

Chairman's Report

Magma Production Rates: Mantle Melting and the Thickness of the Crust

By Robert T. Gregory

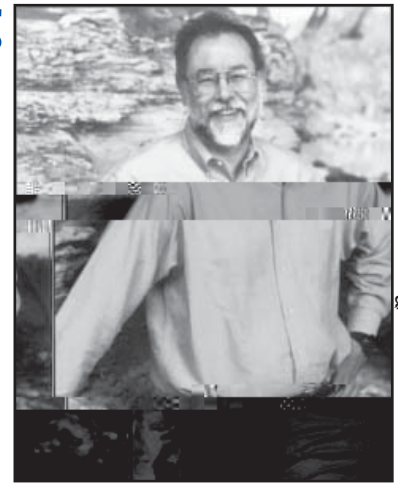


Photo by H. S. Ma, B. Jacobs



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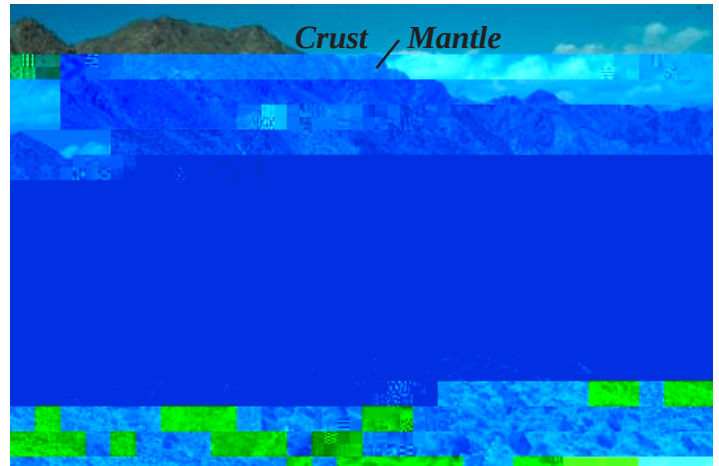
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An example of a fertile mantle peridotite from the Ivrea Zone of the Alps. A near vertical foliation is present with bands of Cr-rich green diopside (clinopyroxene) parallel to the foliation. The darker minerals are spinels rich in chromium. The more massive pale rock is lherzolite (olivine + Ca-Mg pyroxene + enstatite, Mg-rich pyroxene). The elements that melt out of the rock to produce feldspar in basalt largely come out of the pyroxene.

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The boundary between the crust and mantle is exposed in the Oman Mountains, Sultanate of Oman. Rocks to the right are peridotite (olivine-rich rocks) consisting of the subtypes dunite, the buckskin brown color, and harzburgite (olivine + orthopyroxene), the darker rocks. Plagioclase feldspar-rich rocks on the left are separated from the mantle by a thin dark layer of wehrlite, a magmatic accumulation of olivine and pyroxene. Seismically, the crust-mantle boundary is marked by the predominance of Al-rich feldspar of the crust.

Jane Christman Albritton Life-Long Partner to Professor Claude Albritton, Jr., & Grand Matriarch of SMU Geology



