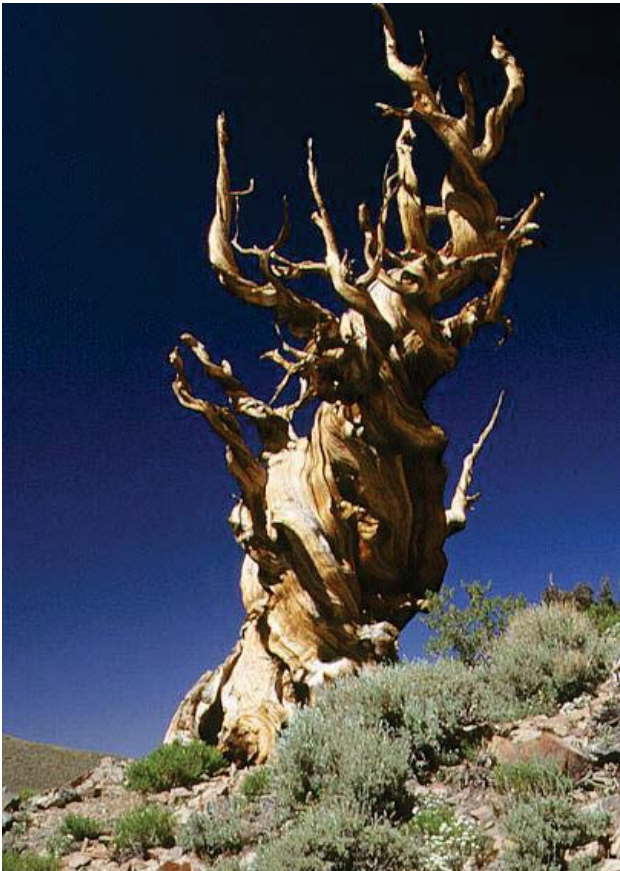


LAUDATO SI'
*Pope Francis's Radical Call to
"Care for our Common Home"*

**"DEEPENING OUR ROOTS
& BRANCHING OUT"**

Katie Hirschboeck, PhD
Emeritus Associate Professor of Climatology
Laboratory of Tree-Ring Research / University of Arizona



*Trees and stones
will teach you
that which you
can never learn
from masters.*

– St. Bernard of Clairvaux

WHAT CAN WE LEARN FROM TREES ?

Prologue

“Our Daily
Breath”



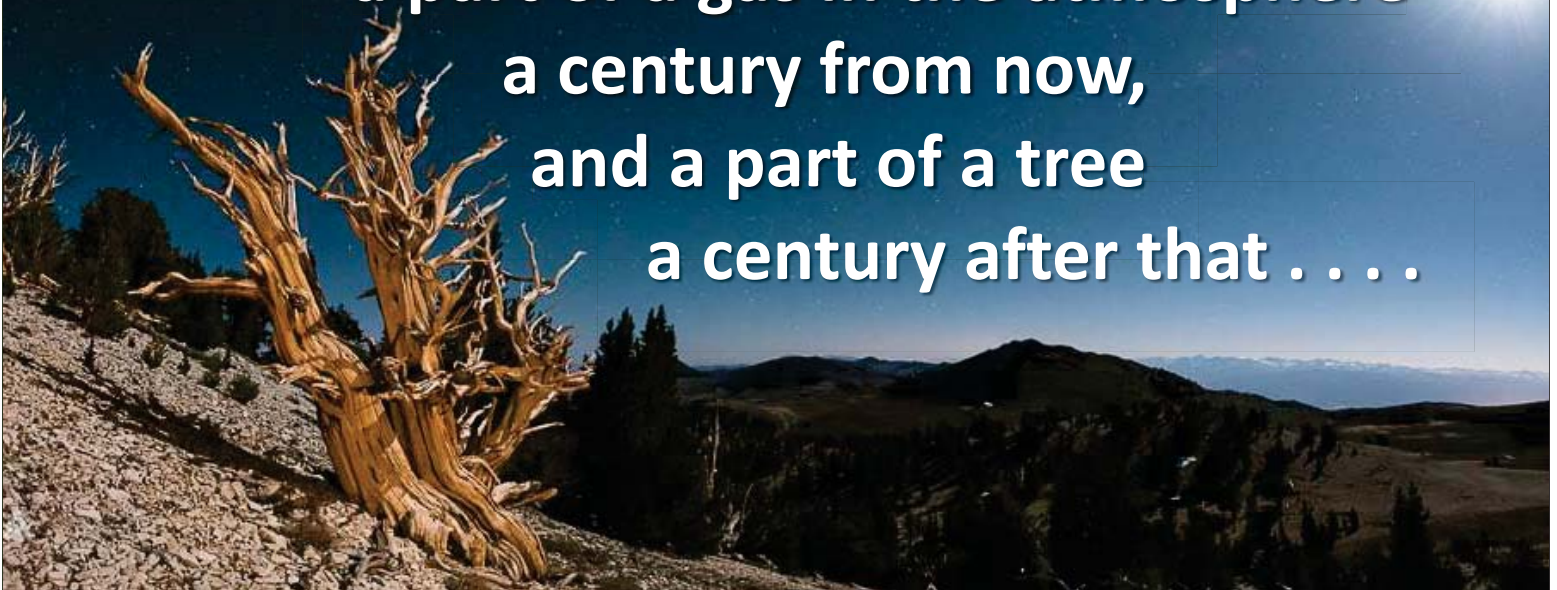
**“Atoms are forever
and very few have changed
over time. . . .**

