

Greenhouse gas metrics in the Working Group I contribution to the IPCC Fifth Assessment Report

UNFCCC GHG Emission Metrics Workshop, Bonn, April 2012

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ipcc
INTERGOVERNMENTAL PANEL ON climate change



Kyoto Protocol, Article 5.3

Article 5

[...]

3. The global warming potentials used to calculate the carbon dioxide equivalence of anthropogenic emissions by sources and removals by sinks of greenhouse gases listed in Annex A shall be those accepted by the Intergovernmental Panel on Climate Change and agreed upon by the Conference of the Parties at its third session. Based on the work of, *inter alia*, the Intergovernmental Panel on Climate Change and advice provided by the Subsidiary Body for Scientific and Technological Advice, the Conference of the Parties serving as the meeting of the Parties to this Protocol shall regularly review and, as appropriate, revise the global warming potential of each such greenhouse gas, taking fully into account any relevant decisions by the Conference of the Parties. Any revision to a global warming potential shall apply only to commitments under Article 3 in respect of any commitment period adopted subsequent to that revision.

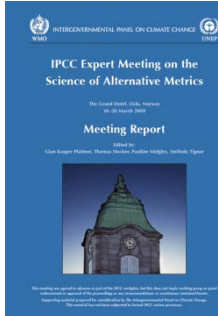
UNFCCC Workshop Emission Metrics

1. IPCC Expert Meeting, March 2009
on the Science of Alternative Greenhouse Gas Metrics
2. Emission Metrics in the WGI AR5
3. WGI AR5 Schedule

Expert Meeting *Science of Alternative GHG Metrics*

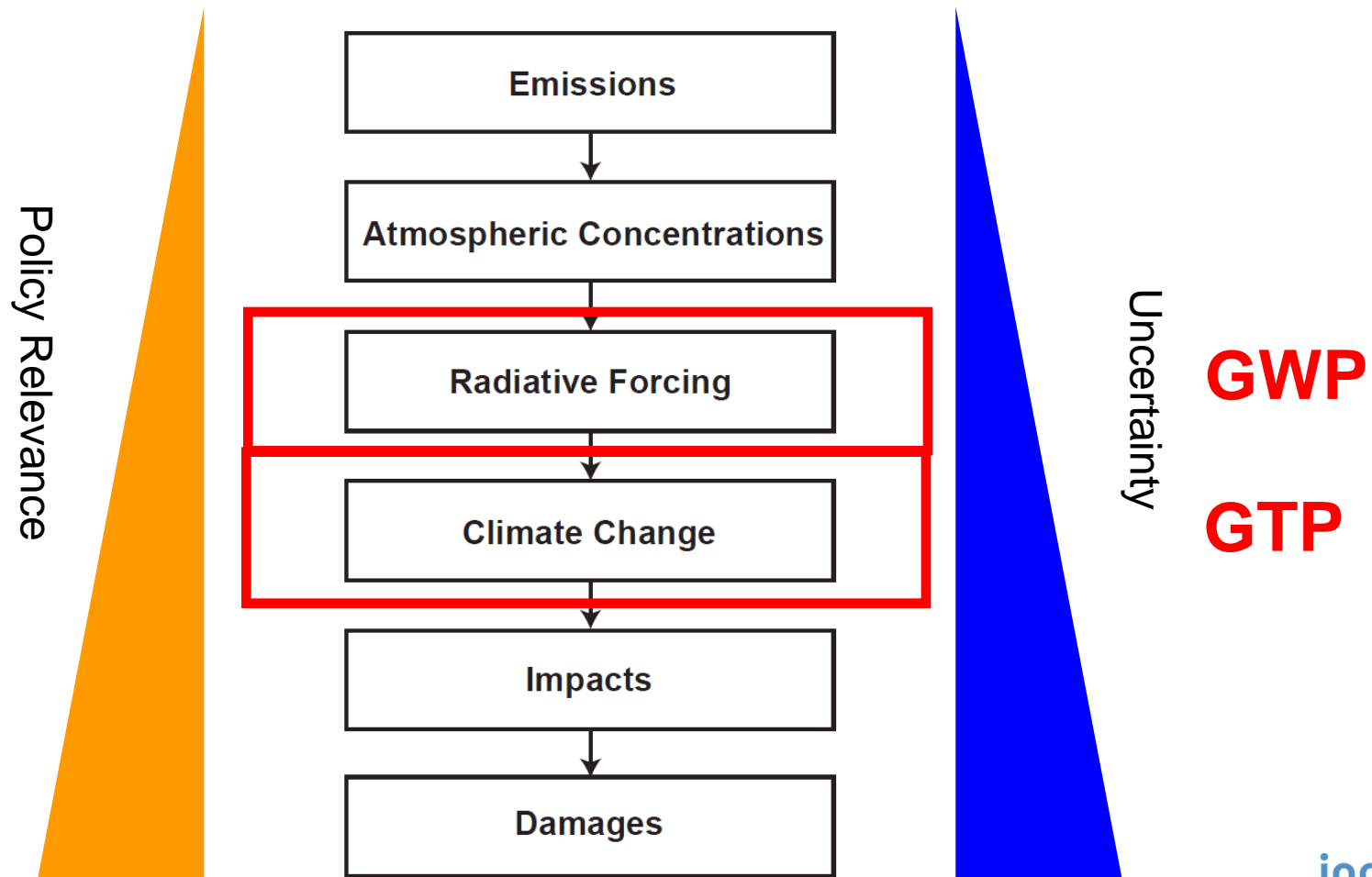
Oslo, Norway, 18-20 March 2009 (21 invited Experts, from 11 Countries)

