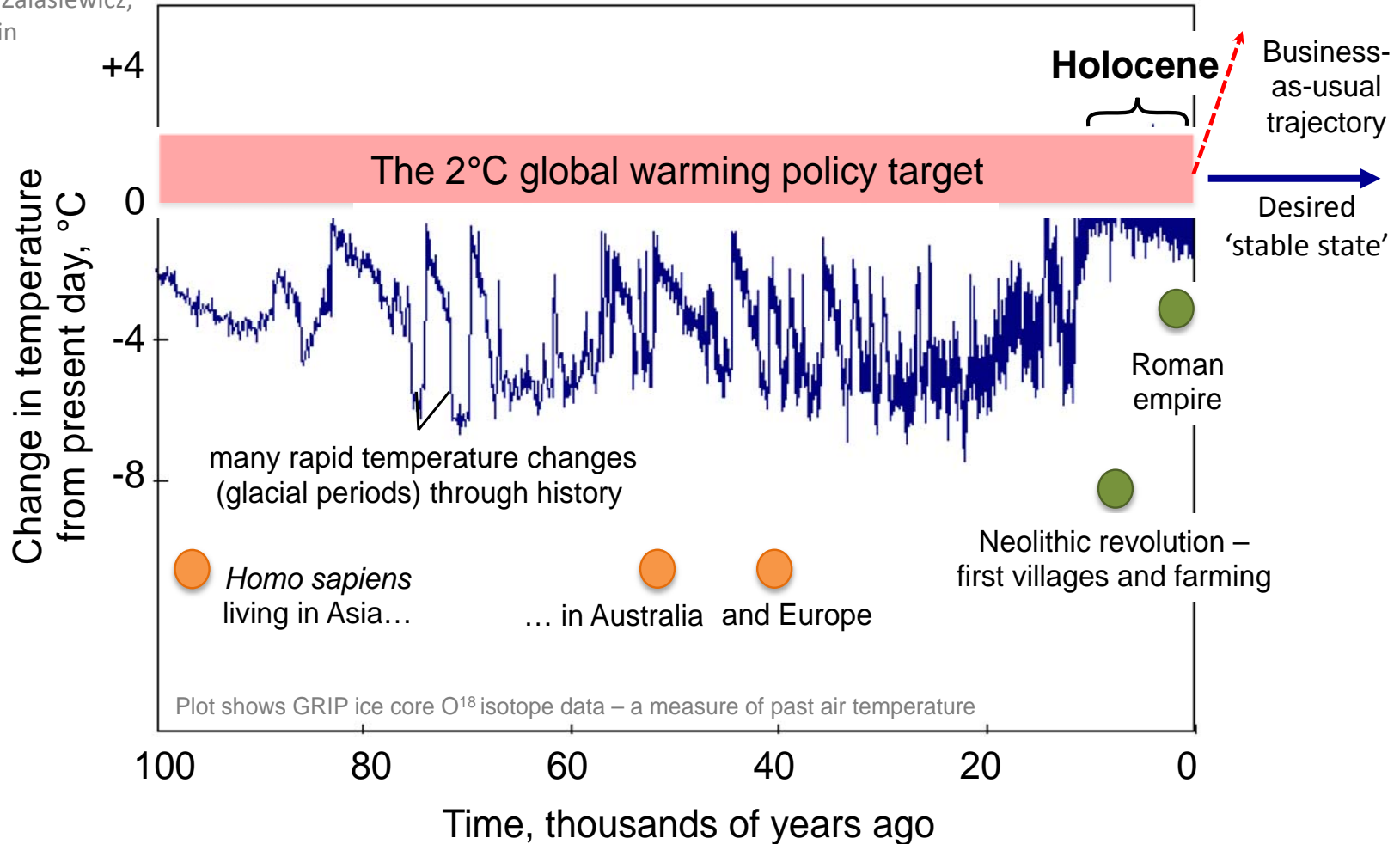




The Anthropocene – a framing for governance innovation?



Steffen et al. 2007. "The Anthropocene: Are Humans Now Overwhelming the Great Forces of Nature?"
Williams, Zalasiewicz,
also Revkin



The Anthropocene challenge:

**People are pushing the planet in one direction,
but want (some) things to stay the same**

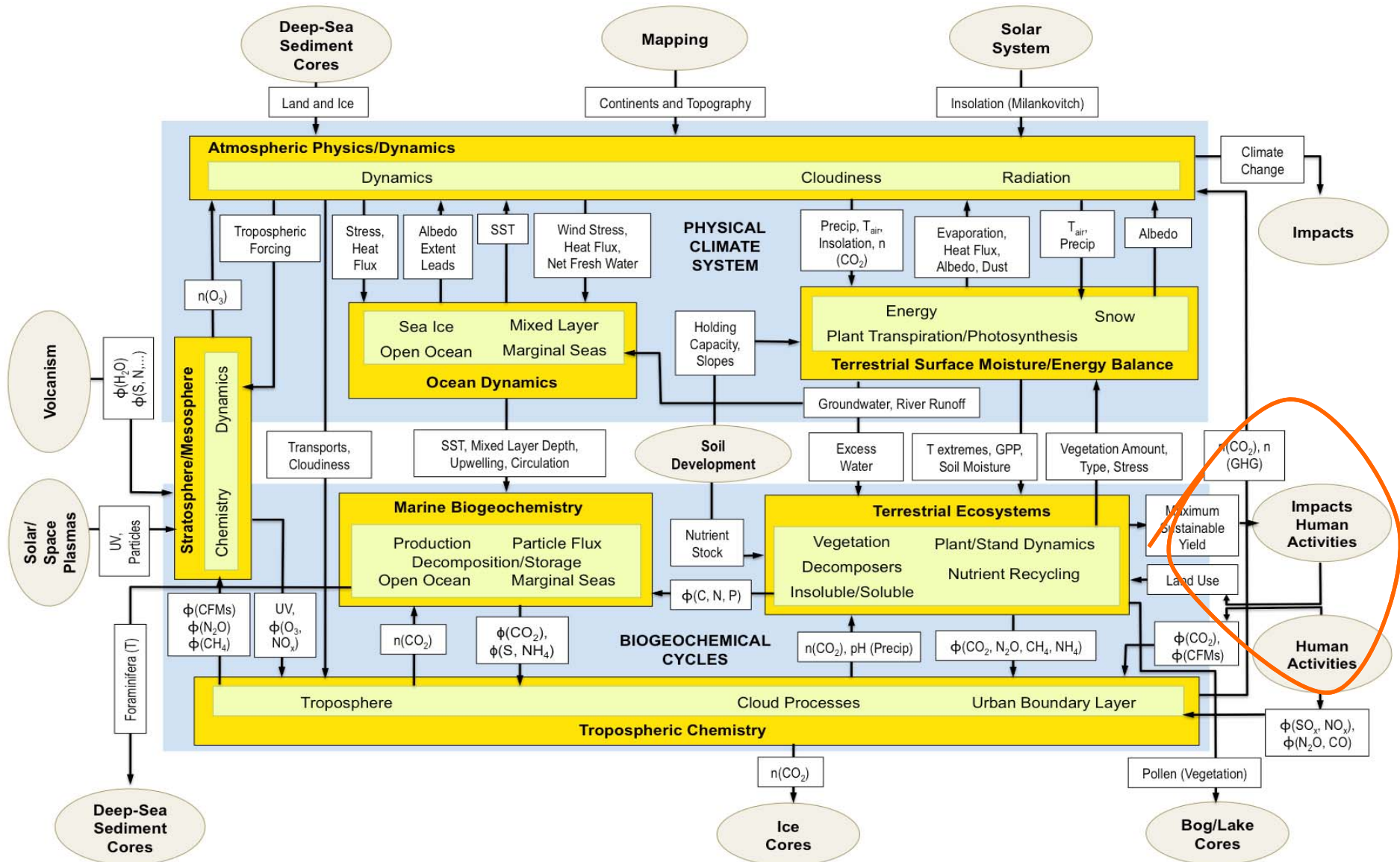
- **Science** – how can/do we know what complex systems are doing?
 - **Governance** – (how) can complex systems be steered?
 - **Policy** – what kinds of choices work for complex systems?
-