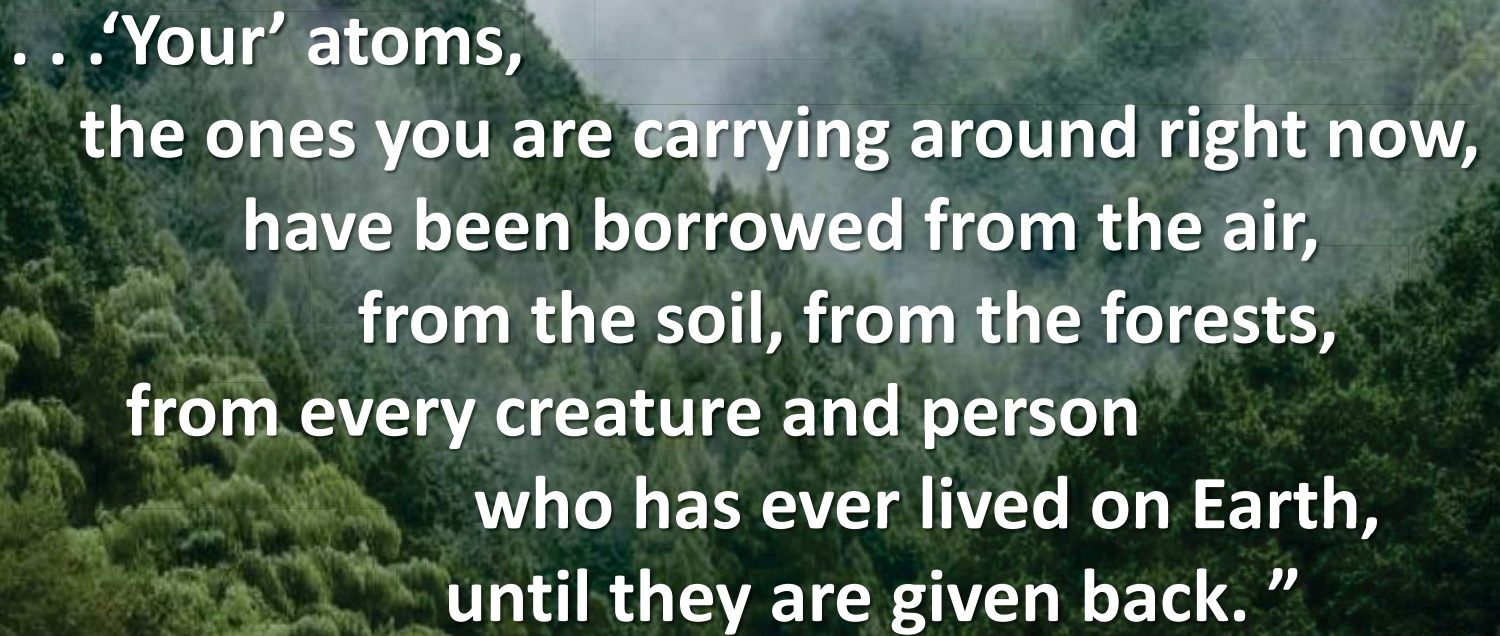


“Carbon Atom”
by artist Pet Serrano

Text from: *Physics Concepts and Connections*,
by Art Hobson, 5th Edition (2010) pp 43-44

**. . . A particular carbon atom might be . . .
a part of a skin cell today,
a part of a gas in the atmosphere
a century from now,
and a part of a tree
a century after that**



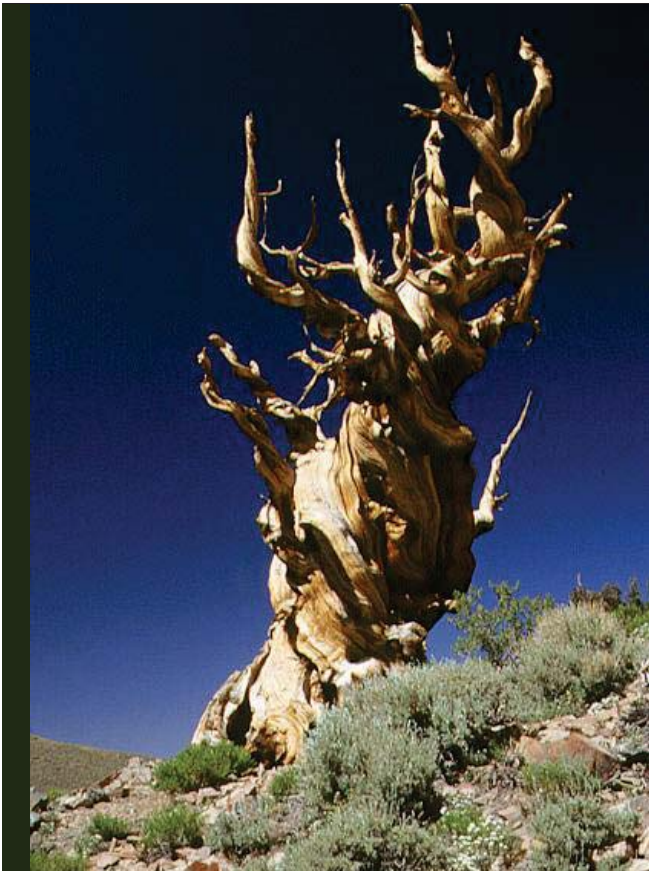


... 'Your' atoms,
the ones you are carrying around right now,
have been borrowed from the air,
from the soil, from the forests,
from every creature and person
who has ever lived on Earth,
until they are given back. ”

This means that :

**#1 Everything
is
connected . . .**

**#2 Processes (and actions)
in one part of the
Earth-Atmosphere Environment
can have a profound
and LASTING
IMPACT on other parts.**



