HEXAGON GEOSPATIAL | **INTERGRAPH**® GOVERNMENT SOLUTIONS
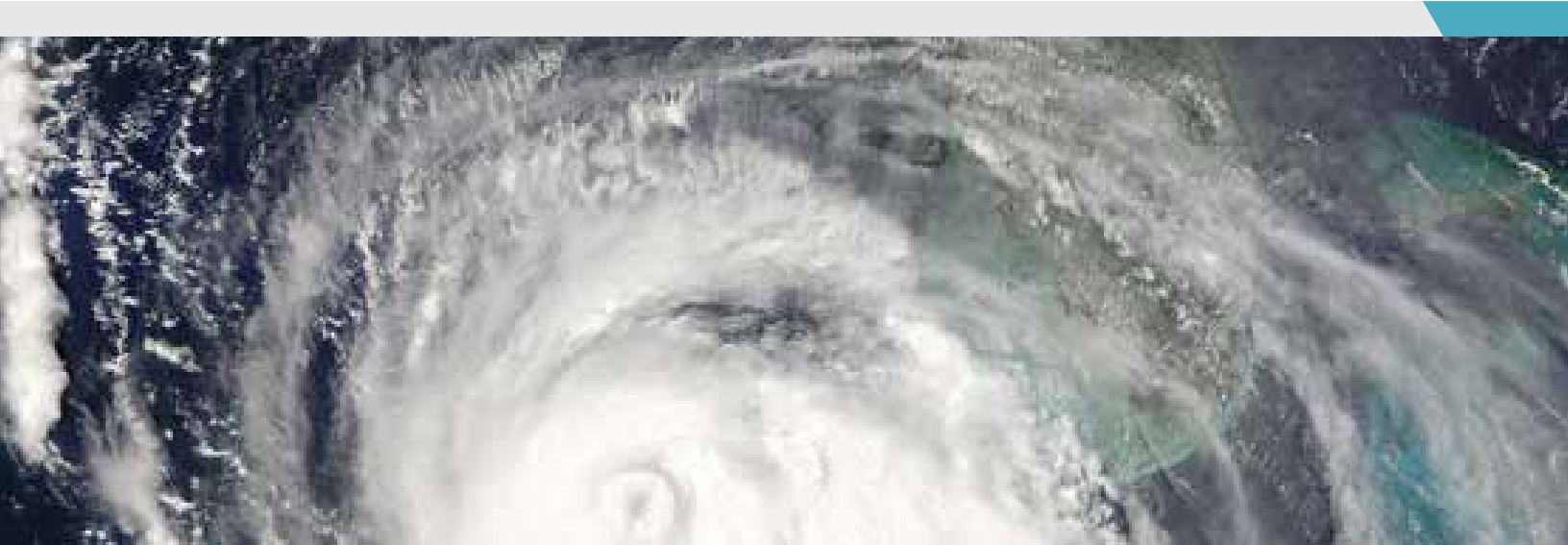
Hurricane Katrina
Assisting the U.S. Army Corps of Engineer

PROBLEM
Emergency response crews need up-to-date imagery to assist rescue and relief efforts.

GOALS
- Need to provide three terabytes of up-to-date aerial imagery to disaster response crews
- Data needs to be taken on field excursions and used in a disconnected environment

OUTCOME
Emergency response teams are able to leverage imagery in their ground operations by using compressed ECW image mosaics.

HEXAGON GEOSPATIAL SOFTWARE USED
- ERDAS ER Mapper
- Hexagon Geospatial's Enhanced Compression Wavelet (ECW) compression format
- ERDAS APOLLO Essentials

Hurricane Katrina was the costliest and one of the deadliest hurricanes in the history of the United States. The storm surge caused severe and catastrophic damage along the Gulf Coast, devastating the cities of Mobile, Alabama, Waveland, Biloxi, and Gulfport in Mississippi, and New Orleans and other towns in Louisiana. The storm is estimated to have been responsible for $81.2 billion (2005 U.S. dollars) in damage, making it the costliest natural disaster in U.S. history.