G A H J M A C
J.E. B , D.B. B , & E. H

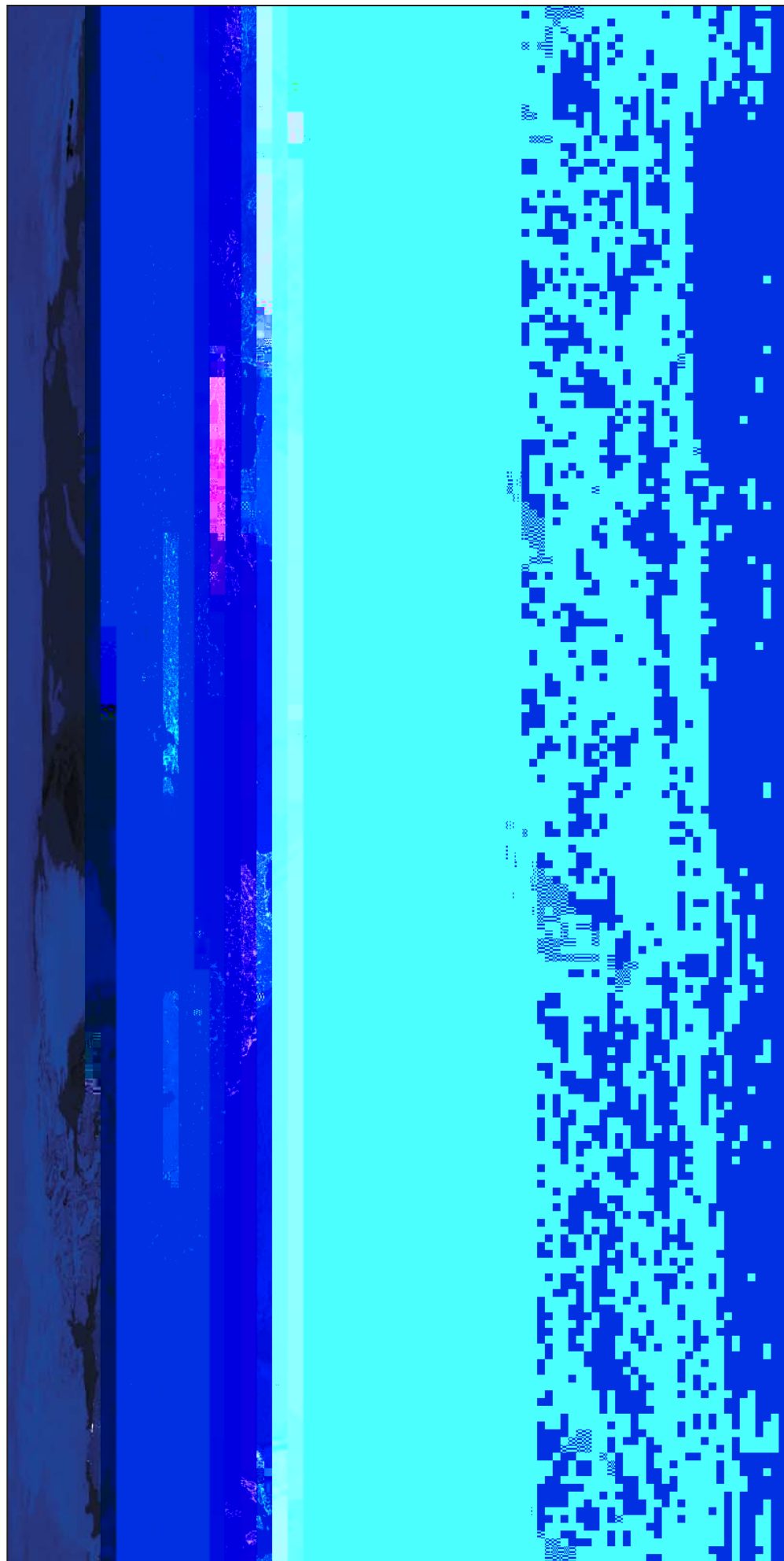
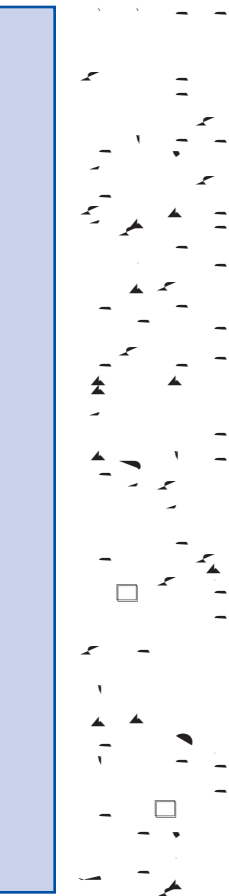
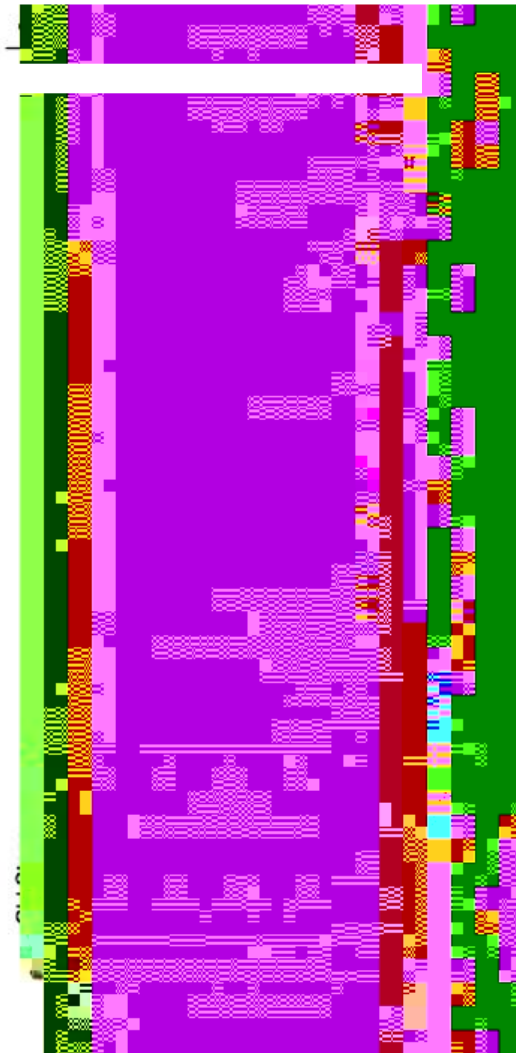
Geological Sciences to Earth Sciences: A name change for the “Anthropogene”

