

Quake aid hampered by ban on web shots

Open-access satellite images are revolutionizing responses to disasters. Yet the government of Pakistan has forced aid agencies to remove pictures of earthquake devastation from the Internet.

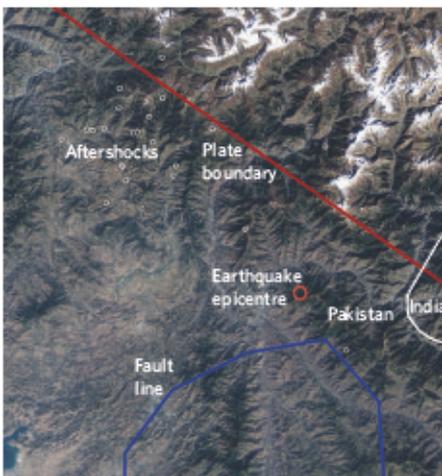
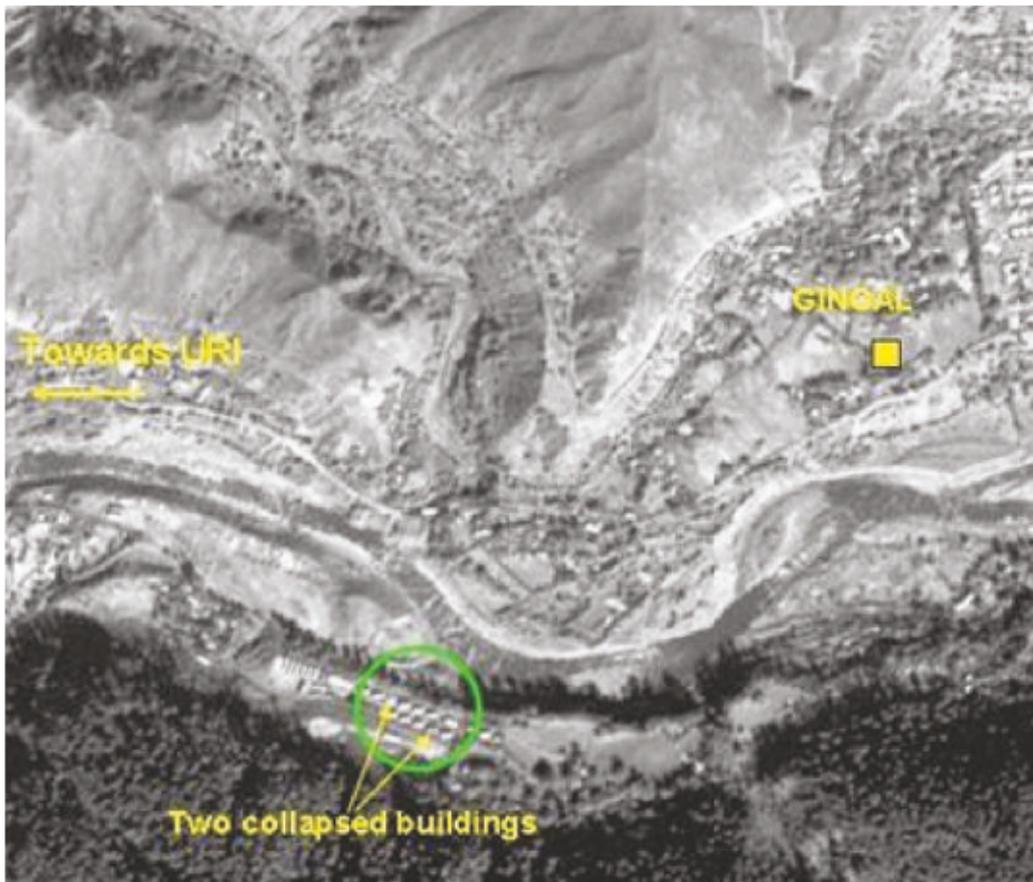
Three days after the 7.6-magnitude earthquake struck Kashmir on 8 October, the Pakistan government appealed for high-resolution satellite images to help relief efforts. But, apparently to protect national security, *Nature* has learned that the government has since forced international agencies and relief organizations to remove these images from their websites.

The International Charter on Space and Major Disasters put high-resolution images of the earthquake zone on its website last Friday, then pulled them off hours later. The charter, a consortium of space agencies, was created in 2000 to supply satellite images and data to communities in need of relief following a disaster.

An International Charter spokesperson said: "To best aid relief efforts, we are no longer publicly disseminating pictures of the Pakistan earthquake. Publication of such images would compromise the ability of United Nations (UN) forces on the ground to deliver relief. We hope you understand the situation."

