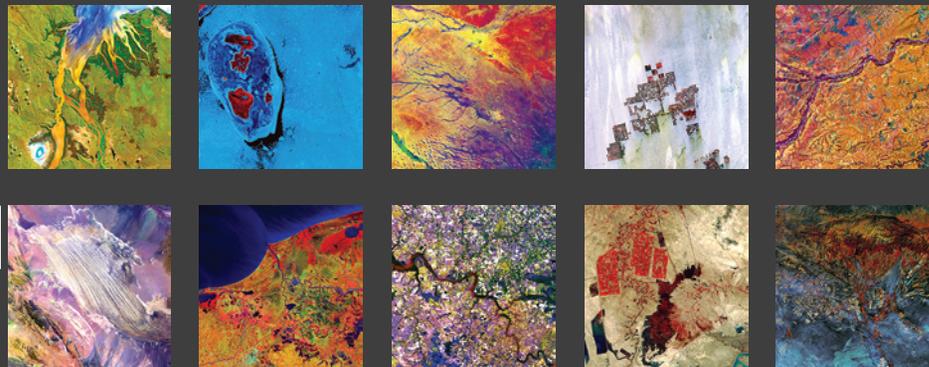


# EARTH as art 4



General Information Product 161

U.S. Department of the Interior  
U.S. Geological Survey



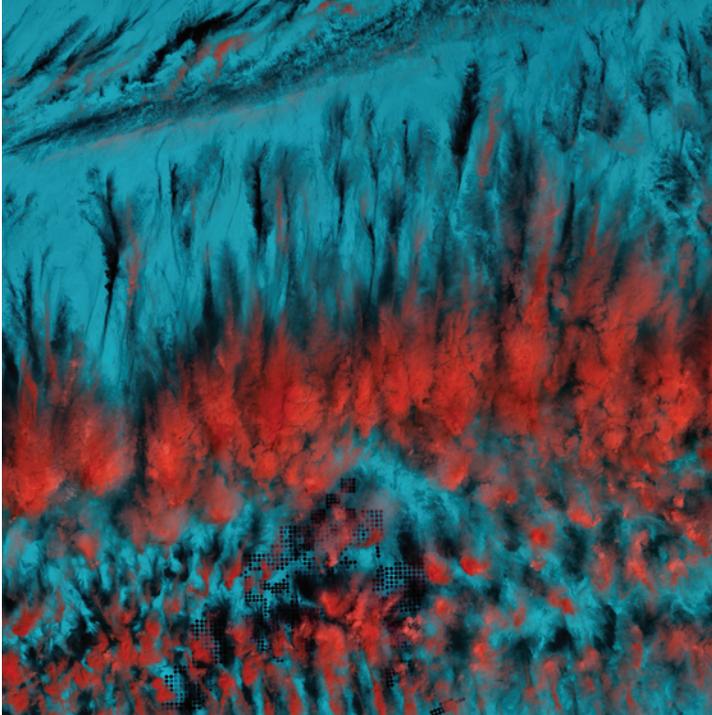
Landsat 8 is the latest addition to the long-running series of Earth-observing satellites in the Landsat program that began in 1972. The images featured in this fourth installment of the Earth As Art collection were all acquired by Landsat 8. They show our planet's diverse landscapes with remarkable clarity.

Landsat satellites see the Earth as no human can. Not only do they acquire images from the vantage point of space, but their sensors record infrared as well as visible wavelengths of light. The resulting images often reveal "hidden" details

of the Earth's land surface, making them invaluable for scientific research.

As with previous Earth As Art exhibits, these Landsat images were selected solely for their aesthetic appeal. Many of the images have been manipulated to enhance color variations or details. They are not intended for scientific interpretation—only for your viewing pleasure. What do you see in these unique glimpses of the Earth's continents, islands, and coastlines?

# Africa



## Eerie Cloud Shadows

These cloud patterns cast eerie shadows on the landscape of southern Egypt. The clouds appear red and the desert below hazy blue in this infrared rendition.



## Earth Selfie

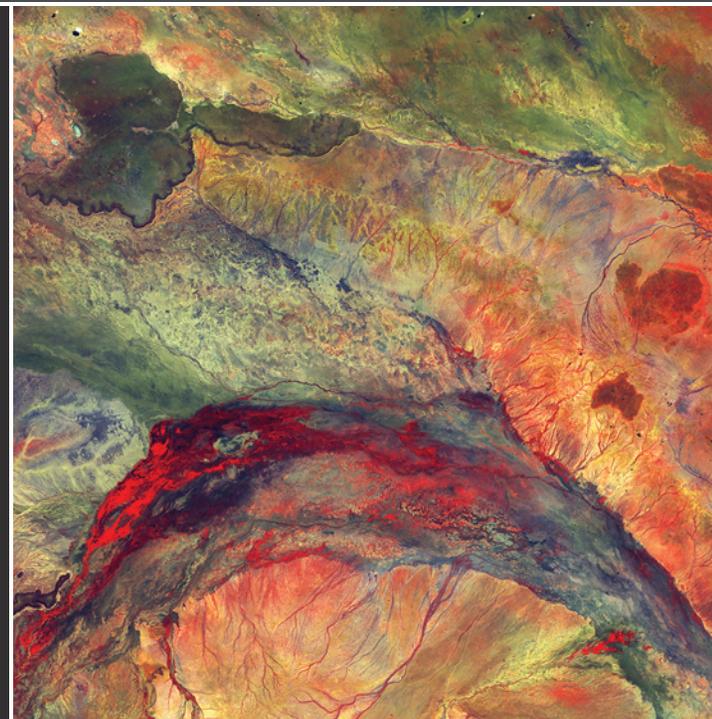
The tendency to recognize human faces in things that are not human is common. Can you see the eye, nose, and mouth in this satellite image of Morocco? The face captured in this "Earth Selfie" appears to be quietly watching over the waters just off its coast. The city of Agadir is underneath the chin, and the irrigated farms of the Souss Valley appear in red.