SMU Board Approval at Dec. Meeting



Clockwise from top right: The Earth rises over the Moon in this shot from NASA's Apollo 11 mission. Graph midpage: Human population growth shown against the backdrop of technological advances which have accelerated exponentially with the population. Unprecedented growth of human population, near “zero” on the x-axis, corresponds to the “Age of Oil” which will be less than a quarter of a millennium (modified after McKenzie, 1998). Bottom: NASA's composite of the Earth at night showing the impact of electric lighting made possible by power generation that largely relies on fossil fuel located by geologists; this is a stunning example of one of the effects of the Anthropogene.

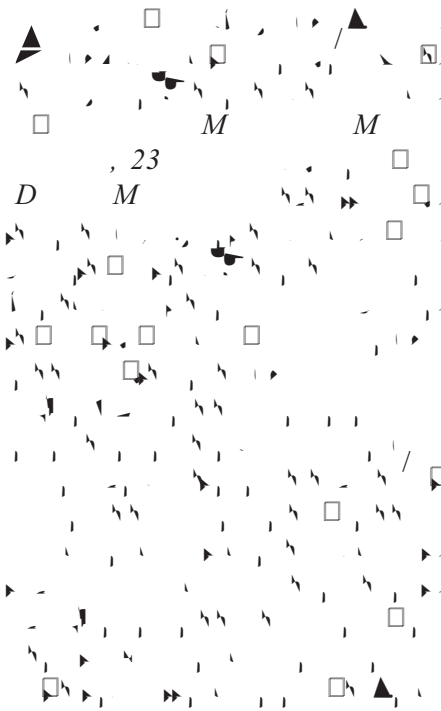
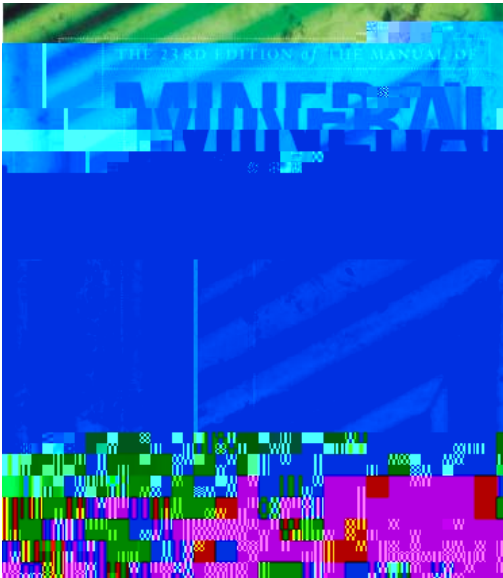
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Post World War II: Man ege a dge n s c e a d s
a d s t e g e s b y b e c a s e f i n e l c e a r a g e .
1950s: C d a r g e e r e s e t e s t s c e c e d c a -
t : e a i n s c e c e b e c m e s e a r s e c d a r s c n s b e d .
1960s: N c e a r a m s n e r c i e s b a t r e a t g e e r e s b y -
r e s t m e t m d e r s s e s m t d e d e d s d e g a n d
t e s t s . S M U s G e e H e l l a s a e l e .
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F l u d a s f E a i n S c e c e s e r e s e d b A . L e e M c A -
e s t e r e a d s t i n e a e t e f l u d d t g e g f f e r g s .
1970s: E a i n b t t e s b e g s t d a e l e r i p n s -
c a G e .
A . L e e M c A e s t e r e b s n e s a b c a e d t h e E a r t h s g a
t e a i n s s i e s a r a c n ; S M U P r e s d e t , J a m e s Z m b e g e ,
r e a s t i n e t t e , i p n s c a G e g , f u n s t e t b .
1980s: T h e C o s m o s e a t e a d e d s c e c e a r a c n r e -
e d g e d s c e r e s c s g , a d e a r s c e c e a d
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I m a d f g e c n e m s t C . D . K e e g s c a b d d e m e a -
s t m e t s b e c m e s t e d c c e r s a b l c m a e c n a e .



