

USGS EROS Emergency Operations



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WGISS-55

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- **The Earth Resources Observation and Science (EROS) Center has been a part of the U.S. Geological Survey (USGS) since 1972**
 - **Currently around ~650 employees, USGS and contractor**
 - **World's largest civilian archive of remote sensing data**
 - **Data reception, processing, archiving, and distribution**
 - **Home for data from the Landsat series of satellites**
 - **Research facility for remote sensing and terrestrial science**
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- **In support of Emergency Operations, EROS “Provides current and accurate geospatial data for local, national and global hazard support.”**



- Provide Federal, State, and Local organizations with timely and relevant remotely sensed imagery and information during an event to include pre and post event.
- Support and coordination for satellite and aerial image access, storage, delivery, acquisition, reception, and archival
- Host the Remote Sensing Working Group (RSWG) coordination calls for geospatial requirements and remote sensing activities (on request)
- Collection requirements through Collection Management Tool (CMT)
- Image access and delivery through Hazards Data Distribution System (HDDS)
- US representation for International Charter 'Space and Major Disasters'



What is the International Charter?

- An international agreement among space agencies to provide space-based data and information to support relief efforts in the event of emergencies caused by major disasters.

Provides a mechanism for:

- Multi-satellite data acquisition planning
- Very rapid data turn-around and priority acquisition
- Archive retrievals and spacecraft tasking
- Data processing at pre-determined level
- Space agency contribution in image/data
- Space agency initiative for value-added-data fusion



