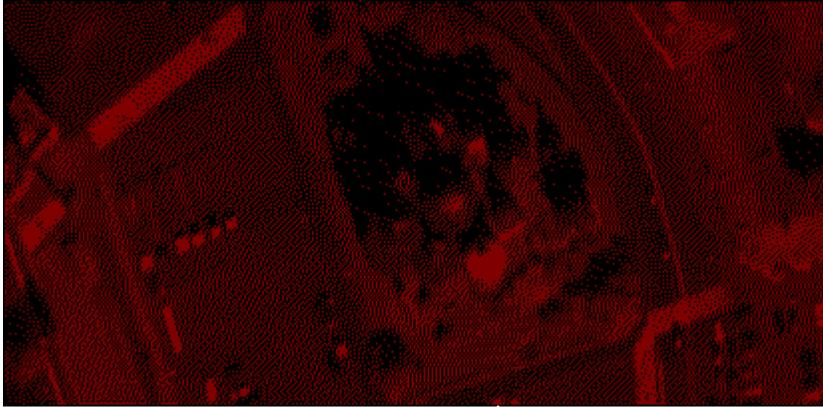
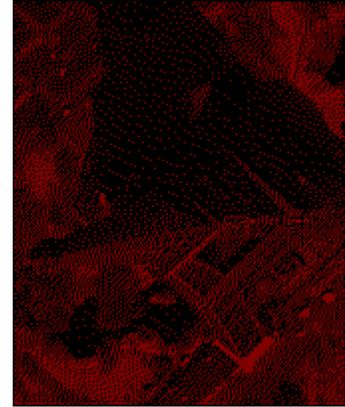


# Google Offers a Bird's-Eye View, and Some Governments Tremble



A view from above of the Kremlin in Moscow



The Eiffel Tower

These views were part of the appeal of Google Earth. But its ability to show government buildings, military installations and other sites has alarmed officials in several nations.

From [DigitalGlobe](#), via Google Earth

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When [Google](#) introduced Google Earth, free software that marries satellite and aerial images with mapping capabilities, the company emphasized its usefulness as a teaching and navigation tool, while advertising the pure entertainment value of high-resolution flyover images of the Eiffel Tower, Big Ben and the pyramids.

But since its debut last summer, Google Earth has received attention of an unexpected sort. Officials of several nations have expressed alarm over its detailed display of government buildings, military installations and other important sites within their borders.

India, whose laws sharply restrict satellite and aerial photography, has been particularly outspoken. "It could severely compromise a country's security," V. S. Ramamurthy, secretary in India's federal Department of Science and Technology, said of Google Earth. And India's surveyor general, Maj. Gen. [M. Gopal Rao](#), said, "They ought to have asked us."

Similar sentiments have surfaced in news reports from other countries. South Korean officials have said they fear that Google Earth lays bare details of military installations. Thai security officials said they intended to ask Google to block images of vulnerable government buildings. And Lt. Gen. [Leonid Sazhin](#), an analyst for the Federal Security Service, the Russian security agency that succeeded the K.G.B., was quoted by [Itar-Tass](#) as saying: "Terrorists don't need to reconnoiter their target. Now an American company is working for them."

But there is little they can do, it seems, but protest.

Google Earth is the most conspicuous recent instance of increased openness in a digitally networked world, where information that was once carefully guarded is now widely available on personal computers. Many security experts agree that such increased transparency - and the discomfort that it produces - is an inevitable byproduct of the Internet's power and reach.

American experts in and outside government generally agree that the focus on Google Earth as a security threat appears misplaced, as the same images that Google acquires from a variety of sources are available directly from the imaging companies, as well as from other sources. Google Earth licenses most of the satellite images, for instance, from DigitalGlobe, an imaging company in Longmont, Colo.

"Google Earth is not acquiring new imagery," said John Pike, director of [Globalsecurity.org](http://Globalsecurity.org), which has an online repository of satellite imagery. "They are simply repurposing imagery that somebody else had already acquired. So if there was any harm that was going to be done by the imagery, it would already be done."

Google Earth was developed as a \$79-a-year product by a small company called Keyhole that Google bought last year; it was reintroduced as a free downloadable desktop program in June. It consists of software that can be downloaded onto a personal computer and used to "fly over" city streets, landmarks, buildings, mountains, redwood forests and Gulf Stream waters. Type in any street address in the United States, Canada or Britain, or the longitude and latitude for any place - or even terms like "pyramids" or "Taj Mahal" - and the location quickly zooms into focus from outer space.

It was in the 1990's that the federal government started allowing commercial satellite companies to make and sell high-resolution images, to allow American companies to compete in a growing market.

