



*Geodynamic Processes
at Rifting and
Subducting
Margins*



Collaborative opportunities in the
East African Rift System
Thursday December 12, 2013

What GeoPRISMS is

Successor to the decadal NSF MARGINS Program

Studies of origin & evolution of continental margins

Community-driven, interdisciplinary, cross-divisional NSF-funded
Integrating field, theory, experiment, and modeling

Focus on rifts and subduction zones

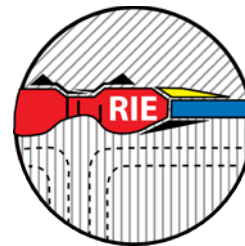
Active geodynamic processes; formation of continental crust
Where geology and society intersect; many economic resources

Shoreline-crossing, i.e., “amphibious”

Where most rifts and subduction zones occur
Geologic & geodynamic processes span the shoreline
Where focused, cross-divisional efforts most needed

Two broadly integrated initiatives

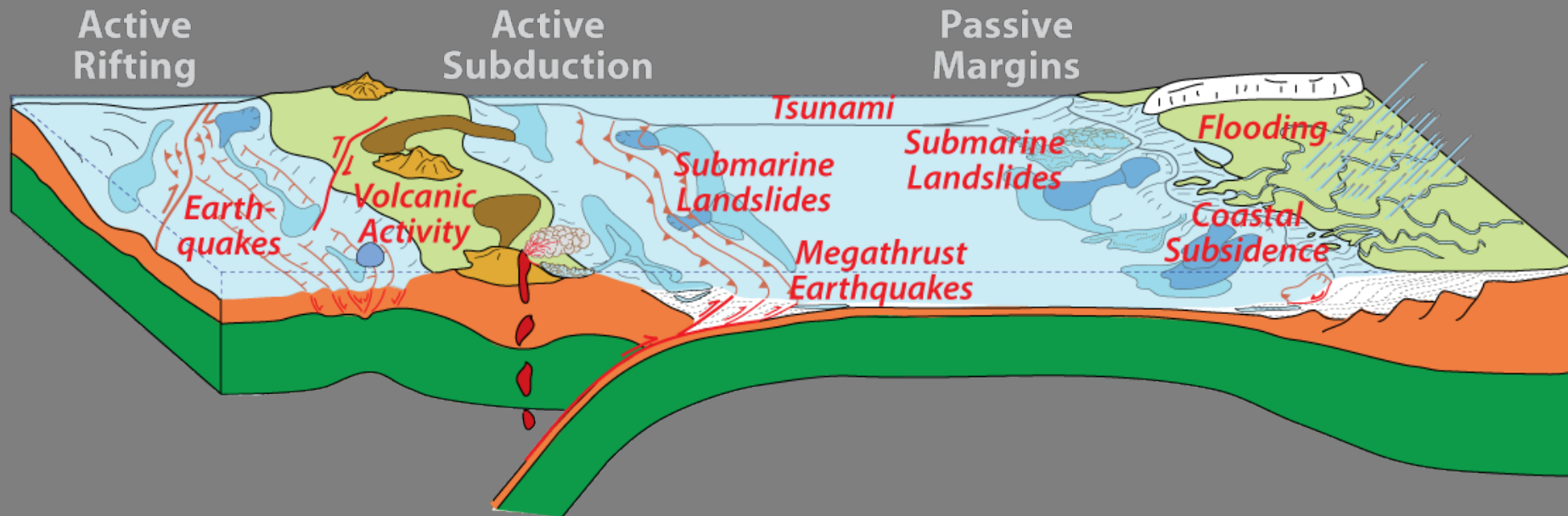
**Subduction
Cycles &
Deformation**



**Rift
Initiation &
Evolution**

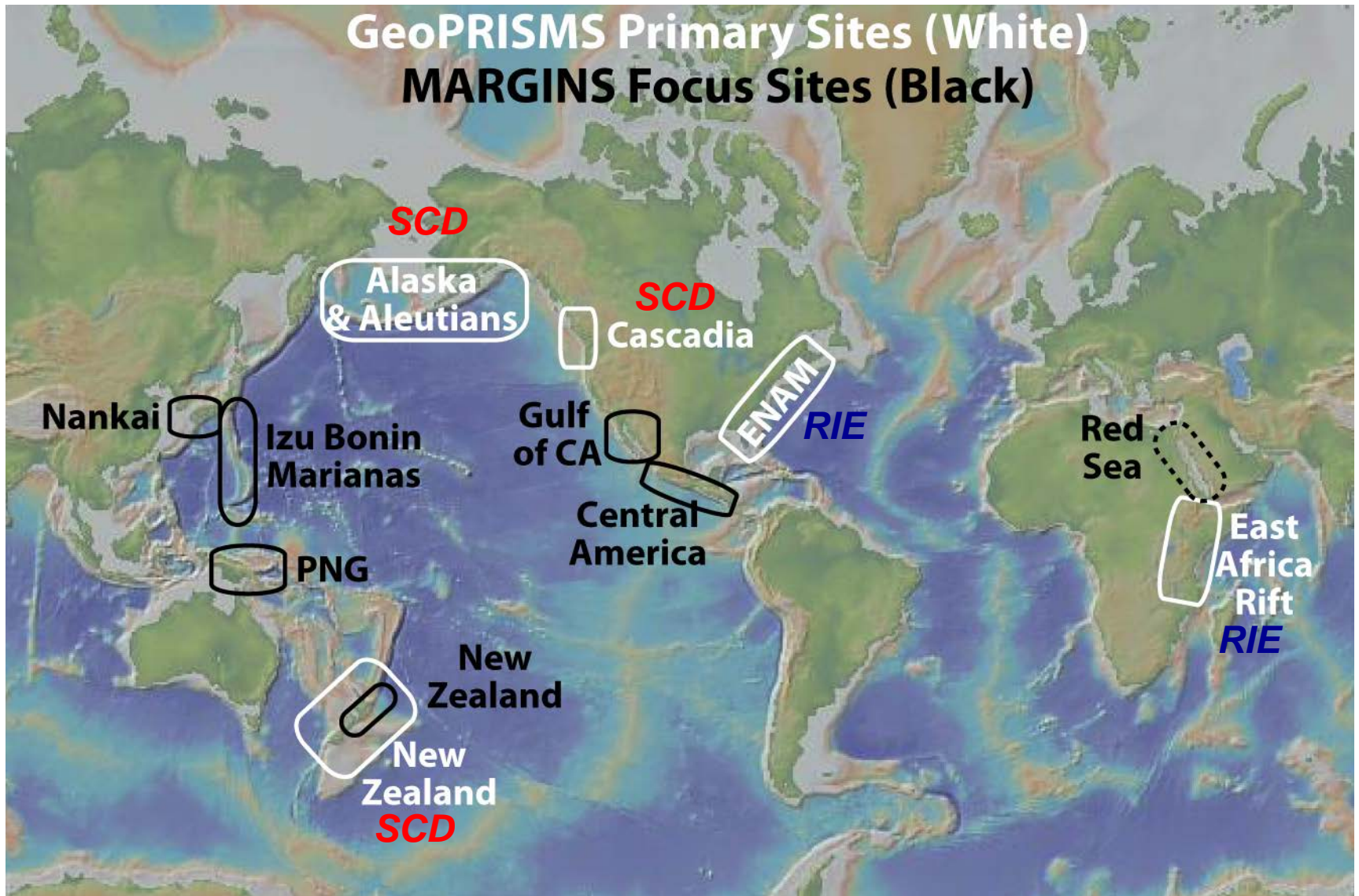
Research at Primary Sites & through Thematic Studies

GeoPRISMS Tectonic Settings



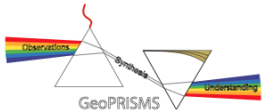