**The
Bristlecone Pine**

**“ . . . remarkable combination
of longevity
and sensitivity . . . ”**

Longevity under Adversity in Conifers¹

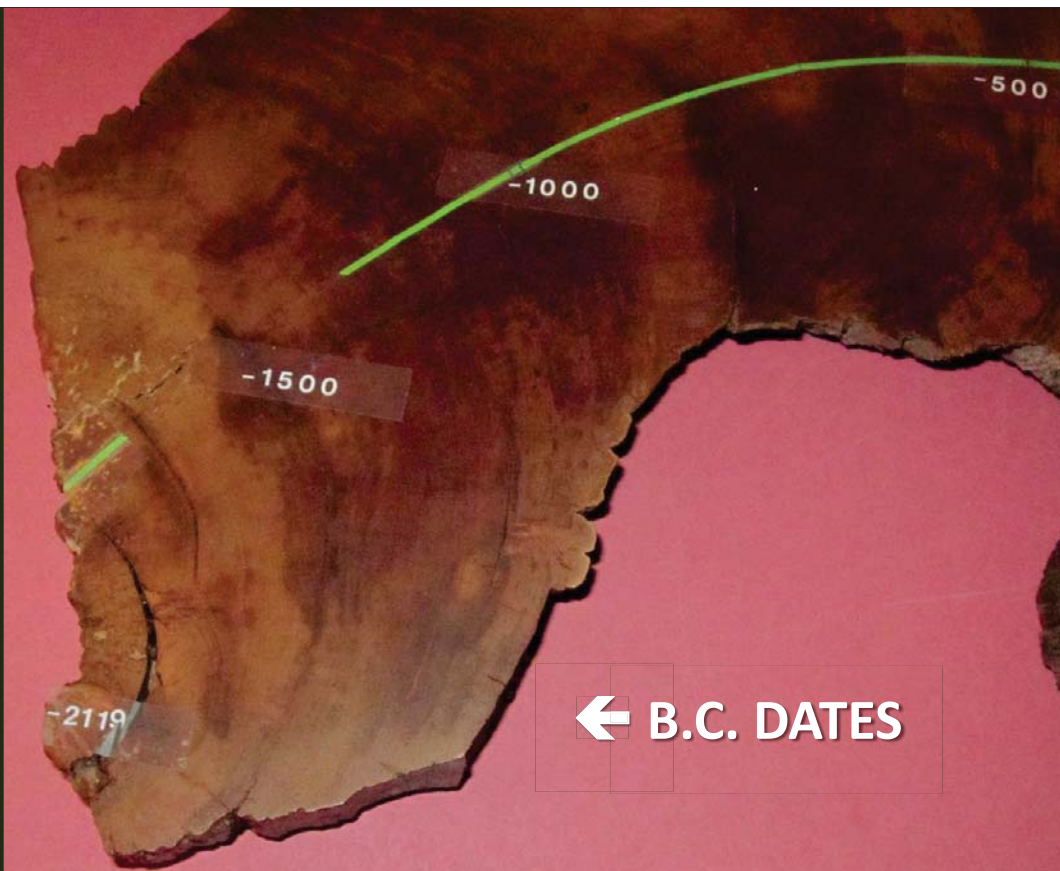
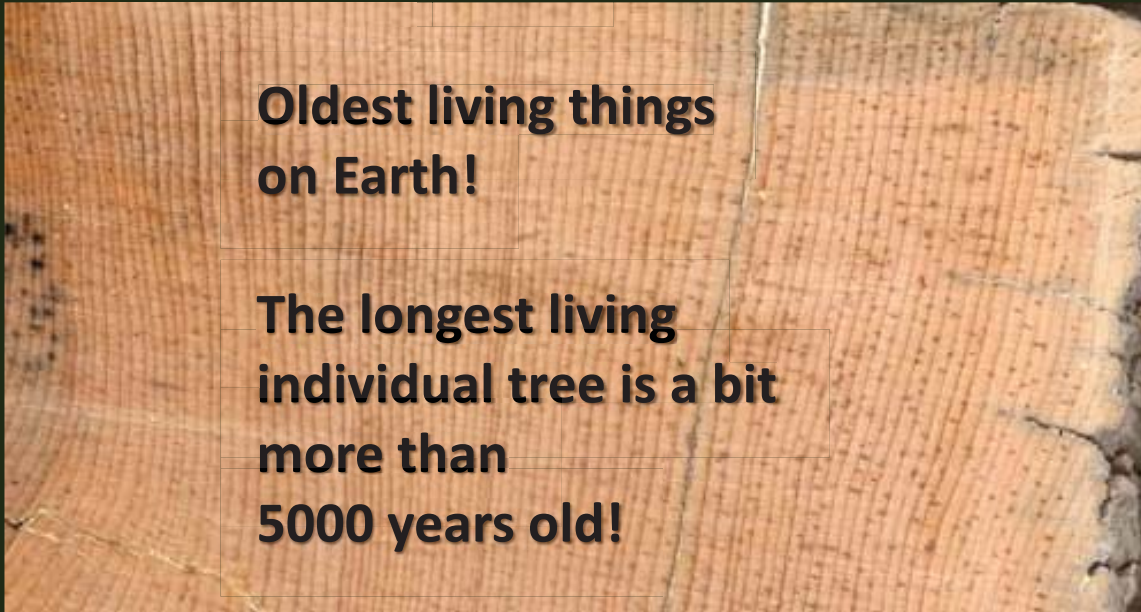
Edmund Schulman

Division of Geological Sciences, California Institute of Technology,² Pasadena

On marginal sites in semiarid regions of the western United States, trees of several coniferous species have been found that far exceed the generally accepted maximum ages for these species. The annual stem growth of such trees is extremely small (1); never-

theless, the width of the annual rings in many of these trees is particularly sensitive to the varying rainfall from year to year (2). This remarkable combination of longevity and sensitivity makes it possible to derive tree-ring indices of past year-by-year rainfall that are

The ancient bristlecone pine trees grow very slowly, produce very narrow rings, and are resin-rich





4076
year-old
tree !

A.D. DATES →

Bark Date 1957



WE ARE ALL
CONNECTED...



BC - AD

... with every breath
of air we breathe

LAUDATO SI'

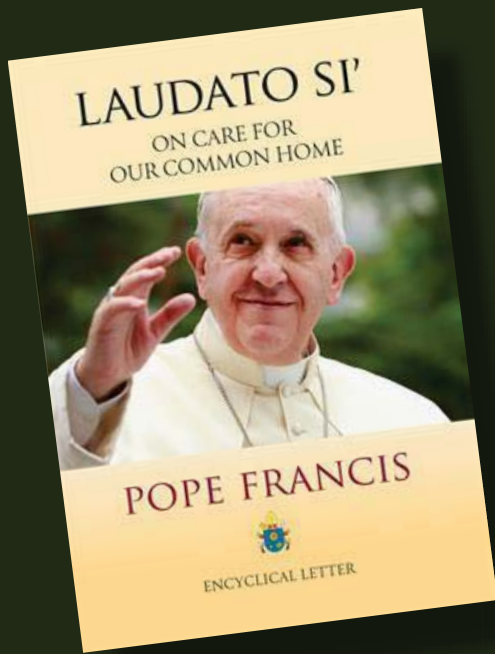
*"Praise be
to you,
my
LORD"*



*"In the words of this
beautiful canticle,
St Francis of Assisi
reminds us that
**OUR COMMON
HOME**
is like a sister
with whom we
share our life and a
beautiful mother who
opens her arms to embrace us."*