But a number of security restrictions apply to those companies. For instance, United States law requires that images of Israel shot by American-licensed commercial satellites be made available only at a relatively low resolution. Also, the companies' operating licenses allow the United States government to put any area off limits in the interests of national security. A 24-hour delay is mandated for images of especially high resolution.

Vipin Gupta, a security analyst at Sandia National Laboratories in Albuquerque, said the time delays were crucial, saying that in the national security sphere much can change between the time an image is taken and when it is used by the public.

"You can get imagery to determine whether there is a military base or airfield, but if you want to count aircraft, or determine whether there are troops there at a particular time, it is very difficult to do," Mr. Gupta said. "It's not video."

Andrew McLaughlin, a senior policy counsel at Google, said the company had entered discussions with several countries over the last few months, including Thailand, South Korea and, most recently, India.

India may be particularly sensitive to security issues because of its long-running border disputes with Pakistan, its rival nuclear power, and recurring episodes of terrorism. Since 1967, it has forbidden aerial photographs of bridges, ports, refineries and military establishments, and outside companies and agencies are required to have those images evaluated by the government. High-resolution satellite photos face similar restrictions in India, which has its own sophisticated

satellite imaging program.

Mr. Ramamurthy, the Indian science official, acknowledged that "there is very little we can do to a company based overseas and offering its service over the Internet." But General Rao, the Indian surveyor general, said the Indian government had sent a letter asking Google "to show sensitive sites, which we will list - areas such as the presidential residence and defense installations - in very low-resolution images."

Mr. McLaughlin said he had not yet seen such a letter; he said talks with India had centered specifically on images of the Kashmir border, long disputed by India and Pakistan.

Meetings with Indian officials or those from other nations have yet to result in a request that Google remove or downgrade any information, Mr. McLaughlin said. Nor, he said, has the United States government ever asked Google to remove information.

The same cannot be said for Mr. Pike, whose Web site has images of nuclear test sites and military bases in much sharper focus than can be found on Google Earth.

Last year, Mr. Pike said, he was asked by the National Geospatial-Intelligence Agency, an arm of the Defense Department, to remove from his site some of the maps of cities in Iraq that the Coalition Provisional Authority had created for planning cellphone service.

Mr. Pike said he had complied, but added that the incident was a classic example of the futility of trying to control information. "To think that the same information couldn't be found elsewhere was not a very safe assumption," he said.

Dave Burpee, a spokesman for the agency, said that the incident was relatively isolated, and that Mr. Pike had been asked to remove the maps because they were marked "limited distribution." A service like Google Earth, on the other hand, contains nothing classified or restricted.

An outcry over security was the last thing John Hanke was thinking five years ago when he joined in founding Keyhole with the aim of using satellite and aerial photography to create a three-dimensional world map. The idea, said Mr. Hanke, an entrepreneur who founded two video game companies before starting Keyhole, was to make video games more interesting.

Now Mr. Hanke, as a general manager at Google in charge of Google Earth, finds himself in the thick of frequent discussions at Google and with outsiders about transparency. He speaks enthusiastically of the benefits of openness. "A lot of good things come out of making information available," he said, and proceeded to list a few: "disaster relief, land conservation and forest management for fighting wildfires."

The images, which Google Earth expects to update roughly every 18 months, are a patchwork of aerial and satellite photographs, and their relative sharpness varies. Blurriness is more often than not an indication of the best quality available for a location.

Chuck Herring, a spokesman for DigitalGlobe, said that to the best of his knowledge, the federal government had never asked his company to obscure or blur images. Similarly, Mr. Hanke said no specific areas on Google Earth lacked high-resolution data because of federal restrictions.

For a brief period, photos of the White House and adjacent buildings that the United States Geological Survey provided to Google Earth showed up with certain details obscured, because the government had decided that showing details like rooftop helicopter landing pads was a security risk. Google has since replaced those images with unaltered photographs of the area taken by Sanborn, a mapping and imagery company, further illustrating the difficulty of trying to control

such information.

As for security issues raised by other countries, Mr. Hanke said, "When we reach out and engage with knowledgeable people, the concern tends to subside."

Still, imagery is growing harder than ever to control, especially as it makes its way around the Internet. Several countries, notably Nigeria, China and Brazil, have recently launched satellites, making it harder for any one government to impose restrictions.

"When you have multiple eyes in the sky, what you're doing is creating a transparent globe where anyone can get basic information about anyone else," said Mr. Gupta, the Sandia analyst. His recommendation to the Indian government, he said, would be to accept the new reality: "Times are changing, and the best thing to do is adapt to the advances in technology."