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100 YEARS

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ADVANCING EARTH
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Earth's Rich Textures, Seen by Satellite

Have you ever been up in an airplane and looked out the window as you were flying across a mountain range or along a coastline or at night above a major city? These sights can bestow a feeling of wonder and enchantment at the beauty of the world we live in and a sense of awe at how small we are in comparison.

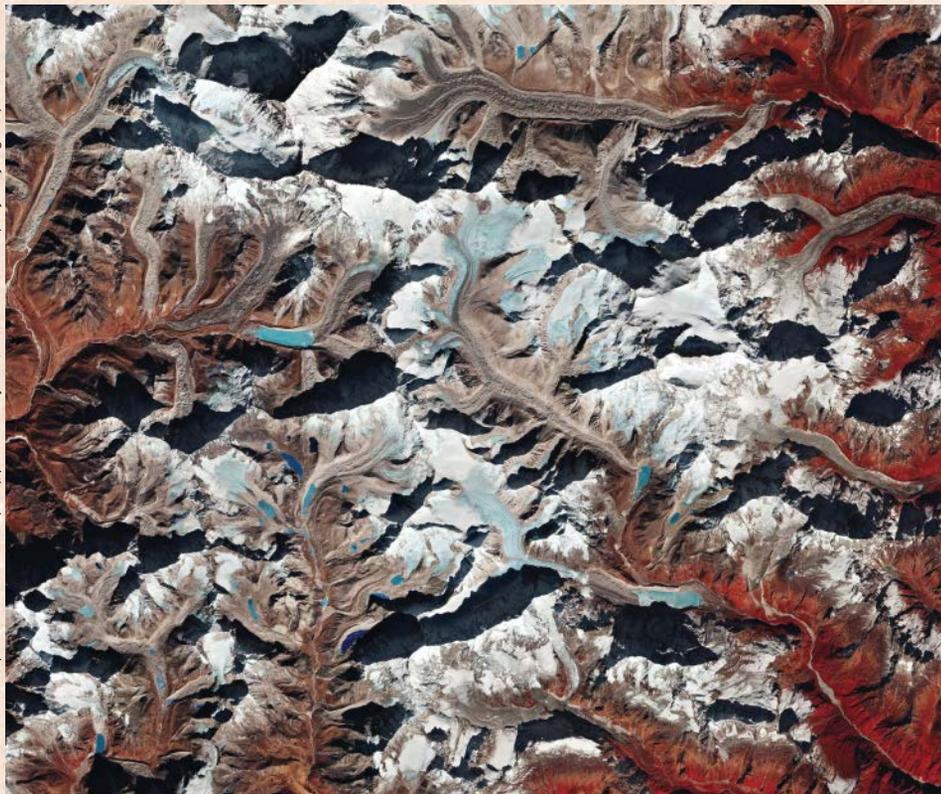
Dozens of Earth-observing satellites capture such views for us to marvel at each and every day. They also gather weather and atmospheric data, report surface changes due to natural disasters, track changes to coastlines and glaciers due to climate change, and monitor pollution levels around the globe.

Here we highlight seven stunning views of Earth taken by satellites in visible or infrared light. These photos do more than showcase the incredible diversity and beauty of planet Earth. They remind us of why we got into geoscience in the first place.

Images like these mesmerize, catching our eye with their subjects' roughness, smoothness, scope, depth, or brilliance of hue. They inspire wonder at what we're seeing, prompt us to question how it formed, and make us yearn to reach out a finger and touch.

See for yourself!

Mount Makalu and the Himalaya



When seen from above, the soaring peaks of the Himalaya don't seem as towering but are no less breathtaking. This false-color infrared image from Copernicus Sentinel-2B on 9 December 2017 is centered on Mount Makalu, an 8,485-meter-tall mountain nestled on the border between Nepal and China. To find Makalu in this image, locate the deep gray valley near the center and find the pyramid-shaped peak to its right capped with blue-white snow. Earth's tallest peak, Mount Everest, sits 19 kilometers northwest of Makalu and can be seen at top left in the image. Mount Makalu may be the fifth-tallest mountain in the world, but it is considered an extremely difficult climb because of its steep and isolated ridges, which leave climbers exposed to the elements.

