

Patterns of Change



Cabot Institute

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Great Green Ideas

www.biggreenweek.com

Twitter

[@biggreenweek](https://twitter.com/biggreenweek) [#bgw](https://twitter.com/bgw)

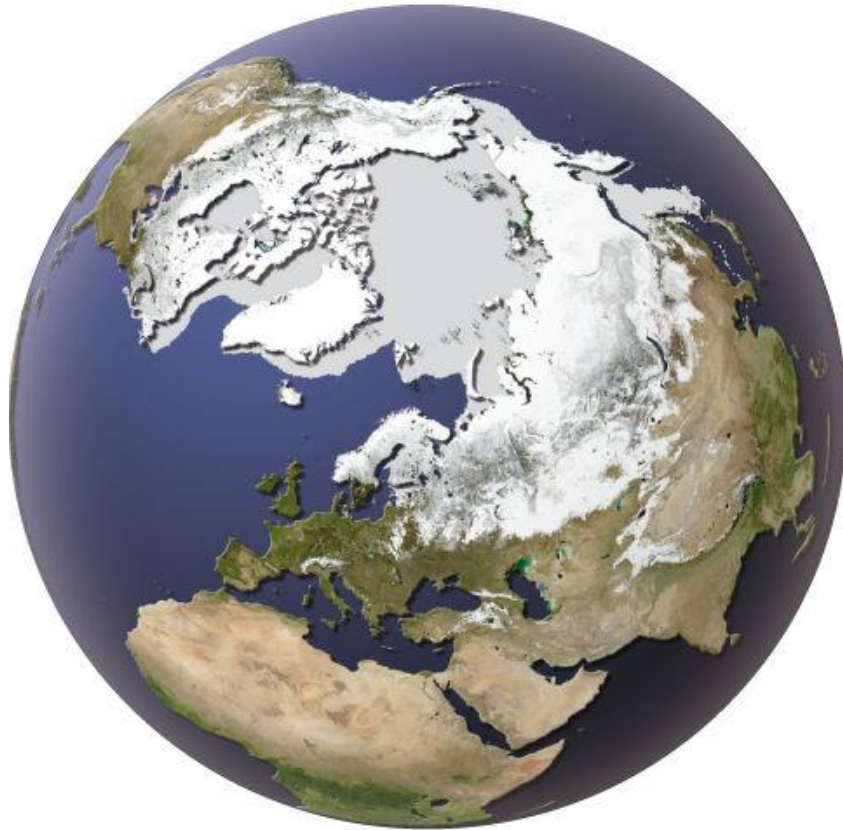
[@cabotinstitute](https://twitter.com/cabotinstitute)

Professor Jonathan Bamber
Bristol Glaciology Centre

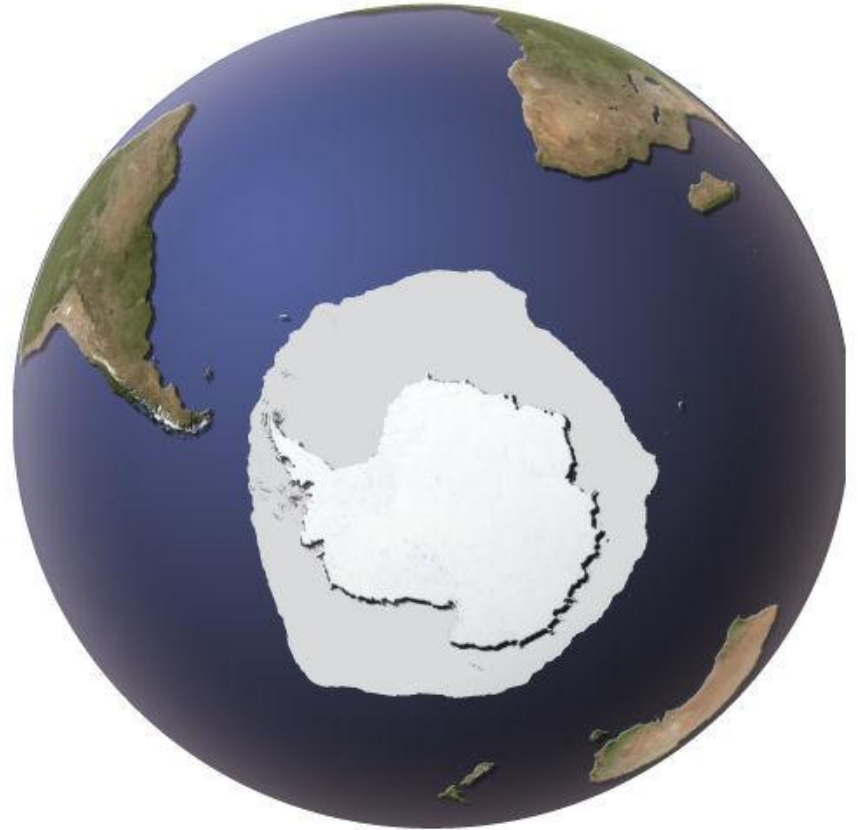


Patterns of Change: The Frozen Planet

Northern Hemisphere
March



Southern Hemisphere
September



Permafrost change:



IMPACTS OF A WARMING ARCTIC



Melting of Permafrost is having a marked Impact on Buildings and Ice Roads

Arctic sea ice:

