Setting the Record Straight:
The Truth about Global Climate Change

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The Encyclical letter of the Holy Father Francis -
Laudato Si’: On Care for Our Common Home

Pope Francis

Missouri Catholic Conference
Jefferson City, Missouri
October 3, 2015
“Our common home is like a sister with whom we share our life and a beautiful mother who opens her arms to embrace us. This sister now cries out to us because of the harm we have inflicted on her by our irresponsible use and abuse of the goods with which God has endowed her.”
It is Understandable that the Public is Confused about the Issue of Climate Change!

“The Holy Father is being misled by ‘experts’ at the United Nations who have proven unworthy of his trust. Though Pope Francis’ heart is surely in the right place, he would do his flock and the world a disservice by putting his moral authority behind the United Nations’ unscientific agenda on the climate.”

John Bast, President of the Heartland Institute
New York Times, April 27, 2015
Pope Francis has a Science Background

The Chemist

Science

Pope Francis's Climate Change Encyclical

Compassion
Pope Francis may have a Science Background... But How did he Become an Expert in Global Climate Change?
June 23, 1988:

James Hansen
Director of NASA’s Goddard Institute for Space Studies, testifies before Congress:

• “I am 99% confident that Global Warming is here”
• The observed warming is caused by increasing concentrations of CO₂ in the atmosphere
• The primary source of this increase is anthropogenic input from fossil fuel burning
I've instinctively known from the get-go, from 20 years ago: Climate Change is made up, and the reason I know it is because liberals are behind it!

Global warming and climate change are **not** liberal vs. conservative issues!
Quotes on the Environment from Rush Limbaugh

• Despite the hysterics of a few pseudo-scientists, there is no reason to believe in global warming

• Mankind is not responsible for depleting the ozone layer

• The Earth’s ecosystem is not fragile, and humans are not capable of destroying it

Source: See, I Told You So, p.189-90 Jul 2, 1993
http://ontheissues.org/Rush_Limbaugh.htm#Environment
Lessons Learned as a NASA Manager

The Story “12 Angry Men”:
- During a trial for murder, the evidence appears to be overwhelming that the defendant is guilty
- All but one juror (Henry Fonda) vote “not guilty”
- Eventually the defendant is unanimously acquitted
A Critical Lesson Learned as a NASA Scientist and Supervisor for 31 Years:

The Importance of Forming a Committee

From a Training Exercise:

• The group watched the movie “12 Angry Men” without any explanation as to why we were watching it

• After watching the movie, each person in the group of 24 was asked to write down the order in which each juror changed his mind

• We then broke into four groups of 6 and repeated the assignment
A Critical Lesson Learned as a NASA Scientist and Supervisor for 31 Years:

The Importance of Forming a Committee

Results:

• None of the 24 NASA supervisors were able to determine the correct order in which each juror changed his mind

• When the supervisors broke into 4 groups:
  • Three Groups got Perfect Scores
  • Fourth Group had only one error
Much of the Information about Global Climate Change Comes IPCC Reports

Intergovernmental Panel of Climate Change:
Contributions from 259 Authors

5th Assessment in 2013 (AR5)
Information Summarizing the Two Sides of the Climate “Debate” Can Be Found in these Reports

Intergovernmental Panel of Climate Change (IPCC)

Funded by the Heartland Institute

5th Assessment in 2013 (AR5)

“The Holy Father is being misled by ‘experts’ at the United Nations who have proven unworthy of his trust. Though Pope Francis’ heart is surely in the right place, he would do his flock and the world a disservice by putting his moral authority behind the United Nations’ unscientific agenda on the climate.”

John Bast, President of the Heartland Institute

New York Times, April 27, 2015
Who Wrote These Reports?
(from their respective websites)

The IPCC Report
- Over 1000 nominations from 63 countries
- 209 Lead Authors and 50 Review Editors from 39 countries
- Over 600 Contributing Authors from 32 countries
  - Over 2 million gigabytes of numerical data from climate model simulations
  - Over 9200 scientific publications cited
- The First Order Draft Expert Review
  21,400 comments from 659 Expert Reviewers from 47 countries
- The Second Order Draft Expert and Government Review
  54,677 comments from 1089 Expert Reviewers from 55 countries

The NIPCC Report
This report is produced by the Nongovernmental International Panel on Climate Change (NIPCC), a joint project of three organizations: Center for the Study of Carbon Dioxide and Global Change, Science & Environmental Policy Project, and The Heartland Institute. Three lead authors – Craig D. Idso, Robert M. Carter, and S. Fred Singer – assembled and worked closely with nearly 50 chapter lead authors, contributors, and reviewers from 15 countries. This volume was subjected to the common standards of peer-review.
Pope Francis may have a Science Background... But How did he Become an Expert in Global Climate Change?
The Pope’s Scientific Experts:
The Pontifical Academy of Science

• Modern PAS instituted in 1936 by Pope Pius XI
  - Roots date back to 1603 – Academy of Lynxes
  - Galileo Galilei – key member
  - Disbanded in 1630 when founder Federico Cesi died

• 80 Academicians
  - Scientists from all scientific disciplines
  - Each internationally known
  - Many are Nobel Laureates (~30 since 1975)

• Overseen by a Chancellor
  - Marcello Sànchez Sorondo
  - Appointed in 1998
  - Born in Buenos Aires in 1942

• Academy is governed by the Chancellor and President assisted by an 8-member Council elected from within; 4-year renewable terms

• Pontifical Academy of Social Sciences (PASS) established in 1994 by Pope John Paul II
Workshop Held in 2014 to Gather Input

- Much of the information in the Encyclical gathered from a PAS/PASS Workshop held in May 2014

- Paul Crutzen (since 2001) and Veerabhadran “Ram” Ramanathan (since 2012) are PAS Council members with strong science backgrounds in climate science
Pope Francis Is Aware of the “Debate”

We need to acknowledge that different approaches and lines of thought have emerged:

• At one extreme, we find those who doggedly uphold the myth of progress and tell us that ecological problems will solve themselves.

