

Science, Earth & Spirit

Dr. Alan K. Betts

akbetts@aol.com

<http://alanbetts.com>

'This Sacred Earth'

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Outline



- **Interplay of science, nature and truth**
- **Climate system and life**
- **Our responsibility, our choices**
- ***Discussion***

"I do not know what I may appear to the world, but to myself I seem to have been only like a boy playing on the sea-shore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me."

Isaac Newton, c 1700

(Apt for its time: the early Western scientific synthesis)

Science gathers facts and thinks it knows

but wisdom as she walks
hears the echo of her solitary tread
on the shore of an infinite ocean

Sri Aurobindo, c. 1920

(Apt for early 20th century, reflects the split between science and spirit)

“The difficulty is that with the rise of the modern sciences we began to think of the universe as a collection of objects rather than a communion of subjects

The Great Work: Our Way into the Future

Thomas Berry, 1999

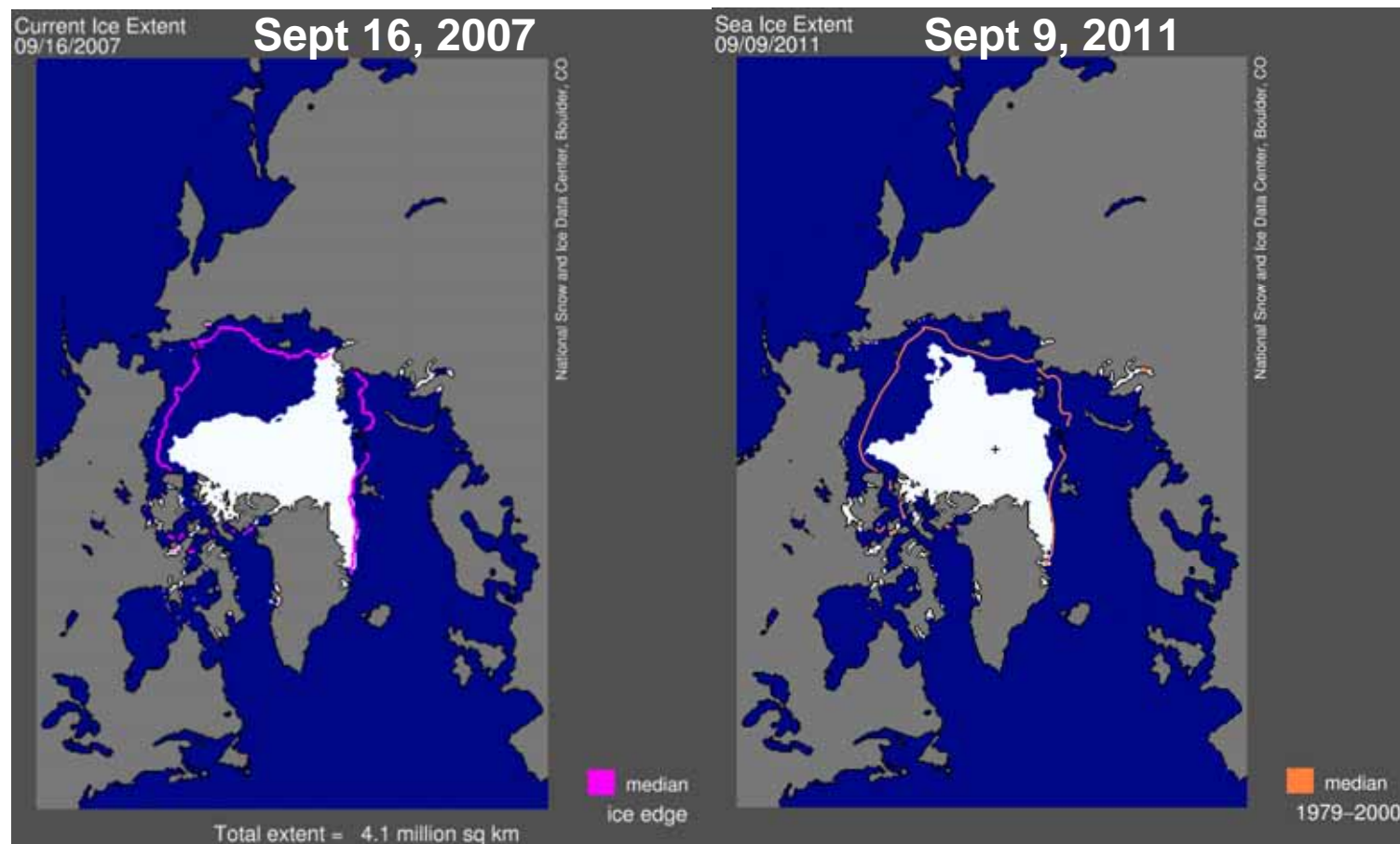
Our Present Challenge

- **How to reintegrate
all that we know and understand**