STROEVE ET AL.: ARCTIC ICE LOSS—FASTER THAN FORECAST

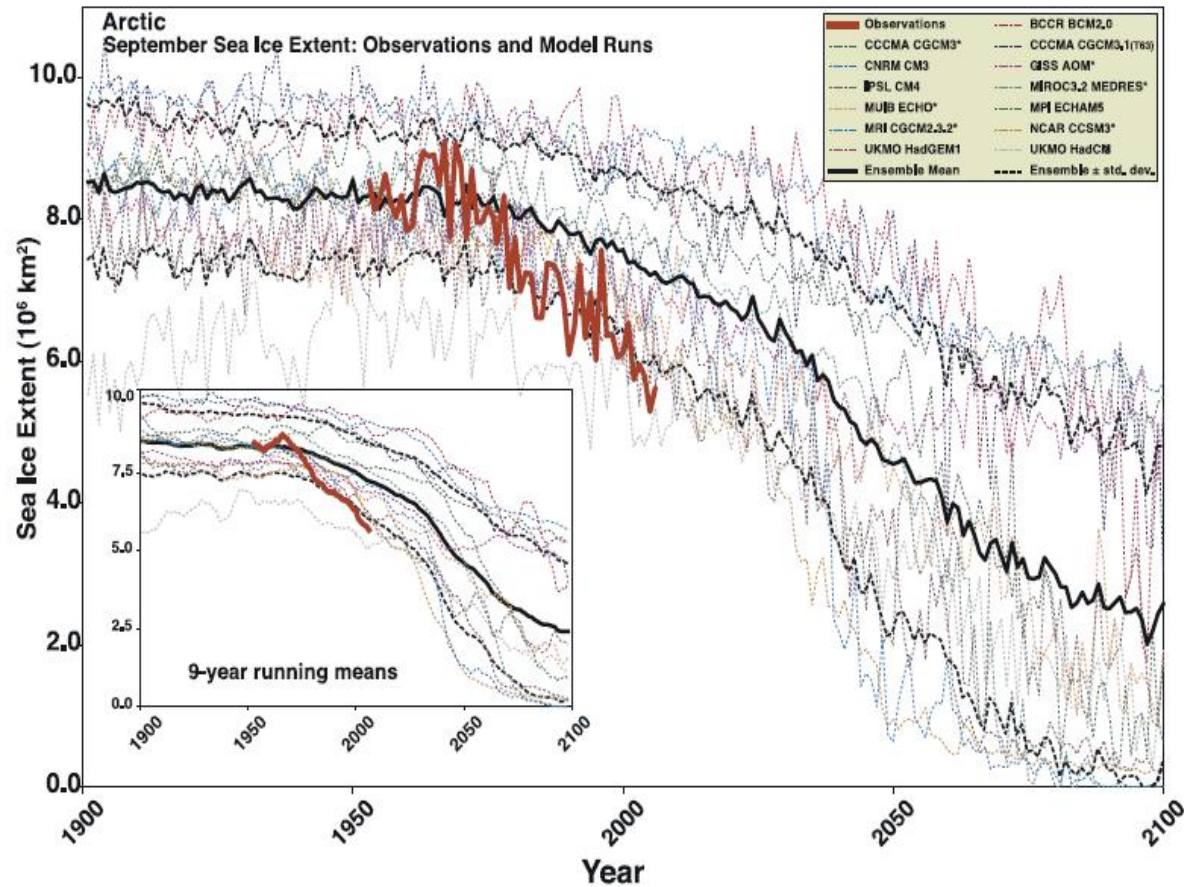
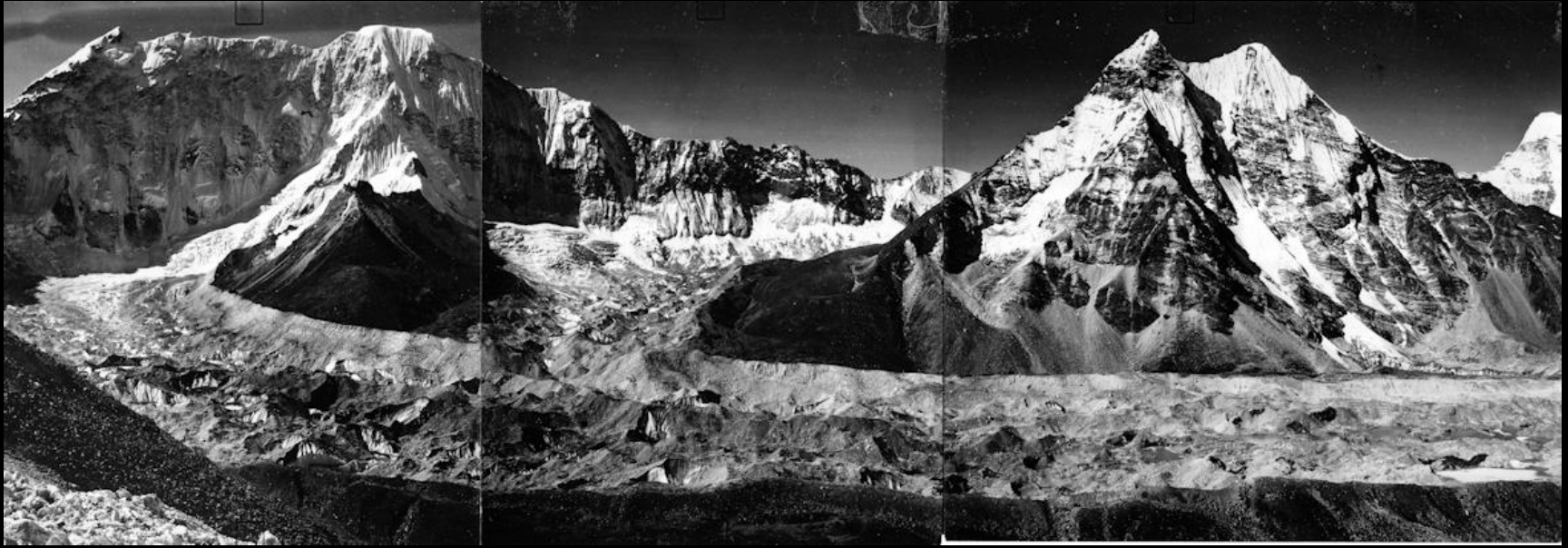


Figure 1. Arctic September sea ice extent ($\times 10^6 \text{ km}^2$) from observations (thick red line) and 13 IPCC AR4 climate models, together with the multi-model ensemble mean (solid black line) and standard deviation (dotted black line). Models with more than one ensemble member are indicated with an asterisk. Inset shows 9-year running means.

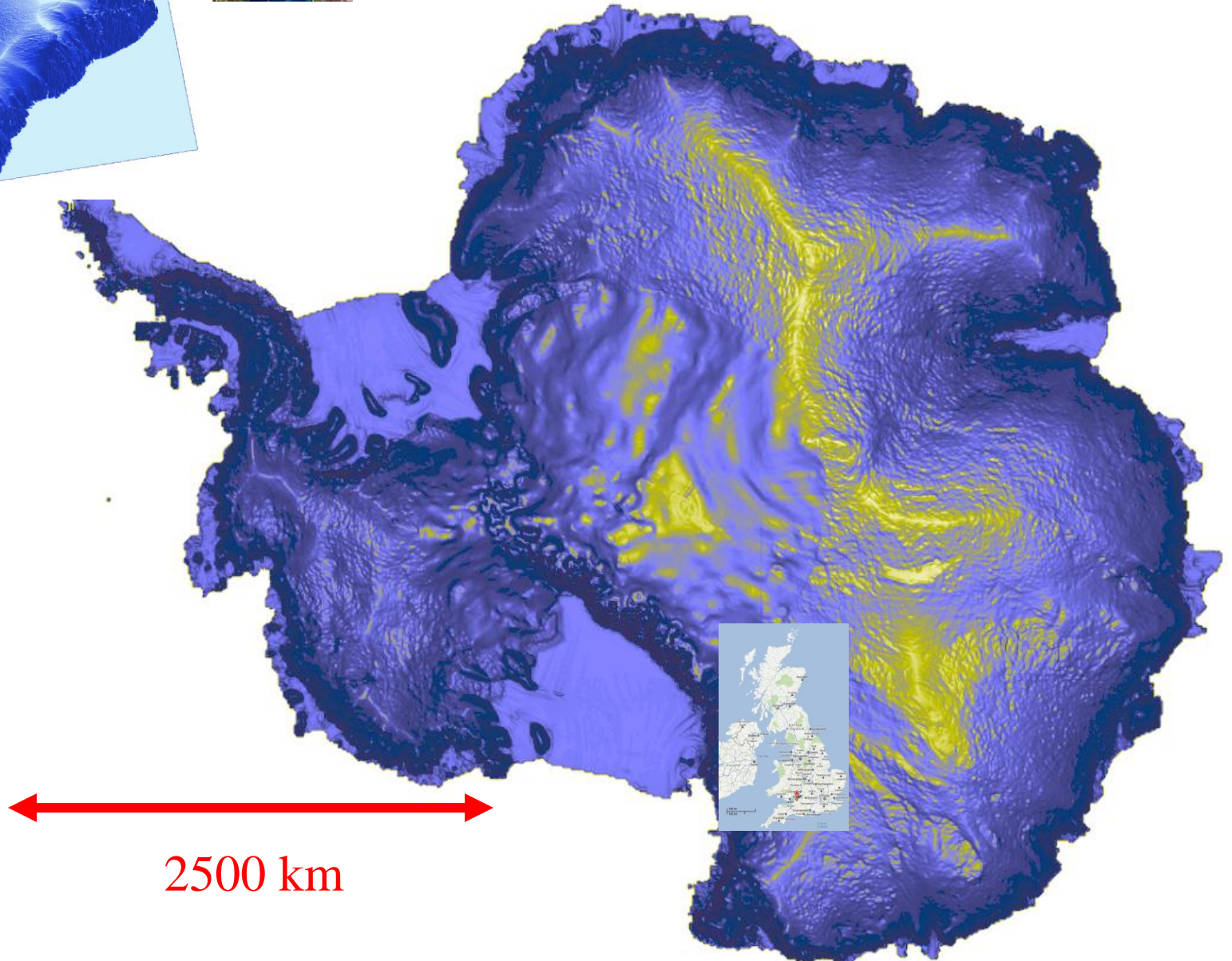
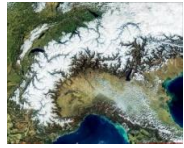
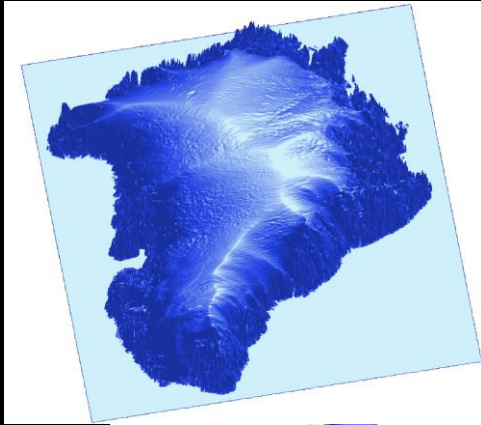
Himalayan glacier in 1950 and now