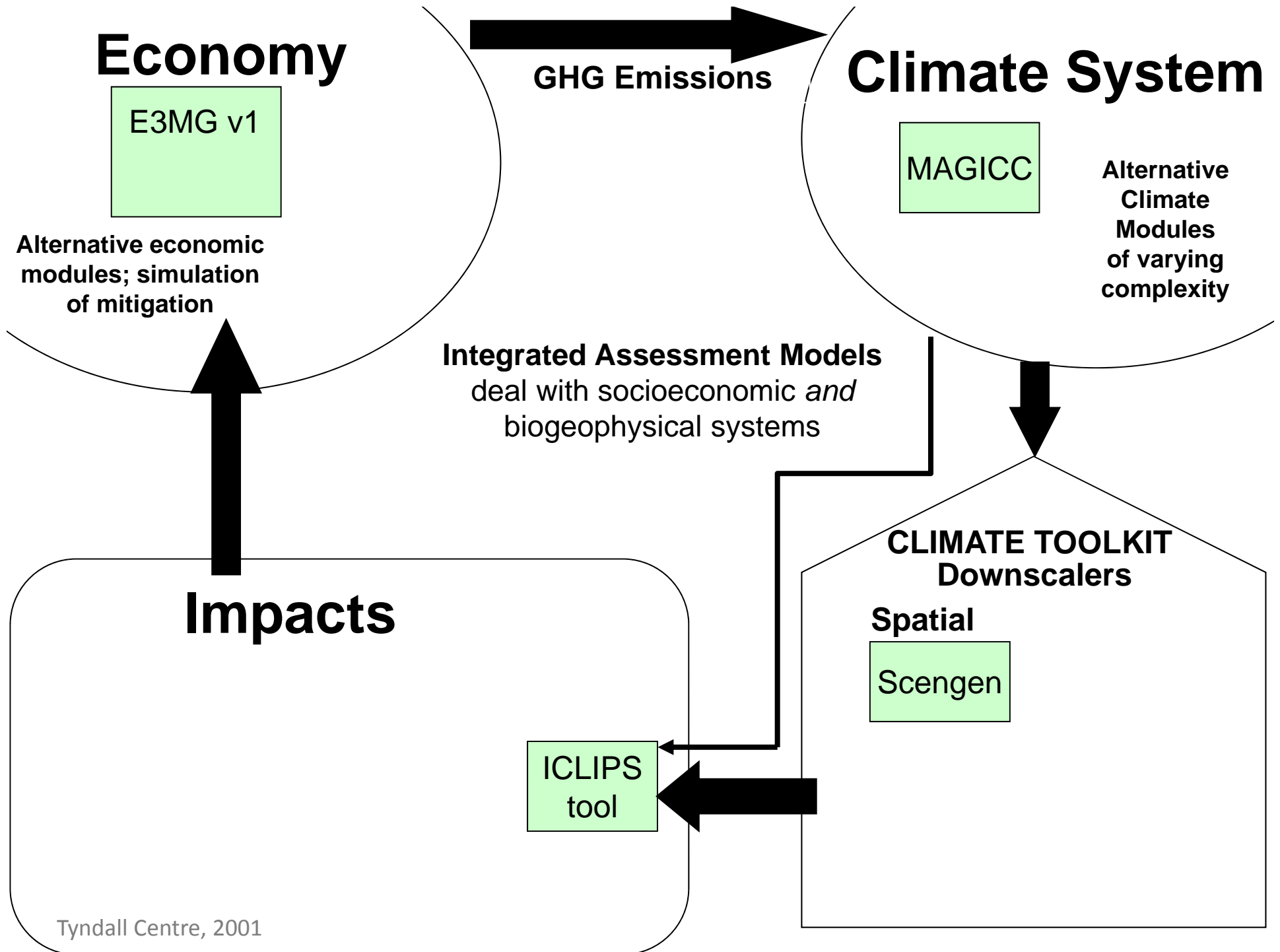
**How do we know
what complex systems
are doing?**

