

Science et politique, parfois quelques tensions autour du climat



Jean-Pascal van Ypersele

Vice-président du GIEC

Président du GT « Energie et climat » du CFDD

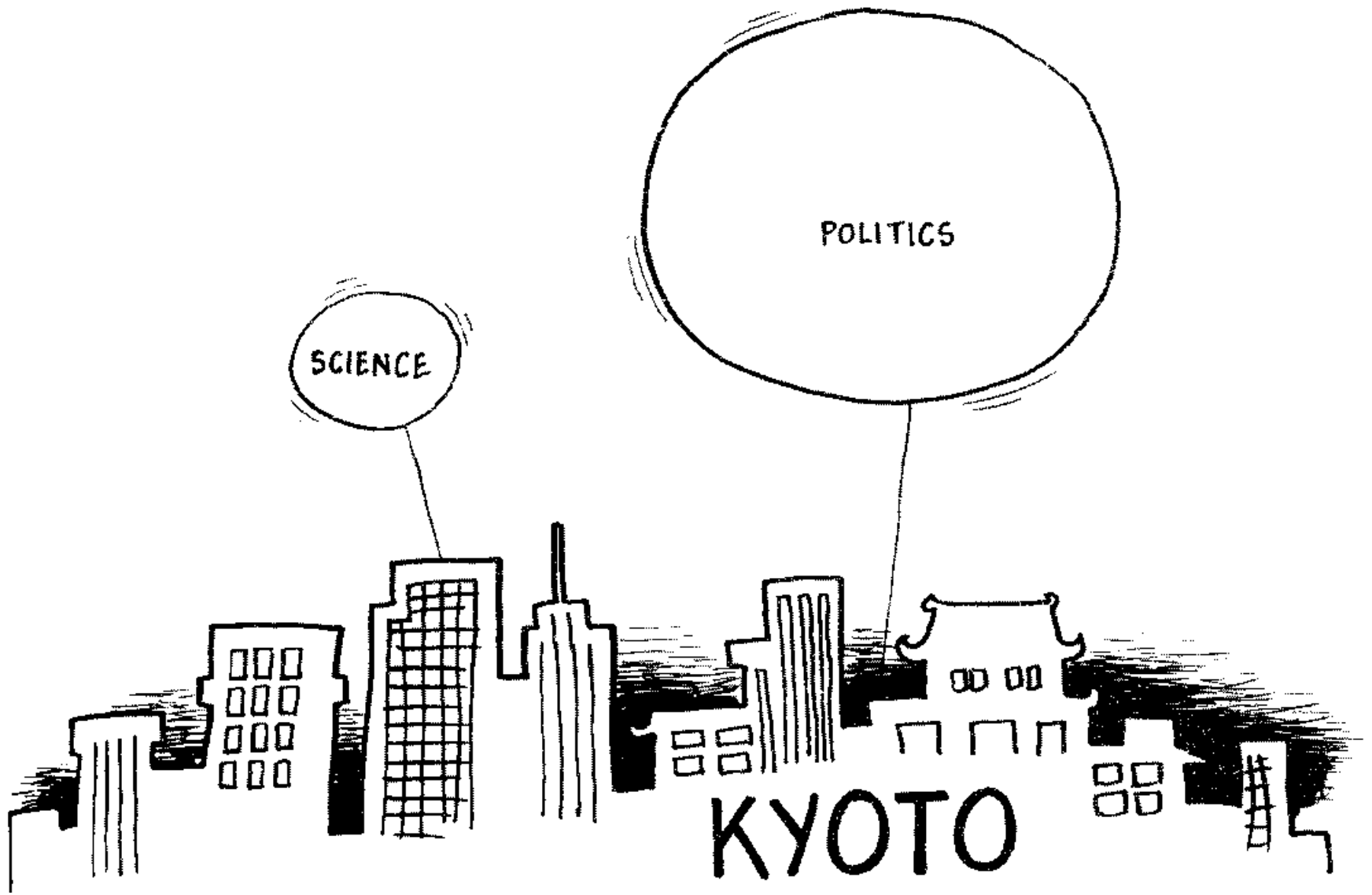
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CFDD, Visite du Prince Philippe, Bruxelles, 14-10-2009

NB: Le SPP Politique scientifique fédérale est chaleureusement remercié pour son soutien