But a senior official at the charter, who asked not to be named, says that the Pakistan government had demanded that no photos be made accessible to the public, because it feared the images could compromise security in the Kashmir region — an area that has long been disputed territory between India and Pakistan. The UN and other aid agencies need Pakistan's cooperation on the ground, and had no choice but to comply, he says.

The UN, European Union (EU) and other international agencies have a general policy of making all such images publicly available. But



last week photos of the quake zone disappeared from sites such as the UN's ReliefWeb and satellite imaging site UNOSAT, and Reuters' AlertNet. On others they became password-protected, such as on the EU's disasters site. Images of the earthquake zone will now be distributed on a "need to know" basis to affiliated relief organizations, says a senior EU official.

Although the main organizations can still access the data, the pulling of the images is "regrettable", says the official, who asked not to

Images of the devastation in Kashmir caused by the earthquake in Pakistan could help direct relief efforts, but high-resolution shots of the area (above) were removed from public websites.

be named. The images are useful to other local aid organizations, and to professionals worldwide who help out using the Internet, the official points out.

Scene from above

The Citizens Foundation, for example, a well-respected Pakistan organization based in Karachi, is providing basic care packages including tents, blankets and food rations to those affected. But Ayaz Abdulla, a mechanical engineer from Karachi who coordinates Internet-based parts of the local relief effort, and others at the organization, spent much of last week desperately e-mailing space agencies and commercial suppliers, to try to obtain images.

"We look for major areas of dense devastation that correspond to higher population, and for access roads to allow relief-goods transport," Abdulla says. The images are used to plan logistics, work out what roads are open, and locate isolated settlements.

The importance of publicly available satellite images and other geographical data was



highlighted after the Indian Ocean tsunami in December 2004 and this year's hurricane Katrina. In the aftermath of the tsunami, thousands of geographers and researchers provided high-quality information on the Internet, "while government agencies were still struggling to call people back from their holidays", says Thierry Rousselin. A geographical-information-systems consultant based in Paris, Rousselin monitored how satellite images were used after the Indian Ocean tsunami.

The response to Katrina was even greater, partly because of the good quality and availability of public geographic data for the United States, and because the government was perceived to have made a poor job of relief efforts. Concerned web users quickly downloaded images of New Orleans, and published them using browsers such as Google Earth and Google Maps, both of which allow users to zoom in on any part of the globe to view satellite images and associated local information. Anyone with a web browser could then add information about the needs in a particular location to these webmaps, and thousands did.

Four days after the hurricane hit, a collaboration called the Global Connection realized how useful such information would be to relief

workers. The Global Connection consisted of Google and scientists at Carnegie Mellon University in Pittsburgh, Philadelphia, and NASA Ames Research Center in Moffett Field, California. Within hours they had added thousands of near real-time aerial and satellite images of New Orleans into Google Earth and Google Maps. Internet users then converted these images into a myriad of web services allowing anyone to report, for example, damage, deaths or needs at particular locations.

Out of range

High-resolution satellite images, combined with tools such as Google Earth and Maps, are "bringing a revolution", Rousselin says. "They have advanced remote sensing more in 6 months than professionals have done over the past 30 years."

Even with the limited data available for Pakistan, Internet users have acted faster in mapping the area than government and international agencies, Rousselin argues. On the morning after the Pakistan earthquake had hit, Internet users worldwide were already busy plotting the disaster in Google Earth ahead of official agencies, he says.

But Anne Wright, a computer scientist at Ames Research Center who was involved in mapping the damage after Katrina, says the lack of images of Pakistan is hampering the Global Connection's efforts. "We haven't played a similar role with the Pakistan earthquake because we've had no data sources to work with. After Hurricane Katrina, the National Oceanic and Atmospheric Administration made their post-hurricane imagery publicly available. For Pakistan, the only available imagery we're aware of is commercial satellite photography."

She and others have been trying to help the relief groups that are seeking images. Google has now purchased some imagery from DigitalGlobe, a database of high-resolution earth-imaging satellite pictures, and has provided this as photographic overlays that anyone can import into Google Earth.

But the lack of data is still being sorely felt on the ground. One of Abdulla's colleagues at the Citizens Foundation, who did not wish to be named, pleaded in an e-mail to NASA and others: "Could you please tell me whether it's possible to get updated satellite imagery for this region (northern Pakistan), just like it was after Hurricane Katrina? Our country needs all the help it can get, and much more." ■

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As *Nature* went to press, the UN informed relief agencies that it would lift its ban on the public dissemination of images. For further updates see:

▶ www.nature.com/news

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