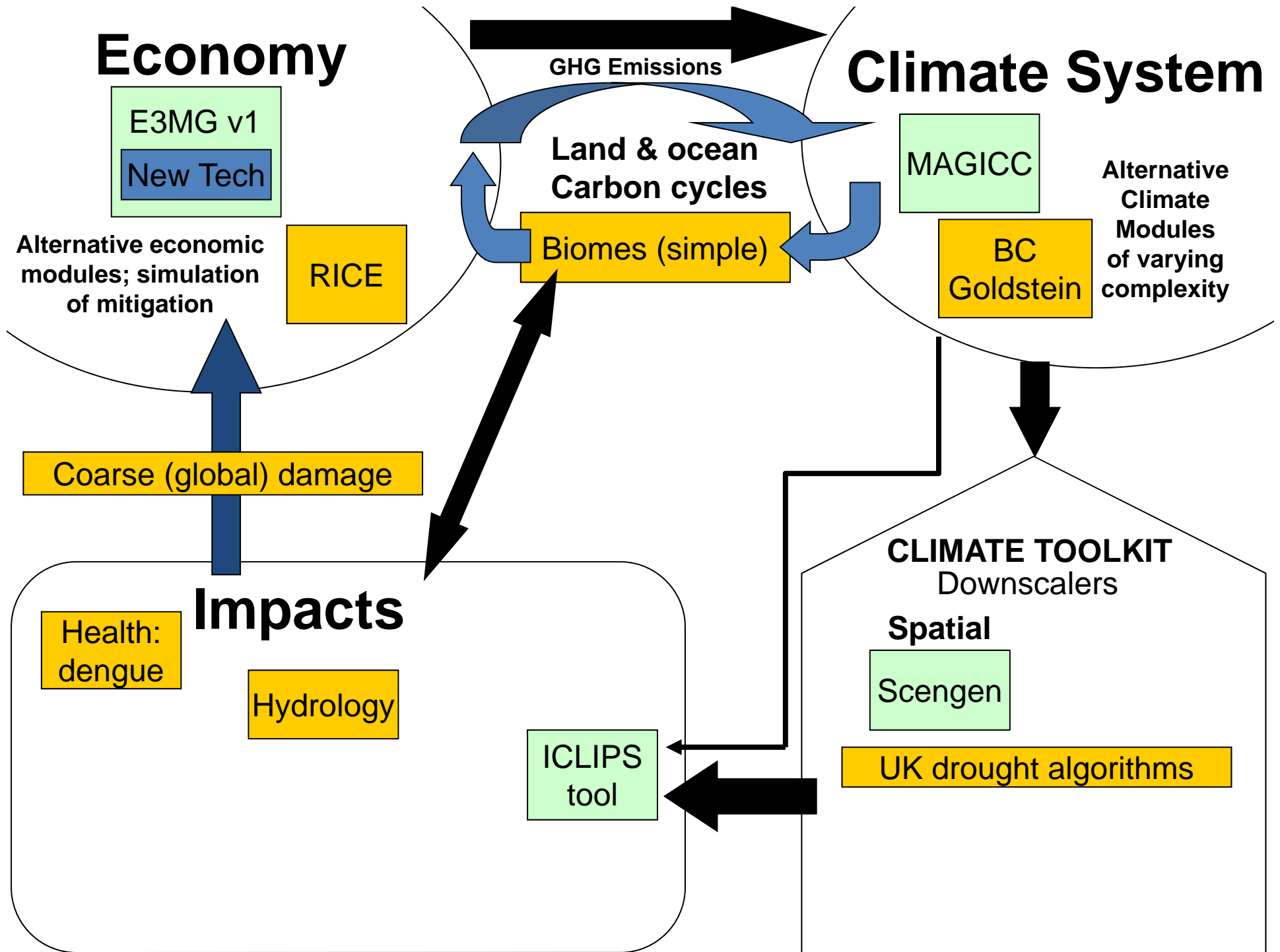


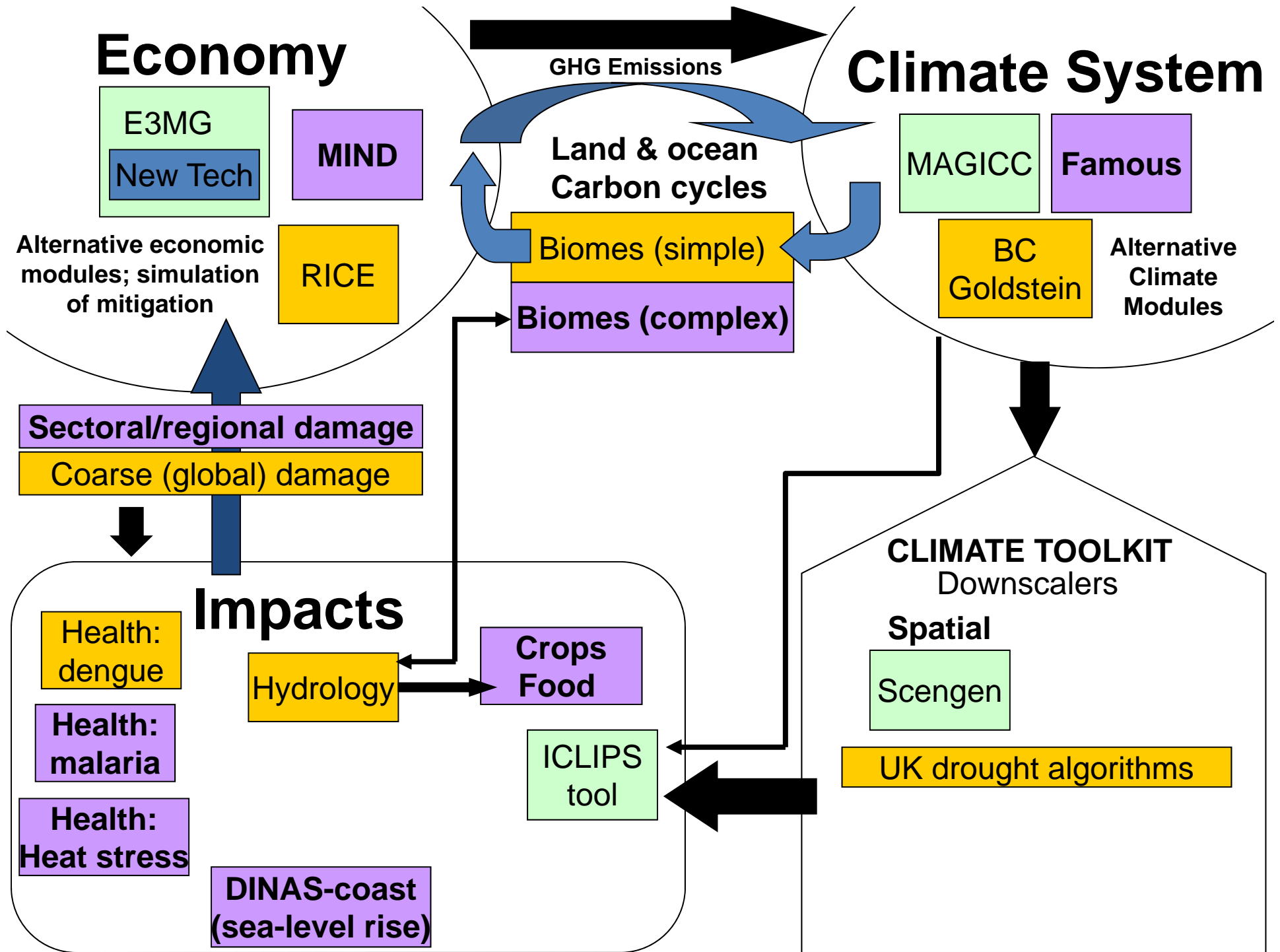
How do we know? We simplify. We observe*.