Agarwal et al., 1999

Contexte géophysique



⌘ Observations

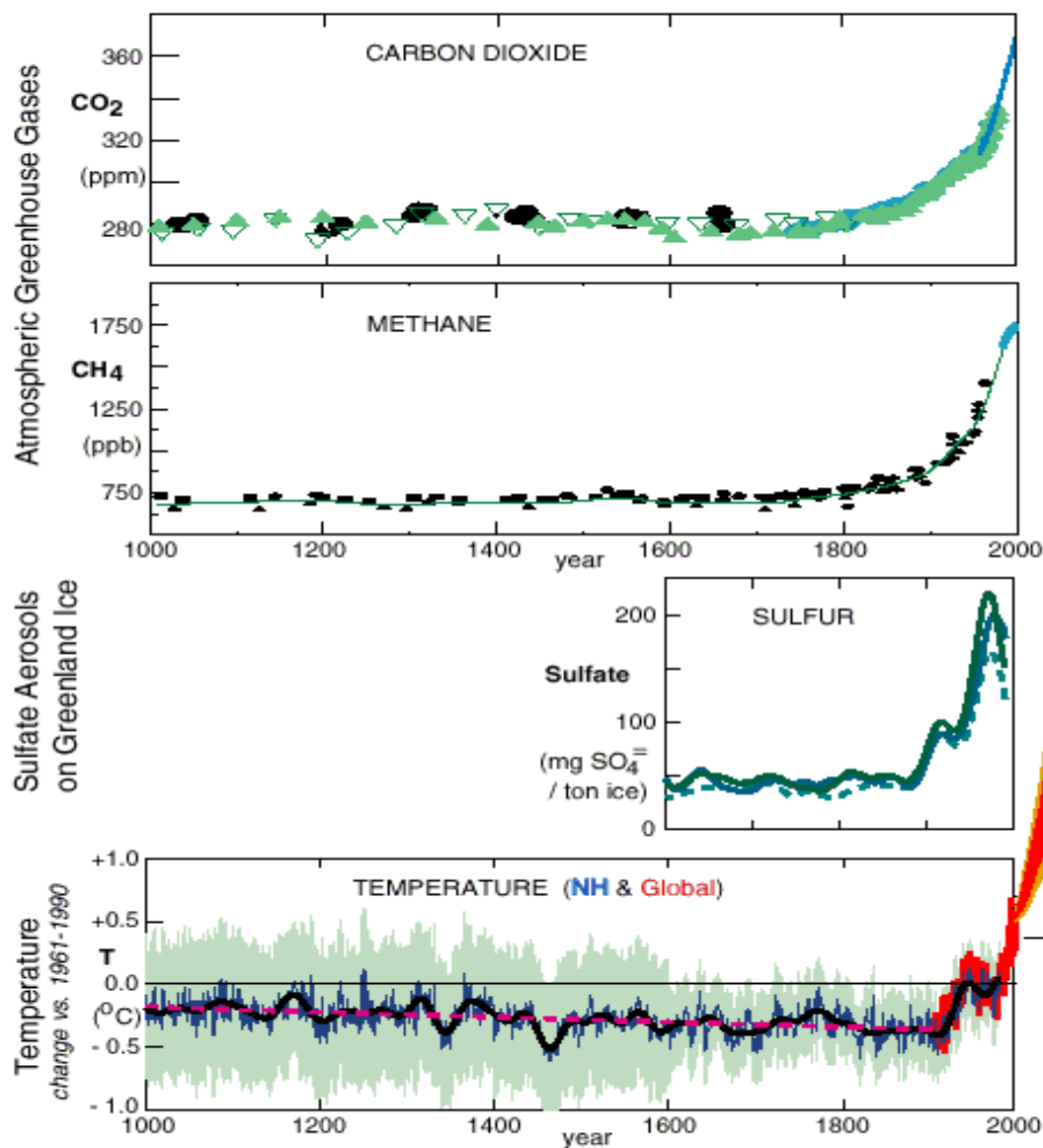
⌘ Mécanismes

THE HUMAN INFLUENCE ON ATMOSPHERE & CLIMATE

(IPCC/WG1: Climate Change 2001, SPM & Chapters 2, 3, 4, 5, 9)

AR4:

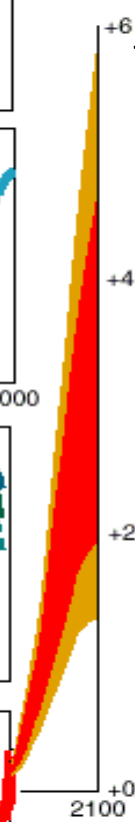
TAR (2001):



