



## Module 4, Investigation 4: Log 1a

### Pen pal letters

Dear students in the United States,

I am so glad that I will be your pen pal. I would like to learn more about your country, and I will tell you more about mine. My name is Olga, and I am 10 years old. I know that you are studying about pathways, so I wanted to share an experience with you.

I live on a peninsula in northeast Russia. Do you know what a peninsula is? It is a stretch of land that juts out into water and is nearly surrounded by water. Do you have any peninsulas in the United States? In September of 1994, a volcano erupted near my town. The name of the volcano was Klyuchevskaya. This volcano is our peninsula's most active volcano. This was the **biggest** eruption in 40 years. I am very glad that I live to the west of the volcano and farther north on the peninsula.

A huge amount of volcanic ash erupted from the top of the volcano. The snow on the volcano and on the nearby mountains turned blackish brown. Winds were blowing toward the southeast, and the volcanic ash covered the ground from the volcano to places over 960 kilometers (600 miles) to the southeast. We are very lucky that the winds blew the ash away from us.

Write back and tell me more about yourself and your country. Do you have any active volcanoes in the United States?

Your friend,  
Olga from Russia

P.S. You can find out more about what happened in my country by visiting <<http://www.earthkam.ucsd.edu>>, <<http://earth.jsc.nasa.gov>>, or <<http://spacelink.nasa.gov>>.

Your jobs:

1. Write back to Olga and answer her questions about peninsulas and active volcanoes.
2. Send her a map of the United States, labeling the peninsulas and active volcanoes.
3. Visit the web sites that Olga mentioned and let her know what you found out about the eruption. Mention at least three facts.
4. Draw a map of the Kamchatka peninsula, locate the volcano, and draw a picture of the path that the ash clouds took.



## Module 4, Investigation 4: Log 1b

### Pen pal letters

Dear students on the “mainland,”

I am so glad that I will be your pen pal. My name is Kuloo, and I am 10 years old. I would like to learn more about the U.S. mainland. The mainland, as my family calls the continental United States, seems so far away.

I heard that you are studying about pathways, and I want to share an experience with you. It is an experience that my family and I had. It was very frightening. But we are all OK. We just had to move.

My family and I live in the state of Hawaii. All of our islands have their own names, beautiful Hawaiian names. My island is called Hawaii. So I really live on the island of Hawaii in the state of Hawaii. People often call our island The Big Island, and that makes it less confusing.

We live on the newest island of all the islands here, on the slopes of the Kilauea volcano. Our island sometimes shakes, rattles, and pours out lava. We lived in a place called Royal Gardens, but we had to move. In 1998, the volcano began pouring out lava from its side. The lava came down the slopes in a path toward Royal Gardens. We had plenty of time to pack up and leave our homes. It was sad to watch our houses burn. This path was called a flow from Pu’u O’o. (The Hawaiian language only has 13 letters in it.)

Write and tell me about the place where you live.

Your pen pal,  
Kuloo from Hawaii

P.S. You can find out more about the lava path at [http://hvo.wr.usgs.gov/gallery/kilauea/erupt/2553002\\_caption.html](http://hvo.wr.usgs.gov/gallery/kilauea/erupt/2553002_caption.html) and at <http://southport.jpl.nasa.gov/imagemaps/html/srl-kilauea.html>.

Your jobs:

1. Visit the web sites that Kuloo mentioned.
2. Write back to Kuloo and let him know what you found out about the lava flow on the web sites.
3. Draw a map of the island of Hawaii that shows the Kilauea volcano. If you can find the location of Royal Gardens, show it on your map, and draw the lava flow that reached the town.



## Module 4, Investigation 4: Log 1c

### Pen pal letters

Dear pen pals,

I am so glad that I will be your pen pal. My name is Elizabeth, and I am 10 years old. I would like to learn more about your part of the United States.