### Geometric Desert

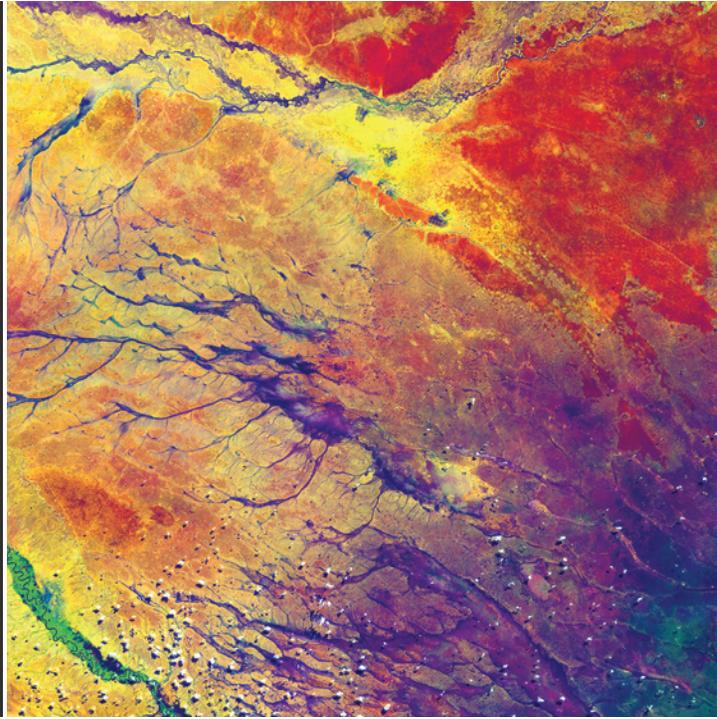
Geometric shapes lie across the emptiness of the Sahara Desert in southern Egypt. Each point is a center pivot irrigation field a little less than 1 kilometer (0.6 mile) across. With no surface water in this region, wells pump underground water to rotating sprinklers from the huge Nubian Sandstone aquifer, which lies underneath the desert.



### The Lorian Swamp

Water flowing out of this inland delta rarely reaches the ocean; instead, it seeps into the semiarid plains of northeastern Kenya. The dark feature in the upper left, which looks like a black eye, is hard basaltic rock from an ancient lava flow.





### **A Study in Color**

The deep purple in the lower right spreads out into a few channels before fading into a multitude of colors. These channels are remnants of an ancient drainage network in Kenya. The beauty of the colors actually hides a stark reality for hundreds of thousands of people. The dark spots at the top center of the image are refugee camps.



### **Land of Terror**

No water. No vegetation. No oases. Known as the "Land of Terror," the Tanezrouft Basin in Algeria is one of the most desolate parts of the Sahara Desert. Sand dunes, which appear in yellow, streak down the left side of the image, and sandstone formations carved by relentless wind erosion make concentric loops, much like the grain seen in a piece of wood.





### Life along the Nile

It is easy to see from this image why people have been drawn to the Nile River in Egypt for thousands of years. Green farmland marks a distinct boundary between the Nile floodplain and the surrounding harsh desert.



### Mulanje Massif

In southern Malawi, the erosion-resistant rock of Mulanje Massif, a large mountain mass, rises dramatically above the landscape near Lake Chilwa, a shallow, saline lake. The upper slopes of the massif are protected forest. The deep green color south of the massif is tea and macadamia farms.

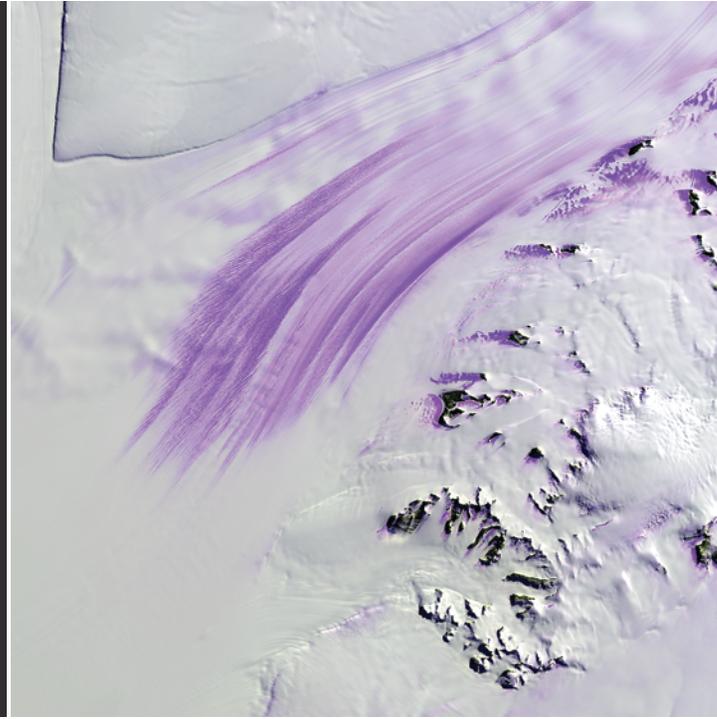


## Antarctica



### Lava Field

The Haruj Volcanic Field in central Libya was created from basaltic lava flows that erupted over time from multiple volcanoes. The volcanic craters and lava flows are evidence of a previous active eruption period. Many of the bright spots within the darker colored basalt flows are depressions covered with silt and fine sand. The lava field measures about 185 kilometers (115 miles) across.

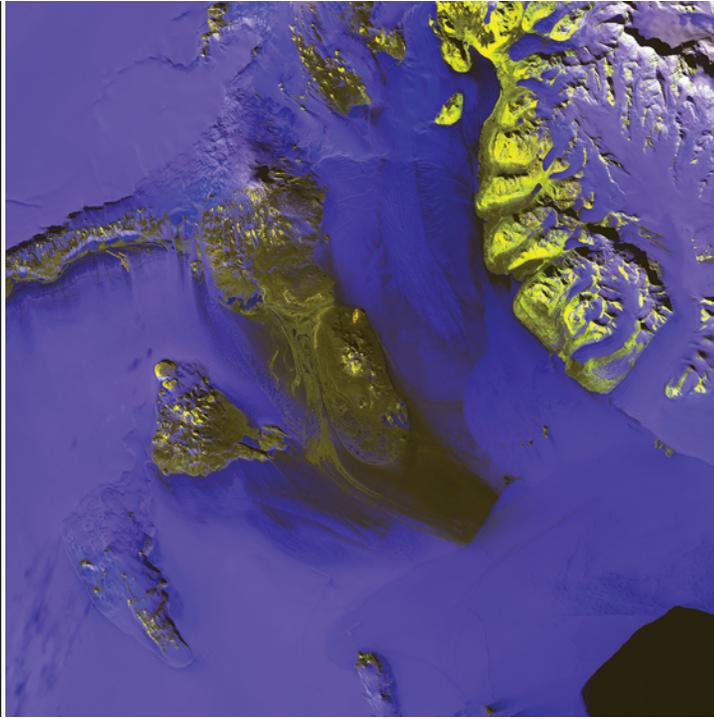


### Slessor Glacier

Slessor Glacier in Antarctica flows between the angular promontory Parry Point on the top left of the image and the Shackleton Range on the lower right. The purple highlights are exposed ice. Strong winds blow away the snow cover and expose lines that indicate the glacier flow direction. Rock outcrops next to the glacier also exhibit some of this bare ice.