- ❖ UNFCCC requested IPCC to provide information on GHG metrics
- ❖ WGI decided to organise an Expert Meeting in preparation of AR5
- ❖ Expert Meeting produced a set of *Recommendations*
- ❖ Workshop report further includes:
 - (i) science summary by a small Expert Writing Team
 - (ii) abstracts science contributions
 - (iii) non-exhaustive list of references

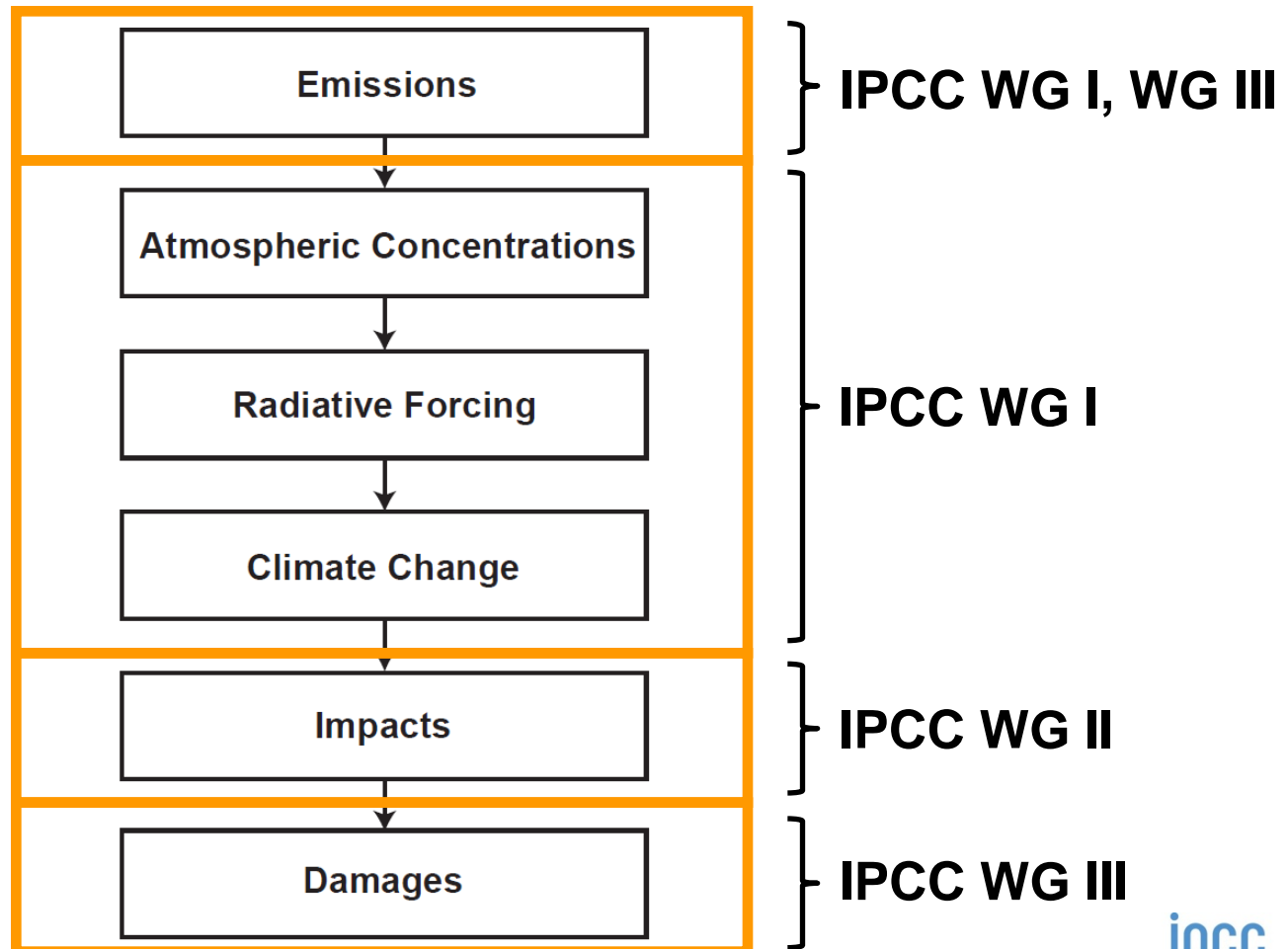


Report @ www.ipcc.unibe.ch/publications/

Cause-effect chain from emissions to climate change and damages



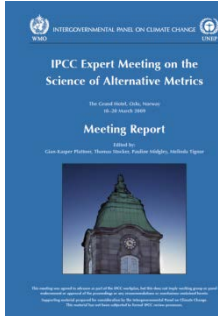
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Expert Meeting *Science of Alternative GHG Metrics*

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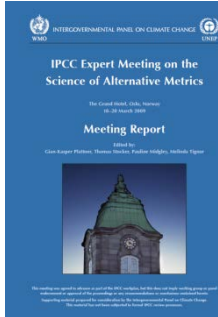
3 Sets of Key Conclusions/Recommendations

- ❖ to UNFCCC
- ❖ to the Scientific Community Regarding Research Needs
 - Uncertainties
 - New and Refined Areas or Metrics
 - Relationships between Policy Frameworks and Metrics
- ❖ to the Scoping of the IPCC Fifth Assessment Report

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Key Conclusions/Recommendations to UNFCCC

- ❖ GWP continues to be useful in a multi-gas approach; identified shortcomings continue to be addressed by the science community;
- ❖ Effectiveness of the use of a specific metric depends on the policy goal(s); no single metric can address all policy goals, alternative metrics may be preferable;
- ❖ Time horizon used to calculate GWPs substantially affects numerical values; choice involves value judgement;
- ❖ Timely information on potential future policy goals would facilitate research on alternative metrics.

Climate Change 2013: The Physical Science Basis

Chapter 8: Anthropogenic and Natural Radiative Forcing

Executive Summary

- Natural radiative forcing changes: solar and volcanic
- Anthropogenic radiative forcing, including effects from land surface changes
- Effects of atmospheric chemistry and composition
- Spatial and temporal expression of radiative forcing