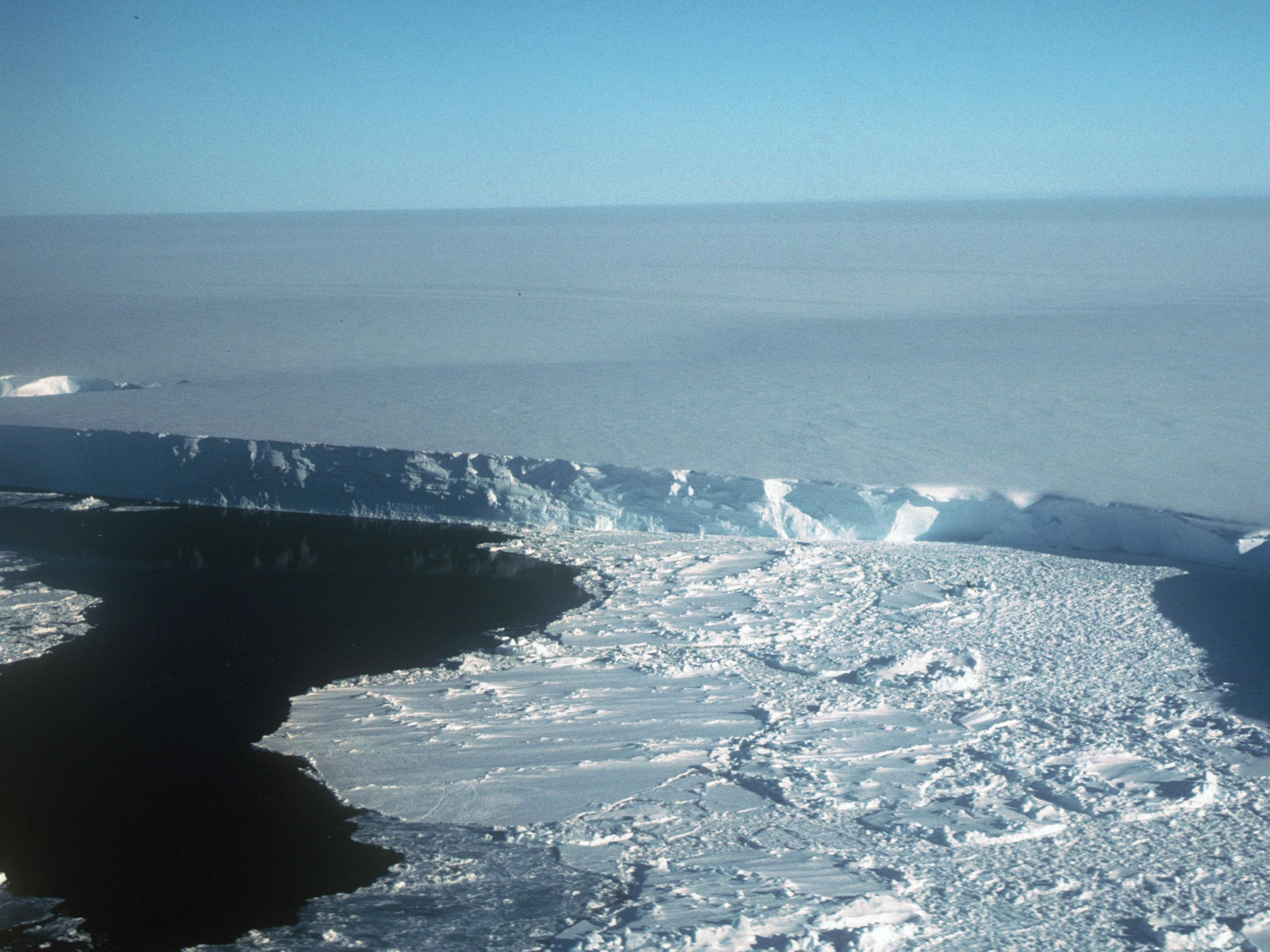


North face of the Eiger

Antarctica, Greenland & the Alps to scale



2500 km





Professor Kathy Cashman

Earth Sciences





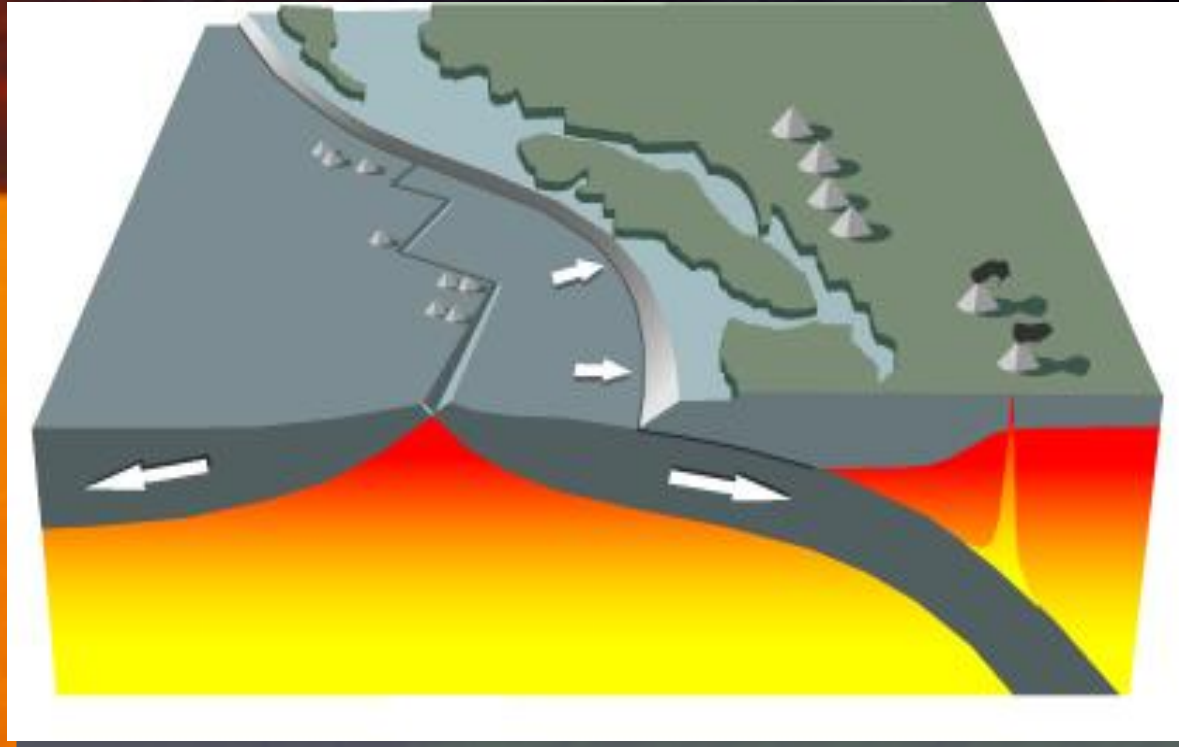
There are some forces of Nature that man cannot change