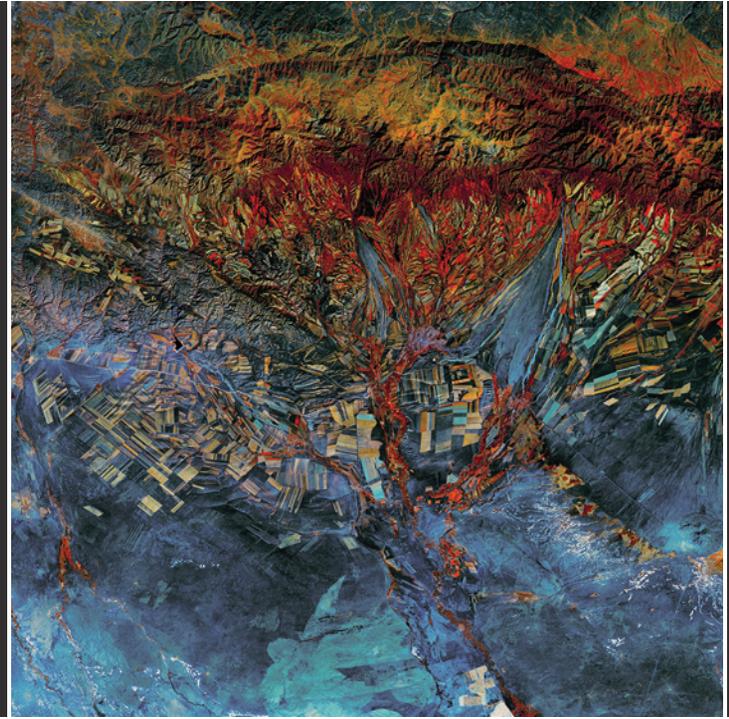


## Asia



### Koettlitz Glacier

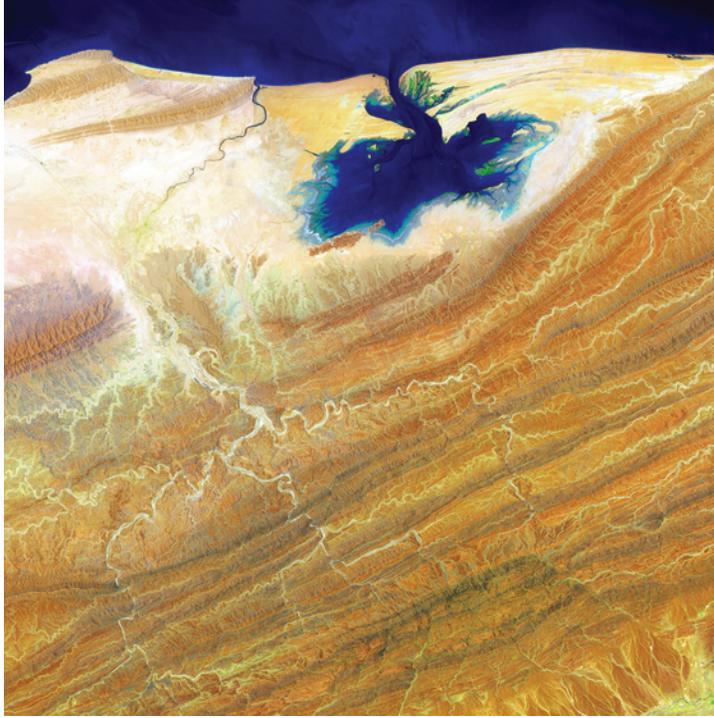
Landsat 8 helps reveal the hidden complexities of the Antarctic landscape. In this image, ice takes on different levels of blue with exposed rock and dirt appearing in yellow tones. The dynamic Koettlitz Glacier flows between Brown Peninsula and the rugged mainland.



### Cubism—Landsat Style

Startling red patches sprout from an agricultural landscape that looks almost like a Cubist painting. The fields in this part of eastern Kazakhstan follow the contours of the land—long and narrow in mountain valleys, and large and rectangular over the plains.





### Ink Stain

Like blue ink bleeding onto parchment, the Khor Kalmat lagoon branches off the Arabian Sea and spills into the southern Pakistan landscape near the Makran Coast Range. Mudflats cover almost the entire lagoon, which fills with shallow water at high tides. The small areas of green are isolated pockets of mangrove forest.



### Etched in Snow

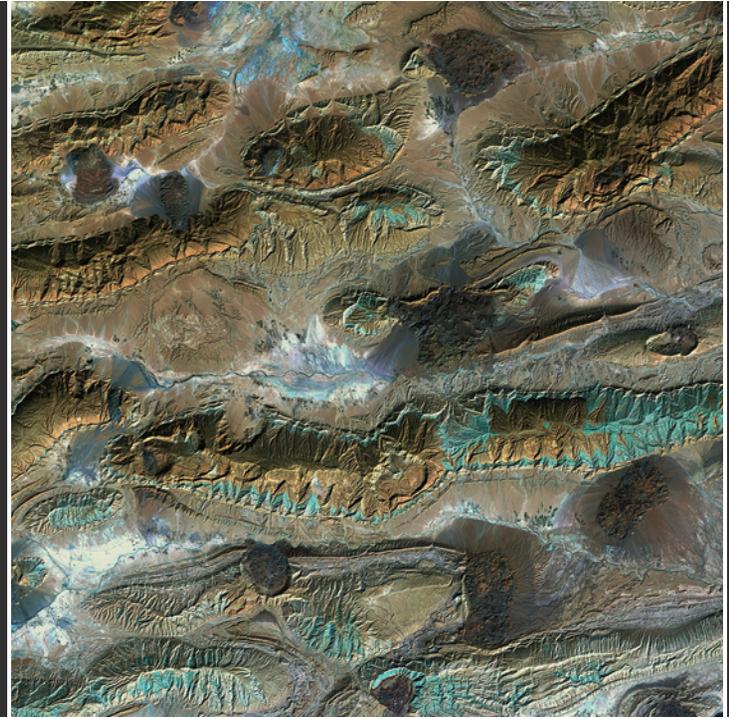
Is this a black-and-white image? No, this is a natural color image of snow-covered southwestern Russia. Windbreaks, roads, and fence lines look like random pencil marks near the Volga River, which flows across the top of the image. The thick lines are trees planted to protect fields from dry wind and erosion; these windbreaks retain snow, allowing more moisture to penetrate into the soil.





