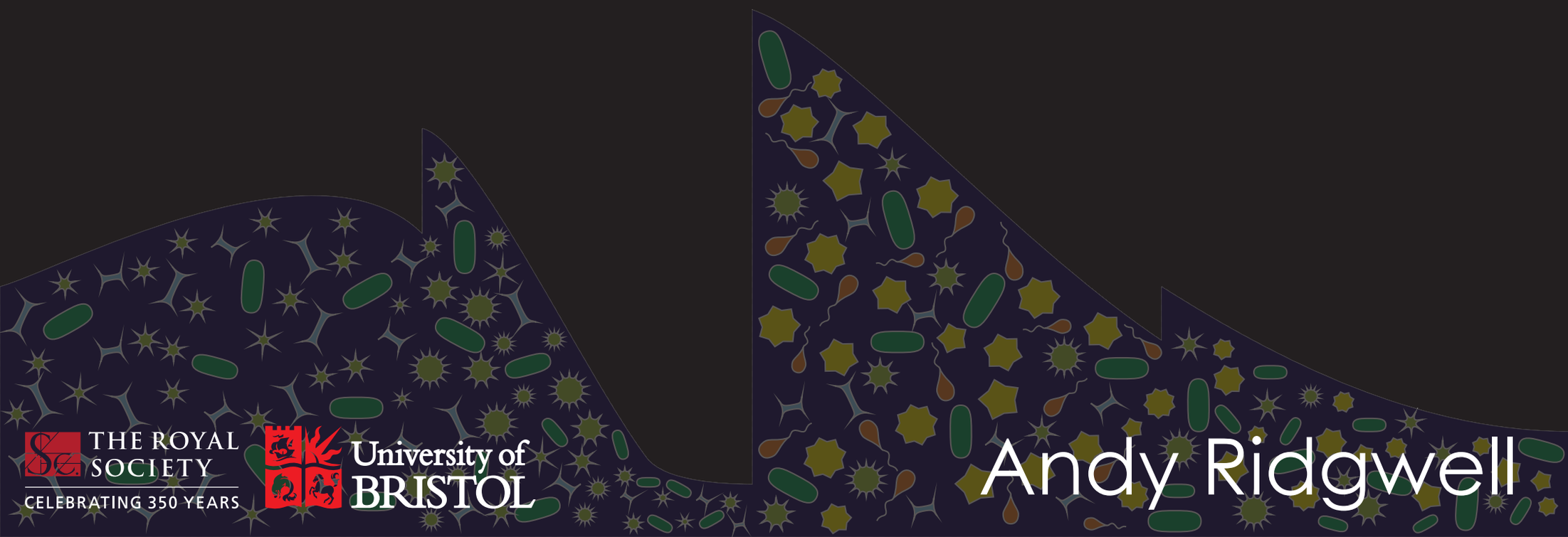
# *ERC Consolidator Grant workshop*

(project background, interview, and tales of Eurostar woe)



THE ROYAL SOCIETY
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University of BRISTOL

Andy Ridgwell

# *ERC Consolidator Grant workshop*

ERC ‘success’ statistics of ERC-2013-CoG-617313

**(*n* = 1 …)**

# *ERC Consolidator Grant workshop*

PALEOGENE
version 0.1
(2011 submission)

- Was cooked up in about 72 hours. While ill. At a conference.
- Was very poorly written. Basically just a bunch of dull-sounding model developments (as noted by a panel member).
- **Had no 'data' ...**
- (Rightly died at the 1st stage.)