**"I wish to address every
person living on this planet."**





Laudato Si' is Pope Francis' **RADICAL & URGENT** **APPEAL** for a **NEW DIALOGUE** about how we are shaping the **FUTURE OF THE PLANET**

RADICAL?

rad • i • cal *adj*

1. of, relating to, or proceeding from a **ROOT**
2. very **different from the usual** or traditional: **EXTREME**
3. **growing** from a stem that **does not rise above ground**
4. of or relating to the **origin**: **FUNDAMENTAL**
5. favoring **EXTREME CHANGES** in existing views, habits, conditions, or institutions

Part I
**GETTING TO
THE ROOTS**



Radical (def)

1. of, relating to,
or proceeding from a **ROOT**

“I will . . . attempt
to get to the **ROOTS**
of the present situation,

“so as to consider not only
its **SYMPTOMS** but also its
DEEPEST CAUSES.” [15]

THE SITUATION

SCIENCE *The New York Times*

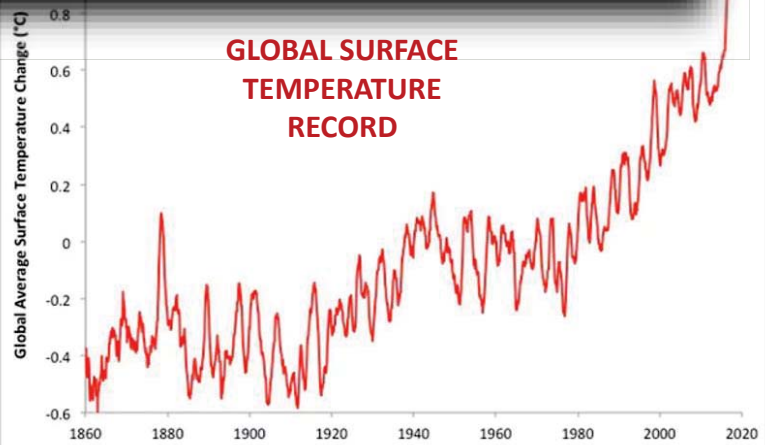
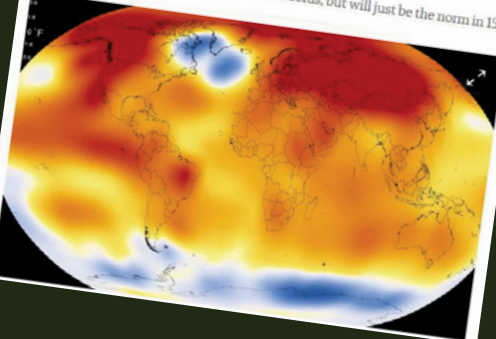
**2015 Was Hottest Year in Historical Record,
Scientists Say**

It's the Hottest Year in History – For
the Ninth Consecutive Time

2016 on pace to be the hottest year on record

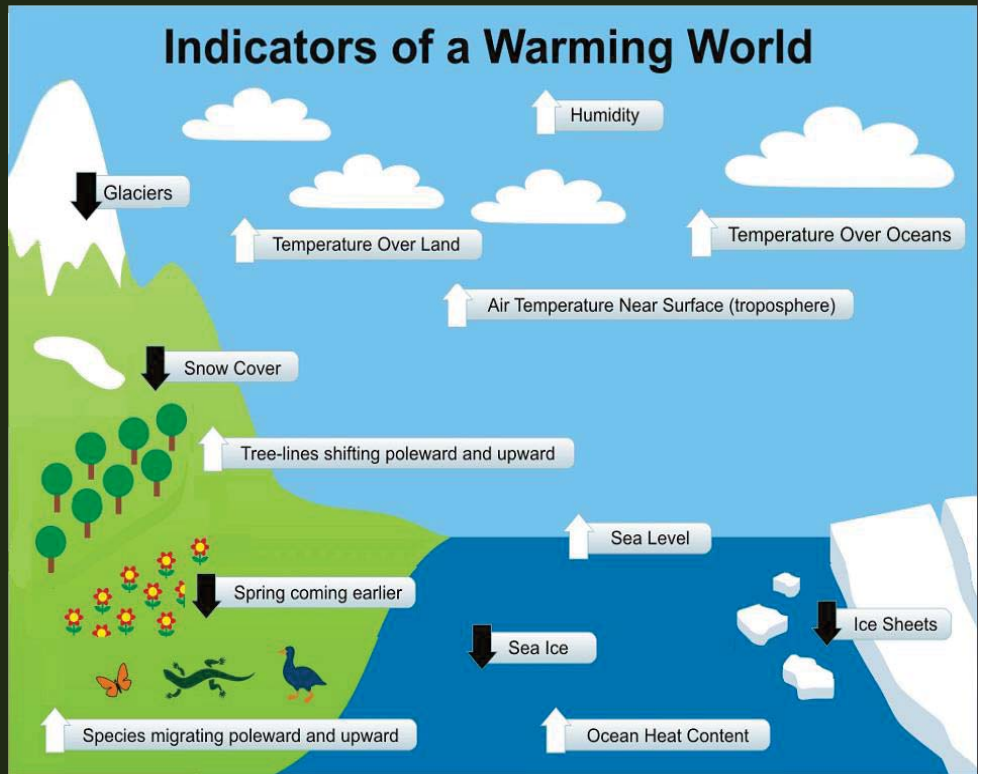
Record hot 2015 gave us a glimpse at the
future of global warming

An exceptionally hot year, 2015 shattered records, but will just be the norm in 15
years' time