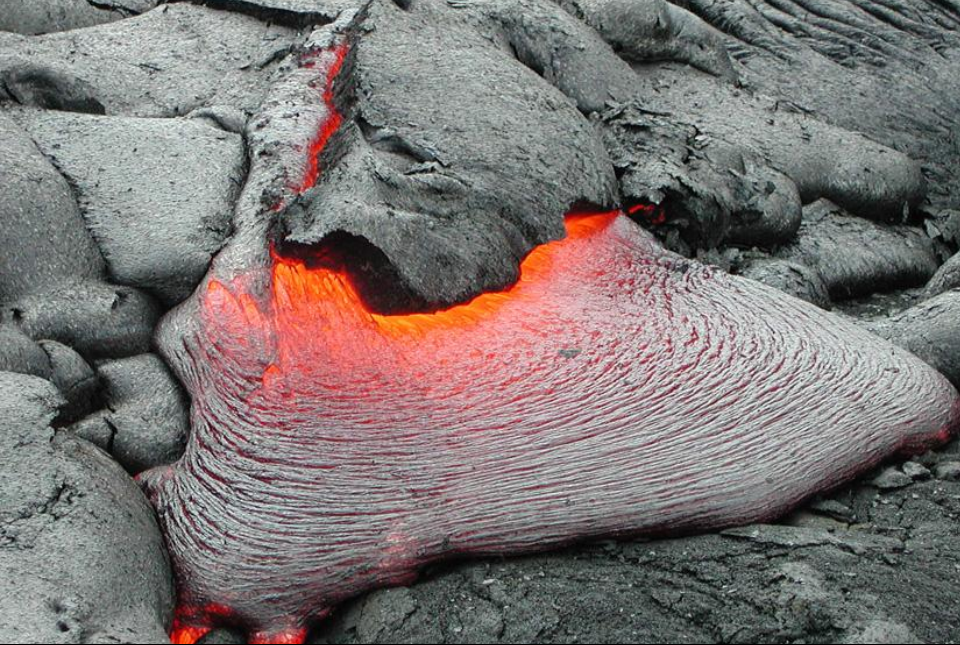


Magma rises from deep within the Earth

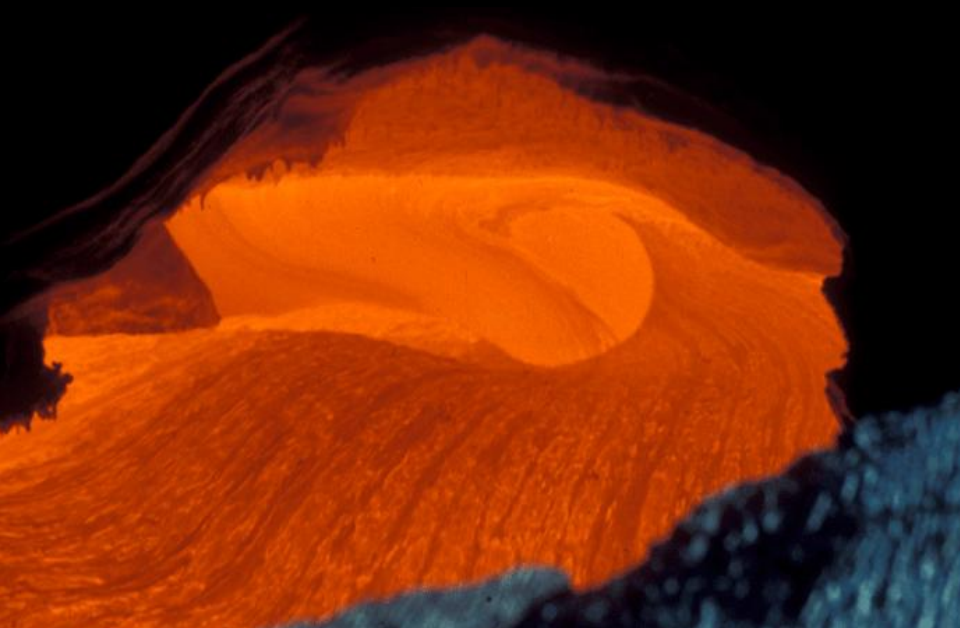


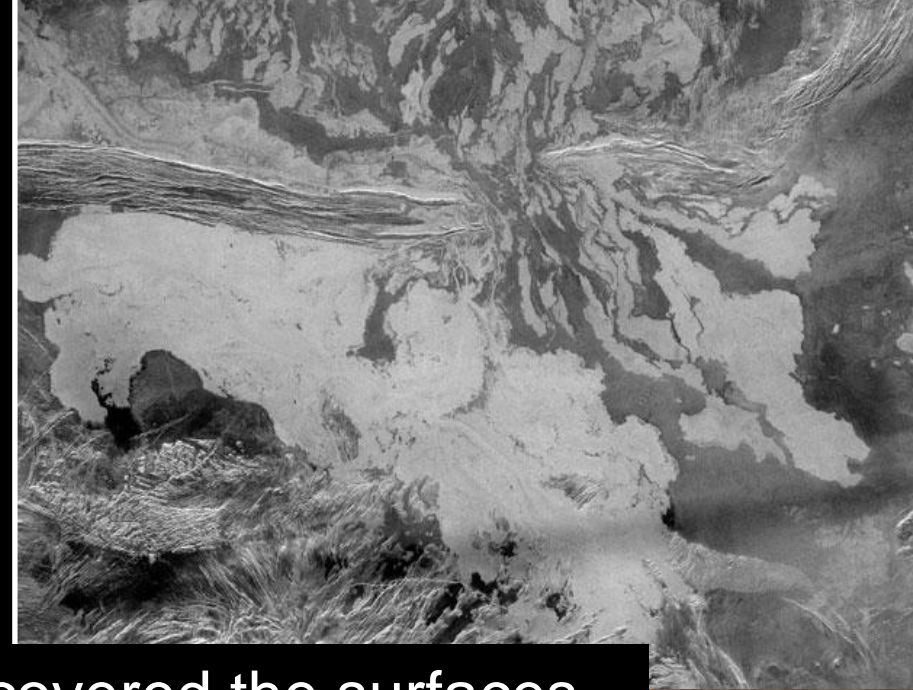
...formed by convective motions that drive 'plate tectonics'





for this reason, lava flows continually surface, and re-surface, much of our planet...





In the past, lava flows also covered the surfaces of all of the inner “terrestrial” planets





Indeed, there is abundant evidence of very large ancient lava flows in the landscape around us





but even small eruptions have proved difficult to combat



Explosive eruptions devastate nearby regions and disrupt distal communities



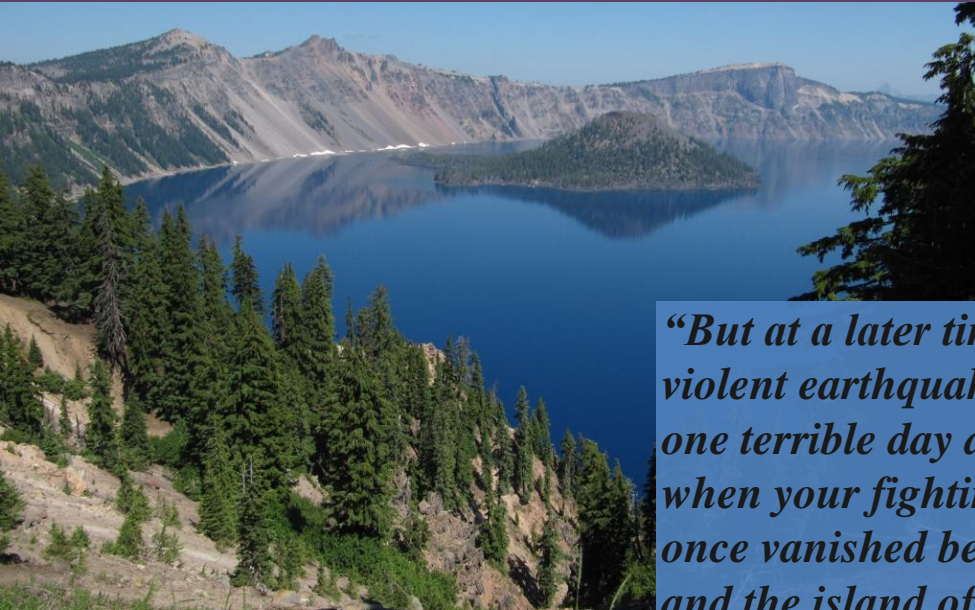
*roiling earth-gut-trash cloud tephra twelve miles high
ash falls like snow on wheatfields and orchards to the east
five hundred Hiroshima bombs*

in Yakima, darkness at noon

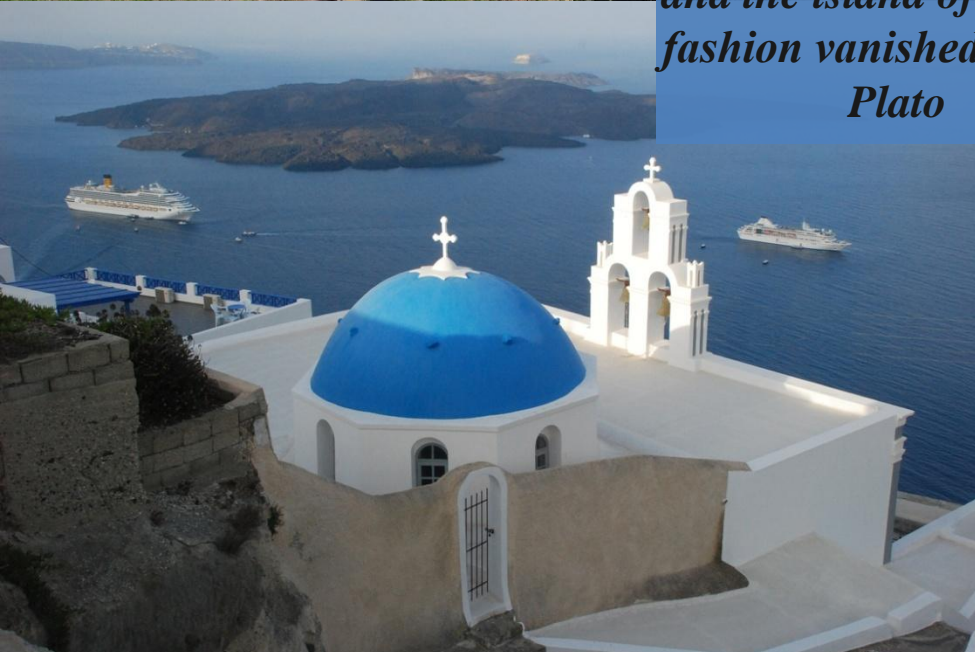
*“Letting Go”
Gary Snyder (2004)*



Large eruptions of the past have displaced cultures and given rise to lasting myths