Ribbons of Icy Eddies in Greenland



Near Greenland's coast, wind and ocean currents twist floating sea ice along eddies that dance atop the near-frozen waters. One such ribbonlike ice eddy, seen above, was imaged by ESA's Copernicus Sentinel-3B satellite on 7 May 2018 in broadband visible light. This photo captures not only the ocean eddy but also the featherlike texture of Greenland's icy shoreline and the wispy and bumpy clouds that hover high above.

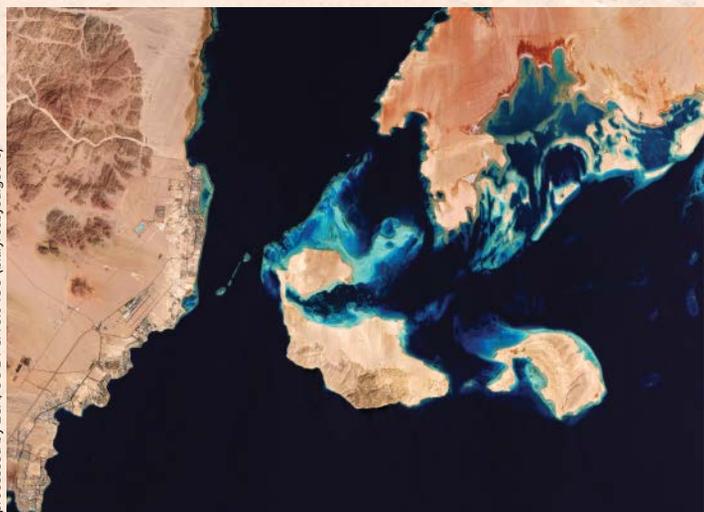
Mountains, Glaciers, and Kettle Holes in Iceland



Contains modified Copernicus Sentinel data (2017), processed by ESA, CC BY-SA 3.0 IGO (<http://bit.ly/cbysaigo3-0>)

Glaciers, mountains, and curious green pockmarks decorate the landscape near Iceland's capital of Reykjavik, seen in this true-color image from ESA's Sentinel-2A satellite on 1 November 2017. Green speckles within the reddish-brown region toward the top of the image mark formations known as kettle holes, which form when buried chunks of glacier ice melt and leave holes waiting to be filled by water. South of the kettle holes are Mount Esja (center) and Reykjavik (bottom center), which stands out in metropolitan gray amid vivid greens, reds, and ocean blues.

Coastal Waters in the Gulf of Aqaba



Contains modified Copernicus Sentinel data (2017), processed by ESA, CC BY-SA 3.0 IGO (<http://bit.ly/cbysaigo3-0>)

This true-color image taken by the European Space Agency's (ESA) Copernicus Sentinel-2 satellite on 11 April 2017 captures the colorful coasts of the southern Sinai Peninsula. The Gulf of Aqaba lightens from deep blue to brilliant turquoise off the coasts of Tiran Island and Sanafir Island. Coral reefs appear as slightly darker patches among blue-green waters. Egypt's Sharm El Sheikh, a popular resort area, is seen along the leftward coast. The sands of mainland Saudi Arabia, seen at top right, range from moist reddish browns to salt-rich whites.

The Zambezi River Delta in Mozambique



Contains modified Copernicus Sentinel data (2016), processed by ESA, CC BY-SA 3.0 IGO (<http://bit.ly/cbysaigo3-0>)

Swamps, grasslands, woods, and vast mangroves highlight the diversity of the Zambezi River delta on the coast of Mozambique, seen in this satellite image. The 3,000 square kilometers of lush delta are protected land. The Zambezi River delta is known for its vast array of wildlife, diverse and healthy ecosystems, use as a local food source, and protection against coastal flooding. This image, packed with vivid green meanders where river waters nourish verdant banks in their natural colors, was taken by ESA's Copernicus Sentinel-2A satellite on 28 September 2016.

Swirling Algae in the Gulf of Finland



NASA/Landsat 8

Spirals of teal green phytoplankton decorated the Baltic Sea last summer in the Gulf of Finland. This natural-color image, taken by NASA's Landsat 8 satellite on 18 July 2018, features swirls of what the Finnish Environment Institute found to be cyanobacteria. The vortexlike spiral at the center is more than 25 kilometers across and is one of many algae blooms that blossomed in Scandinavian waters last summer.

Have you seen a stunning image of our planet taken by a satellite? Share it with us by contacting the author or tweeting @AGU_Eos with the hashtag #EarthSatPics.