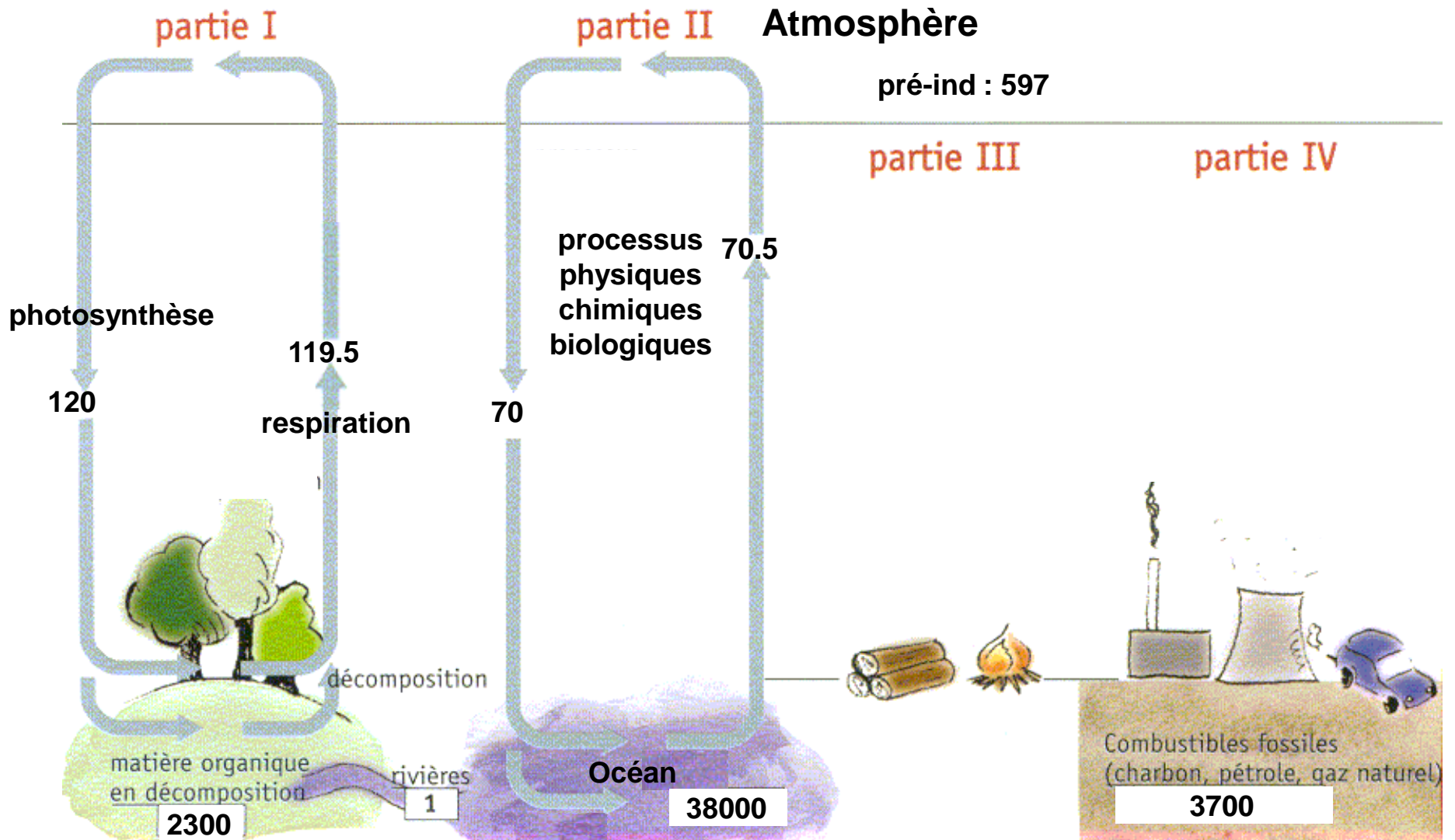
+6.4°C

+5.8°C

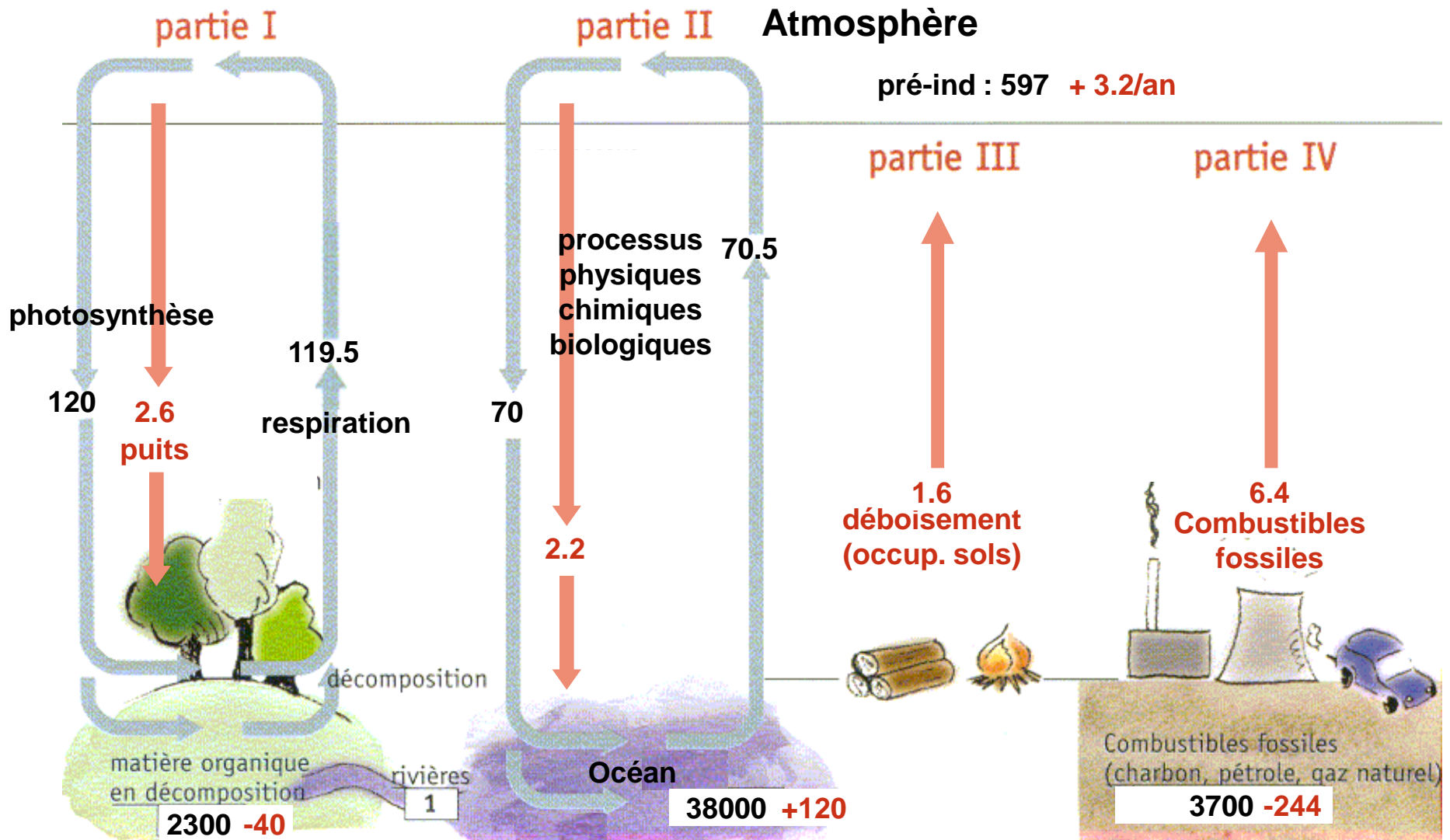
+1.4°C
+1.1°C



Cycle du carbone



Cycle du carbone



**GIEC AR4 GT2 (2007):
20% - 30% des espèces