“But at a later time there occurred violent earthquakes and floods and one terrible day and night came when your fighting force all at once vanished beneath the earth and the island of Atlantis in similar fashion vanished beneath the sea”
Plato



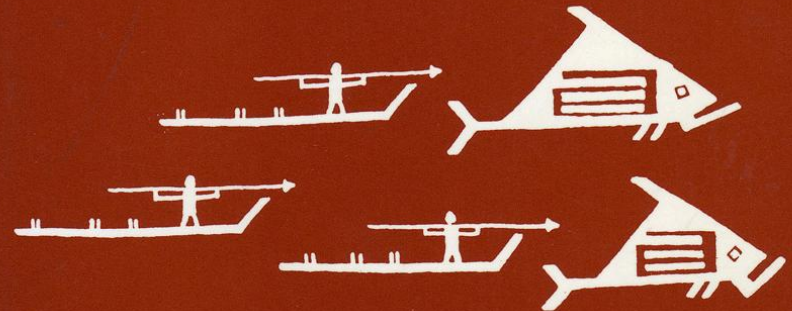
“Why do your people never go up to the lake?” asked the young soldier. “Why are you afraid to look down upon its waters?”

“Oh, you cannot understand,” replied the old chief.

“Yes, I can understand,” said young Colvig, filling the old man’s pipe.

Then Chief Lalak told the following legend, which he said he had learned from his father, who had learned it from his father...

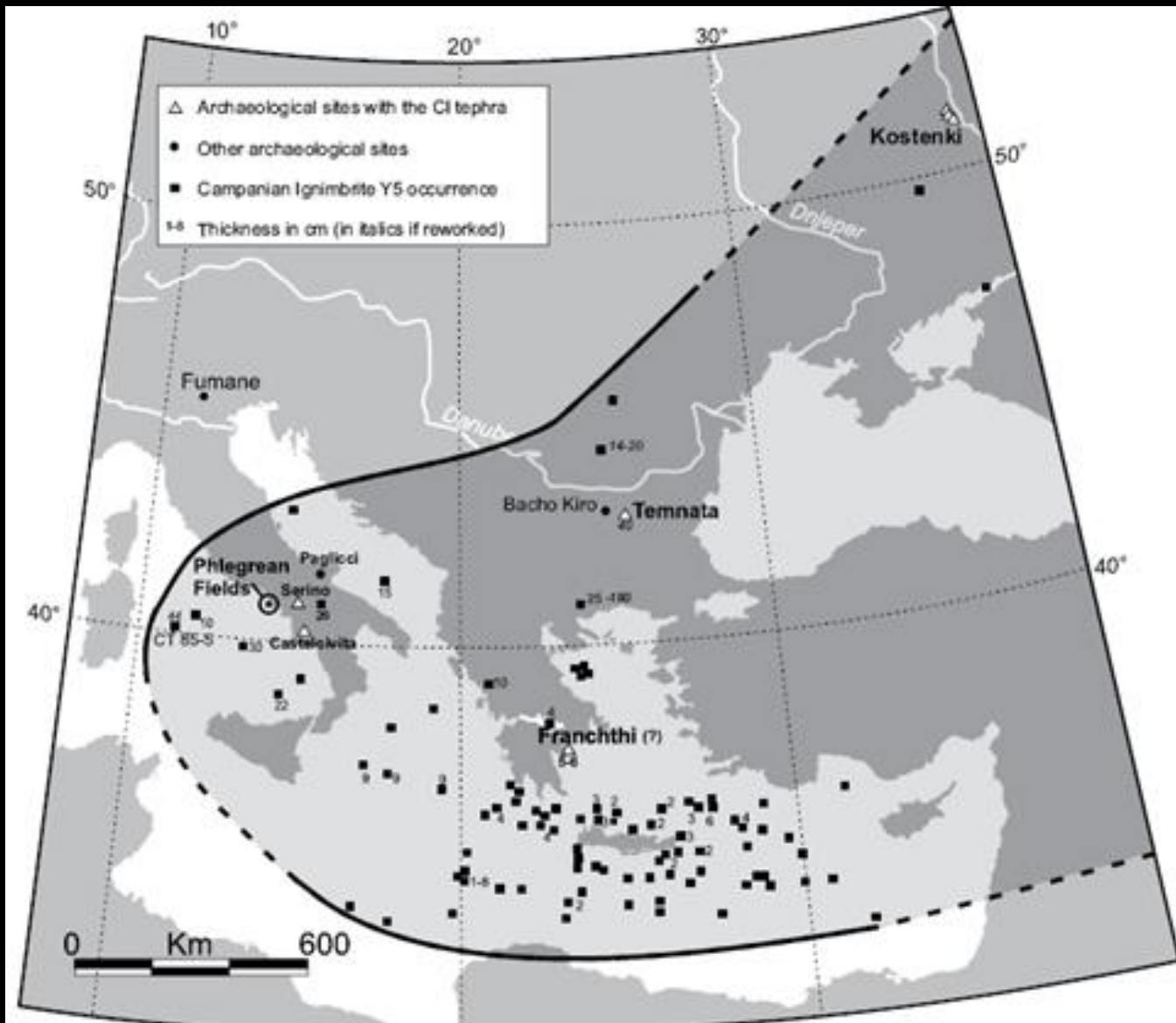
INDIAN LEGENDS OF THE PACIFIC NORTHWEST



by ELLA E. CLARK

Illustrations by Robert Bruce Inverarity





Very large eruptions have been implicated in the demise of the Neanderthals in Europe, and may have caused a 'bottleneck' in human evolution c. 75,000 years ago

Eyjafjallajökull Volcano, Iceland

A satellite image of the Eyjafjallajökull volcano in Iceland. The volcano is a large, snow-covered mountain with a prominent ash plume extending from its summit towards the southwest. The surrounding landscape is rugged and mountainous, with snow covering much of the terrain. The ocean is visible to the west and south of the volcano.

but our fragile infrastructure makes us vulnerable to even small explosive eruptions

Rakel Osk Sigurda



<http://www.examiner.com>

in that they disrupt not only local transportation, communication and agriculture



AP Photo/Brynjar Gauti



<http://www.thehindu.com>

An aerial photograph of a volcanic eruption. A large, billowing plume of white ash and steam rises from a mountain peak, spreading out as it moves. The surrounding landscape is a mix of brown and green, with some roads and structures visible. The sky is a clear, pale blue.