# *ERC Consolidator Grant workshop*

## ‘COOL’

(2010 NERC directed program consortium bid)

- Poorly focussed – had too many disparate elements that did not mesh.
- Failed at full bid stage.
- But … had a strong and novel strategy for linking biotic records to past environmental change. (’**data**’)

## PALEOGENE

version 0.1

(2011 submission)

# *ERC Consolidator Grant workshop*

‘COOL’
(2010 NERC directed program consortium bid)

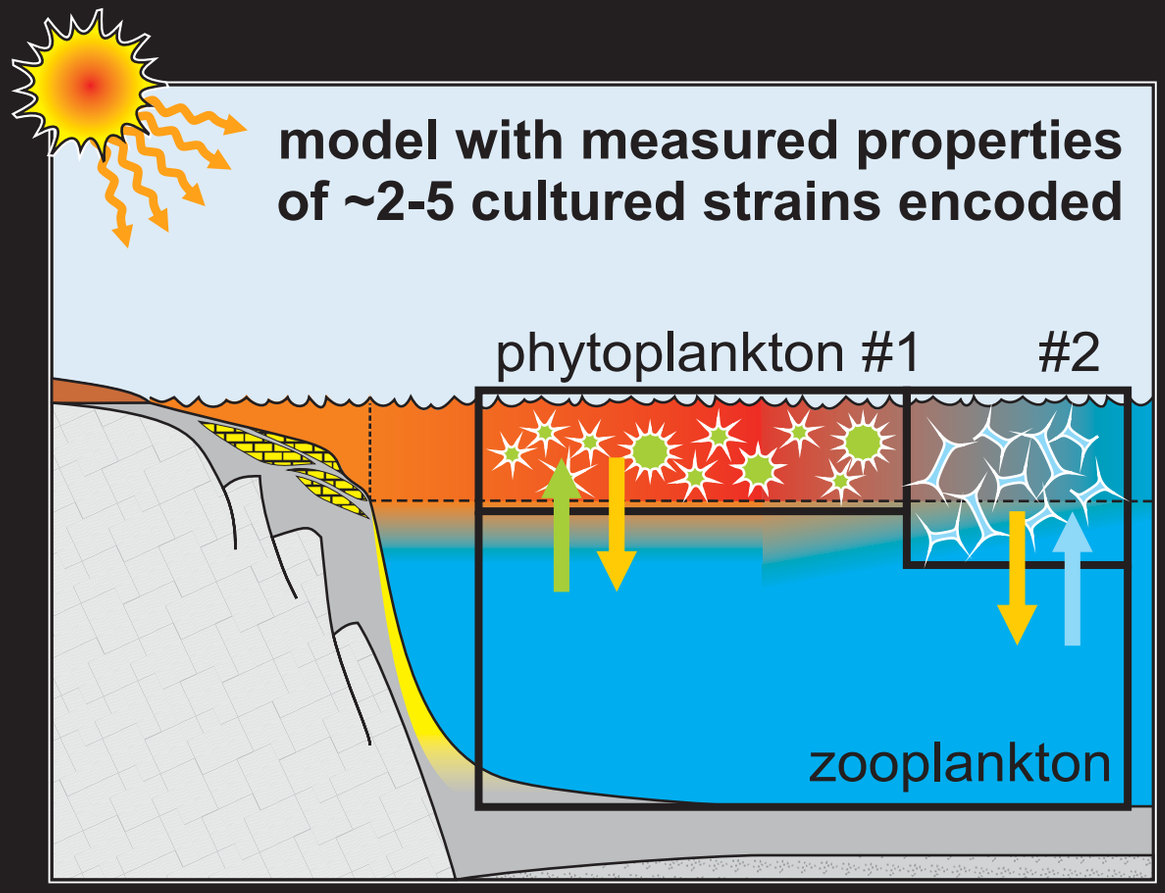
PALEOGENE
version 0.1
(2011 submission)

PALEOGENiE
version 1.0
(2013 submission)