végétales et animales
sont soumises à risque
élevé d'extinction si**

**ΔT 1.5°C - 2.5°C (au –
dessus de la température
de 1990)**



WMO



UNEP

Actuellement



Bleu: zone sous le niveau moyen de la mer

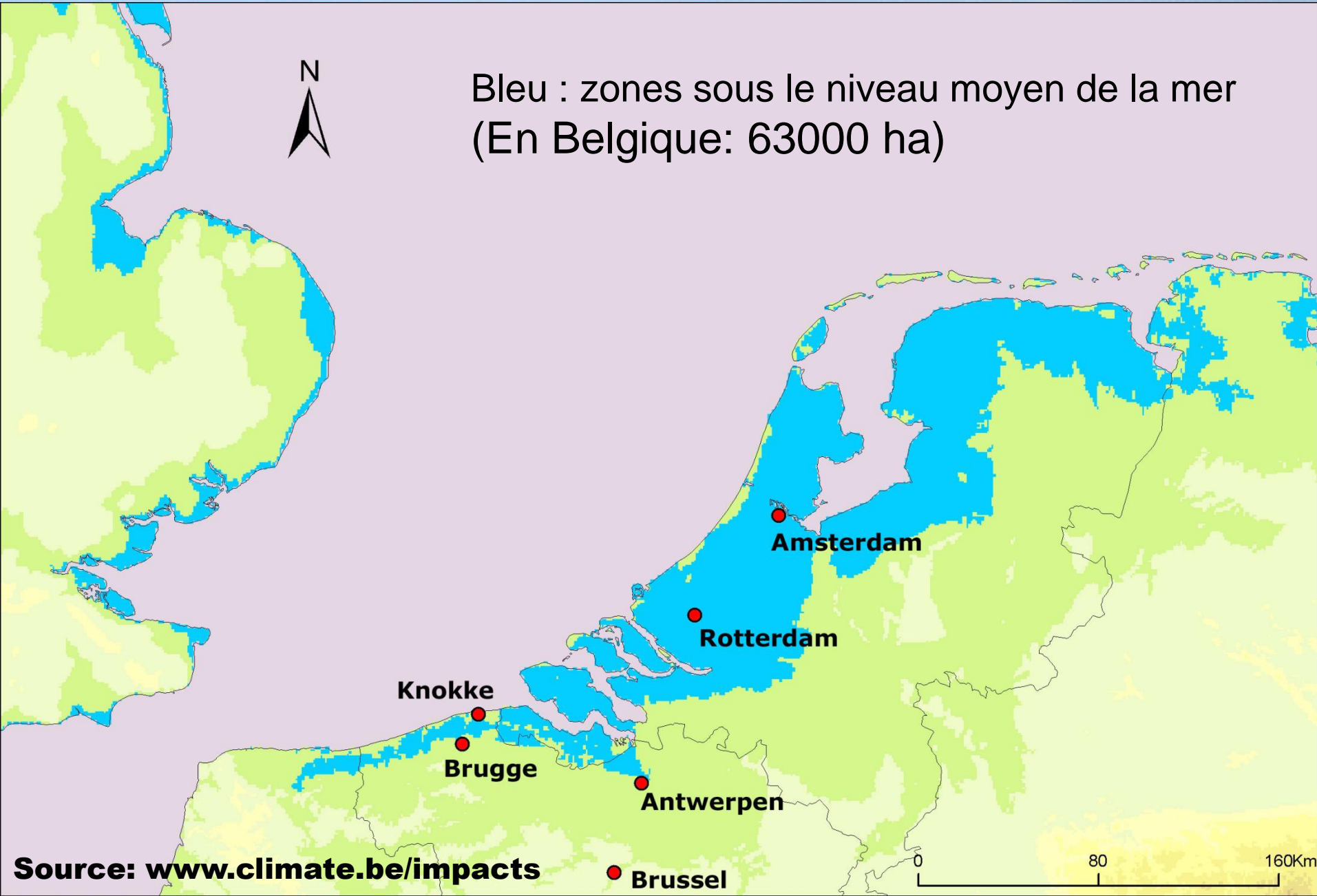


Source: www.climate.be/impacts

+1m (max /21è S)



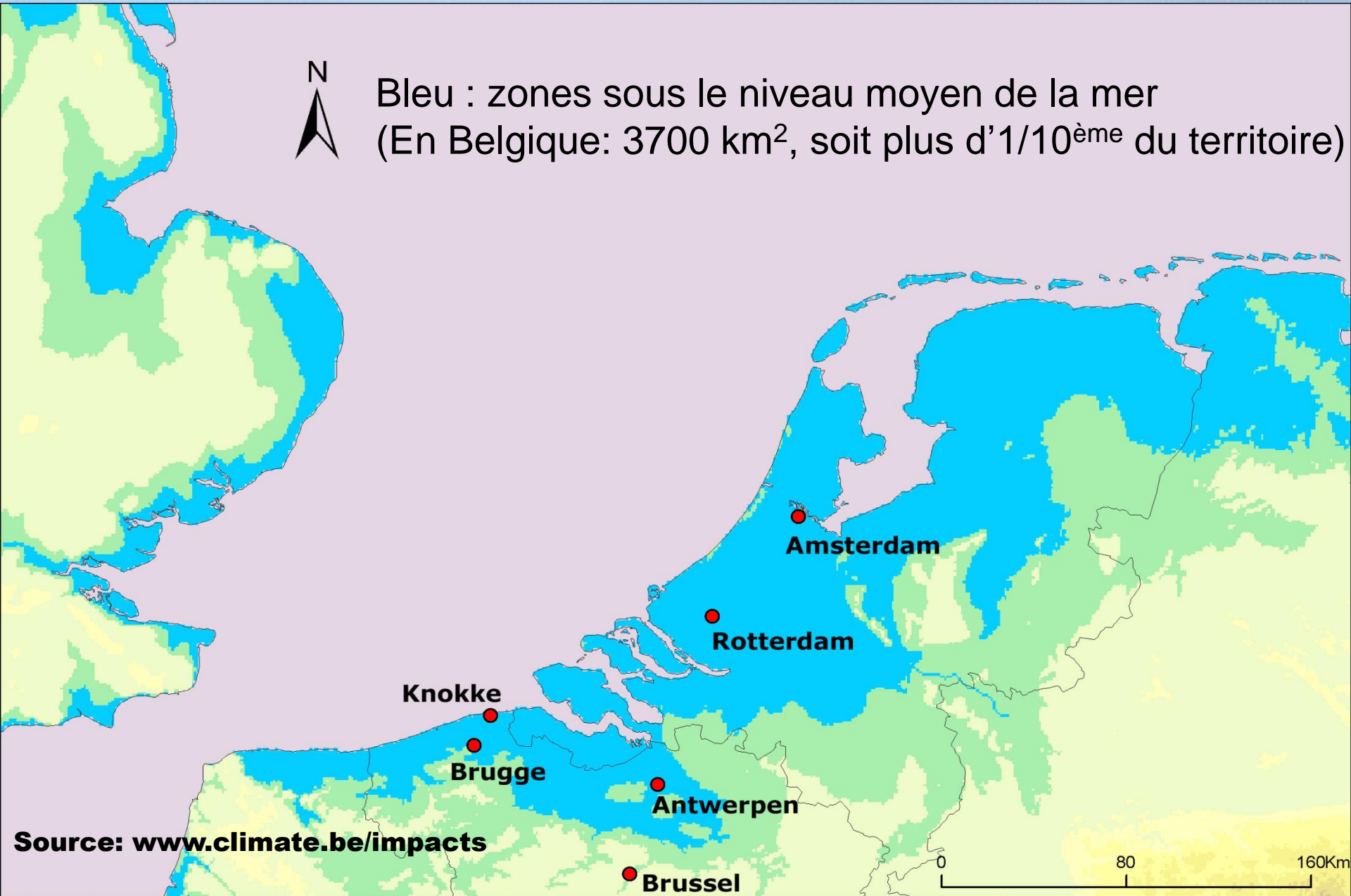
Bleu : zones sous le niveau moyen de la mer
(En Belgique: 63000 ha)