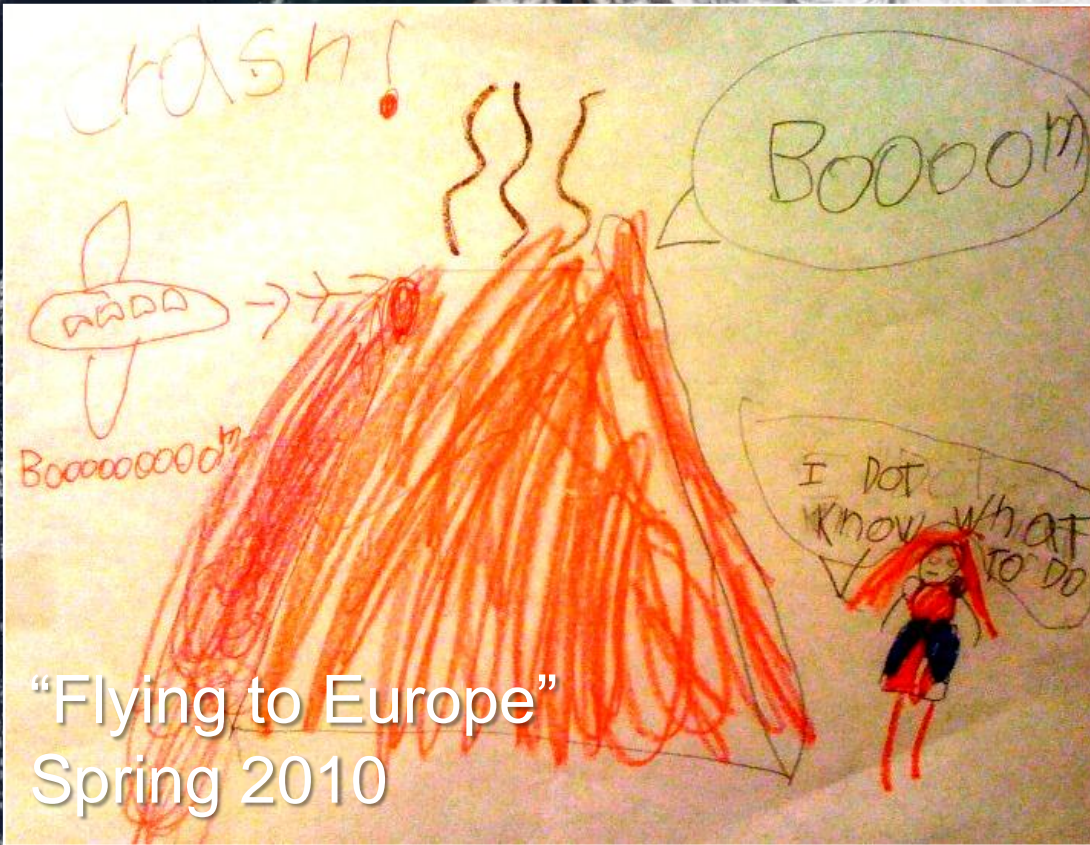
“Dutch airline KLM cancels flights due to ash cloud”

“Volcanic ash in Iceland could disrupt Scotland flights”

“Thousands face volcanic ash cloud flight cancellations”

but also regional transport networks

Eyjafjallajökull Volcano, Iceland



“Flying to Europe”
Spring 2010

What can we do?



Hawaii



Italy

Another perspective:
many cultures celebrate their volcanic origins and have learned to live safely with their dynamic environment



Iceland



Galapagos



University of
BRISTOL

Cabot Institute

Professor Colin Taylor FICE

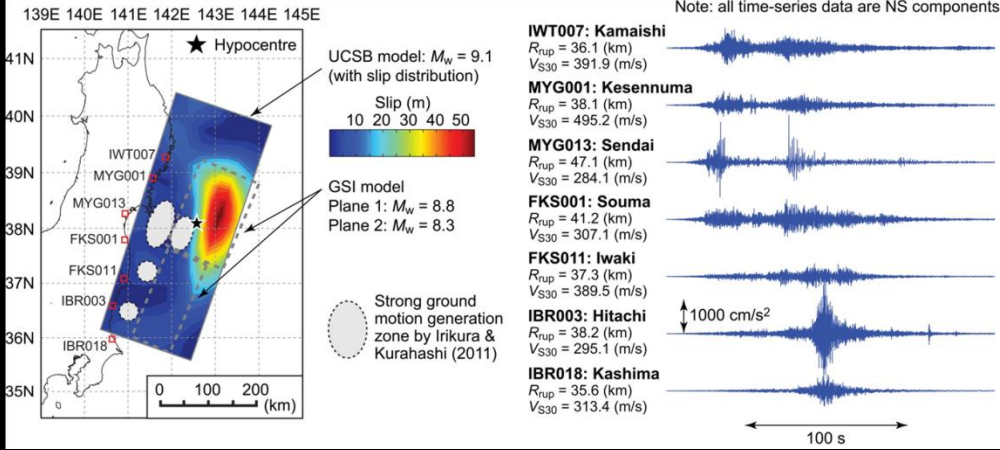
Civil Engineering





Learning to be resilient





Authorities

Media

Rapid collective learning

We need to design layered community learning and action systems, and keep them in tip-top condition



Local



Recovery



Aftermath



What is resilience?

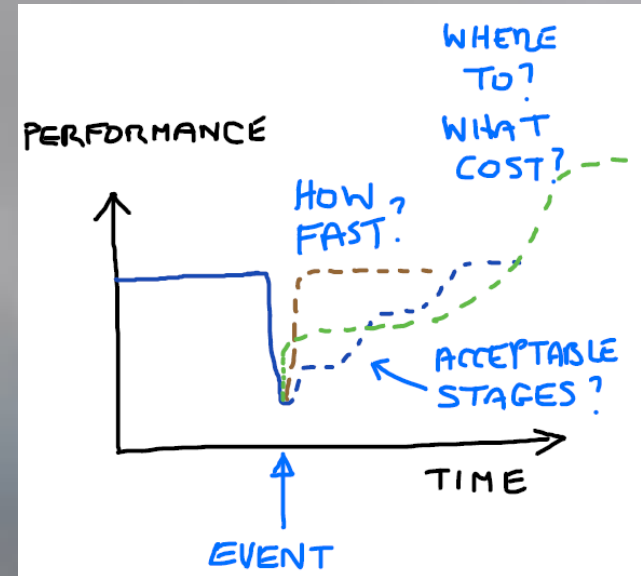
Being able to cope with change?

Will the learning experience change my risk perception and tolerance?
i.e. Change my personal resilience? Change my community's resilience?



Resilience decisions

- Do I want to return to how it was before?
- Do I want better?
- Can I afford it?
- Can I create options?
- Interdependent decisions
- Community learning
- Community enterprise



Multidisciplinary problems – Interdependent learners

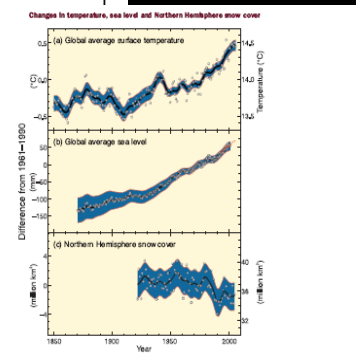
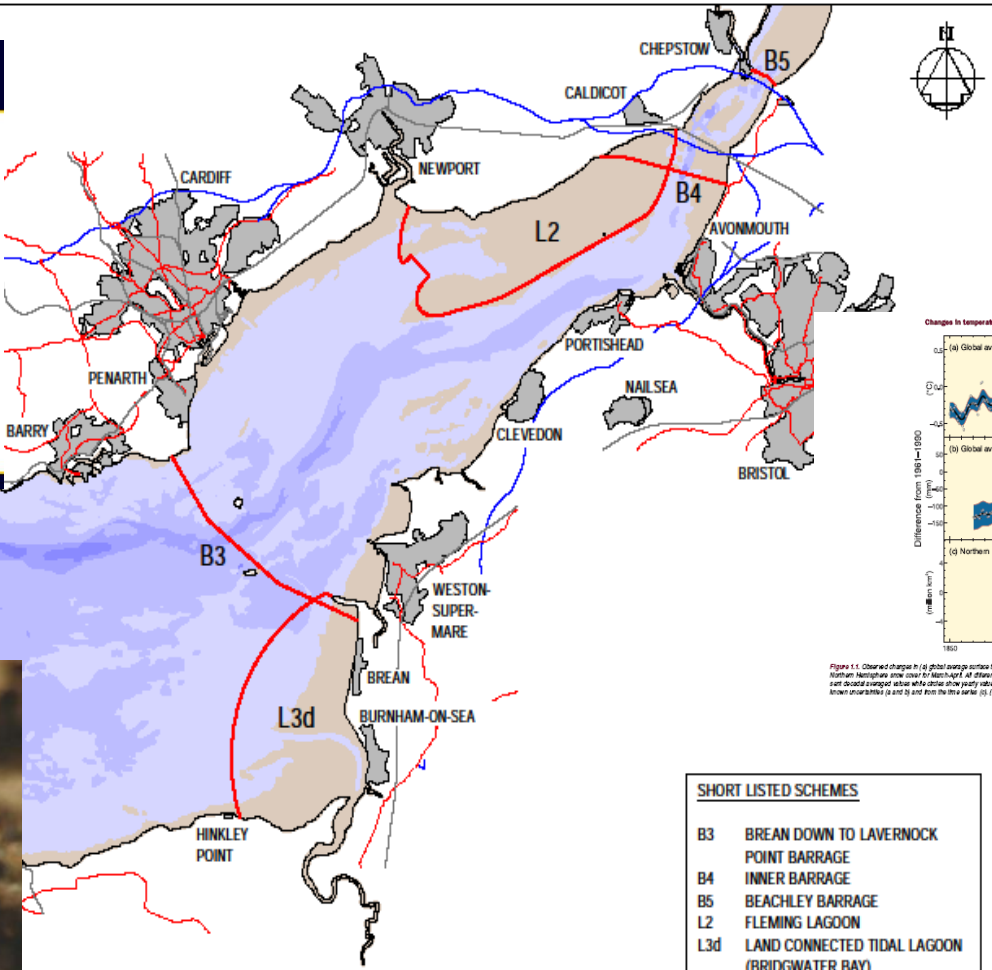


