

JRC Disaster Risk related activities

IRDR – 10th Science Committee Meeting, Sanya, 12-14 November
2013

www.jrc.ec.europa.eu

*Serving society
Stimulating innovation
Supporting legislation*



Crisis management activities at JRC

1. Global Disaster Coordination System
2. Losses databases for Europe
3. Inform – Prioritize humanitarian aid intervention
4. Partnerships, Flood and Natural Hazard
5. GEO-EMS – Emergency maps → Philippines
6. Global Human Settlement Layer → Exposure

1. GDACS: system for international disaster response community

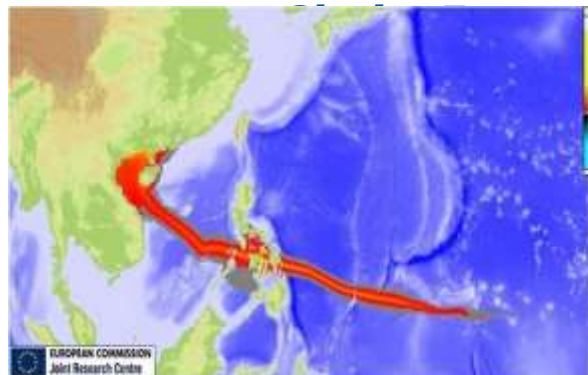
Improvements: finer scale **exposure and **vulnerability** data**

Information gap in the initial response phase

- **Monitoring**
- **Impact / risk analysis**
- **Information integration**

18000 active users of 212 countries

- **Secretariat: United Nations Office for Coordination of Humanitarian Affairs (OCHA)**

an
humanitarian

Office for the
Coordination of
Humanitarian
Affairs

2. Standards for loss databases

- Loss data standard for Europe
- Likely Way forward:
 1. Inventory existing loss databases in Europe
 2. Ingest in common standardized framework
 3. Find mechanisms to fill gaps

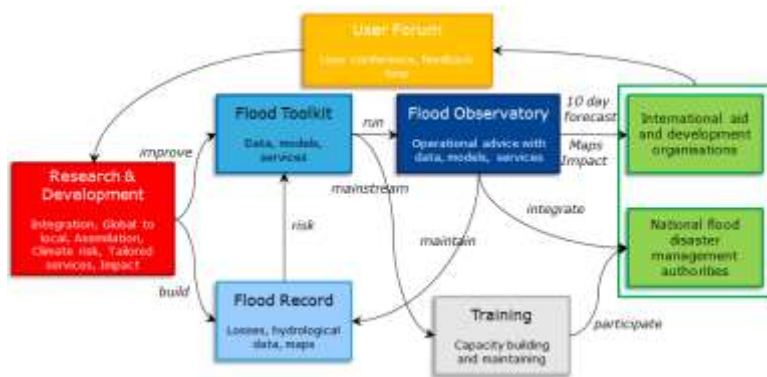


<http://publications.jrc.ec.europa.eu/repository/handle/111111111/29296>

3. Partnerships

Global Flood Partnership

- **Strong partners:** JRC, World Bank, UNISDR, Dartmouth Flood Observatory
- **Interdisciplinary science**
- **Capacity building:** flood-affected countries, humanitarian organisations
- **Sustainable structure**



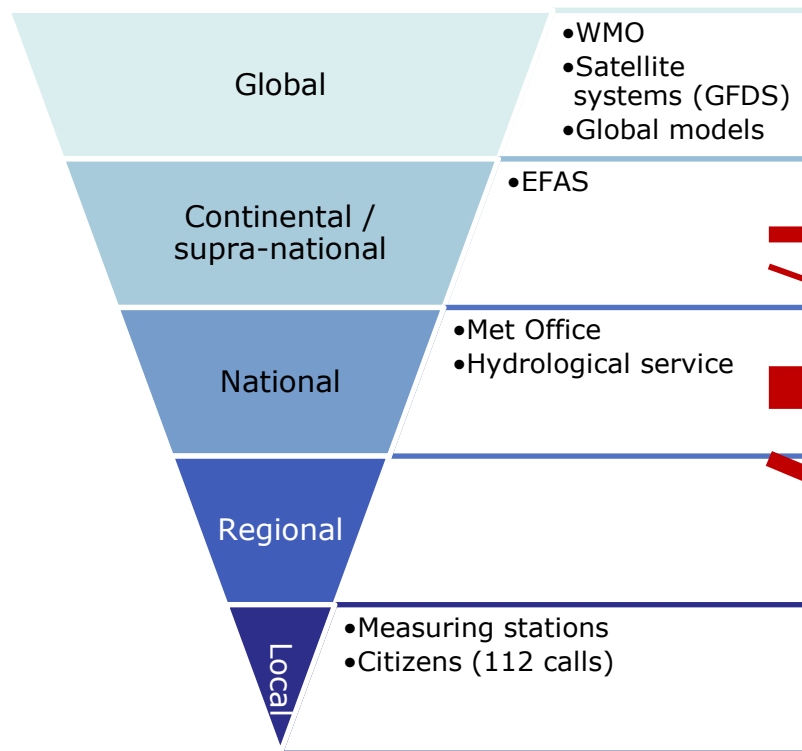
Natural Hazard Partnership

- **Clear need:** strong scientific evidence in disaster management; guide new scientific research
- **Good example:** UK Natural Hazard Partnership
- **Policy context:** Civil Protection Mechanism
- **Pilot study:** DG ECHO with 6 Member States, under the technical lead of DG JRC