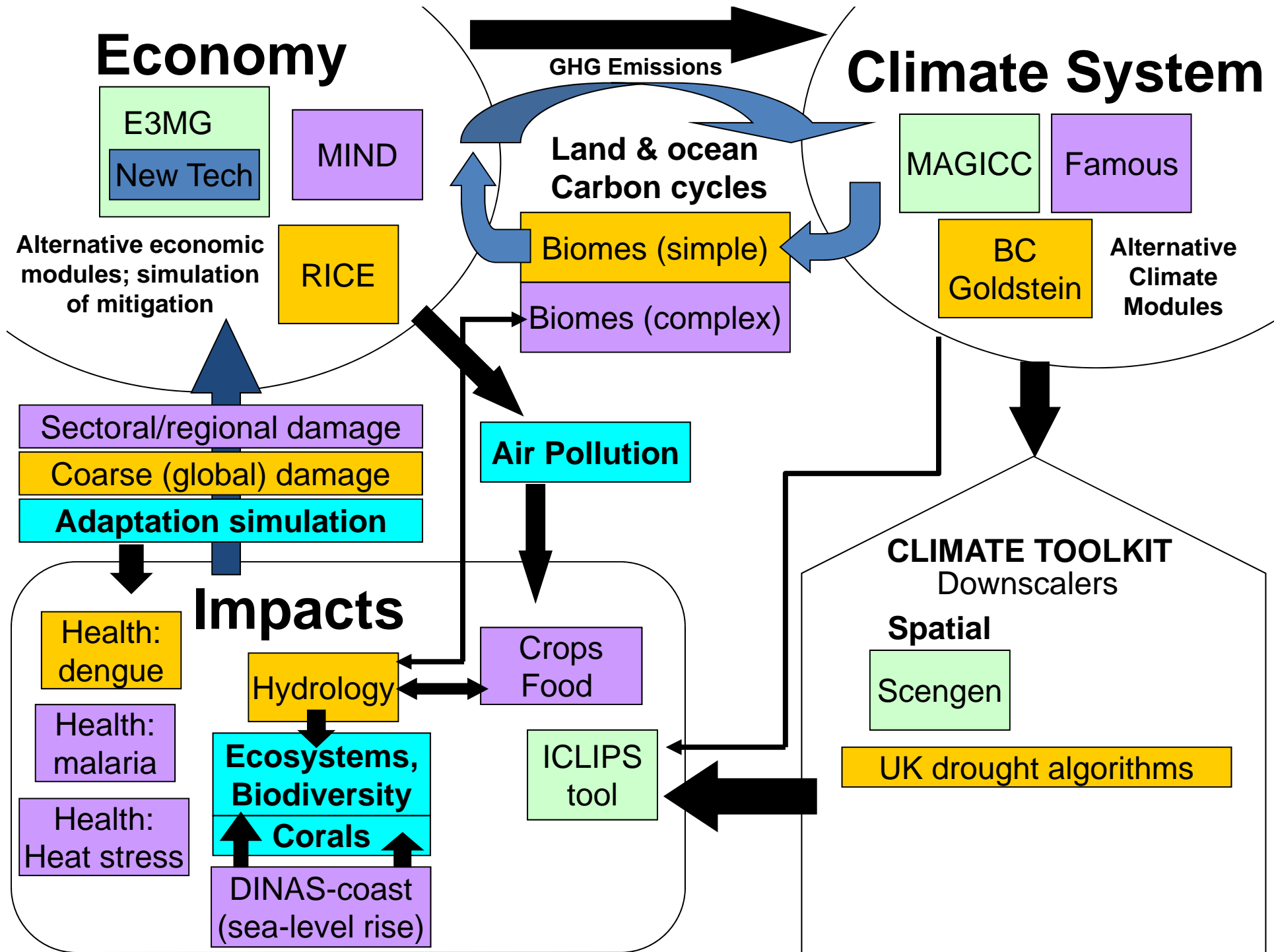
The 'Bretherton Diagram' (NASA 1988) set out the observational, conceptual and computational modelling framework for 1-2 decades of global change research.