I heard that you were studying about pathways. Did you know that some paths change a lot? In my state, Missouri, we talk a lot about the paths of the rivers around us. Sometimes the paths get **very wide** because of heavy rain. And that is when we have floods. Do you have floods where you live? Please write and tell me if you have streams, rivers, or lakes where you live. I like to find out about other places. I want to be a geographer when I grow up.

Back to my story . . . My family and I had to move from our house in St. Louis when the River Des Peres began to overflow its banks. I was only four years old then. We waited until the last minute to leave. The water was already covering the living room floor. When we returned, after the waters went down, our house was filled with mud. My family is very lucky because no one was hurt. Our pets are fine too. But cleaning up that mud was TERRIBLE.

Goodbye for now.

Your pen pal,  
Elizabeth from Missouri

P.S. You can find out more about the flooded river path at [http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood\\_2.html](http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood_2.html) and [http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood\\_3.html](http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood_3.html).

Your jobs:

1. Visit the web sites that Elizabeth mentioned.
2. Write back to Elizabeth. Let her know what you found out about the flood of 1993 from the web site.
3. Send her a map of your state. Label any rivers, lakes, and waterways, and tell her about them.
4. Draw a map of Missouri and the river system, and label the rivers.



## Module 4, Investigation 4: Log 1d

### Pen pal letters

Dear pen pals,

I am so glad that I will be your pen pal. My name is José, and I am 10 years old. I would like to learn more about your part of the United States since I have never visited there.

I heard that you were studying about pathways. Did you know that some paths are **huge**? The path of a hurricane can start off the western coast of Africa and continue across the Atlantic Ocean and north along the coast of the United States. There are many islands that can be in the hurricane path, and my island is sometimes one of them. I live in Puerto Rico. It is a beautiful island.

My family and I watch the weather on television very closely when a hurricane is coming. If it is heading toward Puerto Rico, we cover our windows with boards. We take our bikes, swings, and porch furniture inside so that they won't get blown away. The winds can get very strong. In 1998, a hurricane hit my island, and our house was flooded. The winds were very strong. It was very scary. The hurricane was called "Georges." Most of us lost our electricity. The president said that the U.S. government would send help to the people in Puerto Rico because of the damage.

Have you ever tracked a hurricane's pathway? Do you get hurricanes where you live? If you don't get hurricanes, do you get other strong winds?

Goodbye for now.

Your pen pal,  
José from Puerto Rico

P.S. You can find out more about hurricanes at [http://rsd.gsfc.nasa.gov/rsd/images/Georges/Georges19980921\\_lg.jpg](http://rsd.gsfc.nasa.gov/rsd/images/Georges/Georges19980921_lg.jpg) and <http://dprsj35.er.usgs.gov/public/hurricane.html>.