### Wind Power

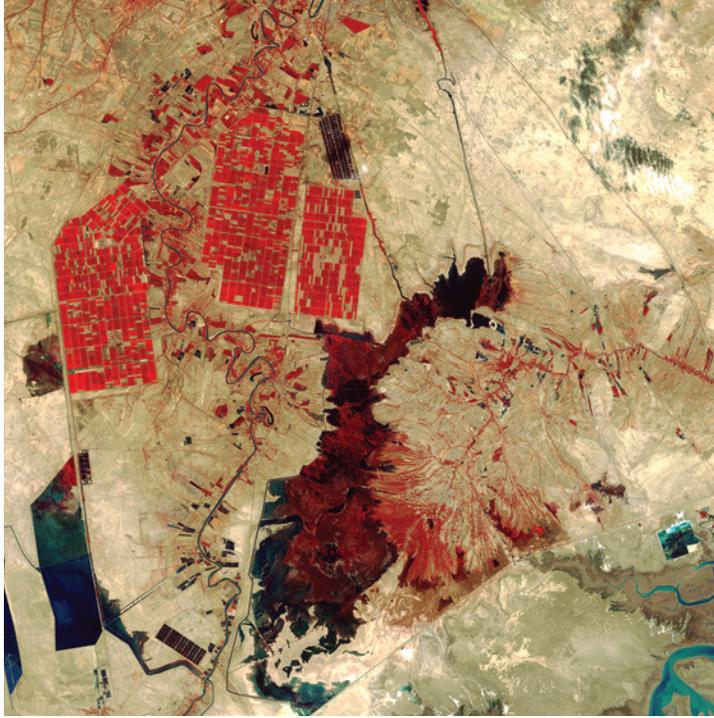
A bold paint stroke on a busy purple canvas is actually part of the Dasht-e Lut Desert in southeastern Iran. The linear features are kaluts, huge rocky formations shaped by wind erosion. The streamlined forms vary in size, but some kaluts stretch more than 100 kilometers (62 miles).



### Salt Glaciers

The patterns and colors in the Zagros Mountains of Iran are interesting enough. For example, the infrared view provides a patina-like outline to the mountains. But something more happened to this unique landscape. Interrupting the mountain patterns are irregular dark patches called salt glaciers. What began as salt domes buried under the rock pushed up through the Earth, squeezing to the surface like toothpaste.





### Sloppy Paint Job

What appear to be smatterings of paint on a wall represent an amalgam of human-made and natural features in southwestern Iran. The dark red shape in the center of the image is Shadegan Pond, which is the northern part of the larger Shadegan Wetlands. Red areas depict actively growing vegetation, and the rectangular shapes in the upper left reveal irrigated farmland.

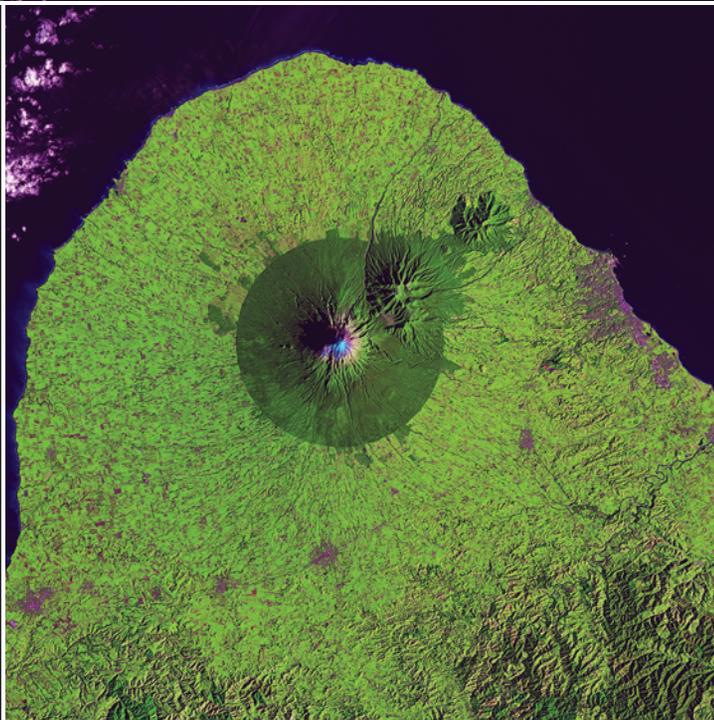


### Faults

When landmasses collide, rock layers can break. Geologists call these breaks "faults." Rock layers are offset in this image in western China, making the faults remarkably clear. The different colors indicate rocks that formed at different times and in different environments.



# Australia



## Mount Taranaki

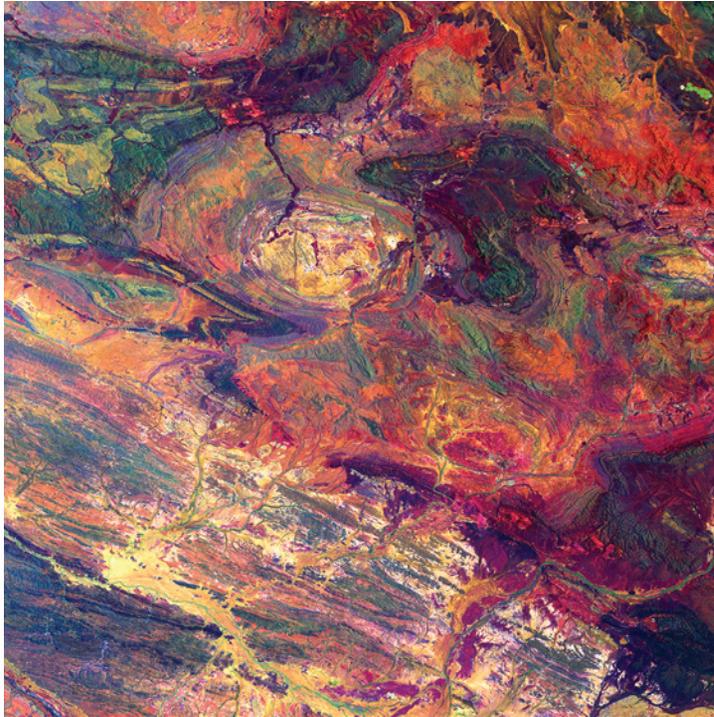
A nearly perfect circle of forest delineates the boundary of Egmont National Park in New Zealand. Snow-capped Mount Taranaki marks the center of the park, which is surrounded by green farmland.