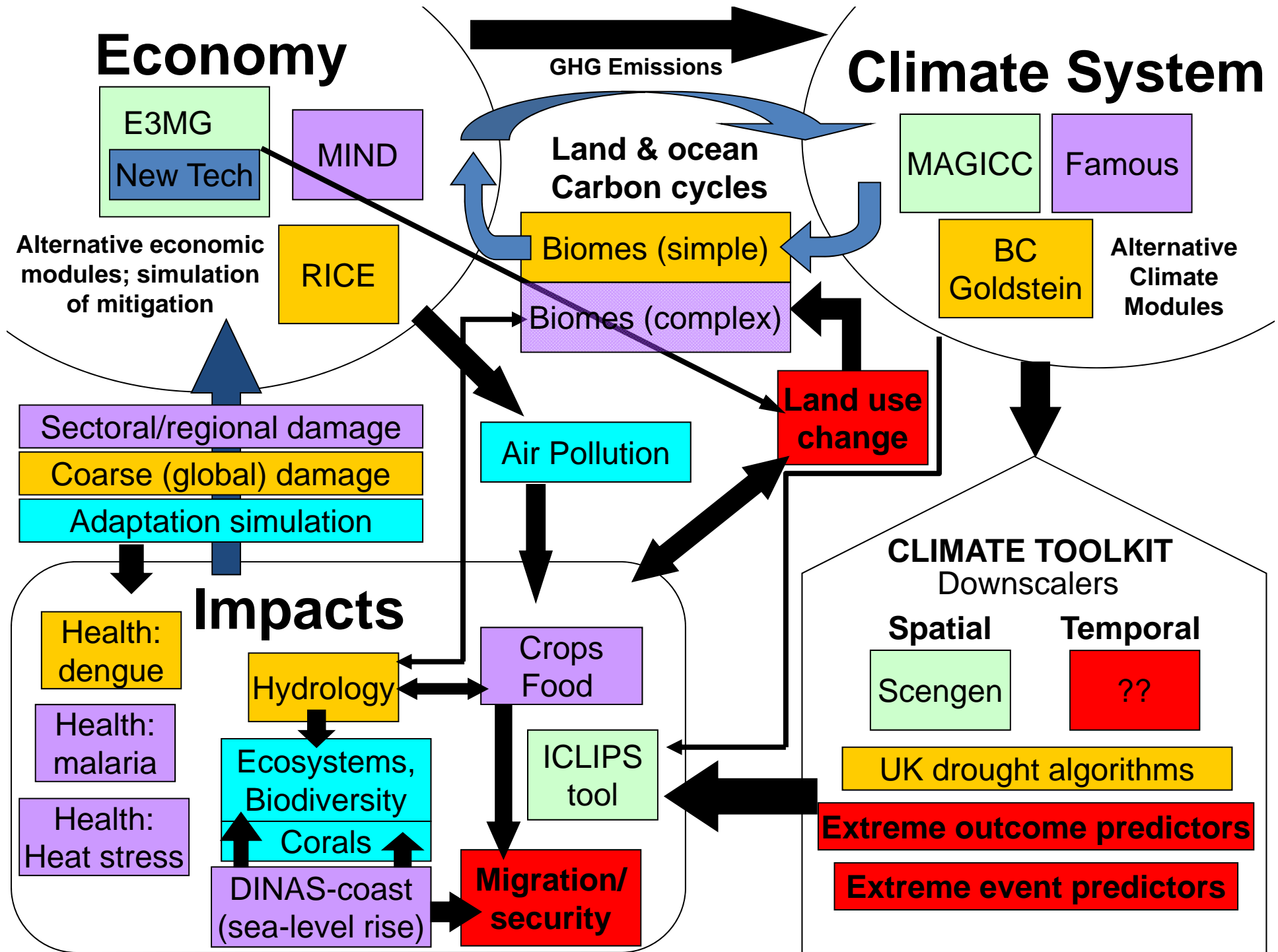






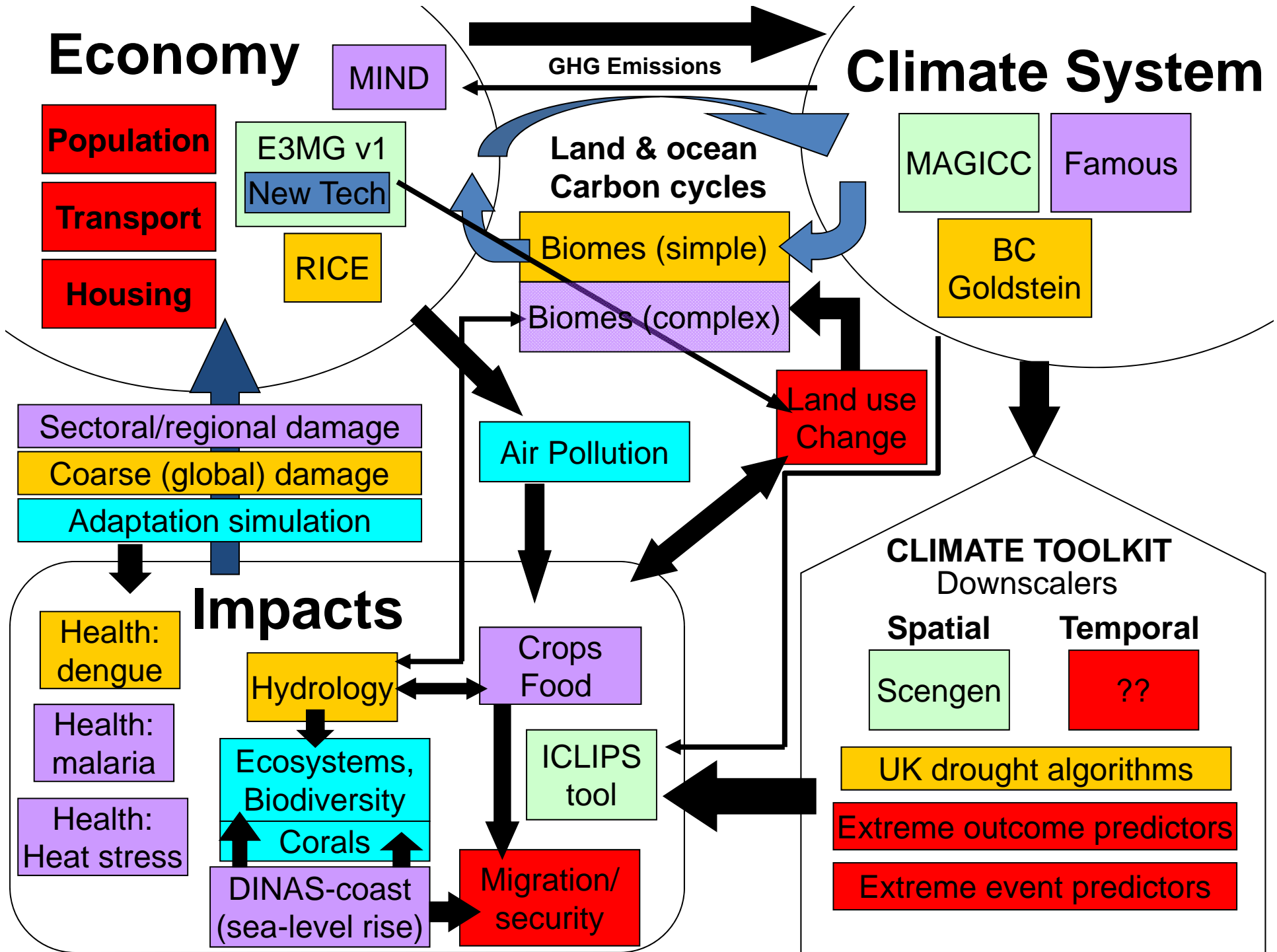


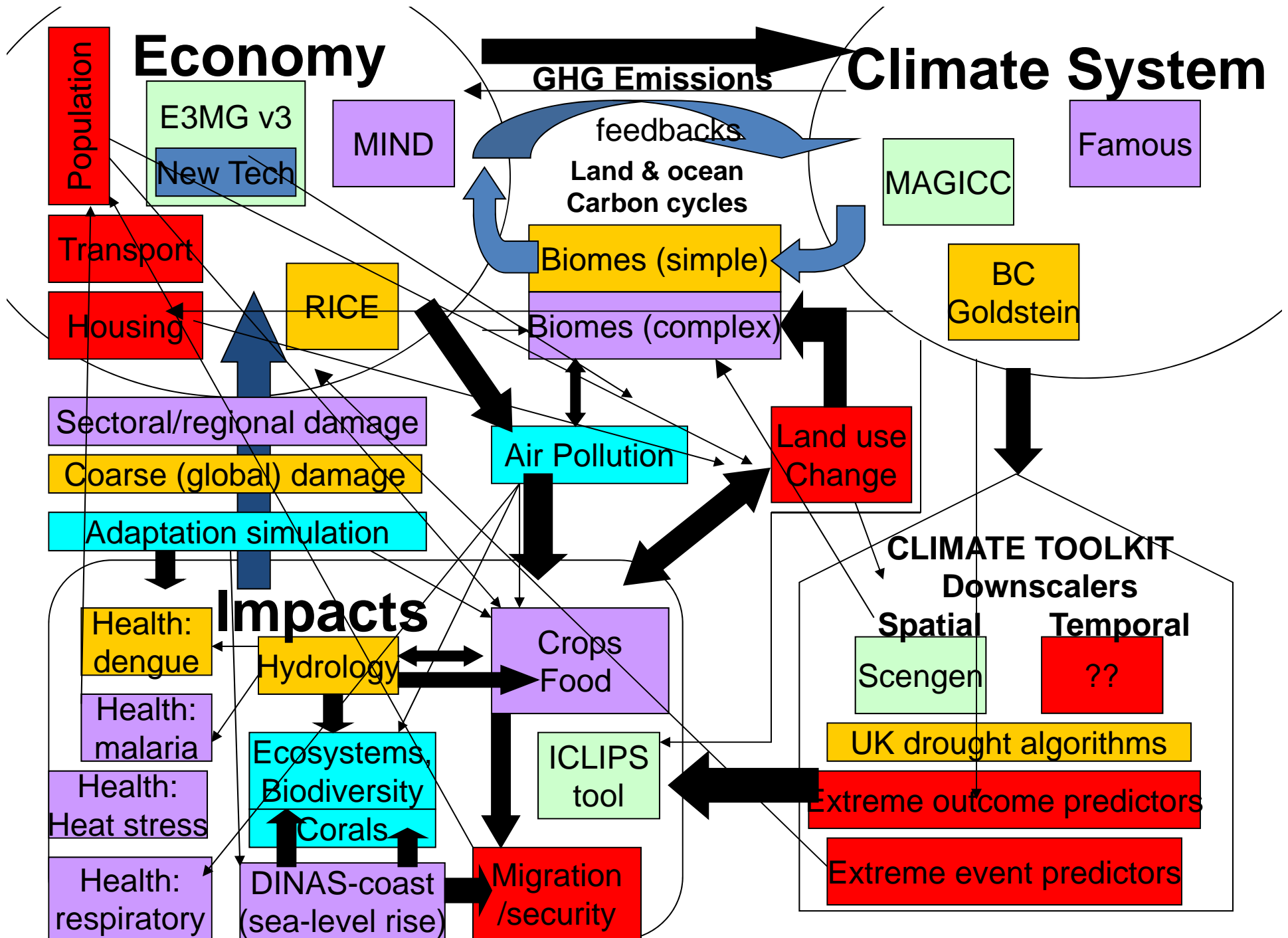


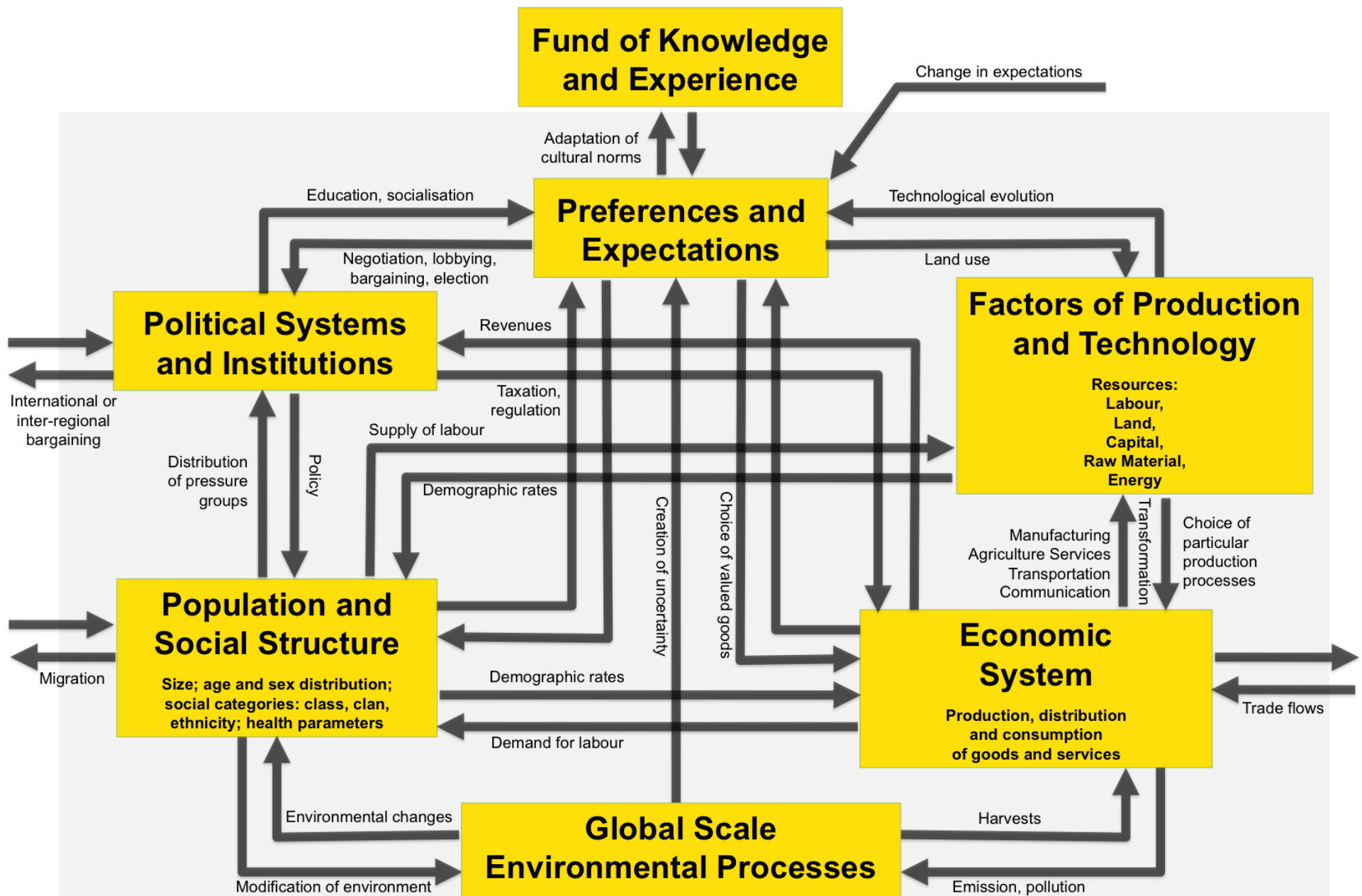