 - **given the deep interconnectedness
of life & climate on Earth**

Climate Change has Lots of Details & Complexity

- **Increasing greenhouse gases are driving rapid climate change**
- **Feedbacks amplify: melting snow and ice**
 - **Arctic and winter**
- **Energy, water, CO₂ and life are interwoven everywhere with climate**
 - **Take Fall as example**

Arctic Sea Ice Loss Has Accelerated



- **Feedbacks speed melting**
- **Less ice, less sunlight reflected**
- **More evaporation, larger water vapor greenhouse effect**

(www.nsidc.org)

- **Record ice loss in 2007**
 - most ice now only 1-2 years old
- **Open water in October contributes to warmer Fall**

Vermont Winter 2006



- **Sun is low; and snow reflects sunlight, except where there are trees!**
- **Sunlight reflected, stays cold; little evaporation, clear sky; earth cools to space**

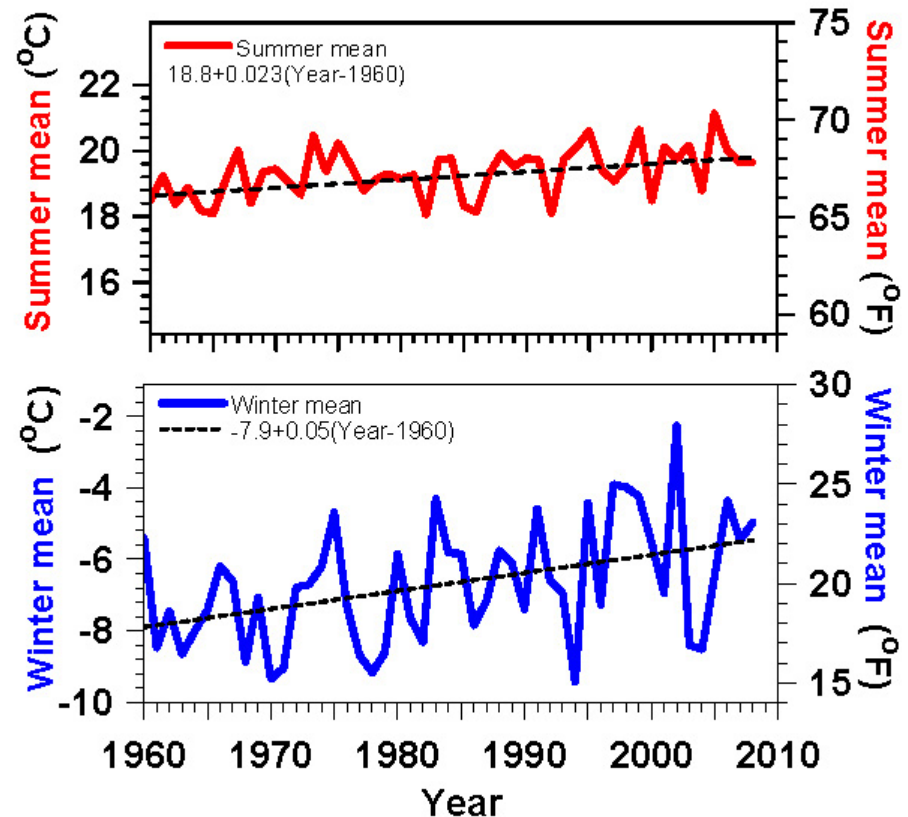
The Fall Transition



- **Water - evaporation - clouds – greenhouse reduces cooling**
- **Trees delay frost as long as possible**
- **With frost, leaves fall, evaporation shuts down, and earth cools to space**
 - **humanity is now largely outside this web of life**