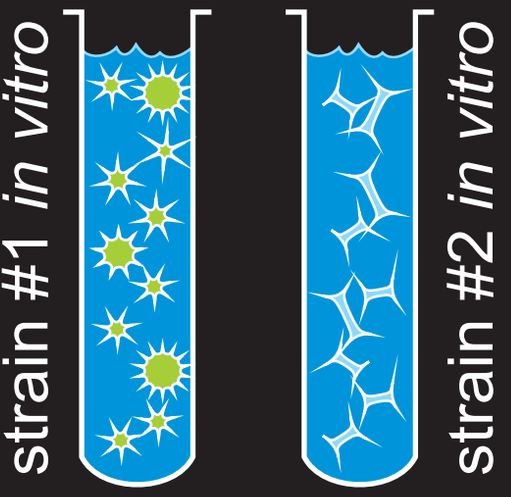
- Still rushed. Mony many tyypos in teh text. Figures could have been better.
- But had a clear data element. And a clear set of hypotheses. And a roadmap to how it was all going to be achieved.

Hypothesis: Do two wrongs make a right (?)

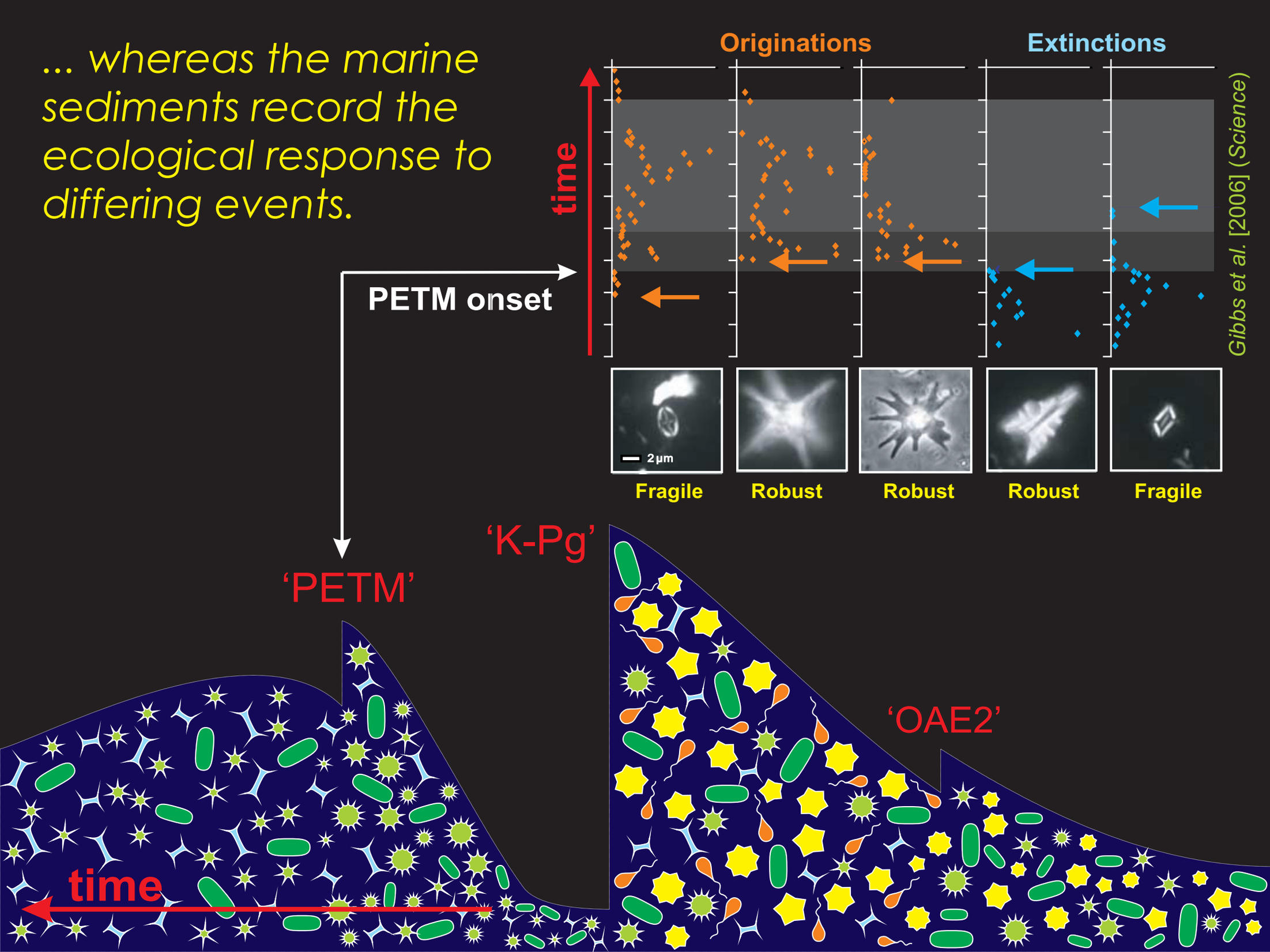
*Established approaches to predicting our future oceans generally fail to address species adaptation or ecosystem-level responses to environmental change ...*