Economy

Climate System



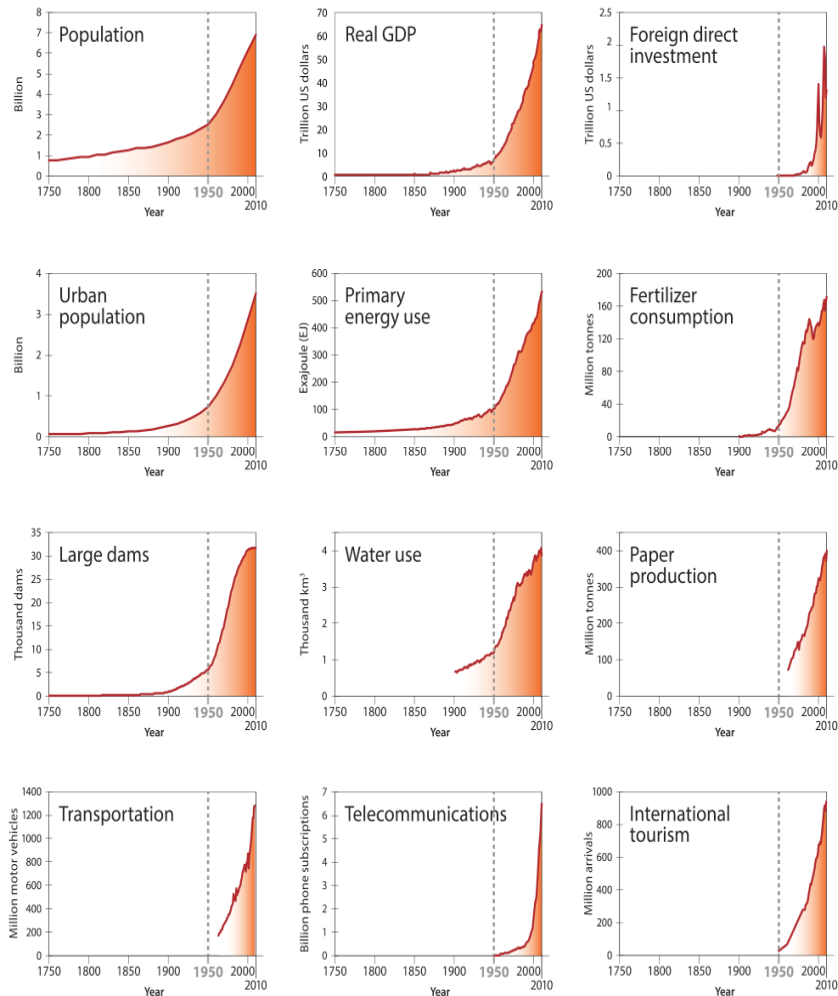




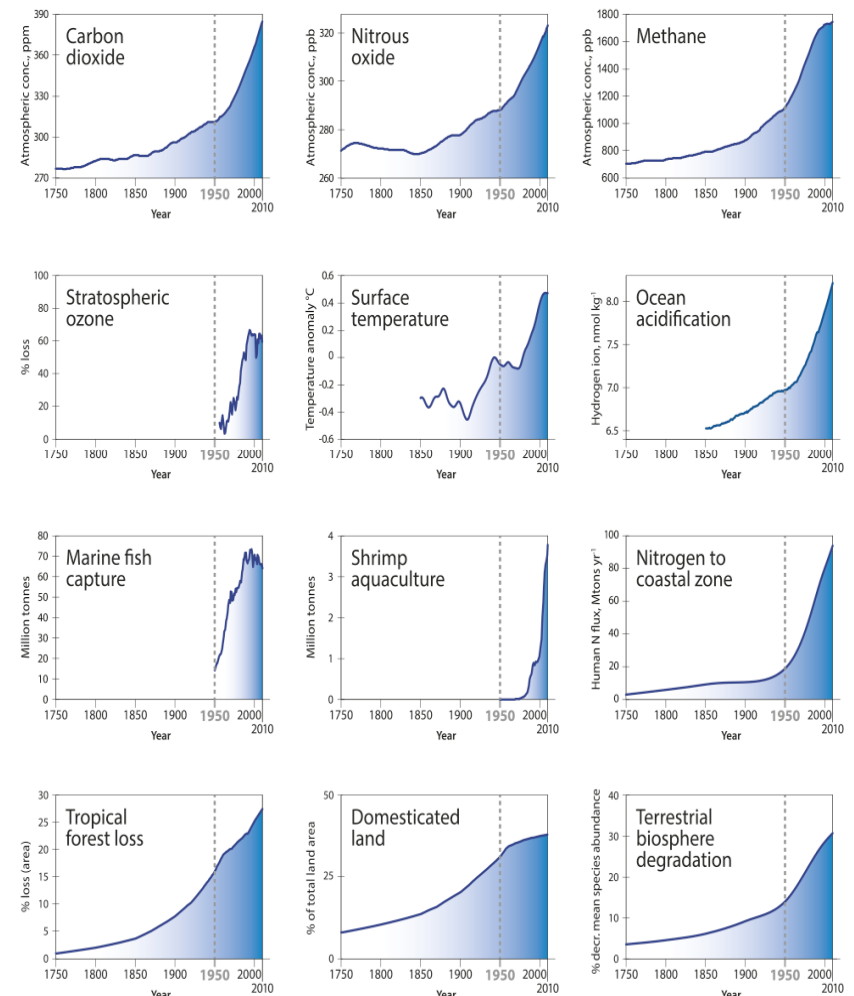
Kuhn, Wiegant and Luterbacher, 1992. Pathways of Understanding : The Interactions of Humanity and Global Environmental Change. University Center, MI: The Consortium for International Earth Science Information Network (CIESIN).