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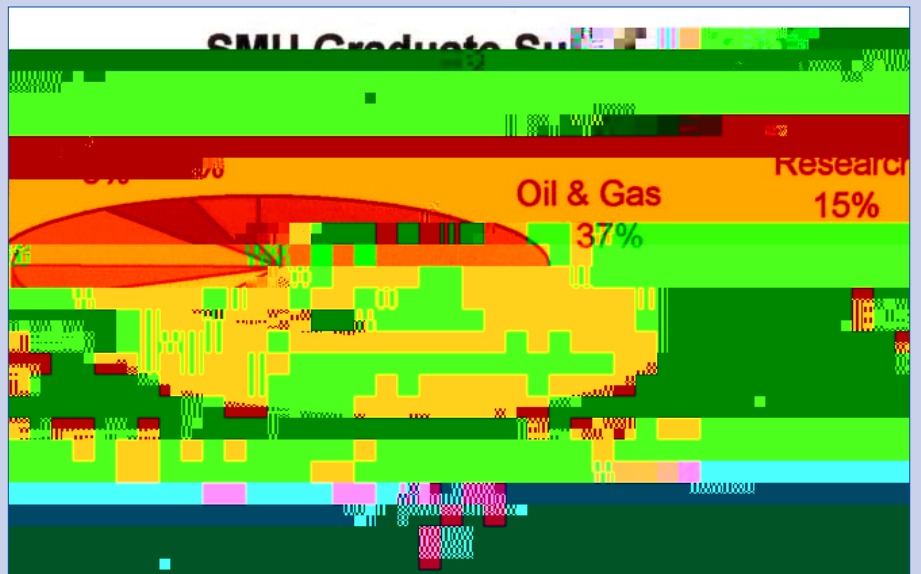
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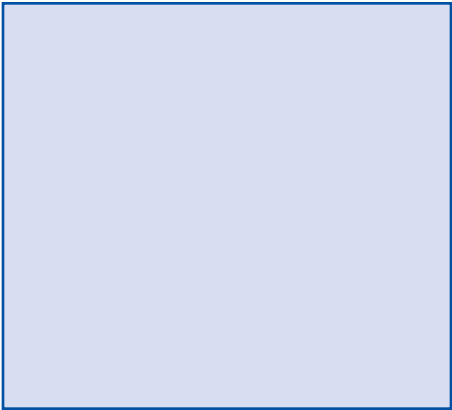
During the Fall Semester 2007, we repeated our survey of the alumni using the same format that was used in 2002. We only contacted alumni who did not respond to the previous survey. The results of this survey were consistent with the results of the previous one (see *Geology at SMU*, October, 2002). As we said before, "Geology is always a good bet." Careers in oil and gas still dominate the responses with recent graduates getting snapped up due to the shortage of geologists and the pressures on companies with aging work forces. A large number of our bachelor degree holders go on to higher degrees.



Geothermal springs at Yellowstone National Park

2007 Institute for the Study of Earth & Man excursion

sion



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