GeoPRISMS investigates the coupled geodynamics, earth surface processes, and climate interactions that build and modify continental margins over a wide range of timescales (from s to My), and cross the shoreline, with applications to margin evolution & dynamics, construction of stratigraphic architecture, accumulation of economic resources, and associated geologic hazards and environmental management.

Where GeoPRISMS Works



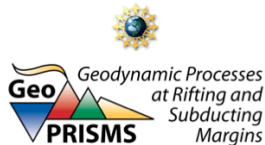
GeoPRISMS Community Science

GeoPRISMS Draft Science Plan



Submitted to NSF, April 19, 2010

Assembled by the MARGINS Office
Lamont-Doherty Earth Observatory
of Columbia University
61 Route 9W
Palisades NY 10964
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GeoPRISMS Draft Implementation Plan

Submitted to NSF, March 2, 2011

***“A Living
Document”***

Assembled by the GeoPRISMS Office
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6100 Main Street
Houston, TX 77005
www.geoprisms.org

Community planning at workshops

MSPW – Feb 2010

RIE IW – Nov 2010

SCD IW – Jan 2011

Alaska – Sep 2011

ENAM – Oct 2011

Cascadia – Apr 2012

EARS – Oct 2012

NZ – Apr 2013

Science Plans w/ research objectives

Proposals guided by Science Plan

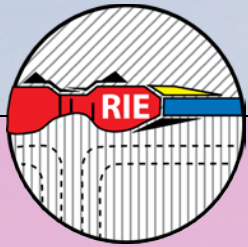
PI-driven proposals (individual, team, postdoc)

Community-driven proposals (e.g., Amph. Array)

Workshop proposals (planning, science, synth.)