## Melted Colors

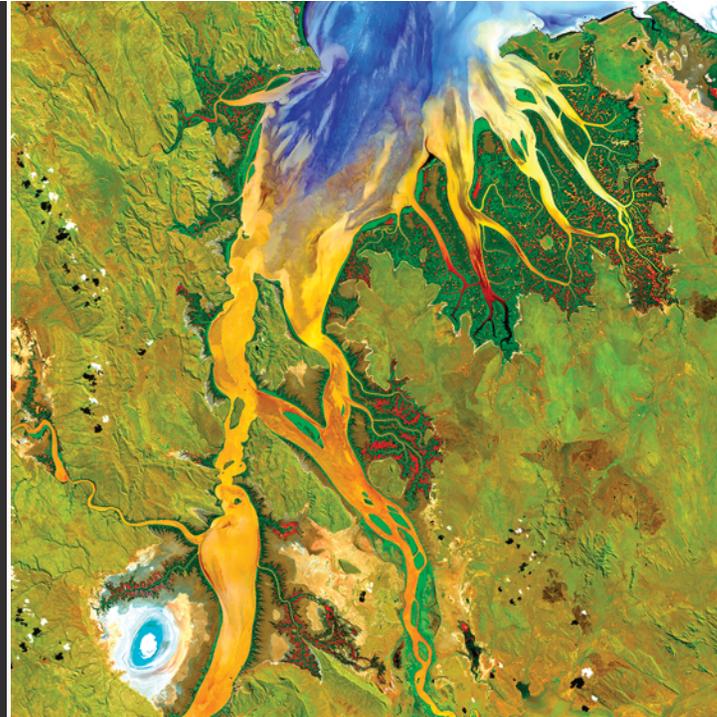
This enhanced image of Western Australia resembles a mixture of crayons that melted in the sun. The yellow sand dunes of the Great Sandy Desert cover the upper right portion of the image. Red splotches indicate burned areas from grass and forest fires, and the colors in the rest of the image depict different types of surface geology.





### Australian Iron Ore

Within the Hamersley Iron Province in Western Australia, Landsat's shortwave infrared and near-infrared detectors highlight different types of rock. The oval in the upper center part of the image is a geological feature called Rocklea Dome. The dark meanders within the dome are channel iron deposits.



### Nature's Patterns

The biologically complex conditions of mangroves are shown in dark green along the fingers of the Ord River in Australia. Yellow, orange, and blue represent the impressive flow patterns of sediment and nutrients in this tropical estuary. The bright spot at the lower left is an area of mudflats, which is home to saltwater crocodiles.



## Europe

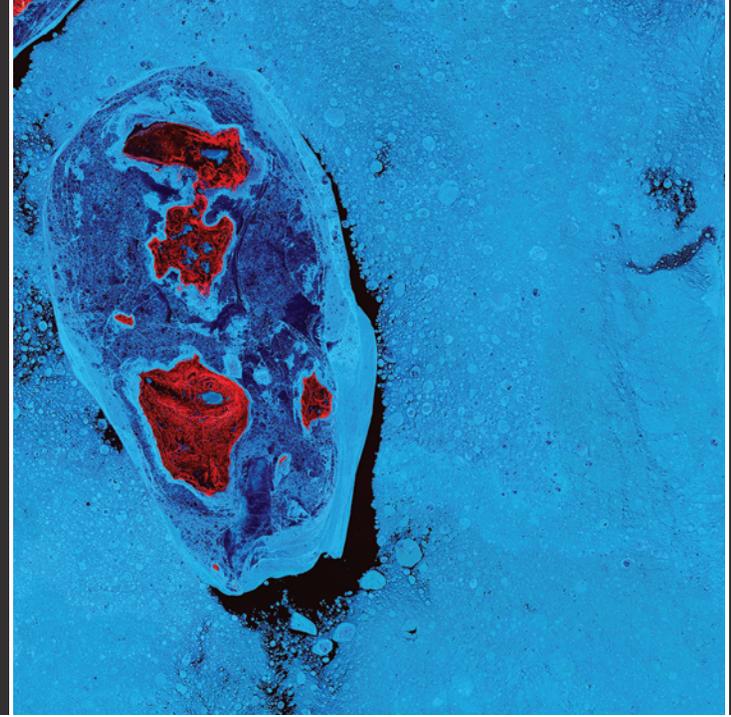


### Putrid Sea

Varied types of microalgae flourish in this colorful network of shallow, salty lagoons at the neck of the Crimean Peninsula between the Black Sea and the Sea of Azov. This natural color image portrays the unnaturally strange colors of the area known as Sivash, which is nicknamed the “putrid sea” because the algae in some of the lagoons produce a rotten smell.



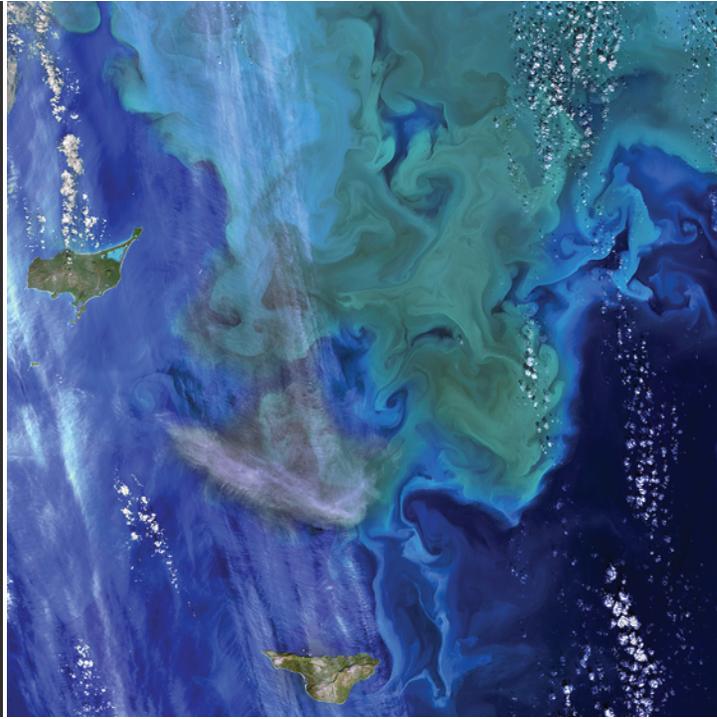
## North America



### Cellular Ice

The ice surrounding the northern Canadian Spicer Islands, shown in bright red, resembles a cell, complete with ribosomes, mitochondria, and a nucleus. Even though the image was captured shortly after the first day of summer in the Northern Hemisphere, the islands are locked in ice.





