

Operation:
**TECTONIC
FURY**
Unlocking Earth's Geologic Mysteries



The
JASON
Project™



The JASON ProjectSM

A nonprofit subsidiary of the National Geographic Society, The JASON Project connects students with great explorers and great events to inspire and motivate them to learn science. JASON works with the National Geographic Society, the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), the U.S. Department of Energy, the Smithsonian Institution, and other leading organizations to develop multimedia science curricula based on their cutting-edge missions of exploration and discovery. By providing educators with those same inspirational experiences—and giving them the tools and resources to improve science teaching—JASON seeks to reenergize them for a lasting, positive impact on students.

Visit www.jason.org to learn more about The JASON Project, or email us at info@jason.org.

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Paul Zahl/National Geographic Image Collection

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Getting Started with *Operation: Tectonic Fury*

Developed in collaboration with our partners at National Geographic, NOAA, the U.S. Department of Energy, the Smithsonian Institution, and other leading organizations, *Operation: Tectonic Fury* is built on a Mission framework to capture the energy and excitement of authentic exploration and discovery. The *Operation* consists of four captivating Missions that provide the real-world challenges, the scientific background knowledge, and the tools to help you solve each Mission challenge.

Let's take a closer look at the parts of each Mission!



Mission Objectives

Each Mission starts with a list of objectives that you will find on this opening page.

Join The Team

Your Mission begins with an invitation to join the Host Researcher and Argonaut team. You will work side-by-side with this team as they guide you through your study of geology.

Video and Online Resources

You will also see icons directing you to the Host Researcher Video, where you will get to know more about the Mission team leader. Watch for these icons and others. They indicate when you will find multimedia resources online in the **JASON Mission Center**.

Introduction Article

Once you have your objectives and have met the team, each new Mission will introduce you to a day in the life of the Host Researcher and the unique work that brings this scientist face-to-face with geology concepts.

Mission Briefing Video

See these adventures come alive in every Mission Briefing Video, which gives an action-packed introduction to the Mission objectives and key science concepts.



Mission Briefing Articles

Gather all of your background information and clues through a series of Mission Briefing Articles that guide you through the science of geology, so that you can complete your Mission objectives.

Full-color graphics enhance the description and explanation of essential science concepts, so you can clearly see the ideas presented in the briefings.



Fast Facts and Examples

You will find interesting things you have never thought of before in Fast Facts and Examples.

Researcher Tools

Check out the amazing tools that researchers use during their explorations in the field. From CT scanners to satellites, you will learn how these tools help researchers unlock the secrets of our planet.

Explorer's Connections

Check out examples of Dr. Bob Ballard's research around the world.

This screenshot shows a two-column layout. The left column features a green sidebar with the title 'Operation Tectonic Fury' and a red link to 'Mission Home'. Below it is a photo of three researchers standing outdoors. The right column contains two sections: 'Major 1: Tectonics' and 'Major 2: Ecosystems'. Each section has a title, a brief description, and a small thumbnail image. A red line from the 'Connections' header points to the 'Major 2: Ecosystems' section.

Team Highlights

Get an up-close view of the investigations that our Host Researchers and Argonauts conducted during their field work for *Operation: Tectonic Fury*.

Mission Labs

Put your knowledge to work with several hands-on labs in each Mission. The labs provide opportunities to practice and refine the skills you need in order to complete your mission objectives. In these labs, you will build tools, conduct investigations, collect data, and describe your observations and conclusions in your JASON Journal.

Additional Online Resources

You will also find other great resources in the **JASON Mission Center**, including your JASON Journal. Use it to record your work and experiences as you complete your *Operation: Tectonic Fury* Missions. Check the JASON site often for live events and Webcasts that will provide updates on your Mission and on other breaking news in science.

This screenshot shows a page titled 'Additional Online Resources'. It includes a sidebar with 'Displaying Gargantua Strike' and a 'Major 1: Tectonics' section. The main content area has several sections with titles like 'Major 2: Ecosystems', 'Major 3: Geology', and 'Major 4: History'. Each section contains a brief description and a small thumbnail image. A red line from the 'Additional Online Resources' header points to the 'Major 2: Ecosystems' section.

Field Assignment

Field Assignments at the conclusion of each Mission give you the opportunity to put your new science skills and ideas to work in the field. To complete your Mission, you will need to accomplish the objectives set out in a Mission Challenge, and then provide an analysis during your Mission Debrief.

