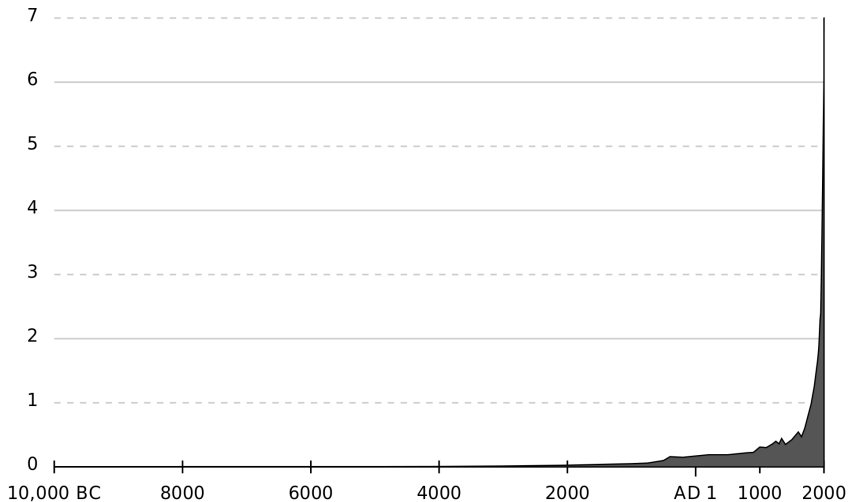
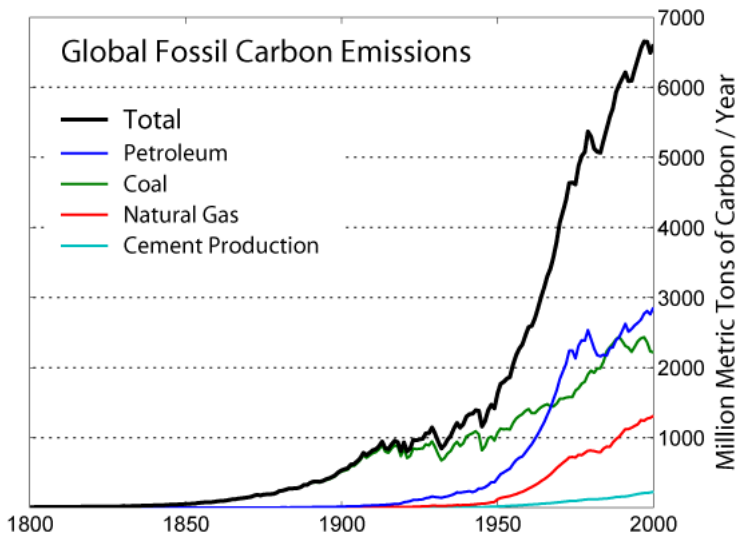