### Earth's Aquarium

These green and blue swirls in the Bering Sea reveal the bottom of the food chain in the ocean. Microscopic organisms called phytoplankton, which are important to fish populations, may be too small to be seen individually, but in vast numbers they are visible from space. The white clouds in the image look like bubbles in an aquarium.



### Mexico's Biosphere

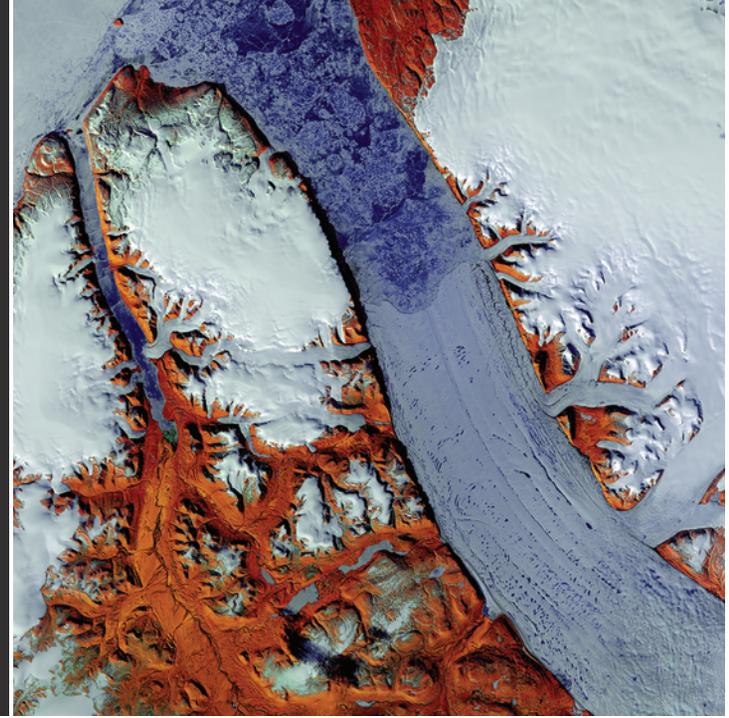
Much of this image consists of the Reserva de la Biosfera Pantanos de Centla, a biosphere reserve in southern Mexico that protects wetlands in the area. The water bodies, mangroves, and forests are a sanctuary for a great variety of wildlife. Sediment carried away by the Grijalva River appears as a sweeping light blue brushstroke flowing into the Gulf of Mexico at the top of the image.





### Cloud Lightning

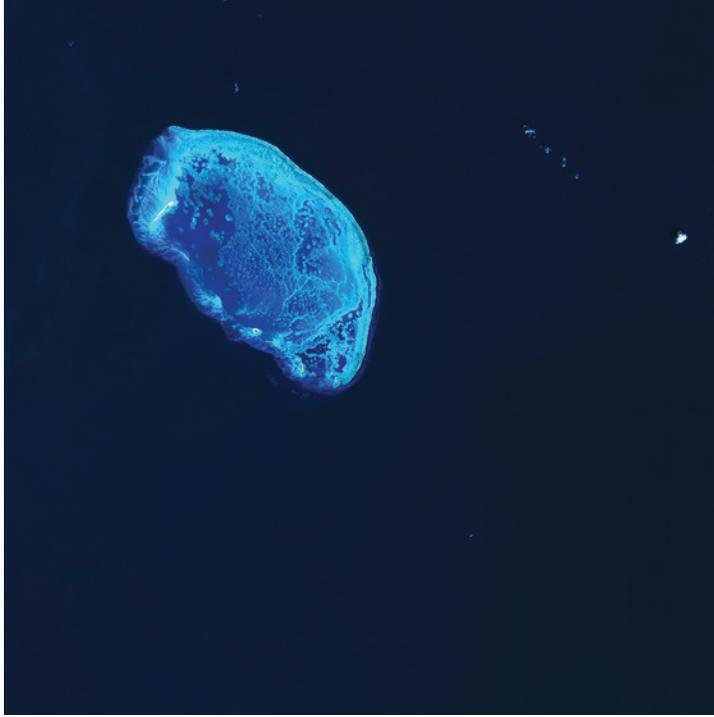
What looks like lightning arcing through an ominous cloud is actually a dry landscape of rocky buttes in southern Utah and northeastern Arizona. River channels flow north from Arizona into the San Juan River. The light vertical feature at the top of the image is referred to as Comb Ridge, a jagged fold in the Earth's crust called a monocline.



### Petermann Glacier

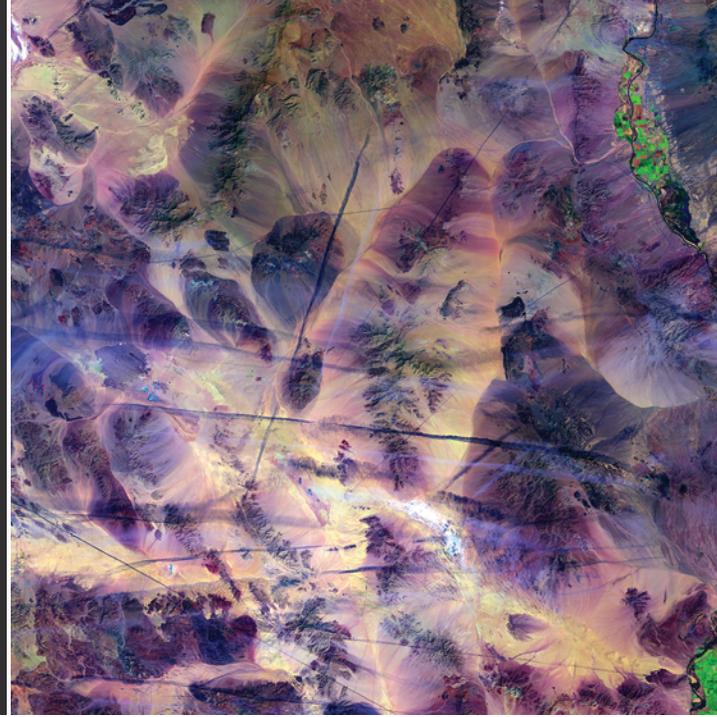
Located on the northwestern coast of Greenland, Petermann Glacier covers 1,295 square kilometers (500 square miles). The glacier's floating tongue of ice extends from the lower right corner of the image toward the top center. At 15–20 kilometers (9–12 miles) wide and 70 kilometers (43 miles) long, it is the longest floating glacier in the Northern Hemisphere. Infrared wavelengths reveal bare ground shown in red-brown tones in this summer image.