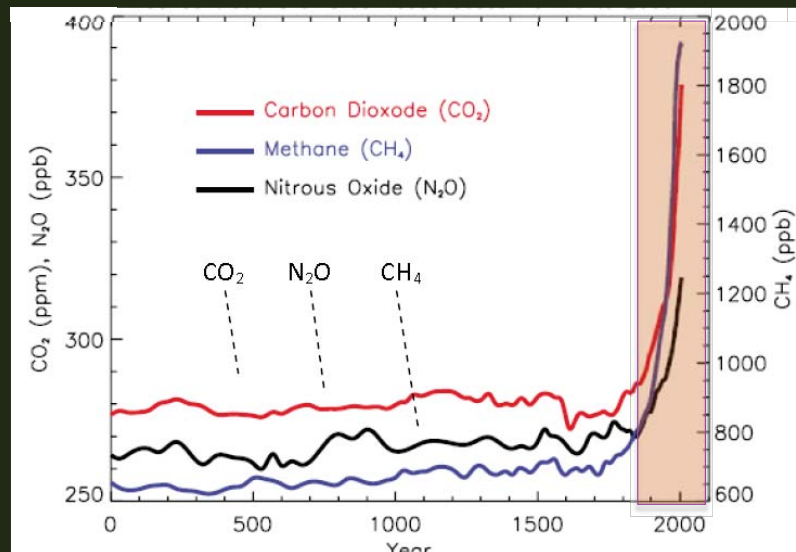
SYMPTOMS

An entire
GLOBE full
of evidence
in nature
speaking to us



"DEEPEST" CAUSES

Humans are responsible for the abrupt increase
in the "heat trapping" Greenhouse Gases





The Encyclical is in accord with the science:

“most global warming in recent decades is **DUE TO THE GREAT CONCENTRATION OF GREENHOUSE GASES** (carbon dioxide, methane, nitrogen oxides and others) released **mainly as a result of human activity.**” [23]

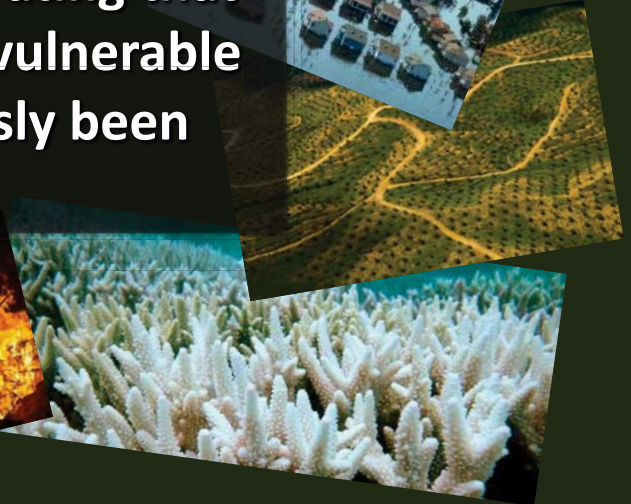
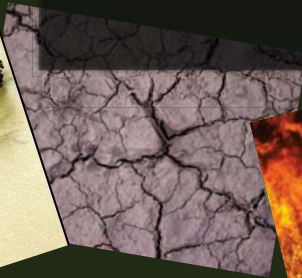
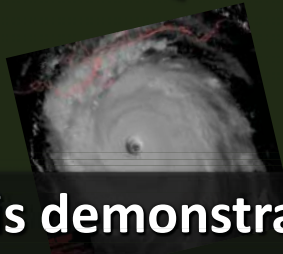
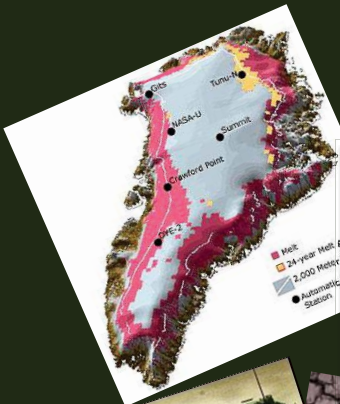


Radical (def)

2. very different from the usual or traditional: **EXTREME**

CONSEQUENCES

Science is demonstrating that this planet is more vulnerable than had previously been thought.



Water supply depletion



Failed crops

Flooded crops

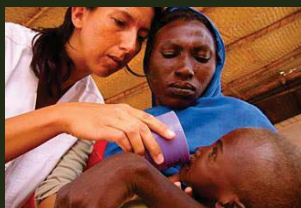


The Global Poor are disproportionately affected by climate change

Conflict over scarce resources



Environmental "refugees"