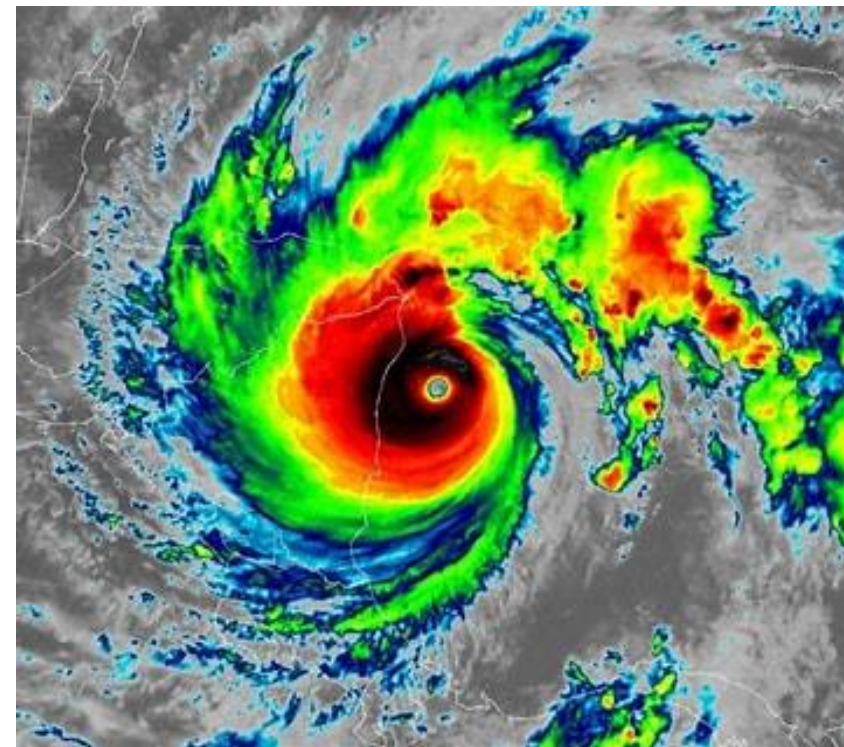
<http://www.disasterscharter.org/>

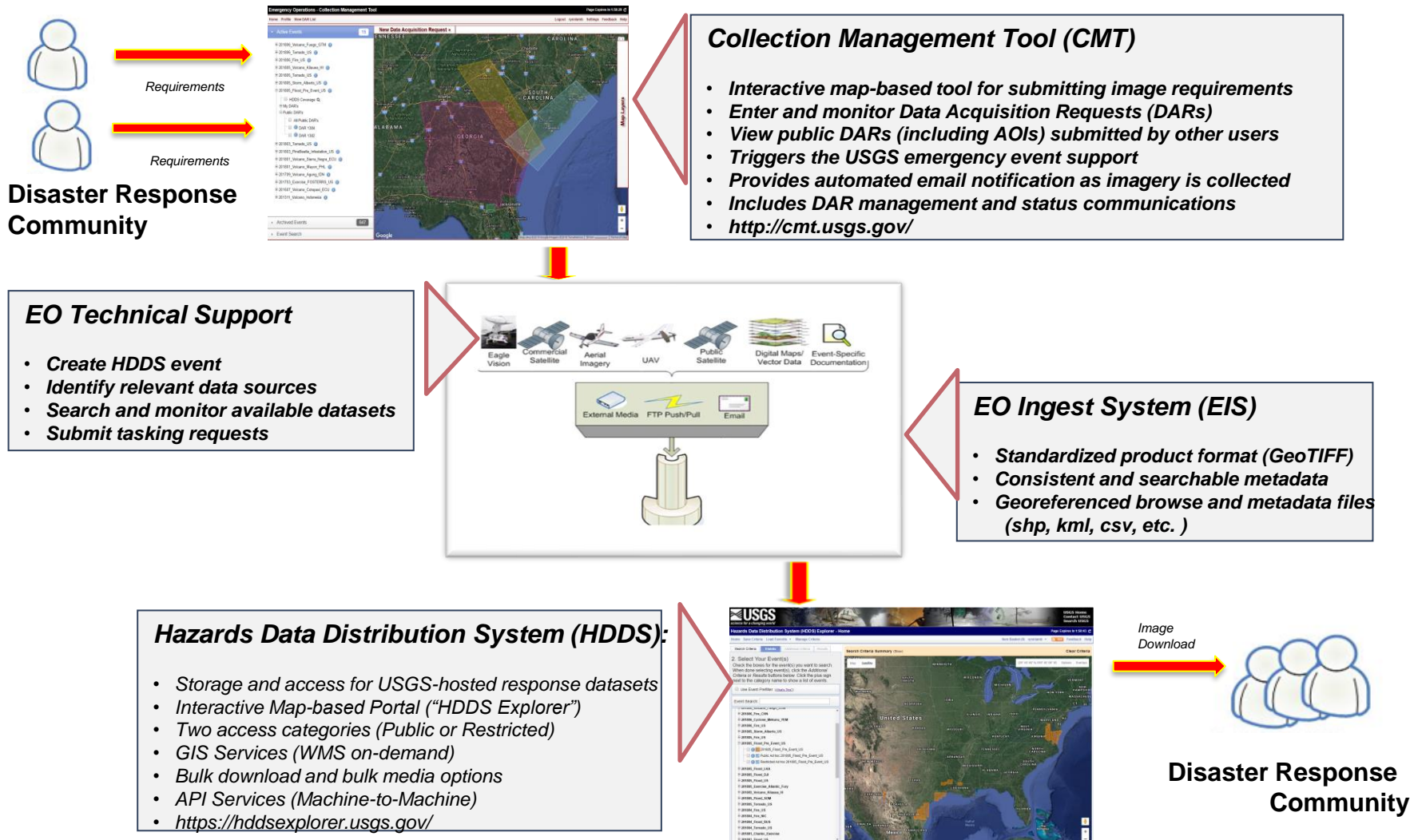
Charter Support

- Emergency Operations Team supported 43 new charter events with 219 new data acquisition requests (DAR).
- Liaised with a multitude of International Disaster Management entities

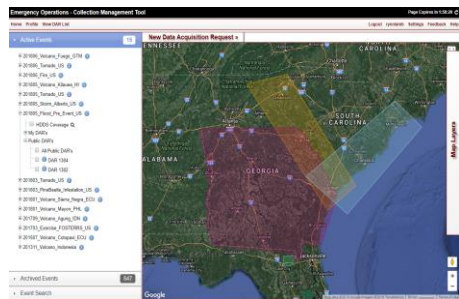
Domestic Support

- Emergency Operations Team supported 31 new non charter events with 161 new data acquisition requests (DAR).
- Participated in inter-agency support with FEMA, NOAA, and National Guard Bureau for hurricane Fiona and Ian.





Disaster Response Community

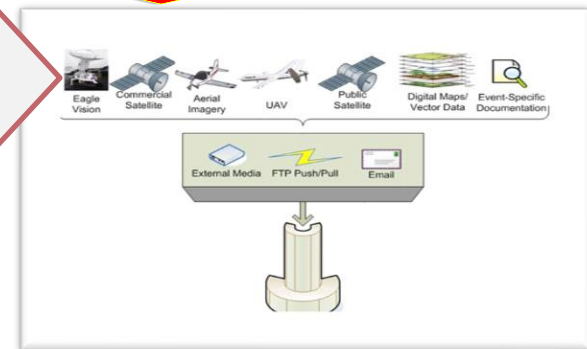


Collection Management Tool (CMT)

- Interactive map-based tool for submitting image requirements
- Enter and monitor Data Acquisition Requests (DARs)
- View public DARs (including AOIs) submitted by other users
- Triggers the USGS emergency event support
- Provides automated email notification as imagery is collected
- Includes DAR management and status communications
- <http://cmt.usgs.gov/>

EO Technical Support

- Create HDDS event
- Identify relevant data sources
- Search and monitor available datasets
- Submit tasking requests



EO Ingest System (EIS)

- Standardized product format (GeoTIFF)
- Consistent and searchable metadata
- Georeferenced browse and metadata files (shp, kml, csv, etc.)

Hazards Data Distribution System (HDDS):

- Storage and access for USGS-hosted response datasets
- Interactive Map-based Portal ("HDDS Explorer")
- Two access categories (Public or Restricted)
- GIS Services (WMS on-demand)
- Bulk download and bulk media options
- API Services (Machine-to-Machine)
- <https://hddsexplorer.usgs.gov/>



Image Download → **Disaster Response Community**

Hazards Data Distribution System (HDDS)

Data Holdings

- HDDS currently holds over 689 TB of data representing over 10.7 million files
 - Public: 358 TB (9.9+ million files)
 - Restricted: 331 TB (1.5+ million files)
- Represents over 1,1648 baseline and disaster events

Data Distribution

- Over the last 12 months, the HDDS systems have distributed 30,195 files to the disaster response community.



3/21/2019 Sentinel-2
of Omaha, NE

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|-----------------------------|-----------------|-----------------------|
| WORLDVIEW | MISC AERIAL | CIVIL AIR PATROL |
| BLACKSKY | SATELLOGIC | PLANET |
| GEOEYE | FORMOSAT | INDIAN REMOTE SENSING |
| INTERNATIONAL SPACE STATION | KANOPUS | LANDSAT |
| SENTINEL | IKONOS | ENVISAT |
| DEM | DEIMOS | COSMO |
| NIGERIA SAT | PLEIADES | QUICKBIRD |
| RADARSAT | RAPIDEYE | RESURS |
| ALSAT | AQUA | TERRA |
| SPOT | CIVIL AIR PATRO | KANOPUS |
| TERRASARX | UKDMS | BEIJING |