Figure 1.1. Observed changes in (a) global average surface temperature, (b) global average sea level, from tide gauge data and satellite altimetry data, and (c) Northern Hemisphere snow cover for March-April. All observations are plotted in comparison to a baseline for the period 1960-1990. Observed annual averages are shown as a jagged line with dots and the shaded area represents the uncertainty. The shaded areas on the uncertainty for the data are based on a comprehensive analysis of known uncertainties (a and b) and from the time series (c). (NOU, 2002, 2; Figure 1.1; Figure 1.1; Figure 1.1)

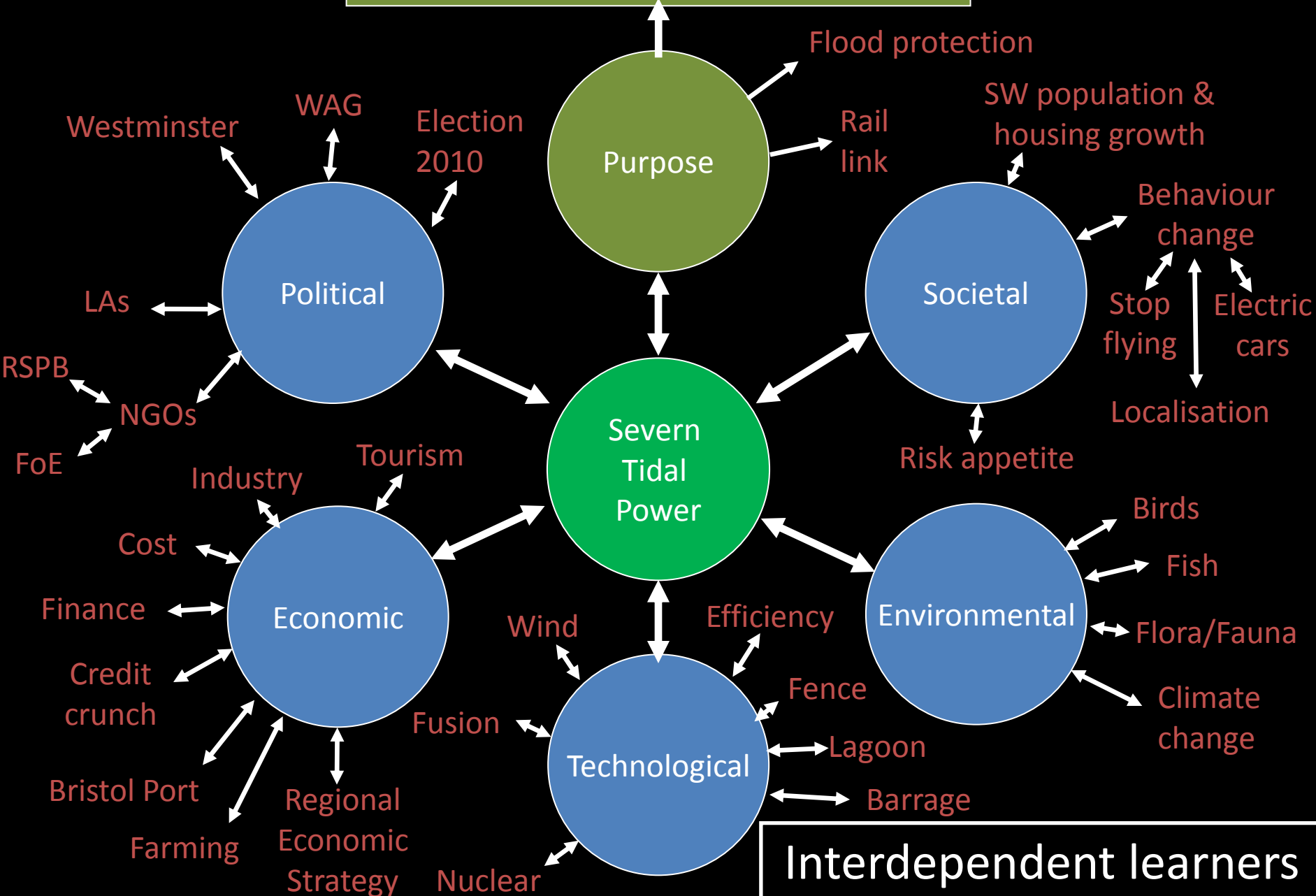
SHORT LISTED SCHEMES

B3	BREAN DOWN TO LAVERNOCK POINT BARRAGE
B4	INNER BARRAGE
B5	BEACHLEY BARRAGE
L2	FLEMING LAGOON
L3d	LAND CONNECTED TIDAL LAGOON (BRIDGWATER BAY)

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To generate sustainable, economic, zero emissions, renewable electricity





Sep 25 2011 Learning Communities



The Learning Communities are based locally, to people who can cover a wide range of subjects

FREE education



You don't have to leave your contact details if you want to go on a course, we will contact them

our area

free courses available

learning about a whole

ification.

idental. Once we have enough people who



Community learners
Resilience entrepreneurs



Professor Wendy Larner
Geographical Sciences

Professor Bronwen Morgan
School of Law

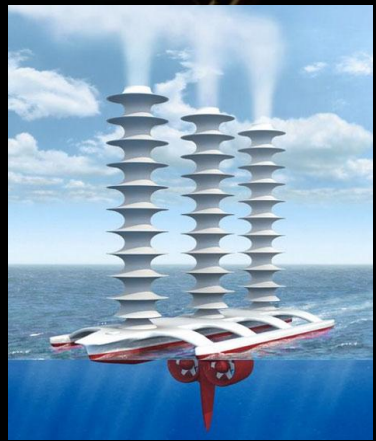
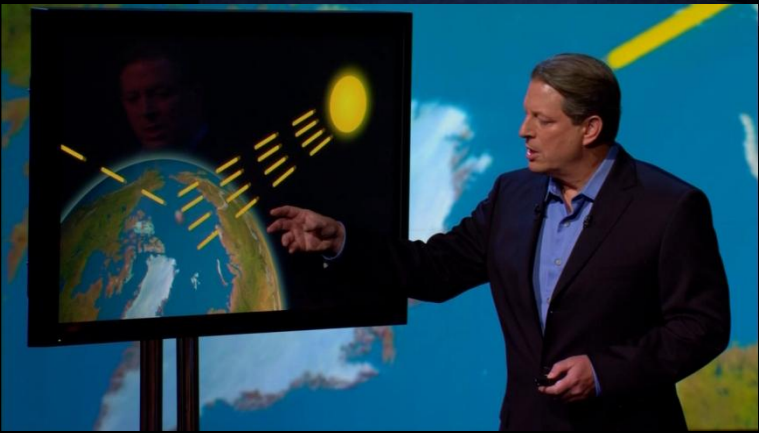




Globalisation

(source: BBC News)











World Water Council, 2009
Credit : Acerya Akturk



World Social Forum, Brazil



COP 15, 2009



Whats going on in Hamilton House?

(...and just who are coexist?)

