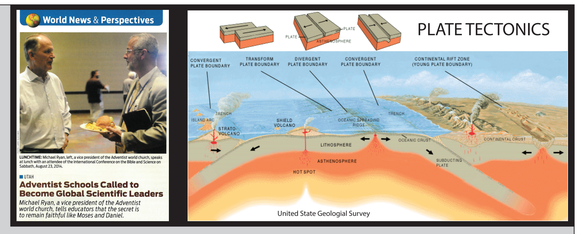
Respecting God's Word, God's World, and People in God's Image

Geology research motivated by the Genesis record

(we are looking for others to join us)

GEOSCIENCE RESEARCH INSTITUTE



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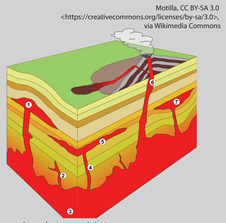
1. LARGE-SCALE RESEARCH

The Genesis record suggests doing science research universal in space and time, so our geology research is studying:
- o plate tectonics horizontally as the basic cause for much of what happens worldwide geologically
- o the geologic column vertically which organizes the flow of events related to the sedimentary/paleontology record
- o radiometric dating as the primary chronometer for time

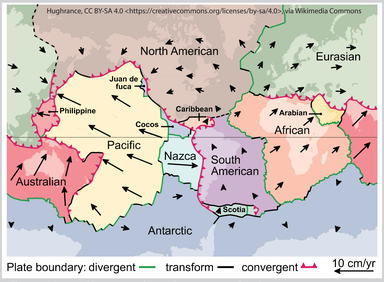
We are interested in:
- o geological rates that vary over earth history, e.g., plate tectonic movement and magmatic processes that form granitic rocks and volcanoes, experience flare-ups and lulls, and induce heat flow
- o the effects of water on geological rates, using stable isotopes to help determine fluid sources

We are using:
- o modern fieldwork and mapping techniques to visualize horizontal/vertical and time relationships
- o geochemistry to understand geologic processes, especially radiogenic isotope ratios that reflect plate tectonic and magmatic processes and sources, as well as age
- o large data analysis to study how worldwide processes interrelate

Thanks to the Seventh-day Adventist church's generous funding, we aim to do good science by:
- o trying to provide positive alternatives, more than just opposing current models;
- o doing the research to see if the new ideas work, so as not to make unwarranted claims;
- o drawing on the worldwide network of SDA tertiary institutions, ideally suited to study worldwide geology


Motilla, CC BY-SA 3.0 <https://creativecommons.org/licenses/by-sa/3.0>, via Wikimedia Commons
volcanic/'granitic' magma systems

Geology localities -- researched, led field trip to, lectured on, or visited; open circles are future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Research on plate tectonic regimes: mantle plume, spreading center, transform fault, subduction zone

PACIFIC / NORTH AMERICA

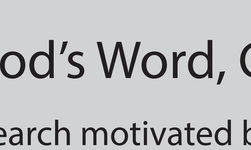
SOUTH AMERICA

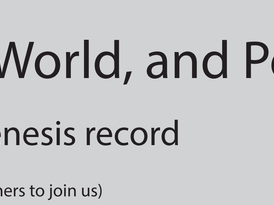
AFRICA / ASIA

CENOZOIC
late/post flood ??

2018 volcanic lava flow from helicopter
Q = age dating & isotope ratios
~Hilo, Hawaii / O'Hare, Martínez

vesicles from vapor expansion in lava
Q = water effects & magmatic rates
~Milolii, Hawaii / O'Hare, Martínez


By Pete from USA - Bartolome View, CC BY-SA 2.0, https://commons.wikimedia.org/w/index.php?curid=3263103
volcanic cone near a plate tectonic boundary
Q = mantle plume, plate tectonic rates
Bartolome Island, Galápagos / Natal



~10 m.y.-old zircons with fossil whales
Q = age dating & well-preserved fossils
~Ica, Peru / Ospino, Pompe, Nick, Poma

2023 field trip: Rift Valley, volcanics, early man
Q = age dating, plate tectonic processes
Kilimanjaro, Tanzania / Clausen, Mnkeni

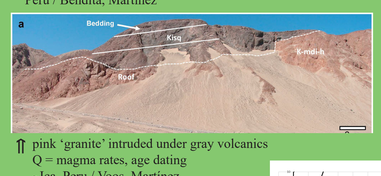
MESOZOIC
flood ??

geologic map, Box Spgs granitic pluton
Q = magma rates & radiogenic isotopes
~Loma Linda, Calif / Ospino, Martínez

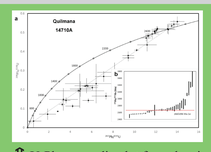
granitic outcrop in the Sonoran batholith
Q = plate tectonics & isotope sources
Gulf of California, Mexico / González

PRECAMBRIAN
PALEOZOIC
pre/early flood ??

