The Soviet Union launched the first artificial satellite, Sputnik 1, on October 4, 1957. The launch of U.S. satellite Explorer 1 just a few months later on January 31, 1958 and the subsequent creation of the National Aeronautics and Space Administration (NASA) that same year marked the dawn of the space age. In the years that followed, space was a burgeoning field in which global superpowers alone enjoyed almost exclusive access. The United States and the Soviet Union were the only entities that could afford the burdens associated with the so-called space race. For the next several decades, the rich and powerful held a strong monopoly over access to the outer space domain, and a majority of the satellites they launched into space were military satellites. From the launch of Sputnik 1 until 1990, the global hegemons were responsible for an overwhelming majority of the satellites launched into space—the United States and the Soviet Union together accounted for a combined 93 percent of satellites launched, 70 percent of which were military satellites—and space seemed impenetrable to the rest of the world.

This no longer remains the case. Today, thanks to increased accessibility through energy-efficient computing and affordable launch systems, private companies, non-profit organizations, and other public entities are rapidly developing and launching imagery satellites. This movement is often referred to as “the democratization of space.” It describes a change in the status quo that “has made outer space accessible to not only the global superpowers and large multinationals, but to developing countries, start-ups, universities, and even high schools.” Leading European aerospace company Airbus recently took steps to close this gap even further with the launch of UP42, its new startup. UP42 is an initiative that “promises to make satellite (and drone) image data accessible to individuals and small shops” by providing readily available resources to the user, including not only the imagery itself but also algorithms that can prepare analytic data. The company’s platform challenges the idea that access to satellite imagery and geospatial data is restricted to federal agencies and their work.

Furthermore, other leading satellite companies are working to increase accessibility and commercialization by not only lowering costs but also increasing...
revisit rates: the frequency with which a satellite can capture a specific location on Earth. Planet Labs, a private American imaging company that retains the largest constellation of satellites in the world, has tasked its SkySat fleet of thirteen satellites with producing high-resolution images more often than any other imagery vendor by making sub-daily revisits. Maxar Technologies, the largest American satellite image vendor (previously known as DigitalGlobe), is not to be outdone and is aiming to launch its own WorldView Legion fleet by 2021, which will allow it to “image parts of the planet every 20 minutes, flashing by for photos dozens of times a day.”

Although satellite imagery analysis is just one facet of today’s constantly evolving digital age, it takes on a meaningful role in the face of globalization. Space-based photography—notably different from aerial surveying or aerial/airborne photography, which require special overflight permissions—maintains the potential to not only influence foreign policy but also to pave the way for increased government engagement and civilian oversight from the public sphere. The democratization of space and commercialization of satellite images are quickly becoming creative tools to affect foreign policy in ways that, just a few decades ago, were next to impossible.

In the last several months, satellite images of North Korea made major headlines in media worldwide that arguably had a critical impact in the U.S. policy sphere. The inaugural report from a CSIS series identifying North Korea’s missile operating facilities was flagged as “fake news” by North Korean state media. Images from a story confirming renewed activity at the Sohae launch facility circulated major U.S. media outlets and were referenced in an official testimony by a State Department official less than a week following the breakdown of U.S.-DPRK talks in Hanoi. Most recently, Planet Labs captured North Korea’s first missile test in 18 months and released an impressive image that not only showed the smoke trail left behind by the projectile but also provided clues for experts to deduce the type of missile that had been launched. These stories underscore how increased access to space allowed for close monitoring of a mysterious regime and brought forth new evidence to add to the pre-existing narrative of denuclearization struggles on the Korean peninsula. Partnerships with private satellite companies are crucial to these efforts and provide think tanks with the tools to look into countries like North Korea without having to pay astronomical costs for purchasing imagery or have research efforts thwarted by impractical delays in imagery acquisition, as was the case in the recent past. Such capabilities allow research-driven entities to educate the public by providing readily accessible information and place pressure on the government to produce robust policies against such issues.

In a similar vein, satellite imagery also can enhance and complement preexisting research to provide heightened clarity when it comes to national security issues. A notable example is a story published by the Wall Street Journal in 2018, in which the authors combined imagery acquired by Maxar Technologies and
THE DEMOCRATIZATION OF SPACE AND COMMERCIALIZATION OF SATELLITE IMAGES ARE QUICKLY BECOMING CREATIVE TOOLS TO AFFECT FOREIGN POLICY IN WAYS THAT, JUST A FEW DECADES AGO, WERE NEXT TO IMPOSSIBLE.

Planet Labs with expert analyses to report on China’s installation of “jamming” technologies in Mischief Reef in the Spratly Islands to block U.S. satellite communications and bolster Chinese primacy in the South China Sea. This supported previous claims published in 2015 by Jane’s Defense Weekly that also raised concerns about China’s efforts to expand its military presence in the Spratlys by way of Fiery Cross Reef and Subi Reef. The report, which utilized imagery from Airbus, not only provided evidence that China was building concrete runways for military aircraft in Fiery Cross Reef but also captured additional dredging activity at Subi Reef alluding to the fact that China was creating islands for a second military airstrip. These instances illustrate how the commercialization of satellite imagery allows the media to supplement its stories with satellite imagery and provide irrefutable evidence that goes beyond fact-checking.

Satellite imagery analysis can take on a multitude of forms and the case studies examined in this article are simply a sample to demonstrate the diverse techniques in which emerging technology and the democratization of space can influence foreign policy. Increased access to satellite images provides a practical means to acquire new insight about unknown or contentious issues and to support conclusions drawn by open-source research. The various methods with which this technology is applied, and their outcomes can shape the policy debate among the public, hold the government accountable to make informed foreign policy decisions, and increase the scope of open-source information available to researchers. Furthermore, it is a valuable resource that can modernize research techniques, encourage creativity, reduce costs, and much more. Finally, it is a mechanism that can aid both domestic and international causes and catalyze the formulation of U.S. foreign policy.

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ENDNOTES


5. William Welser IV, “The Democratization of Space.”