- Greenhouse gas and other metrics, including Global Warming Potential (GWP) and Global Temperature Change Potential (GTP)

Frequently Asked Questions

❖ First Order Draft (12/2011):

Section 8.1 Radiative Forcing and Other Climate Change Metrics, including Greenhouse Gas Equivalent, Global Warming Potential and Global Temperature Potential

Box 8.1 How Can Impacts of Emissions be Compared?

WGI Contact: Jan Fuglestvedt, LA Chapter 8 & CLAs of Chapter 8

WGI preparations towards AR5

- ❖ IPCC Special Report WGI / WGII
- ❖ 2 IPCC Workshops
- ❖ 3 IPCC Expert Meetings
- ❖ 1 Cross-Working Group Meeting

Reports @ www.ipcc.unibe.ch/publications/

UNFCCC Workshop Emission Metrics

WGI Schedule

2010	Sep	2008	Election Co-Chairs & WG Bureaus
	July	2009	Scoping Meeting
	May	2010	Bureau selection of Lead Authors and Review Editors
	Nov	2010	<i>First LA Meeting, Kunming, China</i>
2011	Mar	2011	Completion of 0-Order Draft
	Jul	2011	<i>Second LA Meeting, Brest, France</i>
	Nov	2011	Completion 1 st -Order Draft
2012			
2013			
2014			

Writing Period

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2012	Apr	2012	<i>Third LA Meeting, Marrakech, Morocco</i>
	Aug	2012	Completion of 2 nd -Order Draft
	Jan	2013	<i>Fourth LA Meeting, Sydney, Australia</i>

2013

2014

Writing Period

Exp/Gvt Review

TS/SPM Writing

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	May	2013	Completion of Final Draft
	Sep	2013	Final Approval Plenary WGI

**SOD completed
10.8.12**

**SOD Expert Review
5.10.12 – 30.11.12**

Writing Period

Expert Review

Final PM Writing

2014

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2014				

**papers submitted
31. July 2012**

**papers in press
15. March 2013**

Working Draft

Expert Group Review

Technical Support Mechanism Writing

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2014			WGI Outreach & Communication	
	Oct	2014	Synthesis Report WGs I, II, III	

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