Argonaut Videos, Journals, and Photo Galleries

Join the Argo team as they conduct their field work for selected Missions around the country. Log into the **JASON Mission Center** to read the Argonaut journals and take a look at the photo galleries documenting their field experiences!

This screenshot shows a circular diagram titled 'Exploring Earth's Plate' with various geological features labeled. To the right is a sidebar with 'Major 1: Tectonics' and a 'Major 2: Ecosystems' section. A red line from the 'Mission Labs' header points to the circular diagram.

Connections

Learn to look for and find the amazing connections between science concepts and other things that you experience in the world around you. *Connections* highlight thought-provoking links that you can explore between science and human culture, history, geography, math, literature, strange phenomena, and other interesting topics.

This screenshot shows a page titled 'Connections'. It features a large image of a surfer, a section titled 'THE GEOLOGY OF SURFING', and a 'YOUR TURN' activity. A red line from the 'Connections' header points to the 'YOUR TURN' section.

Your Tour of the JASON Mission Center

The **JASON Mission Center** is your online hub for *Operation: Tectonic Fury* content and resources and for the Argonaut community. Your JASON experience will come to life through interactive games, digital labs, video segments, your own JASON Journals, and other community resources and tools that support the Missions in this book.



Create Your Own Free Student Account

If your teacher has made an account for you, simply log into the **JASON Mission Center**. Otherwise, follow these simple steps below to create your own account.

1. Go to www.jason.org.
2. Look for the **JASON Mission Center** in the upper right corner.
3. Click **Register**.
4. Choose "Student" as your role -OR- if your teacher provided you with a classroom code, click the link to enter it now.
5. Enter a username and select a password for your account that you can easily remember.

The JASON Mission Center Home Page

Welcome to your **JASON Mission Center** home page. From here you can quickly access all the wonderful JASON tools and resources as you begin your mission. Take a moment to read the latest JASON news, try a search of the Digital Library, or jump right into *Operation: Tectonic Fury* on the Web!

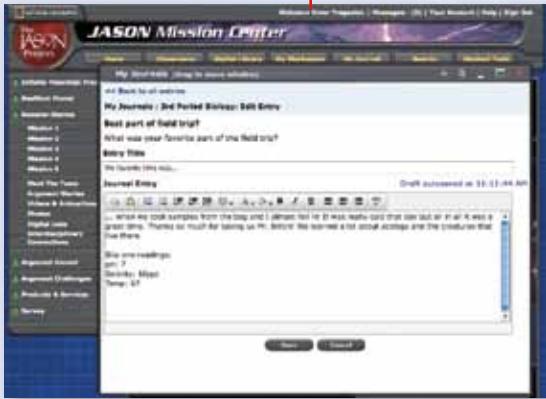
Here are some of the things you will see . . .

Two screenshots of the JASON Mission Center Digital Library. The top screenshot shows a search results page for 'Browse by Subject' with a sidebar for 'Digital Library: Browse by Subject'. The bottom screenshot shows a more detailed view of the search results with a sidebar for 'Digital Library: Search Results'.



Your Resources and Tools

Powerful online tools are always at your fingertips. Use the *Digital Library* to find any JASON resource quickly and easily. Save and organize your favorites in *My Workspace*. View assignments and community updates in your *Classrooms* menu. These resources and more are always accessible through the *Tools* menu at the top of the **JASON Mission Center** page.



My Journals and Other Community Tools

Your student account in the **JASON Mission Center** includes an online JASON Journal that allows you to take notes, write about what you have learned, and respond to journal questions during the Missions. Other Community Tools include a moderated message board, classroom home pages, and tools to communicate with JASON researchers about their ongoing work in the field.



Online Version of Operation: Tectonic Fury

This entire student edition book is also available to you online, for easy access anytime, anywhere. You can view any page from any Mission.



Team Info, Videos, and Photo Galleries

Learn more about the Host Researchers and the Argonauts from their biographies and journals. Video segments feature the Mission teams in action. Photo galleries provide additional views of the researchers and Argonauts at work, as well as stunning collections of more geology concepts in our world.

Interactive Games

Visit the JASON Mission Center for digital labs and games. See if you can recreate some of the world's most amazing landforms using your understanding of geologic processes or explore mines to determine the identities of mystery minerals.



Live Events

Communicate with great explorers through great events. JASON researchers work on the cutting-edge of science and are eager to share their stories of discovery and inspiration with students around the world.

Your Mission begins at www.jason.org