+8m (possible vers l'an 3000 dans un scénario moyen):



Bleu : zones sous le niveau moyen de la mer
(En Belgique: 3700 km², soit plus d'1/10^{ème} du territoire)



Source: www.climate.be/impacts

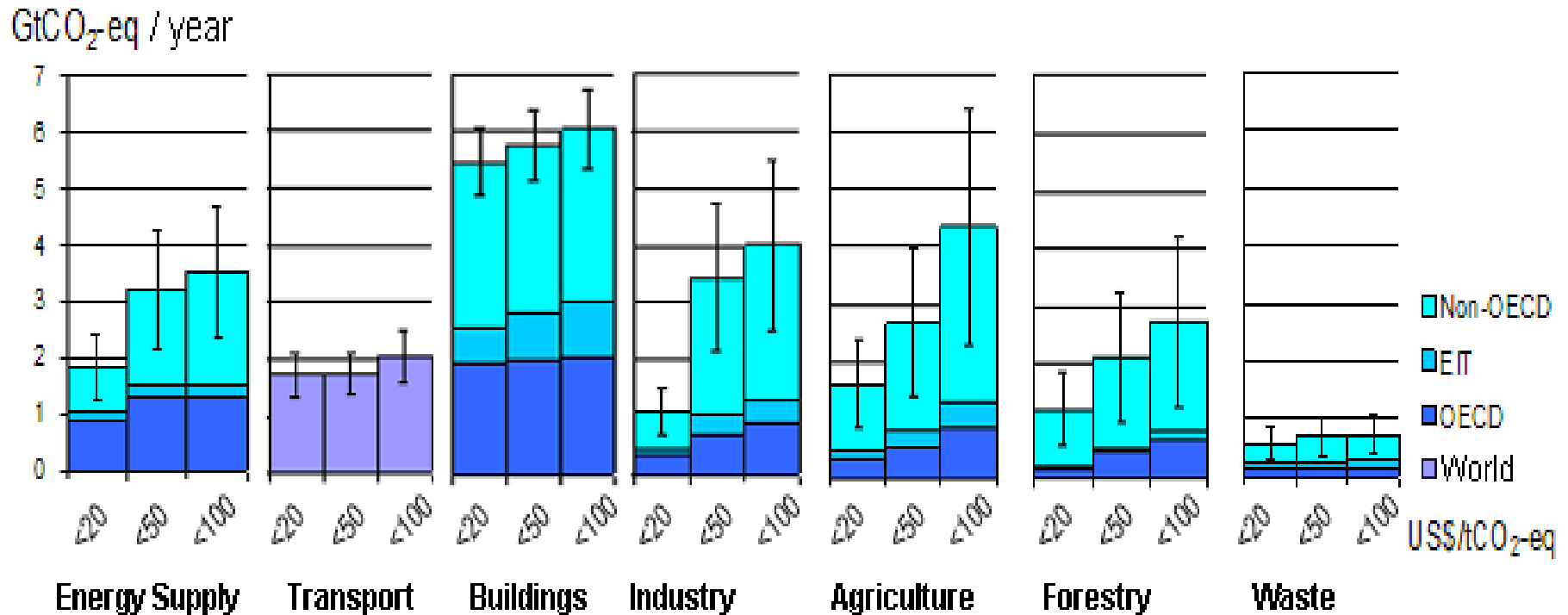
0 80 160Km

Long term mitigation (after 2030)

- The lower the stabilization level, the more quickly emissions would need to peak and to decline thereafter
- Mitigation efforts over the next two to three decades will have a large impact on opportunities to achieve lower stabilization levels

Stab level (ppm CO ₂ -eq)	Global Mean temp. increase at equilibrium (°C)	Year CO ₂ needs to peak	Reduction in 2050 compared to 200
445 – 490	2.0 – 2.4	2000 - 2015	-85 to -50
490 – 535	2.4 – 2.8	2000 - 2020	-60 to -30
535 – 590	2.8 – 3.2	2010 - 2030	-30 to +5
590 – 710	3.2 – 4.0	2020 - 2060	+10 to +60
710 – 855	4.0 – 4.9	2050 - 2080	+25 to +85
855 – 1130	4.9 – 6.1	2060 - 2090	+90 to +140

All sectors and regions have the potential to contribute by 2030



Note: estimates do not include non-technical options, such as lifestyle changes.

