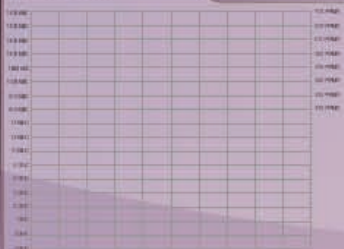
DOMAIN ONE CONTRACTION & CONCENTRATIONS



DOMAIN THREE CONTRACTION & CONVERSION

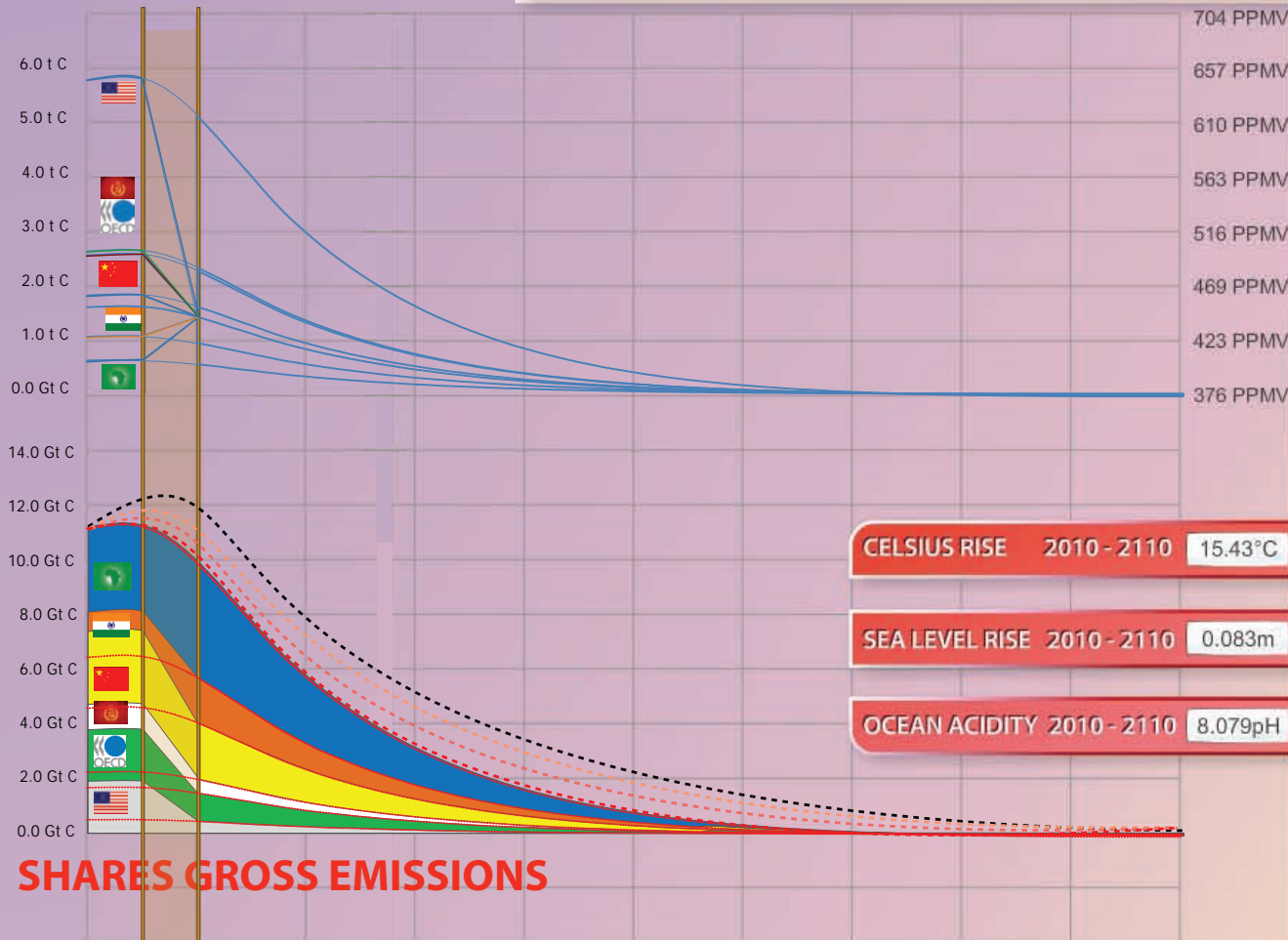


DOMAIN FOUR DAMAGES & GROWTH



DOMAIN TWO CONTRACTION & CONVERGENCE

PER CAPITA EMISSIONS



SHARES GROSS EMISSIONS



INTEGRATED FEEDBACK

SEGREGATED FEEDBACK

SENSITIVITY LEVEL



UKCA



HELP

CONSEQUENCES:

ATMOSPHERIC CONCENTRATIONS

422 PPMV

897 Gt C

704 PPMV

657 PPMV

610 PPMV

563 PPMV

516 PPMV

469 PPMV

423 PPMV

376 PPMV

CELSIUS RISE 2010 - 2110 15.43°C

SEA LEVEL RISE 2010 - 2110 0.083m

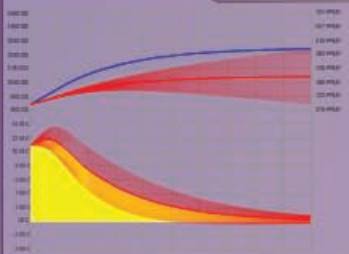
OCEAN ACIDITY 2010 - 2110 8.079pH

BUDGET CONTROL
267.98 Gt C

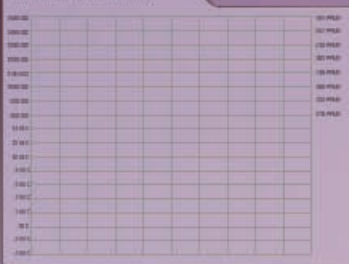
© GCI C-BAT 2013



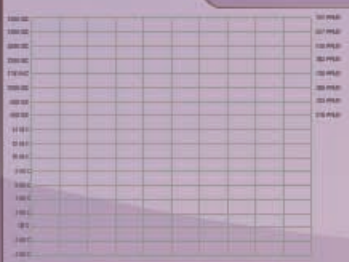
DOMAIN ONE
CONTRACTION & CONCENTRATIONS



DOMAIN THREE
CONTRACTION & CONVERGENCE



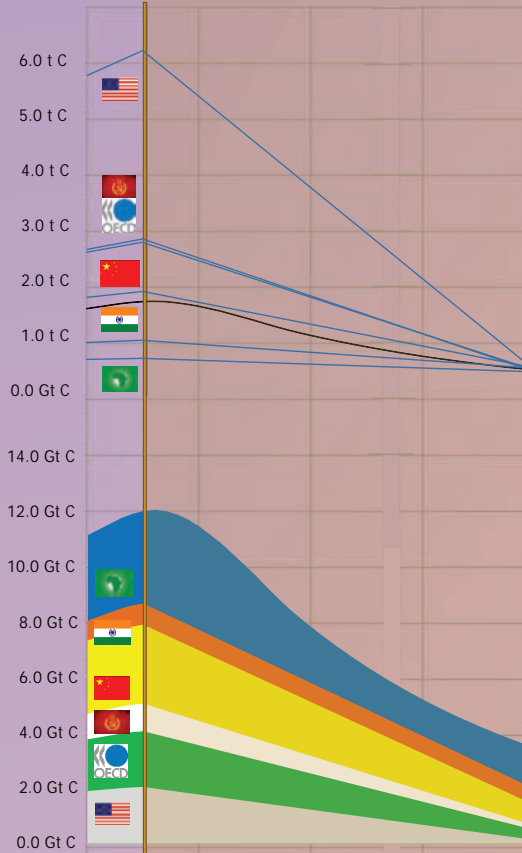
DOMAIN FOUR
DAMAGES & GROWTH



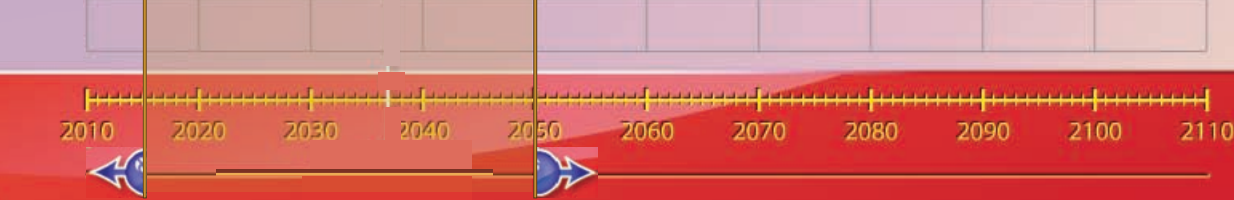
DOMAIN TWO

CONTRACTION & CONVERGENCE

PER CAPITA EMISSIONS



SHARES GROSS EMISSIONS



INTEGRATED FEEDBACK

SEGREGATED FEEDBACK

SENSITIVITY LEVEL

LOW

MED

HIGH

LOW

MED

HIGH



UKCA



HELP

CONSEQUENCES: ATMOSPHERIC CONCENTRATIONS

484 PPMV

1030 Gt C

**UK Climate Act
2010 - 2110
Contraction 395 GtC
Convergence by 2050
'44% odds of < 2 °C**

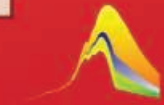
704 PPMV
657 PPMV
610 PPMV
563 PPMV
516 PPMV
469 PPMV
423 PPMV
376 PPMV

CELSIUS RISE 2010 - 2110 17.2°C

SEA LEVEL RISE 2010 - 2110 0.498m

OCEAN ACIDITY 2010 - 2110 8.017pH

BUDGET CONTROL
395.23 Gt C



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