Deadline early July

GeoPRISMS is open, all can participate!!



GeoPRISMS Structure & Topics

Rift Initiation and Evolution (RIE)

Where and why continental rifts initiate

Fundamental rifting processes; feedbacks in time & space

Controls on the architecture of rifted continental margins

Mechanisms & consequences of fluid & volatile exchange



Subduction Cycles and Deformation (SCD)

Controls on size, frequency & slip behavior of subduction plate boundaries

Spatial-temporal deformation patterns during seismic cycle

Linkages between volatiles & plate boundary rheology

Volatile storage, transfer, & release in subduction systems

Geochemical products of subduction; continent creation

Subduction zone initiation and arc system formation

Feedbacks between surface processes & subduction dynamics

Opportunities for Students & Postdocs

Education & Training

AGU Best Student Presentation prizes

Distinguished Lectureship Program

Postdoctoral fellowships

Student (and post-doc) symposia (at workshops)



Alaska



ENAM



Communication and Data Access

Communication

GeoPRISMS website

GeoPRISMS newsletter

GeoPRISMS listserv

Data Access

GeoPRISMS data portal

MARGINS data portal

GeoPRISMS Newsletter
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Welcome to GeoPRISMS
Julia Morgan, *GeoPRISMS Steering and Oversight Committee Chair*
Rice University

I am excited to introduce the inaugural issue of the GeoPRISMS Newsletter (NZ) in the series that includes the MARGINS Newsletter. Over the last year, MARGINS successfully transitioned into GeoPRISMS, and the program is off to a roaring start. The GeoPRISMS Office, opened at Rice University last October, as the last MARGINS Office closed its doors at Lamont-Doherty Earth Observatory.

The genesis of GeoPRISMS was undoubtedly a community effort, but it would not have been possible without the able guidance of the previous MARGINS Chief, Geoff Blum, and his staff. Geoff deserves extraordinary thanks for shepherding the MARGINS Program through its difficult review, guiding the community through planning the MARGINS workshop and office relocation as the GeoPRISMS Office started up. New Rampion, Karlo Horvath, and Leah Goodrich, who staffed the MARGINS Office at Lamont, provided invaluable assistance, keeping the MARGINS Office open to ensure a gradual and graceful transition throughout the fall. Previous MARGINS Chairs, Julie Morgan, Gary Karver, and Brian Taylor also left their unique imprints on the MARGINS Program, and all are greatly responsible for its success and guiding the previous decade of groundbreaking interdisciplinary programs to modern challenges. Things have happened very rapidly in the GeoPRISMS Office since it opened.

There are staff members who joined the office: Anna Chapat-Sandhu — Administrative Coordinator, Charles Bopp — Science Coordinator, and Alison Henning — Education and Outreach Coordinator (see page 10). The new GeoPRISMS website is up and running (<http://www.geoprisms.org>), and new content is being added. An ongoing effort by the day (see page 39). The office has hosted or co-hosted two community planning workshops, and delivered the GeoPRISMS Implementation Plan to NSF. We would like to say very long with the GeoPRISMS Townhall and Student Forum and the GeoPRISMS Student Plan. The Oceanographic Leadership Program has just finished its 2010-2011 session, and new speakers have been identified for the year to come. And we are now preparing for several more planning workshops that will take place within the year (see "Upcoming Meetings" section below).

Upcoming Meetings
Apply Now!
Alaska Planning Workshop
Subduction Zones & Deformation Priorities
September 22-24, 2011 Portland, OR
Application due: June 2
EarthScope — GeoPRISMS Science Workshop for Eastern North America
Rice to Rice: 8-10 October 2011
October 27 - 29, 2011, Rice University
Application due: August 1
Apply online at <http://www.geoprisms.org>

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GeoPRISMS Data Portal Status Report

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latest updates

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Continental margins are the Earth's principal loci for producing hydrocarbon and metal resources, for earthquake, landslide, volcanic and climatic hazards, and for the greatest population density. Despite the societal and economic importance of margins, many of the mechanical, fluid, chemical and biological processes that shape them are poorly understood. The GeoPRISMS Program, supported by the National Science Foundation and built upon the NSF MARGINS program, focuses upon the coordinated, interdisciplinary investigation of the continental margins through two initiatives: the Subduction Cycles and Deformation (SCD) and Rift Initiation and Evolution (RIE). In order to address the fundamental scientific questions, each initiative is associated with Primary Sites to address a wide range of field, experimental and theoretical studies spanning broad spatial and temporal scales.

MARINE GEOSCIENCE DATA SYSTEM Search for Data

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MARGINS Data Portal

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More info: <http://www.geoprisms.org>