Changes in lifestyle and behaviour patterns can contribute to climate change mitigation

- Changes in occupant behaviour, cultural patterns and consumer choice in buildings.
- Reduction of car usage and efficient driving style, in relation to urban planning and availability of public transport
- Staff training, reward systems, regular feedback and documentation of existing practices in industrial organizations

Science et engagement



Jean-Pascal van Ypersele
(vanypersele@astr.ucl.ac.be)

Mon expérience ...



- ⌘ Intéressé par les questions d'environnement et de développement depuis longtemps
- ⌘ Venu à la physique par ma passion pour l'astronomie, puis me suis orienté vers la climatologie pour être plus « branché » sur des préoccupations « humaines »
- ⌘ 1979: Participe comme observateur à la 1^{ère} Conférence mondiale sur le climat à Genève en 1979, 1^{ère} série d'articles (La Cité); Prix Glaxo pour la vulgarisation sci.
- ⌘ 1980: Mémoire en physique sur la modélisation du climat, et des effets de l'augmentation du CO₂

Mon expérience ...



- 1986: Thèse doctorale (USA) sur l'effet du CO₂ sur le climat en Antarctique
- 1991: Membre du Conseil National d'Avis sur le Climat, co-auteur de l'avis pre-Rio sur les changements climatiques
- 1992: Membre de la délégation belge à la Conférence de Rio sur l'environnement et le développement
- 1993-: Membre du Conseil National du Développement Durable
- 1995: Plénière finale du GIEC à Madrid, joue un certain rôle dans la phrase « Un faisceau d'éléments suggère une influence perceptible des activités humaines sur le climat »



Mon expérience ...



1997: Membre de la délégation belge à Kyoto

1998: Symposium CFDD « Kyoto, contrainte ou opportunité ? »,
Présidence du GT « Energie et Climat » du CFDD

2001: Plénières du GIEC à Shanghai et Genève: influence significative
sur le 3^{ème} rapport du GIEC. Nominé pour le prix Jean Teghem
(Vulgarisation)

2001: Présidence belge de l'Union européenne: coordination du groupe
d'experts « science » et « éducation aux CC »

2002: Adoption, sous mon impulsion, du « New Delhi 5 year work
programme on the Article 6 of the UN Convention on Climate
Change. » (Education, sensibilisation, participation, accès à l'info)

2002: Elu membre du Bureau GIEC

2500+ SCIENTIFIC EXPERT REVIEWERS

800+ CONTRIBUTING AUTHORS AND

450+ LEAD AUTHORS FROM

130+ COUNTRIES

6 YEARS WORK

1 REPORT

2007

Quelques remarques sur les « climato-sceptiques »

- ⌘ *“Ex:George Marshall Institute, fondé par Frédérick Seitz, ancien président de l’Académie*
- ⌘ *F. Seitz avait travaillé auparavant pour le cigarettier R.J. Reynolds: il était chargé de recherches contestant le lien “tabac-cancer du poumon”, en vue de retarder la réglementation*
- ⌘ *Le message était alors:*
 - ☒ *Les faits ne sont pas prouvés, on ne sait pas bien ce qu’est le cancer, les études ont des défauts, et il faut donc plus de recherches avant d’agir...*
- ⌘ *Cette stratégie a pratiquement été reprise telle quelle pour semer le doute sur les changements climatiques”*

(Naomi Oreskes, Université de Californie, dans *La Recherche*, déc. 2008)

Facsimile Cover Sheet

TO: **John Howard**

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Date/Time: 6 Feb 2001, 10:00 a.m.

Pages including Cover: 18

Regarding: *Bush Team for IPCC Negotiations*

Attached is a brief memo outlining the issues related to the on-going IPCC negotiations on the Third Assessment Report. I have also attached other material that may be useful to you.

I will call to discuss the recommendations regarding the team that can better represent the Bush Administration interests until key appointments and re-assessments are made.

Randy

Issue: Can Watson be replaced now at the request of the U.S.?

Issue: Have Bierbaum and MacCracken been removed from their positions of influence?

Recommendations:

1. Restructure the U.S. attendance at upcoming IPCC meetings to assure none of the Clinton/Gore proponents are involved in any decisional activities.

a. Appoint **Dr. John Christy**, University of Alabama-Huntsville(Lead Author-Working Group I) as science lead for the balance of the IPCC process. Phone: 256.961.7763
This replaces Bierbaum and MacCracken.

b. Appoint **Dr. Richard Lindzen**, MIT,(Lead Author-Working Group I) as a co-lead to conduct an immediate review of the comments on the Working Group reports(I, II and III) and to review the US comments to be submitted(II, III). Phone: 617.253.2432

(...)

4. Explore the possibility of asking Speaker Hastert to make Dr. Harlan Watson, Hse Science Committee, available to work with the team. Dr. Watson has been recommended for the Assistant Secretary of State for Oceans position.

Mon expérience ...