Vector-borne Disease



Loss of homeland to rising seas



Scenario dire for cities under Colorado River water shortage

Cost of electricity from Hoover Dam could rise fivefold



JOHN LOCHER / THE ASSOCIATED PRESS 2014

Drought drives California almond farmers to cut orchards



ERIC RISBERG / THE ASSOCIATED PRESS

Residents flee while dodging burning poles, power lines

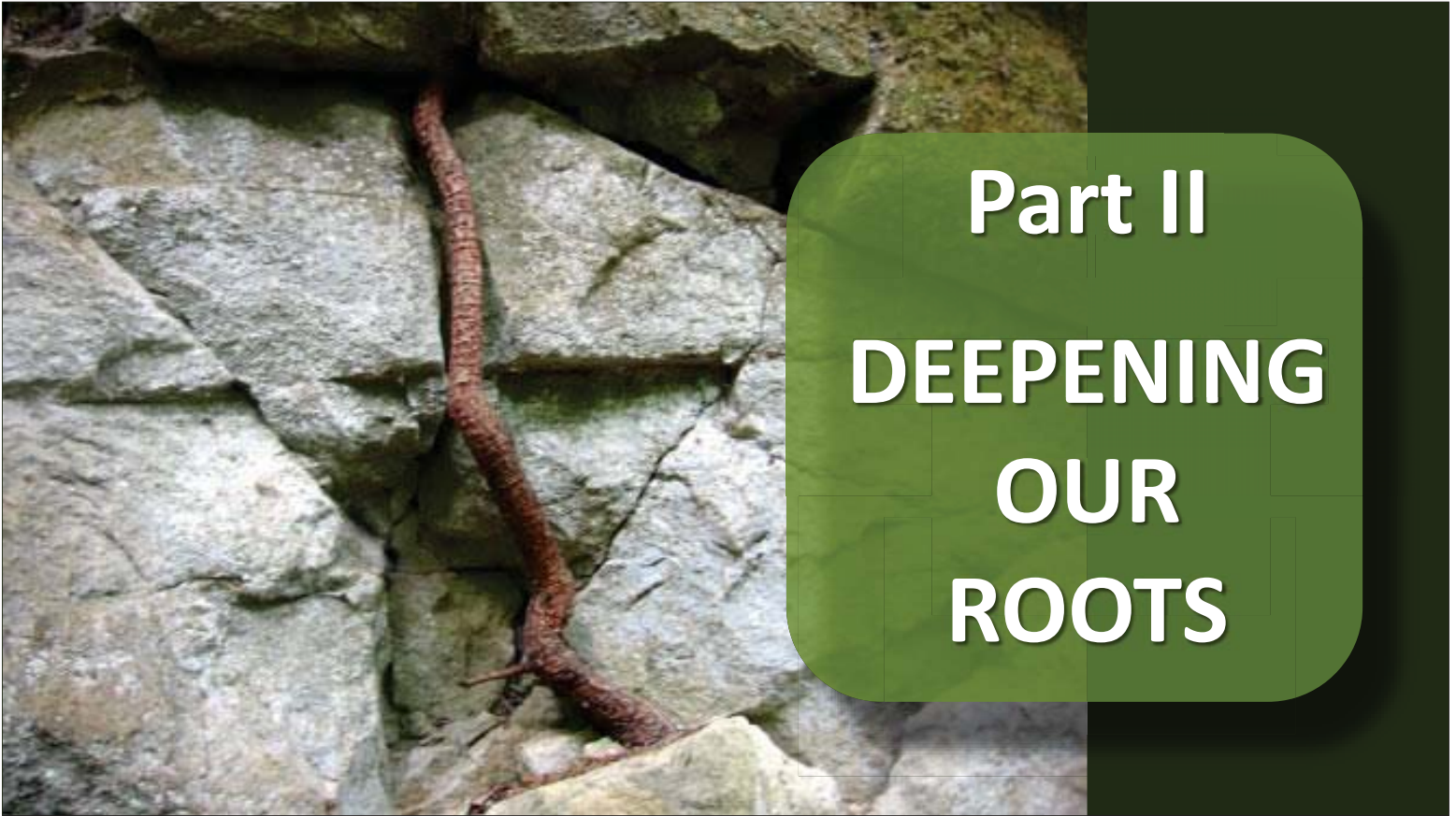


Trees still in their prime are ground up to fuel power plants

Fires in Calif. destroy at least 400 homes

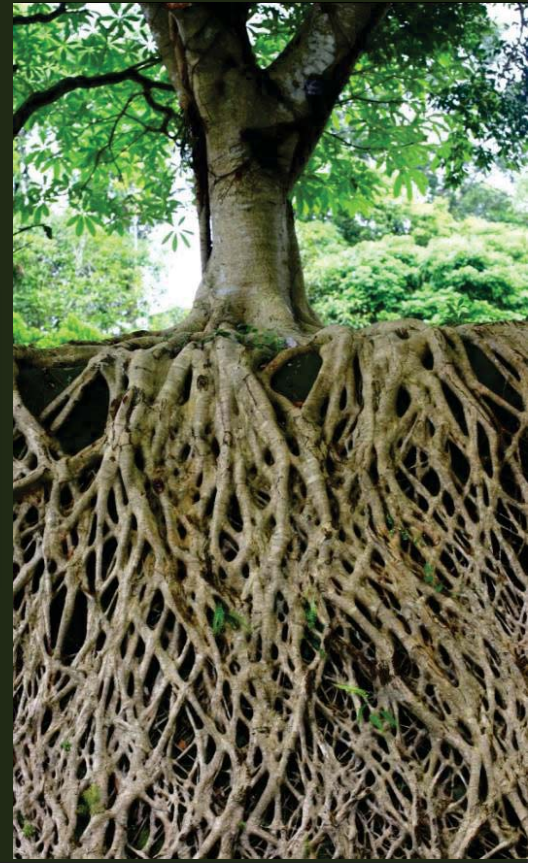
THE SCIENTIFIC CONSENSUS

1. CLIMATE CHANGE IS REAL: has happened, is happening, will continue to happen in the future
2. The EARTH IS WARMING
3. HUMANS are causing a significant portion of this recent warming
4. The WARMING WILL CONTINUE
5. Globally the NET RESULT WILL BE BAD for people, plants, and animals - especially those MOST VULNERABLE



“We fail to see the
DEEPEST ROOTS
of our present failures . . .”

[109]



“THE SYSTEM”

unrestrained
technology

“deified”
market influence

weak political
responses

“US”

