Planet Earth
The Power of Perspective

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“From this distant vantage point, the Earth might not seem of any particular interest. But for us, it's different...”
“That's here, that's home, that's us.”

- Carl Sagan
A flying ladies' hat box?
Graphic animation supplied by the National Aeronautics and Space Administration
1 meter of sea level rise can affect up to 145,000,000 people at a cost of nearly 1,000,000,000,000 $US (Anthoff et al., 2006)
Annual Sea Ice Minimum Extent 1979-2010

1979-2007 avg. sea ice minimum

2007 sea ice minimum
Global Transport of Black Carbon
Eruption of Eyjafjallajökull Volcano, Iceland acquired May 11, 2010 Terra/MODIS image.
What Would have Happened to the Ozone Layer if Chlorofluorocarbons (CFCs) had not been Regulated?

Projected  World Avoided

1974

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The Temporal Perspective: Lessons from our Past

Ice cores hold tremendous climate record

- Air bubbles
- Chemical content
- Information on precipitation temperature, and transport
Climate Record Stored in Ice

Alley et al., 1993; Cuffey & Clow, 1997

Accumulation (ft ice/year)

Temperature

Medieval Warm Period

Little Ice Age

Accumulation of snowfall

Age (thousand years before present)

Temperature (°F)

Alley et al., 1993; Cuffey & Clow, 1997
Climate Record Stored in Ice

Alley et al., 1993; Cuffey & Clow, 1997
Climatologically we are in unfamiliar territory and experiencing some dramatic changes in the Earth System
Our success as a society will depend on how well we understand, anticipate, and prepare for the changes that lie ahead.
Insert your own joke here
Lake Powell 1999
“I may say that this is the greatest factor — the way in which the expedition is equipped — the way in which every difficulty is foreseen, and precautions taken for meeting or avoiding it. Victory awaits him who has everything in order — luck, people call it. Defeat is certain for him who has neglected to take the necessary precautions in time; this is called bad luck.”

Roald Amundsen, 1912
“Man must rise above the Earth – to the top of the atmosphere and beyond – for only thus will he fully understand the world in which he lives.”

-Socrates (ca. 400 BC)