### Scorpion Reef

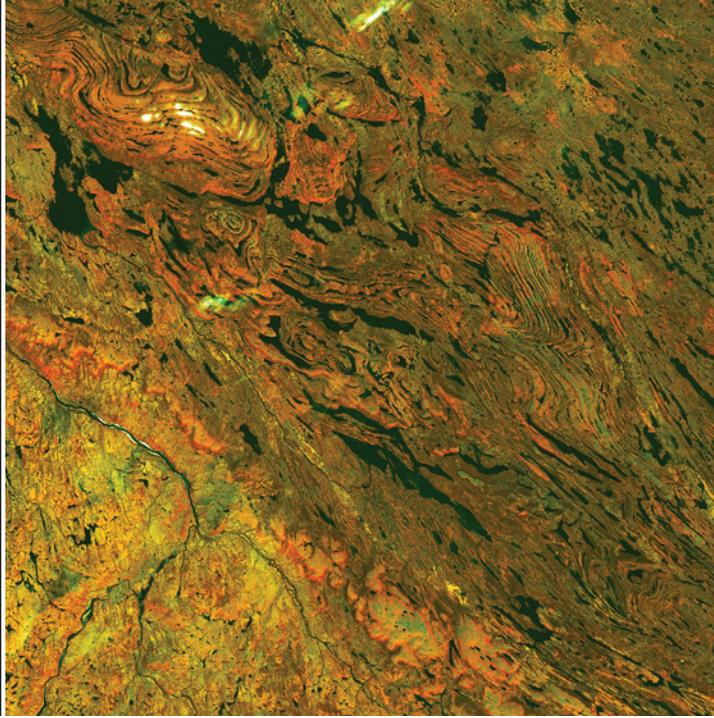
Is this a tiny creature on a microscope slide? No, but you are close. This is an image of a structure built by a multitude of small creatures. At about 21 kilometers (13 miles) wide, this feature is the largest coral structure in the southern Gulf of Mexico. The Arrecife Alacranes—or Scorpion Reef—supports wide biological diversity and is home to several endangered species.



### Contrails

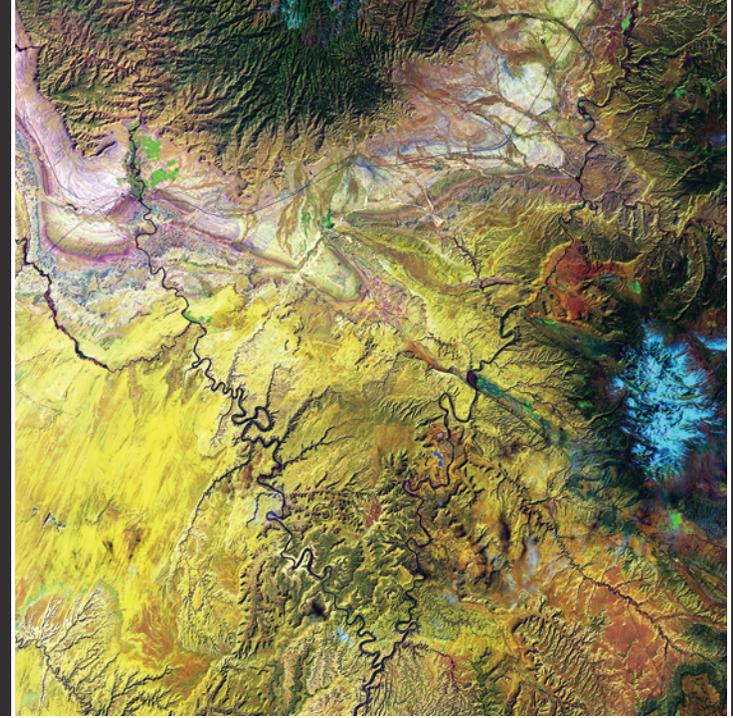
Like scratches on a marble table, airplane contrails cut across the southern California Mojave Desert. The shadows from the contrails cast dark lines across the ground. Contrails form when cold, dry air mixes with warmer aircraft exhaust. Mountains and a few dry lakebeds provide a backdrop to this scene, along with bright green spots of agriculture along the Colorado River.





### Rock Folding

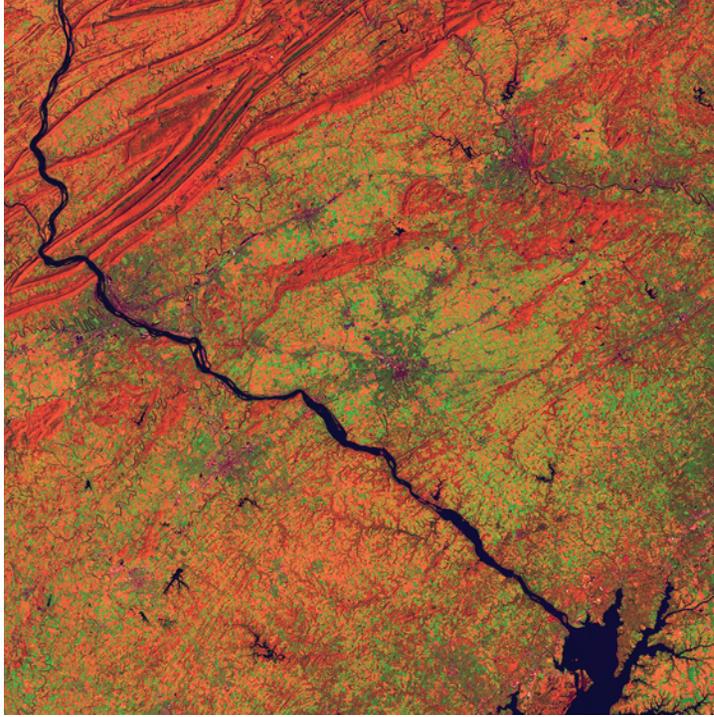
This Landsat image shows how glaciers scoured the landscape, gouging out depressions that formed linear lakes. The glaciers also exposed the complex folded rock layers that form the Labrador Trough of Quebec in Canada. Glacial action is evident in the fingerprint-like patterns.