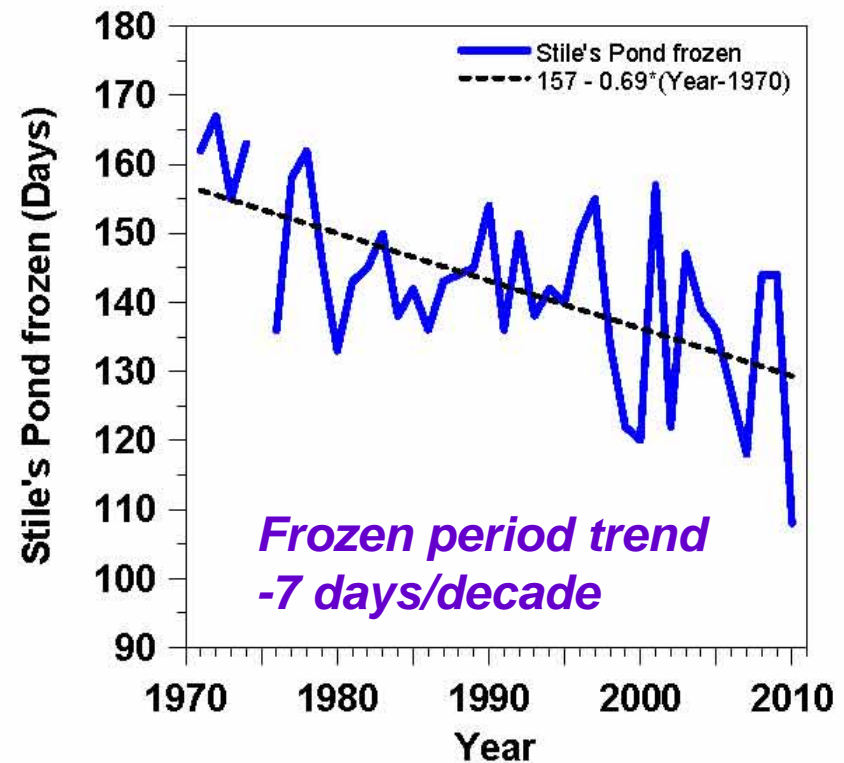
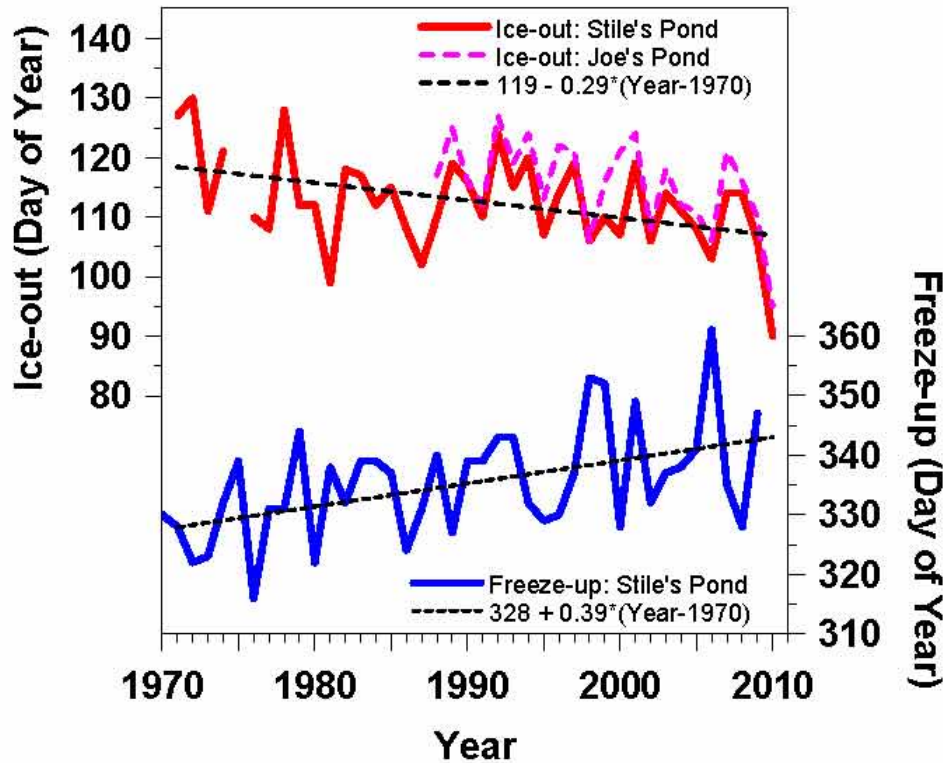
Vermont Temperature Trends