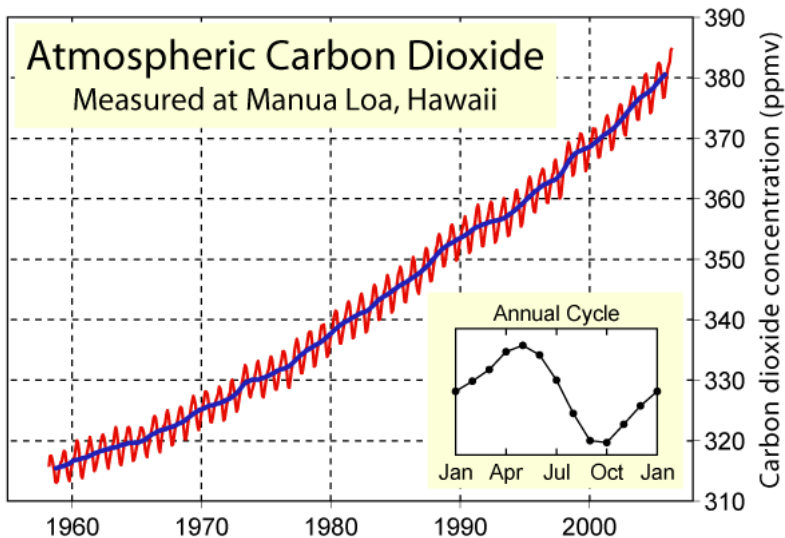
LEARNING TO LIVE ON A FINITE PLANET



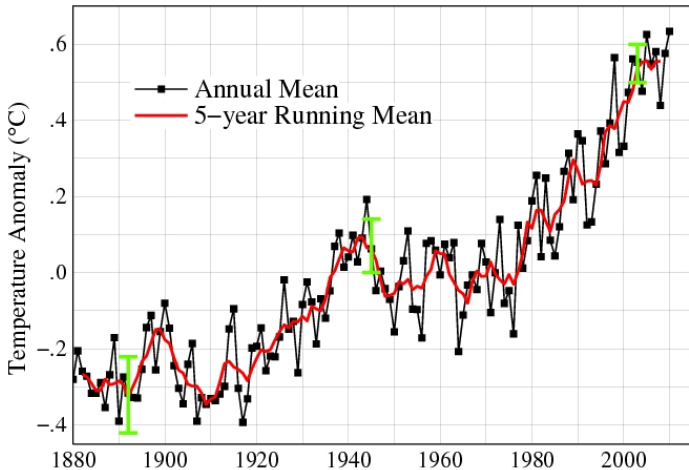
THE EARTH'S POPULATION, IN BILLIONS



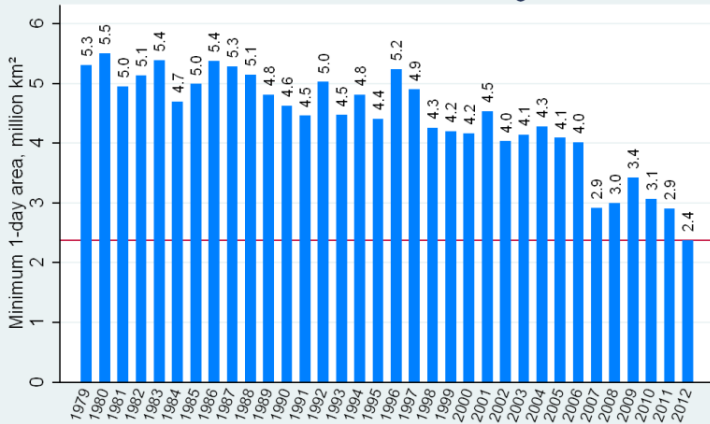




Global Land–Ocean Temperature Index



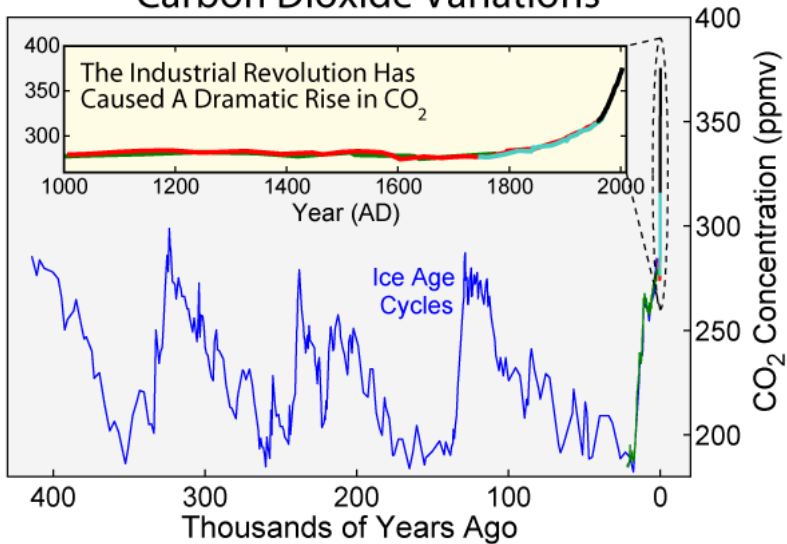
Minimum CT Arctic sea ice area through 9/2/2012



graph: L Hamilton

data: Cryosphere Today

Carbon Dioxide Variations



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The rate of extinction, already about 10 times its average level, will increase.

We have left the Holocene and entered a new epoch, the Anthropocene, when the climate and biosphere are rapidly changing due to human activities.

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Acting as if these are true inevitably brings us to a point where they *stop* being true.

So, we will come crashing into the brick wall of reality.

If we don't change our habits *before* things get significantly worse, we'll do so later. Either way, a transformation is inevitable.

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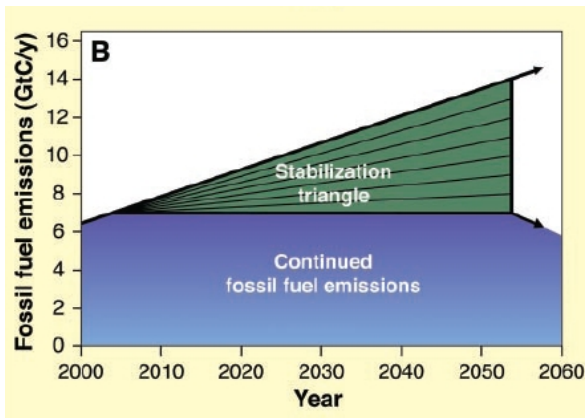
For better or worse, we *will* adapt to life on a finite-sized planet.

It's just a question of how.

What can we do? Slowing the rate of carbon burning is not enough: *most CO₂ stays in the air over a century*, though individual molecules come and go. We need to:

- ▶ leave fossil fuels unburnt,
- ▶ live with a hotter climate,
- ▶ sequester carbon, and/or
- ▶ actively cool the Earth.

In 2004, Pacala and Socolow looked for ways to hold carbon emissions constant until 2054 — *not a solution, just a start!*



They said it would require 7 'wedges'. Each wedge is a way to reduce carbon emissions by 1 gigatonne/year by 2054.

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Wind: Replace 700 gigawatts of coal-fired power plants by wind power. This requires *multiplying existing wind power by 7*.

Nuclear: Replace 700 gigawatts of coal power by nuclear power. This requires *doubling existing nuclear power*.

Efficiency: Make all cars twice as efficient *without people driving more!*

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Conservation and efficiency: Cut carbon emissions by 25% in buildings and appliances.

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But, this requires doing *many things, half of which cost money.*

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*No physical quantity can grow exponentially forever in a finite system. **We are living on a finite planet.***

We need to create an intelligent economic system, which recognizes this fact.

To lighten our impact on the Earth, we should move from:

- ▶ a matter economy to
- ▶ an energy economy to
- ▶ an information economy to
- ▶ a knowledge economy to
- ▶ a wisdom economy.

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LET'S GET STARTED!

Go to www.azimuthproject.org for more.