### Canyonlands

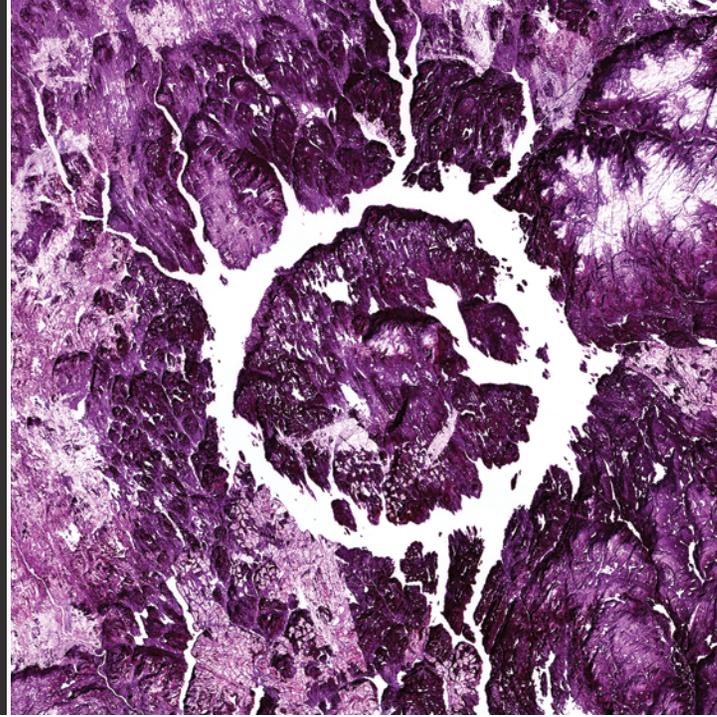
The Green River and the Colorado River meet within Canyonlands National Park in Utah. Snow-covered Mount Waas, shown in light blue on the right side of the image, overlooks the arches, canyons, and bizarre rock formations that prevail throughout this region.





### River and Ridge

The Susquehanna River appears as a dark line coursing through this scene in southeastern Pennsylvania. The cities of York, Lancaster, and Reading lie among agricultural lands. The State capital, Harrisburg, is positioned against the orange folds in the upper left of the image, along the edge of the Appalachian Mountain Ridge and Valley Province.



### Eye of Quebec

Lake Manicouagan, Canada, is one of the Earth's largest and oldest known impact craters. The crater is 65 kilometers (40 miles) wide and is estimated to be about 214 million years old. The lake and island are clearly seen from space and are sometimes called the "Eye of Quebec."



## South America



### Oxbows in Bolivia

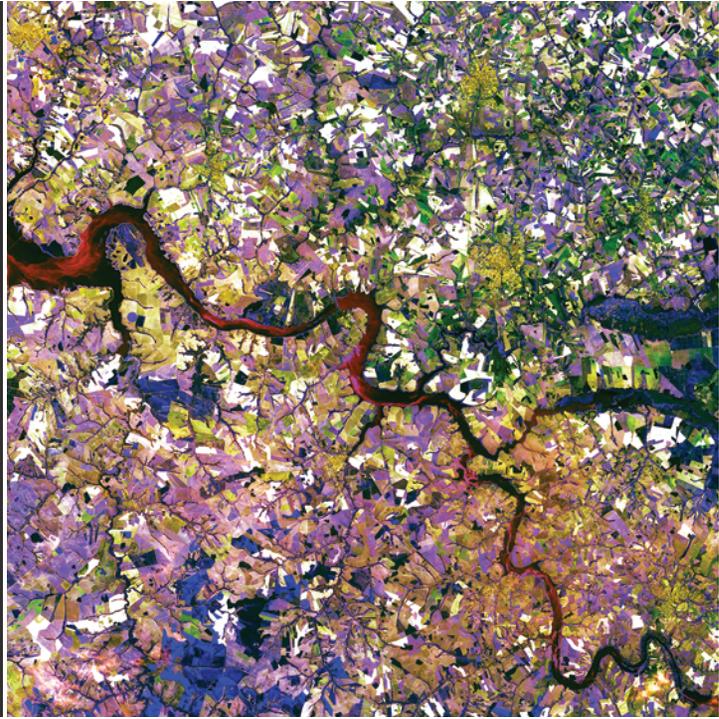
The Beni River in Bolivia resembles a blue ribbon as it meanders toward the Amazon River. Scattered along the river are numerous oxbow lakes, which are curved bodies of water that form when a meander from the main stem of a river is cut off, creating a freestanding body of water. Dark green colors in the image indicate forest and lighter green shades indicate grassland or sparse forest.



### Capillaries

Marking part of the boundary between Colombia and Venezuela, the Meta River resembles an artery among capillaries within the human body. Those capillary-like features actually depict dense tree cover along the numerous streams that flow among rich tropical grassland.



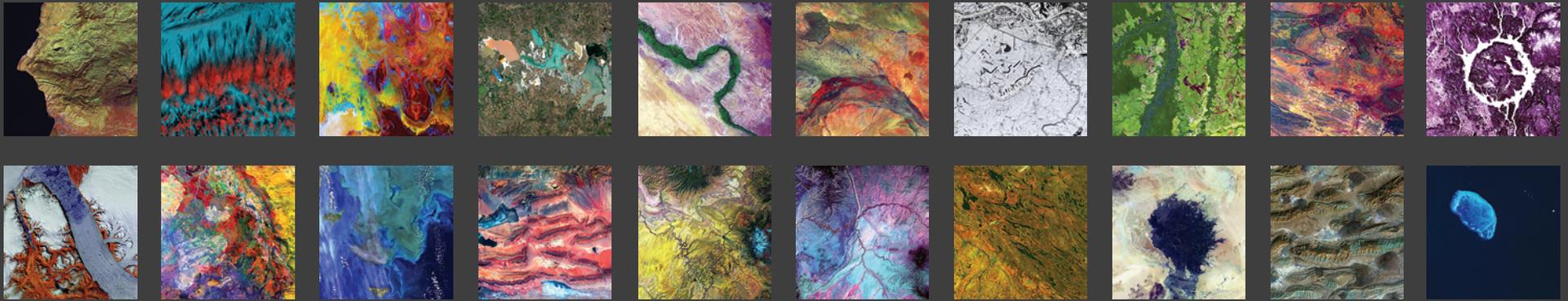


### **Tessera Mosaic**

The Tietê River snakes across this tessera mosaic of multicolored shapes near Ibitinga, Brazil. Fields of sugarcane, peanuts, and corn vary in their stages of development. Lavender, purple, and bright blue indicate actively growing crops. Light yellow or white indicate little or no vegetation growth. The splotches of dark mustard yellow are urban areas.







**For more information contact:**

U.S. Geological Survey  
Earth Resources Observation  
and Science (EROS) Center  
47914 252nd Street  
Sioux Falls, SD 57198-0001

Phone: 1-800-252-4547  
1-888-ASK-USGS  
Email: [custserv@usgs.gov](mailto:custserv@usgs.gov)  
Web: [www.usgs.gov](http://www.usgs.gov)  
[eros.usgs.gov/imagegallery](http://eros.usgs.gov/imagegallery)

ISSN 2332-3531 (print)  
ISSN 2332-354X (online)  
<http://dx.doi.org/10.3133/gip161>