- **Summer +0.4°F / decade**
- **Winter +0.9°F / decade**
- **Less snow drives larger winter warming**



Lake Freeze-up & Ice-out Changing

Frozen Period Shrinking Fast



- Ice-out earlier **by 3 days / decade**
- Freeze-up later **by 4 days / decade**

Climate is Changing Fast

- **What is our response?**
 - largely denial of responsibility
- **Why is it so difficult for us?**
- **Can technology save us?**

Why Is It Difficult for Us?

- **The “American dream” is crumbling**
 - **“Economic growth” based on fossil fuels, debt, and consumerism is unsustainable—and a disaster for the planet!**
- **Individual “rights” and the needs of humanity must be balanced against the needs of the earth’s ecosystem**
- **We have no workable paradigm to guide and manage technology — so the result is tremendous successes and catastrophic failures**

Surely Technology Can Save Us?

- We have lost sight of the **critical distinction** between the human-made world and the natural world
- **We understand the human-made world, the world of computers & technology—because we made it—it is predictable and controllable, except when we are careless (& earthquakes)**
[E. F. Schumacher (1977). *A Guide for the Perplexed*]
- **The same is not true of the natural world – which is far more complex and alive. Our understanding is limited; prediction & control are not possible**

Surely Technology Can Save Us?

- **Now our world of technology is having a global impact on the natural world and it must be carefully managed**
 - **But this is incompatible with our ideology**
 - **And we are slipping into virtual worlds disconnected from the earth's ecosystem that we depend on**

‘Rules’ to Minimize Impacts (we know what to do...)

- **Minimize the lifetime of human wastes in the Earth system and eliminate waste with critical biosphere interactions**
- **Maximize the efficiency with which our society uses energy and fresh water**
- **Maximize the use of renewable resources**
- **Maximize recycling and re-manufacturing to minimize use of non-renewable raw materials**

- **Strengths of science:**
 - integrity, honesty and communication
 - *particularly valuable in a society lost in ignorance and deceit*

- **Limits of science:**
 - tangible, measurable and communicable
 - *hard to deal with the complexity and interconnectedness of the living natural world*

Perspective for the 21st Century

- **Much of western thinking formed when humanity had a limited understanding of its place in the creation; but the beliefs mattered little because our impact was small.**
- **All this changed with the industrial revolution powered by fossil fuels. Now humanity has a global impact on the natural world, and understanding our place in it is paramount.**
- **Science and technology created this situation, and must help us find a way out, by helping us understand the earth as a global system – but science is not enough.**

Science Has Become 'Valueless'

- Centuries-old split of science from ethics/religion
- Science preserved its factual integrity, but makes no value choices
- Theology and politics feel free to choose doctrine over 'reality'
- No-one accepts responsibility for the earth
- Climate change is a social & spiritual challenge

Consider

“Thy will be done on earth”

requires that people of faith have a deep understanding of the earth and the whole creation, so that acceptance of our responsibility for stewardship is possible.

- Take the Earth into our spiritual practice**

Hope versus Despair

- People ask “Why are you so hopeful?”
- This is a deeper question than understanding and responding to climate change.
- **For human beings, hope opens doors to possibilities that expand our vision, hope connects us to each other and deepens our sense of communion.**
- **Hope opens doors and frees us to be creative and joyfully work with each other and with the Earth.**
- **Despair closes us off from the real world of possibilities into a dark and isolated world.**

Reconnect with Nature & Spirit



Discussion

The Future Is Not Our Past

What will it take to reconnect us

To the natural world?

To the Earth?

So we can accept responsibility

(Resources: <http://alanbetts.com>)