Ohio Disasters

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Title: GIS Director
Organization: Lake County, Ohio
Ohio’s Many Disasters

Should I be interested in the International Charter? Yes!

There have been 47 Ohio Presidential Disaster Declarations since 1964

(Includes all FEMA Major and Emergency Declarations)
Xenia Tornado 1974
1978 Blizzard

Legend
- 1978_Blizzard

North
OHIO PRESIDENTIAL DISASTER DECLARATIONS
(Includes all FEMA Major and Emergency Declarations from 1964 – 2009)
(Current as of August 18, 2009)
International Charter
Space and Major Disasters

Presented by:
Richard J. Kotapish, GISP
Director, GIS Department
Lake County, Ohio

Slides provided by the International Charter
Purpose

An International agreement among Space Agencies to support with space-based data and information, relief efforts in the event of emergencies caused by major disasters.
Charter History

- Following the UNISPACE III conference held in Vienna, Austria in June 1999.
- ESA and CNES initiated the International Charter in July 1999.
- CSA (Canadian Space Agency) signed the Charter on October 20, 2000.
- Charter implementation by identifying and creating a number of functional units and preparing the necessary policies and plans.
- Charter declared operational as of November 1, 2000 after formal rehearsals and qualification tests.
The US National Oceanic and Atmospheric Administration (NOAA), and the Indian Space Research Organization (ISRO) became members in September 2001.

In July 2003, Argentina (CONAE) joined the Charter.

Detailed operational procedures established and kept under document configuration control.

In 2005, the Japanese Space Agency (JAXA) joined the Charter in February, the United States Geological Survey (USGS) in April as part of the US membership, and the Disaster Monitoring Constellation (DMC) Consortium in November.

The China National Space Administration (CNSA) joined the Charter in May 2007.

Two hundred and fourteen (214) disasters covered to date in various parts of the world.
Charter Functional Units

- Authorized Users (AUs)
- On-Duty Operator (ODO)
- Emergency on-Call Officer (ECO)
- Project Manager (PM)
- Data processing and distribution facilities
- Value-Added Resellers (VARs)
AU: Authorized User

Authorized users are normally Civil Protection Agencies

- Only an AU can request a Charter activation.
- UNOOSA and UNOSAT have the capability to request an activation for other UN agencies.
- United States: Brenda Jones, USGS Center for Earth Resources Observation and Science (EROS)
Activation Criteria

These requests should not be accepted:

1. **Non emergency situations**: 
   Oil spill monitoring operations
   Ice monitoring operations except for specific event

2. **Emergencies falling out of Charter scope**: 
   War or armed conflicts
   Humanitarian actions not linked to a specific disaster
   Search and rescue support not linked to a specific disaster
Activation Criteria

3. Emergencies with doubtful/no benefit from space assets
   Droughts
   Routine epidemiological outbreaks

4. Calls beyond emergency period
   As a rule of thumb, a Charter activation occurring more than 10 days after the actual crisis start should be rejected.

   In addition, the duration of a Charter call should be limited to a maximum of 15 days after activation and the request should be rejected if the size of the disaster is not compatible with the resolution of the available satellites.
ODO: On Duty Operator

User Request Form

To be filled by ODO

Call ID

1. Date and time of the call
   DATE____ MONTH (Spell)____ YEAR____
   TIME LOCAL TIME ZONE UTC TIME

2. Name of the organization and caller
   Phone
   Fax
   Cellular phone
   E-mail
   to be used for call back

3. Type of disaster
   - flood
   - landslide
   - volcano
   - hurricane
   - fire
   - earthquake
   - oil spill
   - other (specify)

4. Geographical location
   Approximate geographical location and surface extent
   Location
   From
   To
   Extent (km²)
   Maximum radius of 30 km
   Maximum 60x60 km²

5. Co-ordinates
   a) by center co-ordinates
   Lat...
   Long...
   b) by upper left co-ordinates
   Lat...
   Long...

6. Approximate date/time of occurrence
   or predicted occurrence

7. Additional information on the disaster

8. Additional instructions
   (shipping instructions)

Authorized User □ Yes □ No □
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**OUTSIDE CHARTER**

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These need to be properly identified once IRSF Freedom data is used.
Activation Distribution

Floods and storms

As of April 30, 2009

Map showing flood/ocean wave and storm/hurricane activation distribution globally.
Activation Distribution
Earthquakes, volcanic eruptions and landslides

As of April 30, 2009
Activation Distribution
Oil spills, forest fires and other hazards

As of April 30, 2009
High Resolution USGS Resources

- IKONOS
- Quickbird
- Worldview
- GeoEye -1
Nyiragongo volcanic eruption, R.D. of Congo
Lava flow mapping over Goma
Nyiragongo volcanic eruption, R.D. of Congo
Validation using ground data

GOMA: Town Centre
27 Jan 2002

Detection Error
Good Detection
False Alarm

Lava data derived from GPS ground survey and thermal imagery.

Published by OCHA Humanitarian Information Centre (HIC) Geneva, 2002.
Southern France flood, France
Flood maps of Gard Department

Event: 8/09/2002
Charter request: 9/09/2002 12h00 UTC
Data acquired: 10/09/2002 10:49 UTC
Map provided: 10/09/2002 23:49 UTC

Map produced using SPOT-4 image acquired on September 10th, 10:49 UTC and SPOT-5 archive data
**Algiers earthquake, Algeria**

Change maps

Boumerdes Region

Algiers Region

Change detection maps produced using SPOT 4/5 images.

Changes appear in yellow
Tsunami, Indonesia
Banda Aceh, West area
Hurricane Katrina, USA
Water depths with RADARSAT-1

New Orleans Flood Depths