COME FOR AN EVENING OF TALKS AND DISCUSSIONS ABOUT WHAT HAS BEEN HAPPENING IN HAMILTON HOUSE

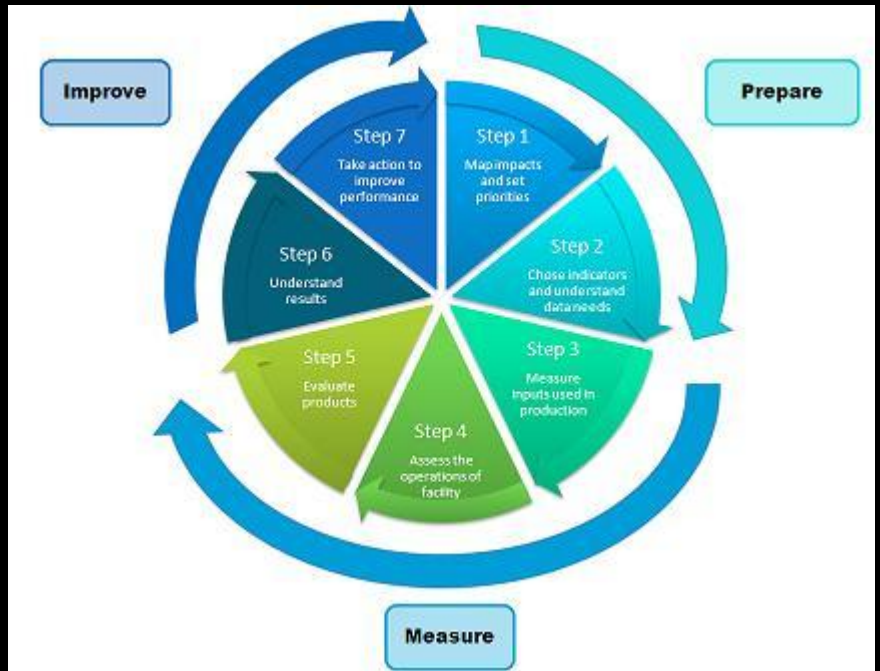
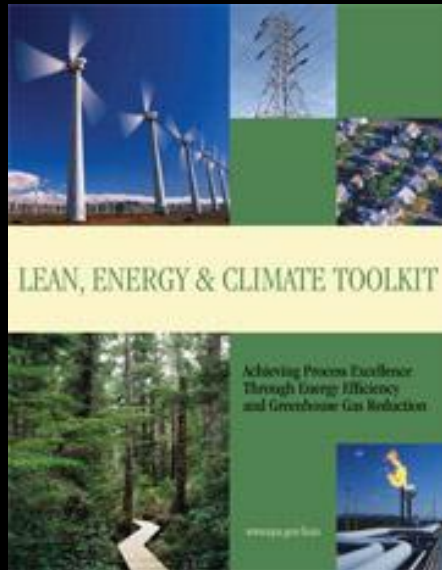
Thursday 31st March - 7pm til 9pm
Event Space, Hamilton House, 80 Stokes Croft, BS1 3QY

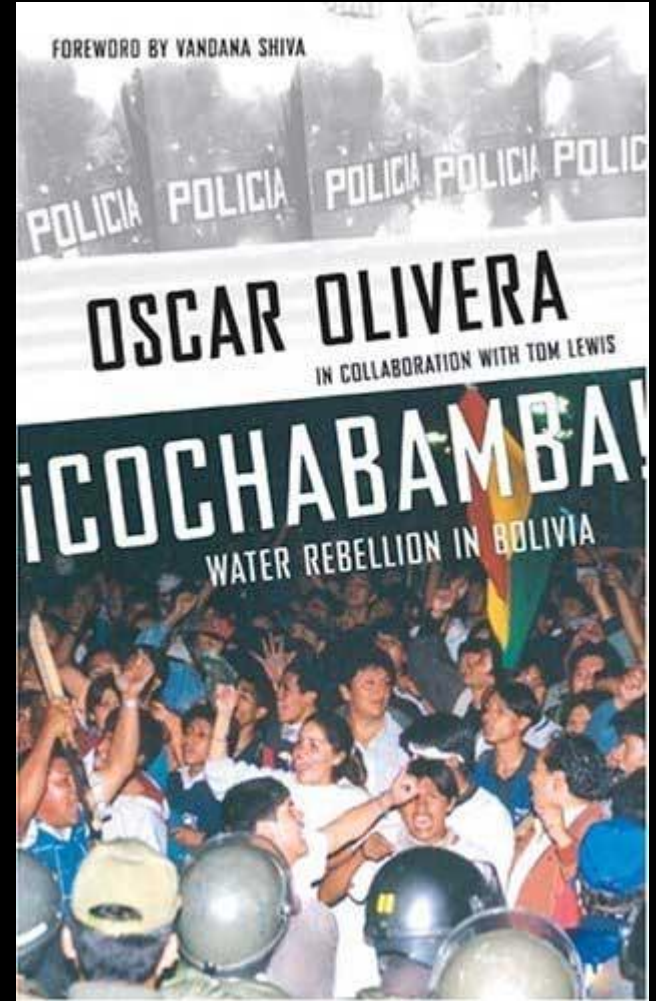
Image by Jonathan Farr - www.jonathanfarr.com



Stokes Croft, Bristol









Hamilton House - Ethical Solar

The Big Transition map

This is the Big Transition Map, showing all people, initiatives and projects working in Transition across the world. It's quite busy in some places so be sure to zoom in to see all the action.

Key



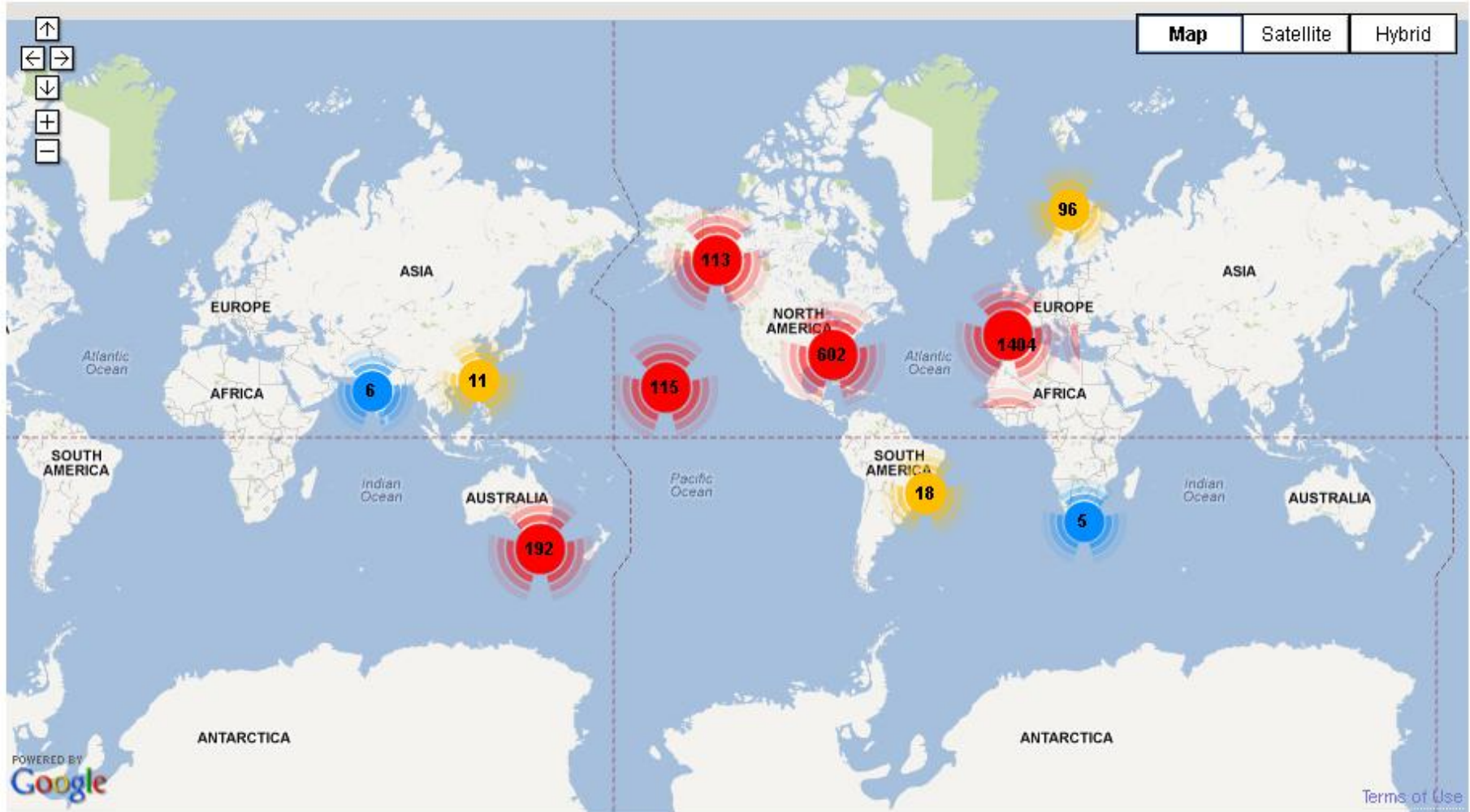
Initiative



Project



Person





BS3 College Campus – Joe Clarke







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