predominantly short-term laboratory perturbation experiments



*... whereas the marine sediments record the ecological response to differing events.*



# PALEOGENiE

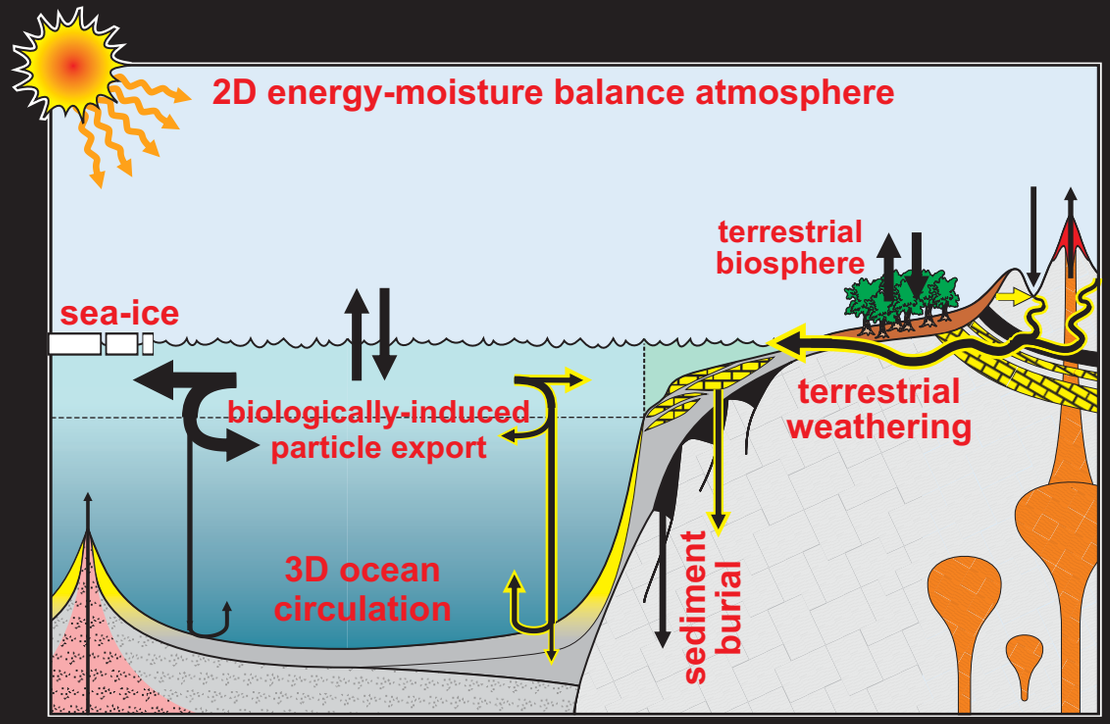
## Previously, I ...

- Was (and still am) lead developer of 'GENIE' Earth system model.

My GENIE publications include 2 *Science*, 1 *Nature*, 3 *Nature Geoscience* papers.

- Have held grants addressing:
  - > *Ocean acidification,*
  - > *PETM role of methane hydrates,*
  - > *Cenozoic $CaCO_3$ cycles,*
  - > *OAE2 trace element (Fe, Mo) and isotope cycling,*
  - > *Geoengineering.*

- Have primarily focussed on a wide-range of questions surrounding **geochemical** dynamics of geological (and future) events ...