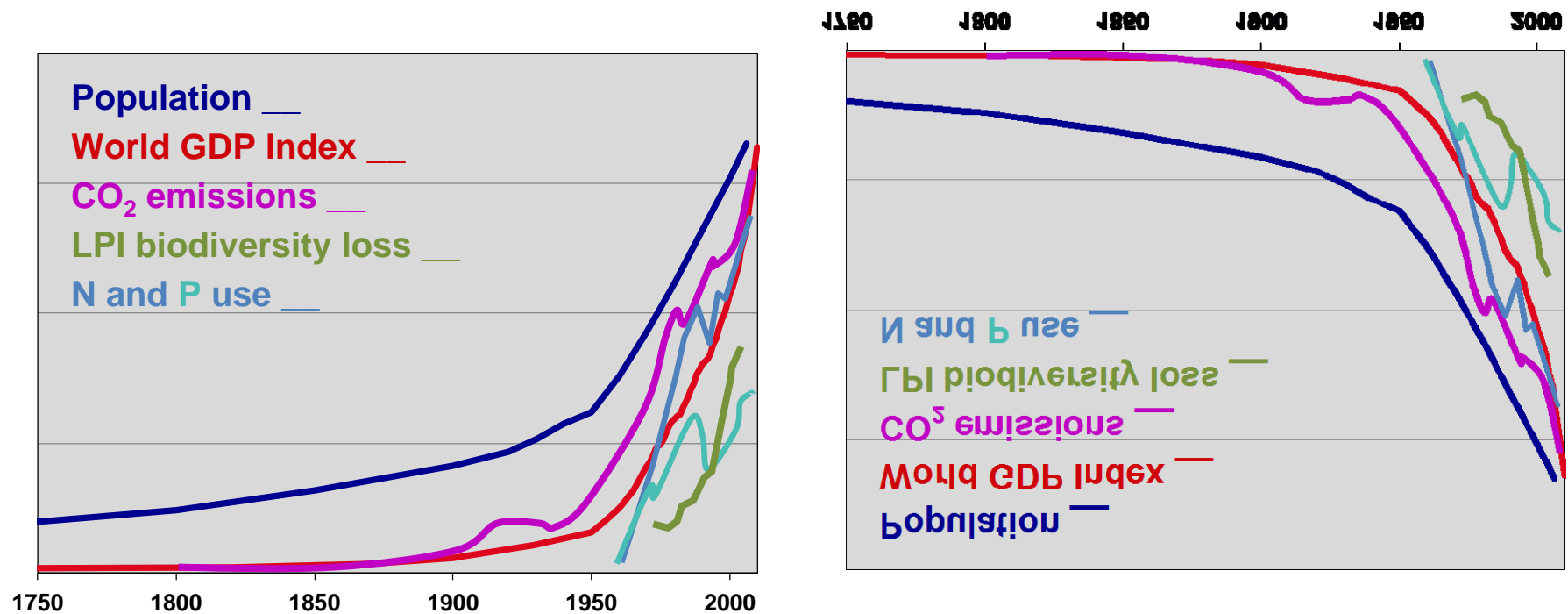
Steffen and co-authors (2015) 'The trajectory of the Anthropocene: the Great Acceleration':
published in *The Anthropocene Review*

Socio-economic trends



Earth system trends





What do people see? How does this shape choices?
 What does it mean when scientists impose patterns?
 Or pluck impressively big numbers out of complex patterns?

What kind of complex system is planet Earth?

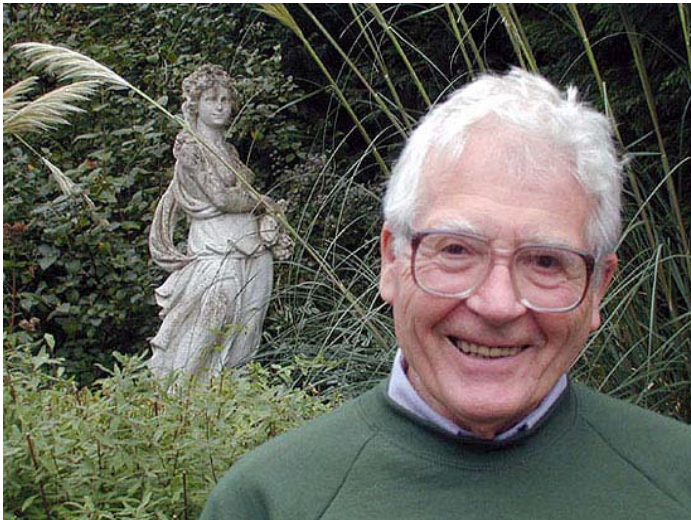
....apart from large: many parts, of many different kinds, with multiple connections,
and that interact across all scales (von Bertalanffy 1968)



Living and non-living parts
of the planet interact.

They co-evolve.

Some living parts think,
and have some foresight.



The Gaia Hypothesis –

our planet functions as a
single organism that maintains
the conditions necessary
for its survival.

James Lovelock

‘Hybrid’ systems

- assemblages of inorganic, organic and social systems
(de Landa, Deleuze, Bhaskar)

Adaptive systems

- Resilience (and resiliencespeak)
→ self-organizing, responsive, co-evolving

Purposive systems?

Learning systems?

Zombie systems? (Frankensteinian models?)

*(OR and management heuristics, classic systems methods,
Ackoff & Gharajedaghi 1996 – purpose in wholes/parts)*

**What do we want this
complex system to do?**



(please let us go back to this rich debate...)

The Brundtland report:

‘Sustainable *development* aims to promote harmony among human beings and between *humanity* and *nature*’.

And it specifies a multifaceted integration:

- a **political** system that secures effective citizen participation in decision making,
- an **economic** system that is able to generate surpluses and technical knowledge on a self-reliant and sustained basis,
- a **social** system that provides for solutions for the tensions arising from disharmonious development,
- a **production** system that respects the obligation to preserve the ecological base for development,
- a **technological** system that can search continuously for new solutions,
- an **international** system that fosters sustainable patterns of trade and finance, and
- an **administrative** system that is flexible and has the capacity for self-correction.

World Commission on Environment and Development (1987) *Our Common Future*, A/42/427.
Chapter 2 The concept of Sustainable Development. www.un-documents.net/ocf-02.htm.

Creeping “complicatification” in global steering:

1987: 1 (or 2) goals - harmony between humanity and nature, among human beings

1992: 3 issues – climate, ecosystems, human-changed landscapes (UNFCCC, CBD, UNCCD)

2000: 8 Millennium Goals, 18 targets (*nb: No. 8 – systemic change – not achieved*)

2010: 5 Goals, 20 Aichi Targets for biodiversity

2012: 8 then >27 sustainability goals proposed (by Colombia, Guatemala and Peru),
19 criteria for goal selection ultimately agreed.

2015: 17 goals, 169 targets, hundreds of indicators...

→ **Complicating the analysis**
sort of suggests (some) people
don't really want to change...

**So who is doing
global governing?**





Images: https://en.wikipedia.org/wiki/United_Nations, www.theguardian.com/uk/the-northerner/2012, SoMelab.net, www.hermes-press.com-cabal-chess.jpg,

Steering the world – Unifying goals and visions? Universal transformations? Lets look at the absences...

“Usury lives in the pores of
production, as it were...”

“Several social mechanisms operate
in such a way that they become
instruments of hegemony...”

Marx 1984, Capital (ch 36)

Dugger 1992, Underground Economics

Graeber 2007, Possibilities

Varoufakis 2011, The Global Minotaur

“The “laws of the market” [*taken to be...*]
natural, immutable, completely outside any
possibility of human intervention...”





Image: www.informationsecuritybuzz.com Global-network

Thank you

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Stockholm Resilience Centre
Research for Biosphere Stewardship and Innovation



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