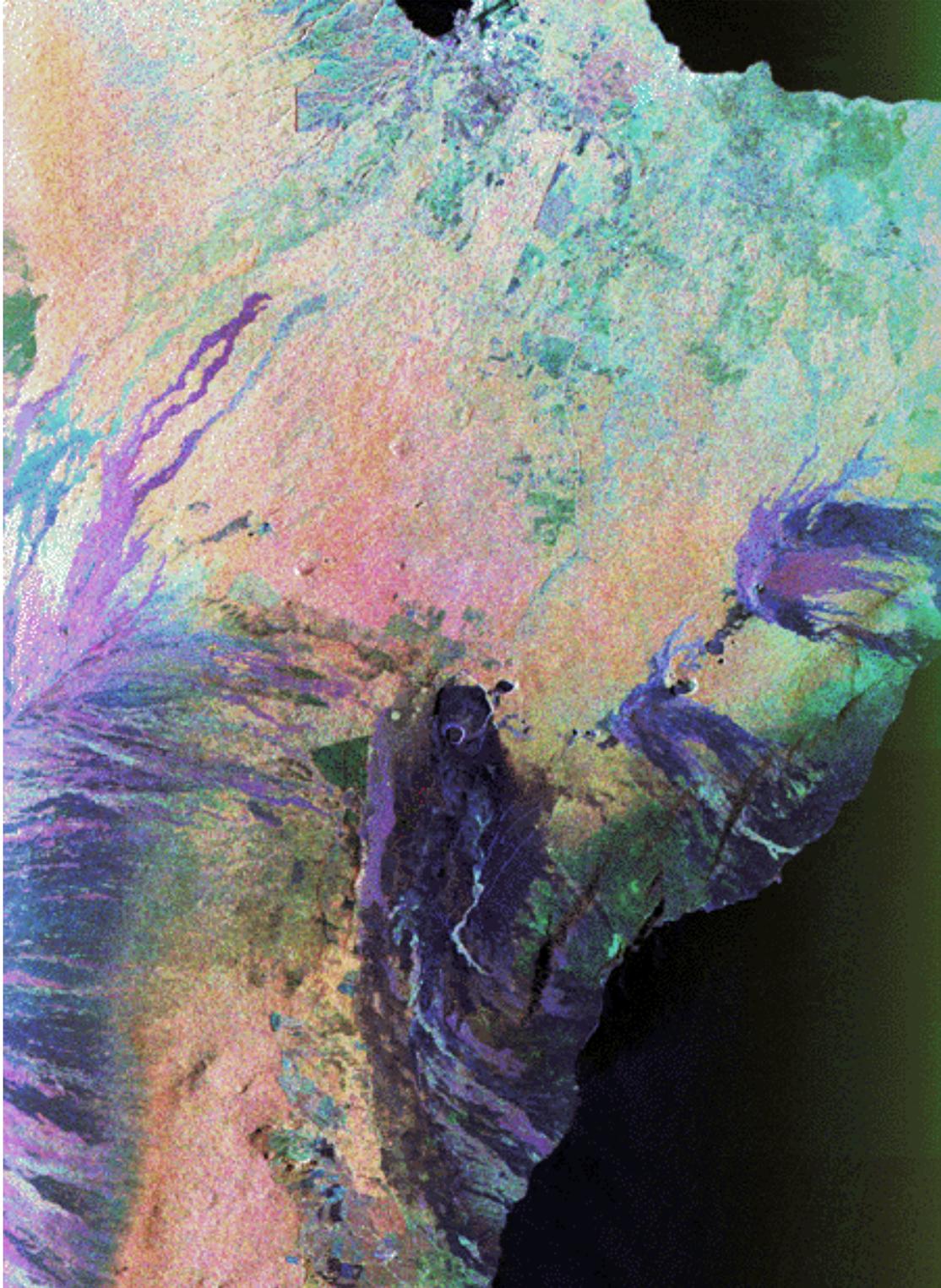
Your jobs:

1. Visit the web sites that José mentioned.
2. Write back to José and let him know what you found out about hurricanes. Answer his questions about your state.
3. Send him a map of your state labeling important features or places.
4. Draw a map of Puerto Rico and label the water around it.
5. Research the definitions of "hurricanes."
6. Search for more images of hurricanes in other places.



# Module 4, Investigation 4: Figure 1

## Hawaii



Source: <http://southport.jpl.nasa.gov/imagemaps/html/srl-kilauea.html>



## Module 4, Investigation 4: Figure 2

### Russia



Source: <http://images.jsc.nasa.gov/images/pao/STS68/10117628.jpg>



## **Module 4, Investigation 4: Figure 3**

### **Hurricane Georges**



Source: [http://rsd.gsfc.nasa.gov/rsd/images/Georges/GeorgesThree\\_md.jpg](http://rsd.gsfc.nasa.gov/rsd/images/Georges/GeorgesThree_md.jpg)



## Module 4, Investigation 4: Figure 4

### Mississippi River flood path



**Before**



**After**

Source: [http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood\\_2.html](http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood_2.html) (before)  
[http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood\\_3.html](http://observe.ivv.nasa.gov/nasa/exhibits/flood/flood_3.html) (after)