“... the earth spins, the seasons change, temperatures rise and fall, and surely, God does not smile at the audacity of mere mortals foolish enough to think they can affect a planet clearly under his control.”

Susan Stamper Brown  
The Christian Post, March 19, 2015

• We need only take a frank look at the facts to see that our common home is falling into serious disrepair. Hope would have us recognize that there is always a way out, that we can always redirect our steps, that we can always do something to solve our problems. Still, we can see signs that things are now reaching a breaking point, due to the rapid pace of change and degradation; these are evident in large-scale natural disasters as well as social and even financial crises, for the world’s problems cannot be analyzed or explained in isolation.
So...

What do the Data Say?
Global Temperature since 1880

GISTEMP-Data in 12-month running mean until incl. March 2015

Year
A First-Order Analysis Certainly Seems to Support that there is a Relationship between Increasing GHG concentrations Increasing Temperatures
The continued *acceleration of changes* affecting humanity and the planet is coupled today with a more intensified pace of life and work which might be called “rapidification”. Although change is part of the working of complex systems, the speed with which human activity has developed contrasts with the naturally slow pace of biological evolution. Moreover, the goals of this rapid and constant change are not necessarily geared to the common good or to integral and sustainable human development. Change is something desirable, yet it becomes a source of anxiety when it causes harm to the world and to the quality of life of much of humanity. (Paragraph 18)
Anthropocene

/ænˈθɹɒpəˌsiːn/

Noun

1. **the Anthropocene**, a proposed term for the present geological epoch (from the time of the Industrial Revolution onwards), during which humanity has begun to have a significant impact on the environment.

Word Origin

C21: from anthropo- and -cene, coined by Paul Crutzen (born 1933), Nobel-winning Dutch chemist.
CHAPTER ONE
WHAT IS HAPPENING TO OUR COMMON HOME

The continued *acceleration of changes* affecting humanity and the planet is coupled today with a more intensified pace of life and work which might be called “rapidification”. Although change is part of the working of complex systems, the speed with which human activity has developed contrasts with the naturally slow pace of biological evolution. Moreover, the goals of this rapid and constant change are not necessarily geared to the common good or to integral and sustainable human development. Change is something desirable, yet it becomes a source of anxiety when it causes harm to the world and to the quality of life of much of humanity. (Paragraph 18)

http://www.anthropocene.info/en/home
The Concept of the Anthropocene

Indicators of Human Activity:

1750 - Present
Global-scale changes in the Earth System as a result of the dramatic increase in human activity (~1750 - present)

Same X-Axis 1750-2000

Trace Gases

Other Geophysical Parameters

Variable Y-Axis (These will change during the video)
The Change in the Human Enterprise from 1750 to 2000
“Great Acceleration” begins ~1950

Same X-Axis
1750-2000
Satellites Can Accurately Determine Extent of Arctic Sea Ice Loss
Figure 2.19 | Decadal global mean surface temperature (GMST) anomalies (white vertical lines in grey blocks) and their uncertainties (90% confidence intervals as grey blocks) based upon the land-surface air temperature (LSAT) and sea surface temperature (SST) combined HadCRUT4 (v4.1.1.0) ensemble (MORICE ET AL., 2012). Anomalies are relative to a 1961–1990 climatology. 1850s indicates the period 1850-1859, and so on. NCDC MLOST and GISS data set best-estimates are also shown.
Following a period of irrational confidence in progress and human abilities, some sectors of society are now adopting a more critical approach. *We see increasing sensitivity to the environment and the need to protect nature, along with a growing concern, both genuine and distressing, for what is happening to our planet.* Let us review, however cursorily, those questions which are troubling us today and which we can no longer sweep under the carpet. Our goal is not to amass information or to satisfy curiosity, but rather to become painfully aware, to dare to turn what is happening to the world into our own personal suffering and thus to discover what each of us can do about it (Paragraph 19).
Summary

• Much of what is in *Laudato Si´* is based on information in the IPCC (2013) assessment

• Pope Francis relied on his Pontifical Academy of Science (PAS) to formulate the encyclical
  - The PAS is comprised of 80 internationally renowned scientists
  - Paul Crutzen and “Ram” Ramanathan are two key PAS atmospheric scientists

• The concept of the “Anthropocene” resonates throughout *Laudato Si´*

• There has been a concerted effort by conservative groups to discredit the IPCC
  - Few of these scientists are active climate research scientists
  - The publication of the NIPCC (Nongovernmental International Panel on Climate Change) Report in 2014 fails to propose a viable alternative explanation for the observed changes in temperature

Inclusion of CO₂ emissions from fossil fuel combustion simulates observations better than when no emissions are included in the models

The state of the science of climate change is not perfect!
But it is the best available and has made enormous progress
Saint Francis praises God for [all] his creatures: Everything is connected. Concern for the environment thus needs to be joined to a sincere love for our fellow human beings and an unwavering commitment to resolving the problems of society.