intensified pace of
life and work

indifference,
selfishness

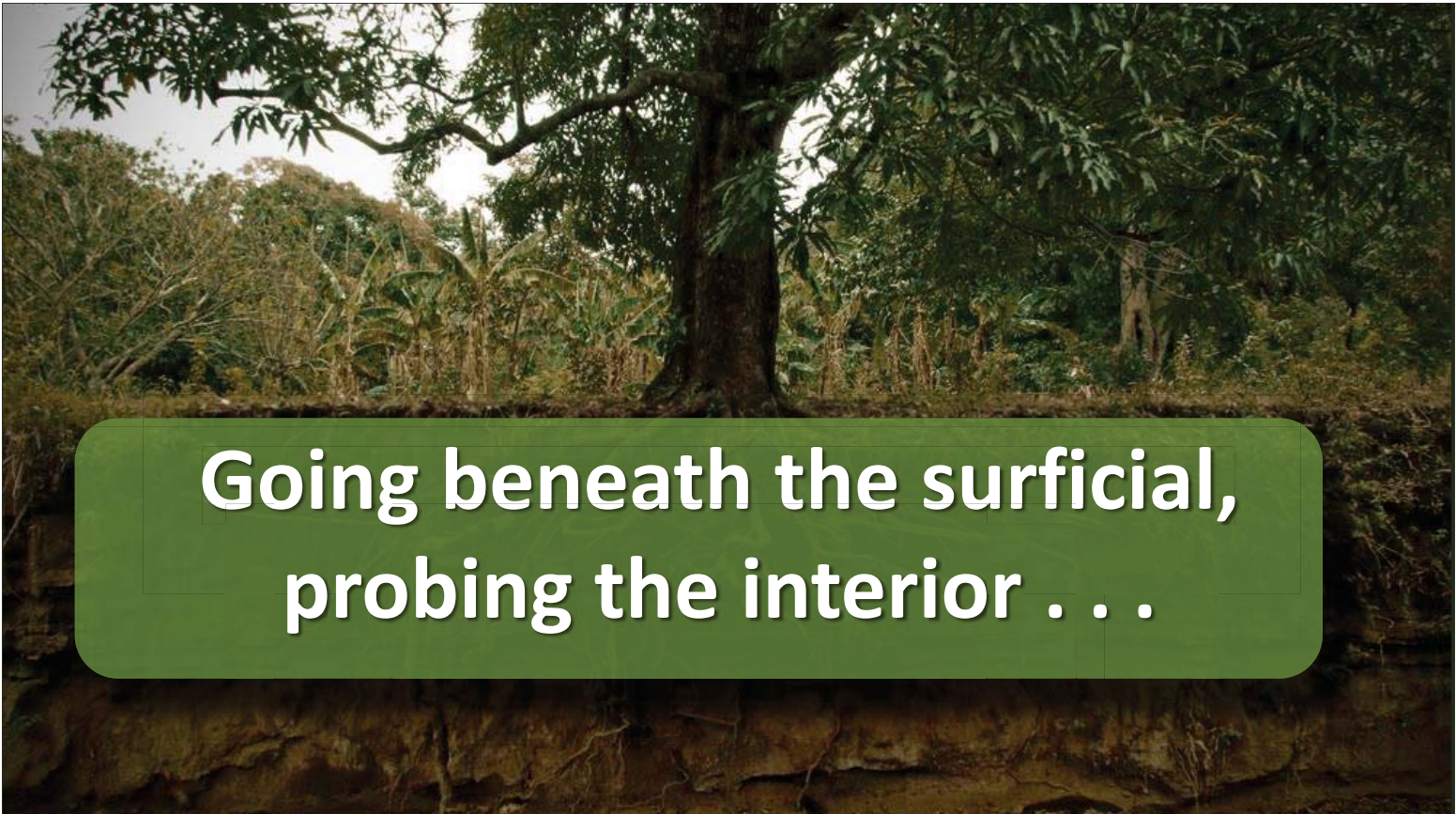
dulled
consciences



“The external deserts in the world are growing, because the internal deserts have become so vast.”

- Pope Benedict XVI

“For this reason, the ecological crisis is also a summons to profound **INTERIOR CONVERSION.”** (217)



**Going beneath the superficial,
probing the interior . . .**



Everything Is Connected !

“Everything Is Connected”

DIVINE WITH HUMAN

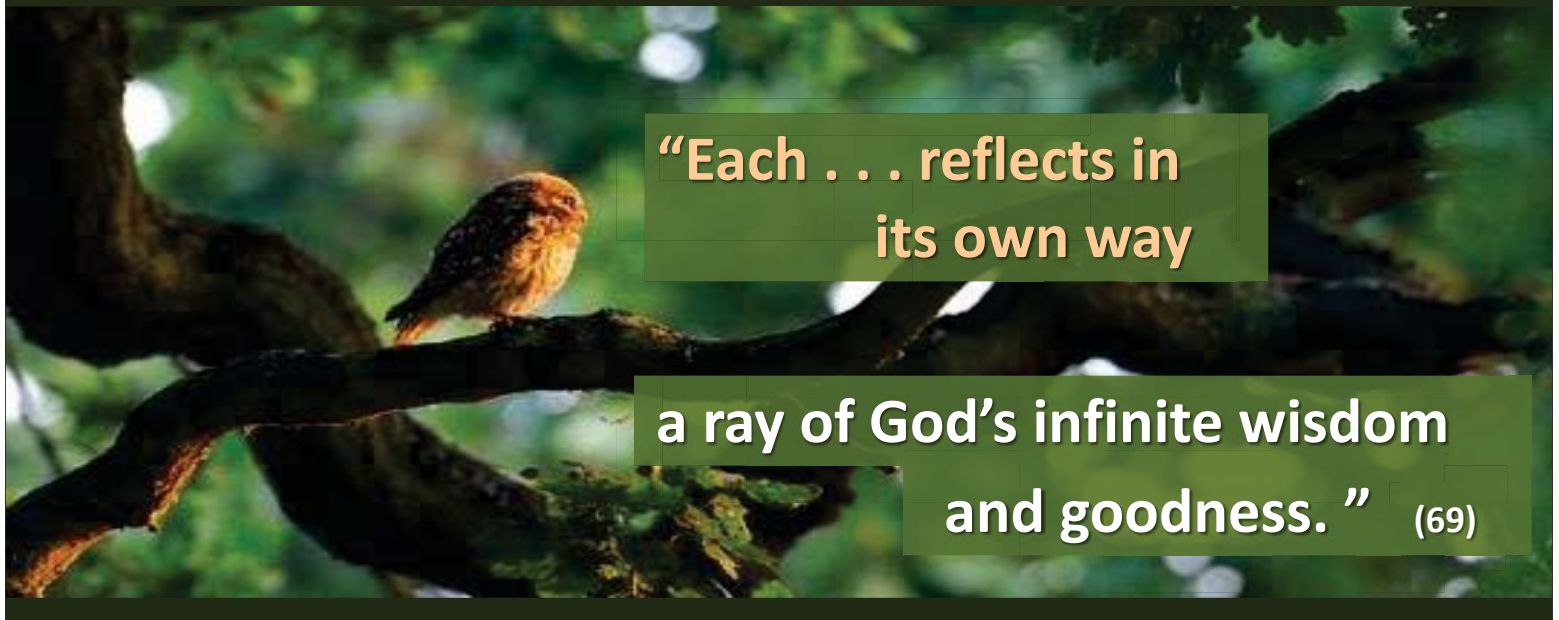


**CREATIVE
LOVE BINDS US**



“The earth
was here
BEFORE US
and it has
BEEN GIVEN
to us.” (67)

“Everything Is Connected”
CREATOR WITH CREATURES



“Each . . . reflects in
its own way

a ray of God’s infinite wisdom
and goodness.” (69)

“Everything Is Connected”

US, THE EARTH, & EACH OTHER



“We have forgotten that we ourselves
are dust of the earth . . .