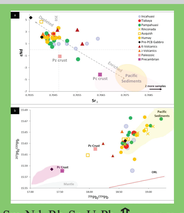
⇐ granitic batholith, Andean foothills
Q = magma geochemistry & plate tectonic rates
Peru / Bendita, Martínez



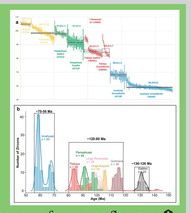
⇑ pink 'granite' intruded under gray volcanics
Q = magma rates, age dating
~Ica, Peru / Voos, Martínez



⇑ U-Pb concordia plot for volcanics
Q = discordant radiometric ages
Rio Pisco, Peru / Martínez, Clausen

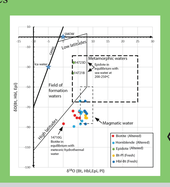


magma reservoirs & Sm-Nd, Rb-Sr, U-Pb ⇑
Q = source of radiogenic isotopes
Pisco-Ica, Peru / Martínez

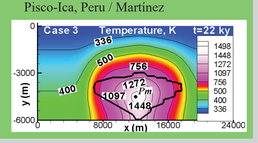


m.y. zircon ages for magma flare-ups ⇑
Q = high magma rates & age dating
Pisco-Ica, Peru / Martínez

⇐ copper ore veins mined in volcanics
Q = water effects & geologic rates
~Pisco, Peru / Pereira, González



magma chamber cooling model ⇒
Q = heat flow & cooling rates
Rio Pisco, Peru / Zambra, González



⇐ δ²H-δ¹⁸O plot of water sources
Q = source of water effects
Pisco-Ica, Peru / González

Silurian-Devonian trilobite
Q = age dates relative to fossils
Taraco, near Puno, Peru / Poma, Pompe

Precambrian granitic basement rocks
Q = source of inherited granitic isotopes/ages
~Ica, Peru / Martínez

looking north from Nepal, https://commons.wikimedia.org/
Mt Everest located near granitic rocks
Q = flare-ups, plate tectonic rates, isotope source
Himalayas, Tibet / Pompe

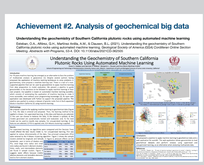
granitic rock with zircon mineral grains
Q = source for water transport of sand
Abeokuta, Nigeria / Oyedeji, Nalin

river sand bar in a flood plain
Q = source for water transport of sediment
Zambezi River, Zambia / Kalapula, Pompe

2. RESULTS

for example ...

nuclear reaction affecting ^{14}C
Q = changing decay rate
Indiana Univ / Clausen



granitic big data studied by machine learning
Q = magmatic & plate tectonic rates
Southern California / Alférez

3-week 2018 tour group with 100p guide
Q = complete vertical geologic column
Amazon-Andes-Pacific, Peru / Clausen

SUMMARY
> Reporting in research journals useful to the science community
> Showing that believers in a Creator can be well-respected scientists
> Mentoring the next generation of church leaders
> Educating the church with positive ways to understand Genesis
> Encouraging study of the creation, as pointing to its Creator

FOR MORE DETAILS SEE --- bclausen.net/GCposter

3. APPROACH

Scripture

First -- Trust God and the Bible when it says:
He created all in six days and rested the seventh;
He gave the Sabbath rest to us as a blessing.

Agreeing with Darwin: a good God didn't design evil.
As with those in Revelation, we ask about evil,
"How long, O Lord" -- we expect a short
past since it started and future until it's over.

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hyenas & wildebeest, Serengeti - 2019

Nature

Second -- Learn of God through nature.

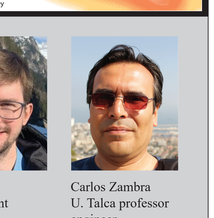
We find a good and powerful Creator Designer;
that science fits within a Christian worldview; and
that many fathers of science were Christians.
However, our research on plate tectonics,
the geologic column, and age dating
does not easily fit in a short time frame. So we ...

2012rc, Public domain, via Wikimedia Commons

Harmony

Third -- Study the two books looking for harmony.

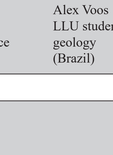
In the process, we say with Job,
though he slay me, yet will I trust him,
but I will defend my ways before him.
When God asks the hard questions,
I acknowledge He can do all things, and
that I speak of what I do not understand.


Job Confessing His Presumption to God Who Answers from the Whirlwind
William Blake, Public Domain, via Wikimedia Commons

People

Fourth -- Treat people well.

Our desire is to draw people to Christ,
not by telling them how wrong they are,
but by showing them a light so lovely,
they want with all their hearts to know its source.



research group, Chile - 2017

4. MESSAGE

Providing a better picture of God
good = trustworthy in the face of evil
powerful = beyond human explanation
Pointing to something more
a wider search than just science (evidence/reason)
freedom, curiosity, learning … not static
Recognizing human limitations
Caring
with a safe/welcoming/graceful community
making the world a better place … science in service
Offering purpose & meaning
we're here for a reason … not by chance
evil is not natural … the world is broken, needs fixing
a happy ending