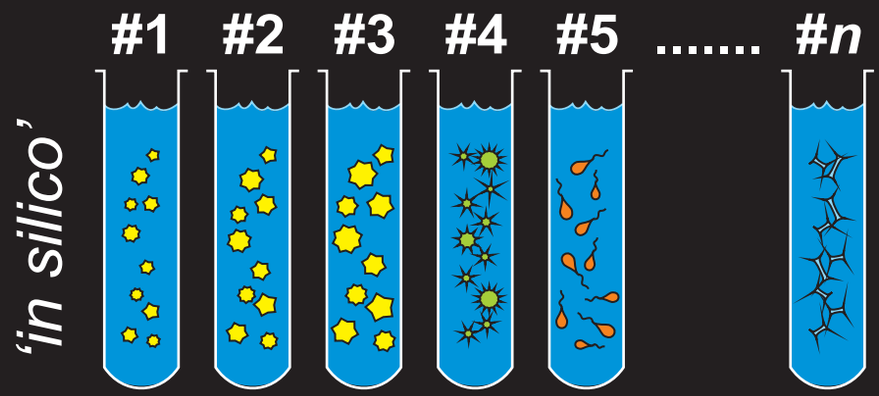



cGENIE

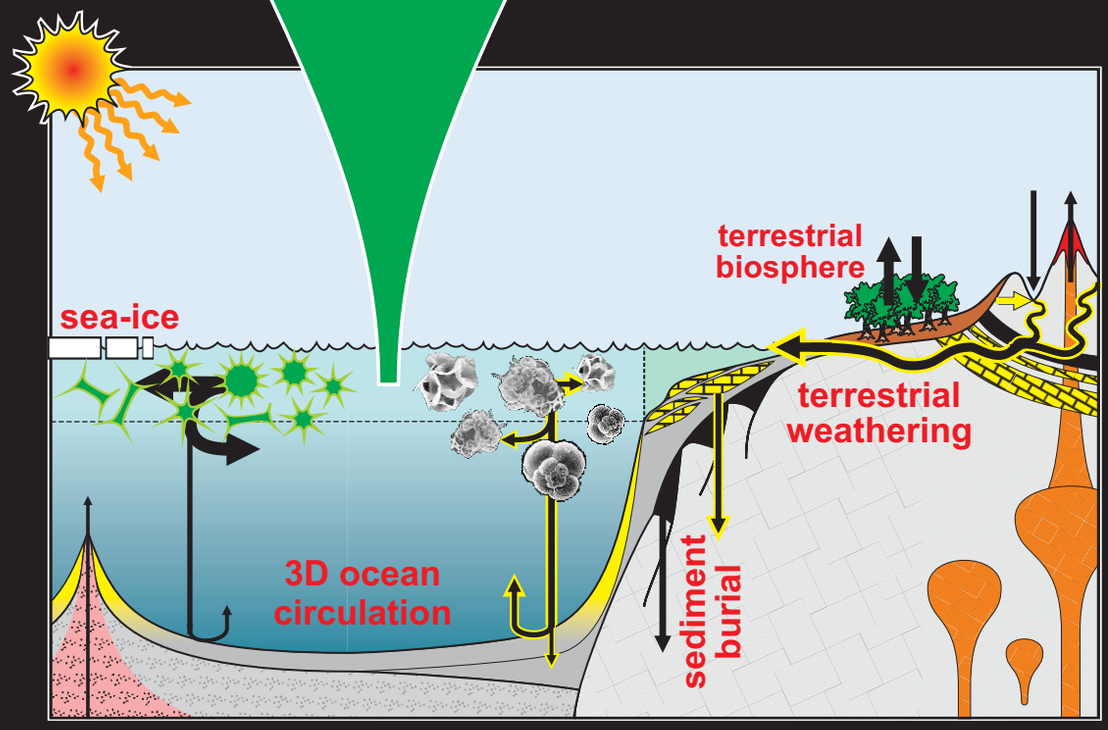
*carbo*-GENIE

www.seao2.org

# PALEOGENiE




**'paleo assembledge model'**




A novel *synthetic ecological world* to experiment with and test hypotheses:

- 1,000-10,000 randomly-generated trait vectors ('plankton').
- Plankton trait vectors set according to physiological 'rules' (e.g. larger cells have a higher nutrient limitation threshold).
- Plankton compete and an ecosystem emerges, but ...

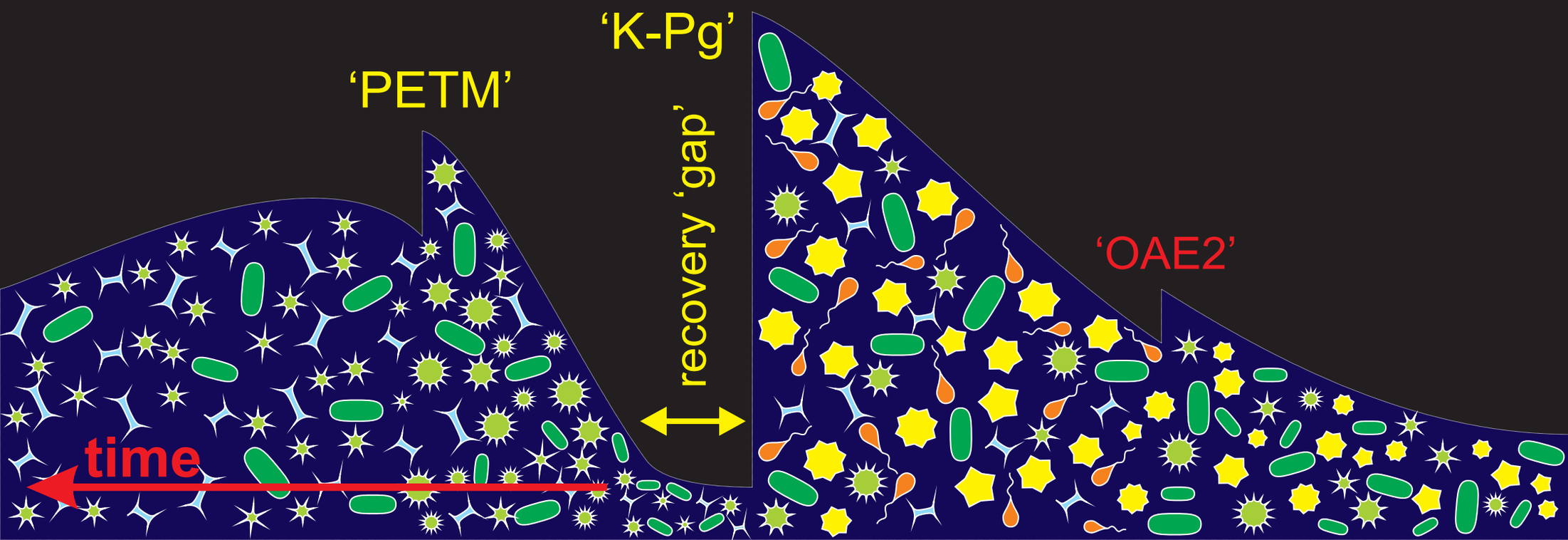
*... the geochemical environment and climate co-evolves as global nutrient cycles are modified.*

- At very high resolved diversity, we can explore questions of **adaptation** and rates of **evolutionary change** by spawning new plankton with perturbed characteristics.