2004: Rapport pour Greenpeace sur les impacts des CC

2004: Carte blanche sur le nucléaire (Monde et LLB), puis lettre ouverte à G. Bush

2006: Commission Energie 2030 (Verwilghen)

2007: Plénière du GIEC (GT2) à Bruxelles

2007: Le GIEC reçoit le Prix Nobel de la Paix avec Al Gore

Mon expérience ...



2007: Mon nom est proposé (à mon insu) pour le poste de
Ministre du Climat et de l'énergie (j'aurais refusé)

2008: Rapport pour Charles Michel sur les changements
climatiques et la coopération au développement

2008 : Elu Vice-président du GIEC

Bali action plan (december 2007)

- *The Conference of the Parties,*
- (...) **Responding** to the findings of the Fourth Assessment Report of the Intergovernmental Panel on Climate Change that warming of the climate system is unequivocal, and that delay in reducing emissions significantly constrains opportunities to achieve lower stabilization levels and increases the risk of more severe climate change impacts,
- **Recognizing** that deep cuts in global emissions will be required to achieve the ultimate objective of the Convention and emphasizing the urgency (NOTE 1) to address climate change as indicated in the Fourth Assessment Report of the IPCC,
- **1. Decides** to launch a comprehensive process to enable the full, effective and sustained implementation of the Convention through long-term cooperative action, now, up to and beyond 2012, in order to reach an agreed outcome and adopt a decision at its fifteenth session, by addressing, inter alia: ...
- **Note 1:** Contribution of Working Group III to the Fourth Assessment Report of the IPCC, Technical Summary, pages 39 and 90, and Chapter 13, page 776.

Long term mitigation (after 2030)

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Draft Council Conclusions

⌘ REITERATES that the Copenhagen agreement must be **based on** the best available scientific evidence as presented by the Intergovernmental Panel on Climate Change (**IPCC**) in its Fourth Assessment Report (AR4) as well as by scientific studies published since then, which indicate that averting dangerous anthropogenic interference with the climate system requires the increase in global mean surface temperature to be kept below 2 C above pre-industrial levels, which in turn requires that global greenhouse gas (GHG) emissions **peak by 2020** at the latest and be reduced by at least 50 % as compared with 1990 levels by 2050 and continue to decline thereafter;

Contribution of Working Group III to the Fourth Assessment Report of the IPCC,

- Chapter 13, page 776:

Box 13.7 The range of the difference between emissions in 1990 and emission allowances in 2020/2050 for various GHG concentration levels for Annex I and non-Annex I countries as a group^a

Scenario category	Region	2020	2050
<i>A-450 ppm CO₂-eq^b</i>	Annex I	-25% to -40%	-80% to -95%
	Non-Annex I	Substantial deviation from baseline in Latin America, Middle East, East Asia and Centrally-Planned Asia	Substantial deviation from baseline in all regions
<i>B-550 ppm CO₂-eq</i>	Annex I	-10% to -30%	-40% to -90%
	Non-Annex I	Deviation from baseline in Latin America and Middle East, East Asia	Deviation from baseline in most regions, especially in Latin America and Middle East
<i>C-650 ppm CO₂-eq</i>	Annex I	0% to -25%	-30% to -80%
	Non-Annex I	Baseline	Deviation from baseline in Latin America and Middle East, East Asia

Notes:

- ^a The aggregate range is based on multiple approaches to apportion emissions between regions (contraction and convergence, multistage, Triptych and intensity targets, among others). Each approach makes different assumptions about the pathway, specific national efforts and other variables. Additional extreme cases – in which Annex I undertakes all reductions, or non-Annex I undertakes all reductions – are not included. The ranges presented here do not imply political feasibility, nor do the results reflect cost variances.
- ^b Only the studies aiming at stabilization at 450 ppm CO₂-eq assume a (temporary) overshoot of about 50 ppm (See Den Elzen and Meinshausen, 2006).

In the text that was on the table in Bangkok last week (FCCC/AWG-LCA/2009/INF.2):

⌘ I.31 [To this end, [developed country parties]..., as a group, [shall][should][reduce their [domestic] GHG emissions][deeply cut their GHG emissions]: (a)[By at least 25-40][By 25-40] [By more than 25-40] [In the order of 30] [By at least 40] [By 45] [By at least 45]% from 1990 levels by [2017] [2020], through domestic and international efforts]...

Isaac Asimov, 1988



« L'aspect le plus triste de la vie en ce moment est que la science amasse des connaissances plus rapidement que la société n'acquiert de la sagesse »

François Rabelais
(dans « Pantagruel », 1532)



**« Science sans conscience
n'est que ruine de l'âme »**

Sur la toile...



⌘ www.climate.be/vanyp : ASTR-UCL, ma page

⌘ www.ipcc.ch : GIEC

⌘ www.unfccc.int : Convention & Protocole

⌘ www.cfdd.be : Conseil Fédéral du
Développement Durable