Presenting EarthScope to the public
in parks and museums

Interpretive themes and strategies for the
Colorado Plateau – Rio Grande Rift

Allyson Mathis
Grand Canyon National Park
Challenges of Interpreting Geology

• Interpreters and public are less familiar with geology than most other interpretive topics
• Geology is “foreign”
• Geologic Time
• “Grand Canyon-sized” gap between technical and popular literature
Opportunities in Interpreting Geology

- Scenery = Landscape = Geology
- Compelling stories
- Increase science literacy in the public
- Excite the public about major research initiatives such as EarthScope
EarthScope helps tell “the story behind the scenery”
National Park Service

“Elk Jam”
“Bear Jam”
“Geology Jam”
Interpretation ("textbook definition")

an educational activity which aims to reveal meanings and relationships through the use of original objects, by first-hand experiences, and by illustrative media, rather than simply to communicate factual information.
Interpretation (NPS definition)

facilitates a connection between the interests of the visitors and the meanings of the resource.
Successful Interpretation

4 Components

• Presentation Techniques
• Audience Characteristics
• Interpretive Methods
• Resource Information
The PAIR Model

Chains form lasting, strong connections

Anchors

Flexible
The PAIR Model
The PAIR Model

4 Components
Presentation Techniques

- delivery
Audience Characteristics

- focus interpretive message
- diverse
Interpretive Methods

- revelation step
- message
Resource Information

• building blocks
• park significance
• context
The PAIR Model

PAIRing People with Parks
The PAIR Model

Two models

The Interpretive Equation

\[(KR + KA) + AT = IO\]

The PAIR Model
(KR + KA) + AT = IO
Revelation based on information

Significance

Information

Relative scale
1 (low)
10 (high)
Interpretation is not just information.
Interpretation is not just (significance) meaning.

Interpretation is not just information.
Interpretation is revelation based on information.
Information

Significance

Audience prior to start of program
Information

Revelation based on information

Significance

Geology

Living Things

Humans

EXPERIENCE YOUR AMERICA
Net change is key
Interpretive Themes

- Are tools for cohesive development of interpretive programs.
- Flow from park significance statements.
- Link tangibles to intangibles.
- Express significance and meaning.
- Are specific.
- Answers questions “so what?” and “who cares?”
Tangible Resources:

• Objects, places, people, events
• Can be discerned with physical senses

“Capable of being exactly understood”
Intangible Resources:

• Systems, processes, relationships, feelings, values, ideas, and beliefs
Intangible Resources:

• Systems, processes, relationships, feelings, values, ideas, and beliefs

Universal Concepts: Intangibles that relate to almost everyone.
Intangible Resources:

- Systems, processes, relationships, feelings, values, ideas, and beliefs

Universal Concepts: Intangibles that relate to almost everyone.

“reveal the extraordinary”
Interpretive Themes

- Are tools for cohesive development of interp programs.
- Flow from park significance statements.
- Link tangibles to intangibles.
- Express significance and meaning.
- Are specific.
- Answers questions “so what?” and “who cares?”
El Malpais National Monument
Significance Statement

Repeated episodes of volcanic activity at El Malpais have created an unusually diverse and well preserved basaltic lava field featuring:
• One of the longest lava tube systems
• Ice caves
• Flow top features
• Cinder features
• Tree molds
El Malpais National Monument
Theme Statement

The complex geological history (specifically volcanism) at El Malpais has created an unusually diverse landscape with unique ecosystems, which have yielded significant scientific discoveries and promise more.
NPS – EarthScope
Primary Interpretive Themes

• The EarthScope experiment – the most comprehensive exploration to date of the structure, dynamics, and geologic history of the North American continent – exemplifies the insatiable human drive to learn.
•EarthScope encourages a feeling of national interconnectedness – a continental sense of place – by openly inviting communities to actively participate in the experiment, and by fostering an understanding that their local environment and culture interact with other components within the larger, dynamic Earth system.
A potential Basin and Range EarthScope Theme

The Basin and Range is a land of faults and fire and whose stark landscape whose origin clearly reveals the dynamic Earth processes that shape our planet and our lives.
A potential Colorado Plateau EarthScope Theme

The high elevation of Colorado Plateau, and hence its stunning canyon scenery, is a result of complex tectonic processes that have shaped the western United States and the people who live and have lived there.
A potential Colorado Plateau-Rio Grande Rift EarthScope Theme

EarthScope’s scientific instruments—seismometers and GPS stations—provide insight into the Earth processes that are still shaping the Colorado Plateau and Rio Grande Rift landscapes and have provided real time data that we live on a dynamic planet.
Interpreting EarthScope

Scenery
The role of the interpreter is to undermine the complacency with which most people approach the landscape.
Interpreting EarthScope

Dynamic Earth – earthquakes, volcanic eruptions
To say that something is solid as the ground under one’s feet is not to say much: that ground may be lifted miles into the air. Forests and grasslands and deserts flow like rivers.

--Joseph Wood Krutch
Interpreting EarthScope

Geology on a human timescale
Interpreting EarthScope

Link to current research and current scientific events
Interpreting EarthScope

Think like a visitor

Novice

Expert
Interpreting EarthScope

Avoid unnecessary big words

- supracrustal
- hyaloclastite
- diktytaxitic
- phreatomagmatic
National Park Service

Interpreting EarthScope

Demystify geology
Tips for interpreting geology

Interpret *genius loci* of the park
Tips for interpreting geology

Tell geologic stories
Tips for interpreting geology

Separate parts of the geologic story

*The here and now versus the there and then*
Tips for interpreting geology

Don’t do it all in one program
Tips for interpreting geology

Interpret deep time
Tips for interpreting geology
Interpret the nature of science
Unfortunately, stone has an undeserved reputation for being uncommunicative. The expressions stone deaf, stone cold, stony silence, and simply, stoned reveal much about the relationship most people have to the rocks beneath their feet.

– Marcia Bjornerud
The purpose of interpretation is to stimulate the reader or hearer toward a desire to widen his horizon of interests and knowledge, and to gain an understanding of the greater truths that lie behind any statement of facts.

--Freeman Tilden
National Park Service

Basic Scientific Research

Formal Learning

Free-Choice Learning

Common and Useful Knowledge

Scientists

Interpreters

Teachers

General Public

EXPERIENCE YOUR AMERICA
Strengths of Professional Interpreters

I
Interpretive Methods

A
Knowledge of Audience Characteristics
Strengths of Professional Geologists

Resource Information
Challenges for Professional Interpreters

Resource Information
Challenges of Professional Geologists

Interpretive Methods

Knowledge of Audience Characteristics
The moral I labor toward is that a landscape as splendid as that of the Colorado Plateau can best be understood by poets [interpreters] with their feet firmly planted in concrete data; and by geologists whose heads and hearts have not lost the capacity for wonder.
Any good poet [interpreter], in our age at least, must begin with the scientific view of the world; while the scientist must be something of a poet [interpreter], must possess the ability to communicate to the rest of us his sense of love and wonder at what his work discovers.

--Ed Abbey
Let’s work together