# PALEOGENiE

## A radical paleo model-data concept:

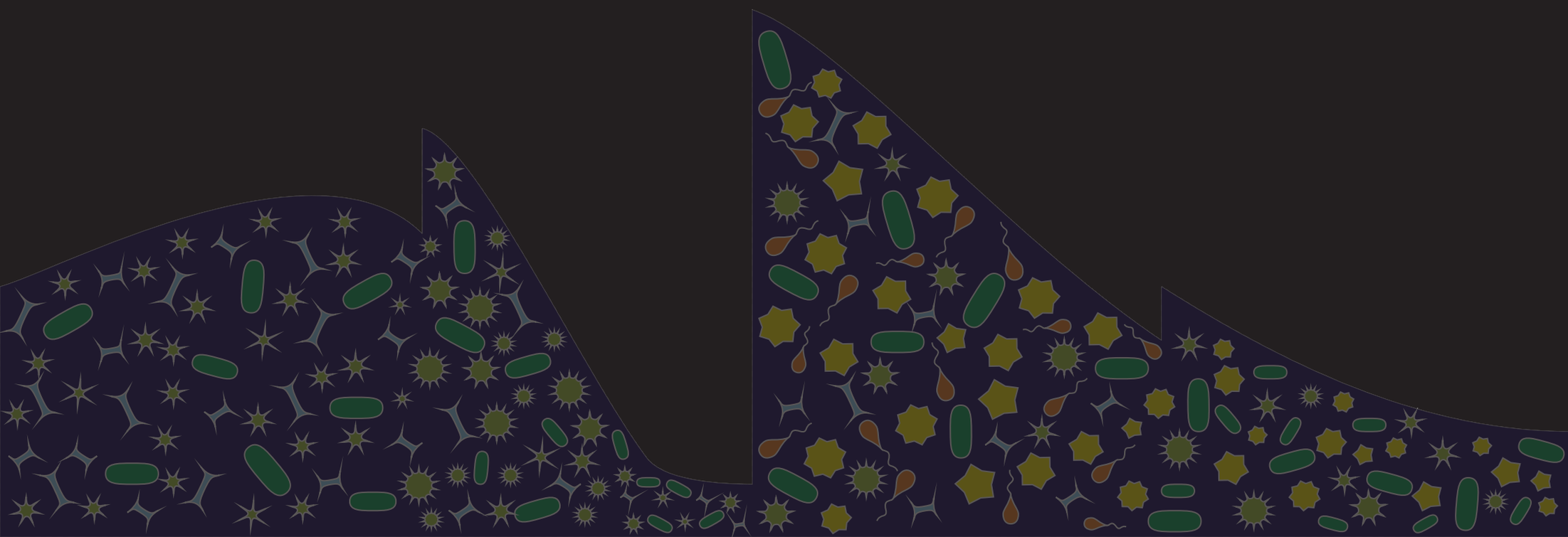
- Bring together ecological and global biogeochemical cycle modellers, micropaleontologists, and software engineers.
- e.g. test hypotheses for delayed recovery (100s of kyr) from end Cretaceous extinction.
- e.g. determine which factor(s) best explain ecological responses to PETM carbon release.
- Gain understanding about future ecosystem stability (+ proof concepts for future models).



# *ERC Consolidator Grant workshop*

## The ~~10~~ 7 Commandments

- **Needs an idea you have thought through. And moreover, ideally one you are really fired up about.**
- **The idea needs to be ambitious. Can (and should?) be risky.**
- (There must be some advantage if you are towards the end of the eligibility period, or rather, you are less likely to be marked down.)
- (Maybe not worth worrying to the *n*-th degree about budget justification. The EU will only quibble with the details of many of the items during negotiation anyway ...)
- If passed the 1st stage: 'Practise' interviews. Seem to generally be a 'good thing'.
- Thou shalt not attempt to travel to Brussels the same day as the interview. Especially if thou travelest via the Star-of-Euro.
- Do try and remember to follow the instructions ... for example: bring the set of interview slide print-outsthat were the requested ... (the ERC office staff are very nice and helpful and will save your life).

*Past Links in the Evolution of Ocean's Global Environment and Ecology* : PALEOGENiE

(and luckily, it all ended happily ever after ...)