**OUR VERY BODIES ARE MADE UP
OF HER ELEMENTS”** [2]

“Everything is Connected”

THROUGH THE AIR WE BREATHE & THE PLANET WE SHARE



“The climate is a **COMMON GOOD**,
belonging to all & meant for all . . .” (23)

“No peaceful society can afford to neglect either respect for life or the fact that there is an integrity to creation.”



– Pope John Paul II

The relationship . . .

**“between
HUMAN BEINGS
& the ENVIRONMENT . . .**

**. . . should mirror
the creative LOVE
of GOD.”**

– Pope Benedict XVI

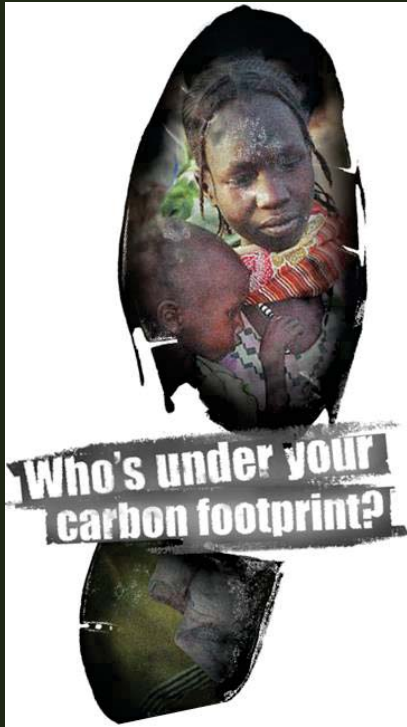
Radical (def)

5. favoring **EXTREME CHANGES**
in existing **VIEWS, HABITS,**
CONDITIONS, or INSTITUTIONS

EXTENSIVE CONVERSION

“Let **US . . .** dare to turn
WHAT IS HAPPENING
TO THE WORLD
into our own
PERSONAL SUFFERING. . .” [19]





“...the environmental challenge we are undergoing, and its **HUMAN ROOTS,** concern and affect us ALL.” (14)

Part III
**BRANCHING
OUT**





A GLOBAL CONSENSUS
is essential
for confronting the
deepest problems

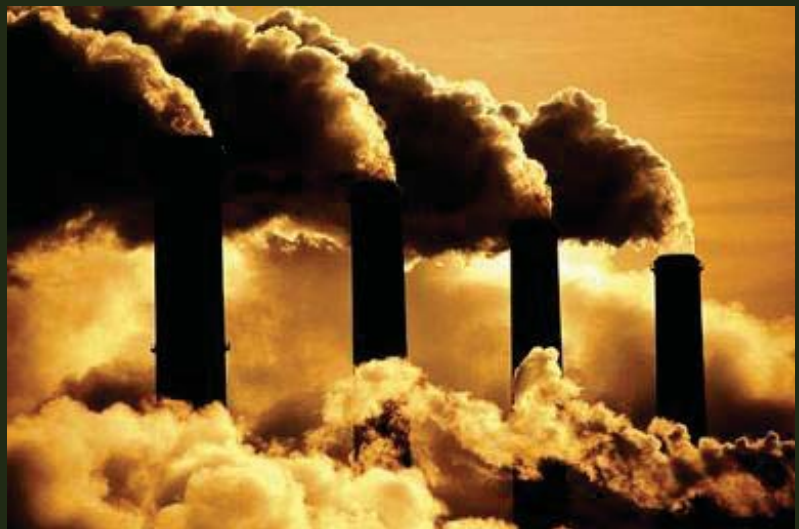
Technological progress has so far
PROVED INCAPABLE of finding effective
ways of dealing with grave environmental
and social problems worldwide. [164]

POLITICS and **BUSINESS** have been slow to react

in a way
commensurate
with the
URGENCY
of the challenges
facing our world.



“Although the
post-industrial
period may well
be remembered



as **one of the most irresponsible in history . . .**

A photograph of a sunset over a range of dark hills. The sun is low on the horizon, creating a bright orange and yellow glow in the sky. The clouds are illuminated from below, showing soft orange and pink tones. The foreground is in silhouette.

... there is REASON TO HOPE

... that humanity at the dawn of the 21st century will be remembered for having generously shouldered its grave responsibilities.” [165]

A photograph showing a landscape with several wind turbines in the foreground and a power plant in the background. The power plant has several tall smokestacks, one of which is emitting a plume of white smoke. The sky is overcast and grey. The foreground is a flat, green field with a small body of water in the distance.

FOSSIL FUEL TECHNOLOGY

“... needs to be progressively replaced without delay.” [165]

“THE SYSTEM”

Politics & institutions must do more than avoid BAD practice – they need to also **promote BEST practice.** [177]

“US”

“While the existing world order proves powerless to assume its responsibilities, **local individuals and groups can make a real difference.**” [179]

“TRULY much can be done!” [180]

Multiple ways to act and advocate at the local level:

- Modifying consumption
- Developing economy of waste disposal and recycling
- Sustainable agriculture
- Inspirational & empowering training
- Co-ops / Local groups
- Green energy
- Fossil-fuel divestment



Our Mother of Sorrows Parish
Tucson AZ



**“Everyone’s talents
and involvement
are needed
to redress the damage
caused by human abuse
of God’s creation” [14]**

**“There is a nobility
in the duty to care for creation
through little daily actions . . .” [211]**



**“We must not think
that these efforts
are NOT
going to
change the world.” [212]**

There is always hope for a tree:



*If it is cut down, it will sprout again,
and its new shoots will not fail.*

*Its roots may grow old in the ground
and its stump die in the soil,*

*yet at the scent of water it will bud
and put forth shoots like a plant.*

Job 14: 7-9



**"Start by doing
what is
necessary;
then do what is
possible;
and suddenly you
are doing the
impossible."**

— St. Francis of Assisi

Amen



• Pray • Live • Advocate •

Take the
St. Francis / Laudato Si' Pledge
to Care for Creation
and the Poor

visit:

catholicclimatecovenant.org





Katie Hirschboeck
Catholic Climate Ambassador

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