THE CHALLENGE

In emergency situations, response time is critical. Damage assessment officers in the field needed access to imagery and other pertinent GIS data layers as quickly as possible. The distortion to the environment caused by the hurricane made existing data near useless in the orchestration of relief efforts.

Imagery of the Hurricane Katrina devastation area was captured using the latest available digital airborne imagery sensors. The image data amounted to 3 terabytes (3,000 gigabytes). The sheer size of this imagery presented a huge distribution issue.

THE SOLUTION

Using ERDAS ER Mapper, thousands of GeoTIFF imagery tiles of the disaster area were quickly compressed into just eight seamless image mosaics of the area of interest. The resultant mosaics were a fraction of the original size, while still retaining their original visual quality. In addition,the smaller file sizes allowed the images to be distributed on DVDs to those agencies that required this critical information.

In cases where the Internet was available, the mosaics were served via ERDAS APOLLO Essentials using multiple image-delivery protocols (ECWP streaming and WMS). This allowed the complete dataset to be viewed on desktop GIS and CAD applications.

THE OUTCOME

The use of Hexagon Geospatial software to mosaic, compress, and view this imagery was essential for those teams working with only laptops and portable disk storage, and without a connection to the USACE network. Teams of GIS analysts supporting the FEMA Joint Field Office (JFO) for Mississippi in Jackson relied on ECW-compressed imagery until the establishment of the JFO network made sufficient file storage available for the three terabytes of USACE imagery.

The compressed image datasets were coordinated, processed, and delivered by George Davis, Technical Manager at Hexagon Geospatial. "It was great to be able to make such a positive contribution. Responding to disasters such as these requires a real team effort. A team that Hexagon Geospatial is very pleased to continue to be a part of," commented Davis.

George Davis previously provided assistance to New York City during the September 11th World Trade Center response initiative at the Emergency Mapping and Data Center at Pier 92 in Manhattan.
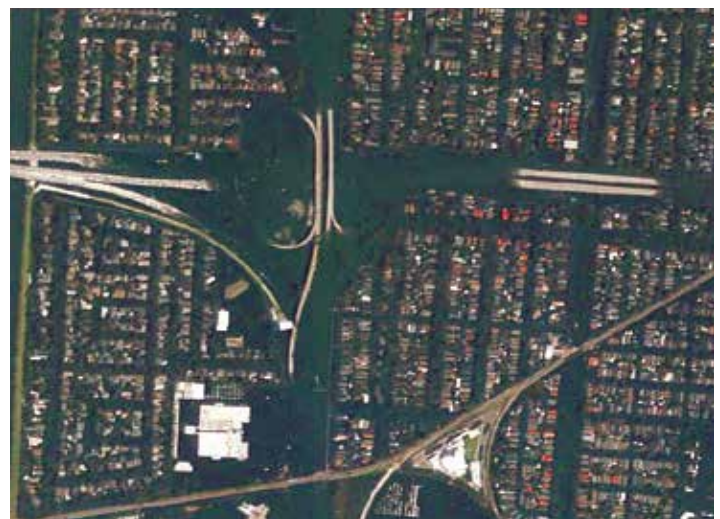
Hurricane Katrina: before (left) and after (right) the devastation.

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KEY BENEFITS

FAST DELIVERY OF INFORMATION
ERDAS ER Mapper provides maximum throughput of raw image data through image compression. In emergency situations, speed of information delivery is critical.

PORTABILITY OF IMAGERY THROUGH IMAGE COMPRESSION
Imagery was compressed to ECW format. This format reduces the physical file size of the imagery greatly, while retaining the visual quality. The imagery can then be distributed on DVD or via Intranet or Internet.

EASY, DYNAMIC VIEWING OF IMAGERY
Viewing single files of the whole area of interest, speeds information ingestion compared to traversing through myriads of separate image tiles. ECW compressed images can be easily viewed even on modest computer hardware. The inherent architecture of the format provides quick rendering of views, even when rapidly changing resolutions. ECW files can be viewed inside all GIS, CAD, and desktop applications.

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