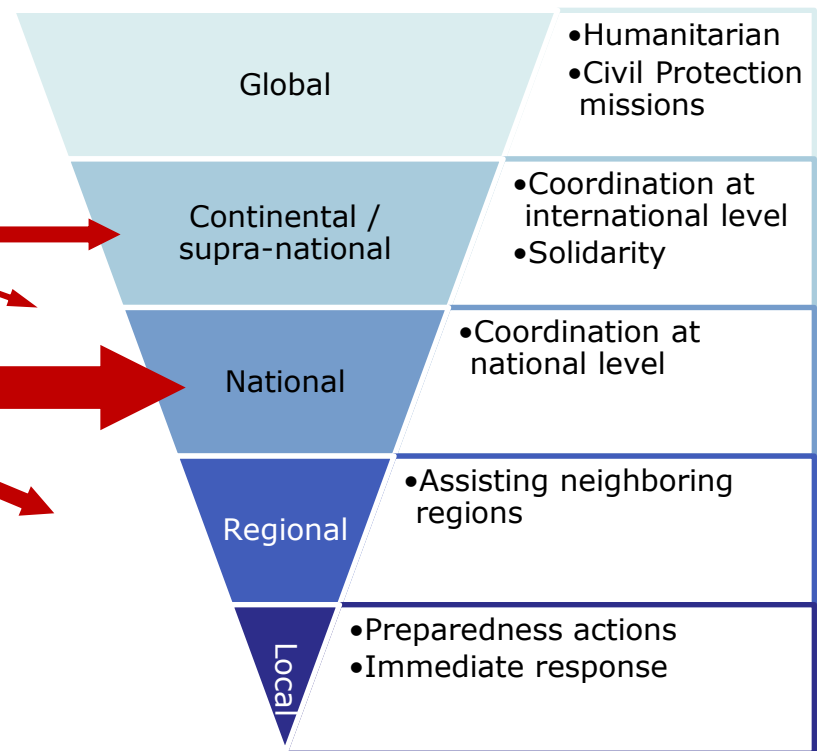


Subsidiarity, solidarity and silos

Hydro/Met/Remote sensing

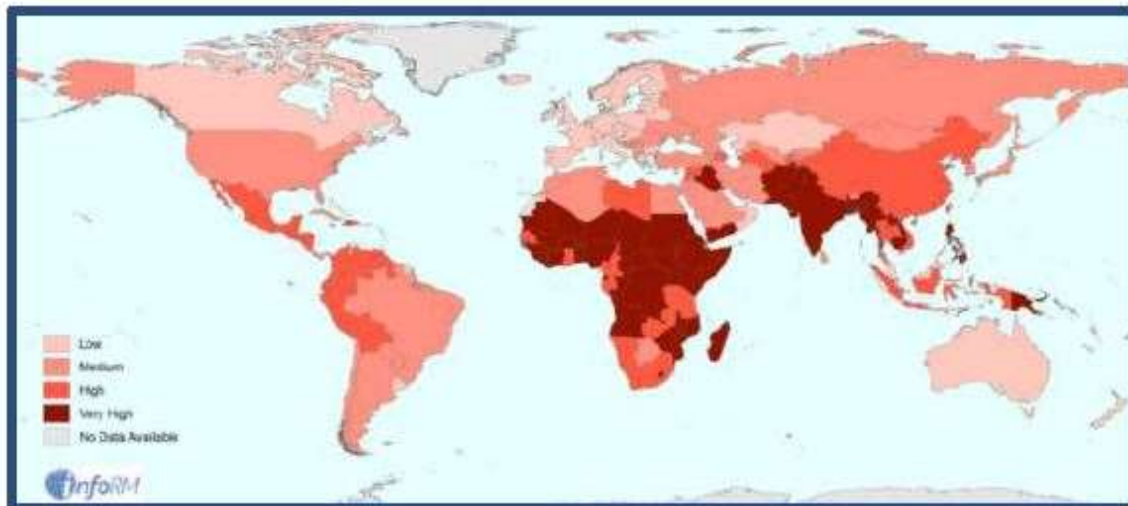


Emergency Response



4. Index for Risk Management -InfoRM

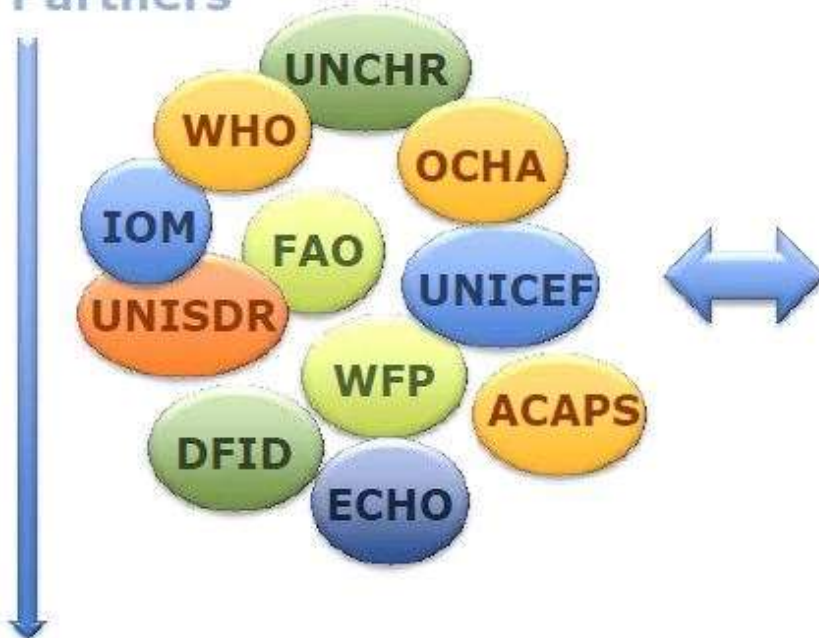
InfoRM is a **tool**...



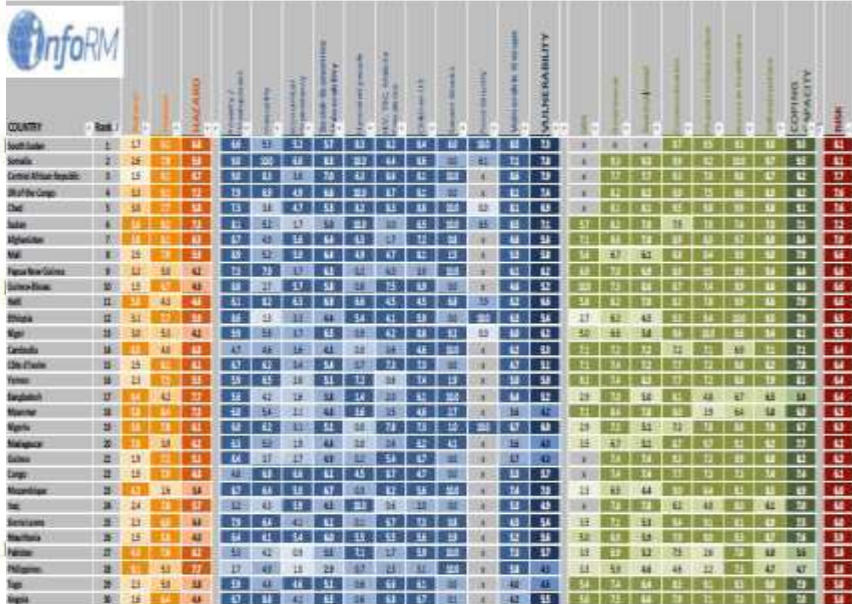
**to identify the countries at a high risk to
disasters and humanitarian crises
that are more likely to require international
assistance**

InfoRM

Partners



Missions



| COUNTRY | Rank | UNISDR | | WFP | | ACAPS | | IOM | | ECHO | | FAO | | WHO | | UNICEF | | UNCHR | | OCHA | | Other | | |
|--------------------------|------|--------|------|------|------|-------|------|------|------|------|------|------|------|------|------|--------|------|-------|------|------|------|-------|------|----|
| | | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | 2012 | 2013 | |
| Burundi | 1 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| South Sudan | 2 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 | 24 |
| Central African Republic | 3 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Guinea | 4 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Chad | 5 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| DRC | 6 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 34 |
| Niger | 7 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Algeria | 8 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Malawi | 9 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Yemen | 10 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Tajikistan | 11 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Uzbekistan | 12 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Egypt | 13 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Myanmar | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Kenya | 15 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Sri Lanka | 16 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Chad | 17 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Ukraine | 18 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Timor-Leste | 19 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Tanzania | 20 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| India | 21 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Indonesia | 22 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Uganda | 23 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Senegal | 24 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| South Africa | 25 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Kenya | 26 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Guatemala | 27 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| China | 28 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Nigeria | 29 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Yemen | 30 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| Burundi | 31 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 |

....data driven model

<http://inform.jrc.ec.europa.eu>

5. GEO – Emergency Mapping Services



European Commission

COPERNICUS EMERGENCY MANAGEMENT SERVICE

GIO EMS - Mapping

Home >>

Home | What is Copernicus | The Emergency Management Service

GIO EMS - MAPPING

- EMS - Mapping service
- Who can use the service
- How to use the service
- Products: Rush mode
- Products: Non-rush mode
- Quality control / Feedback
- User guide

RUSH MODE

- List of Activations
- Map of Activations
- GeoRSS Feed

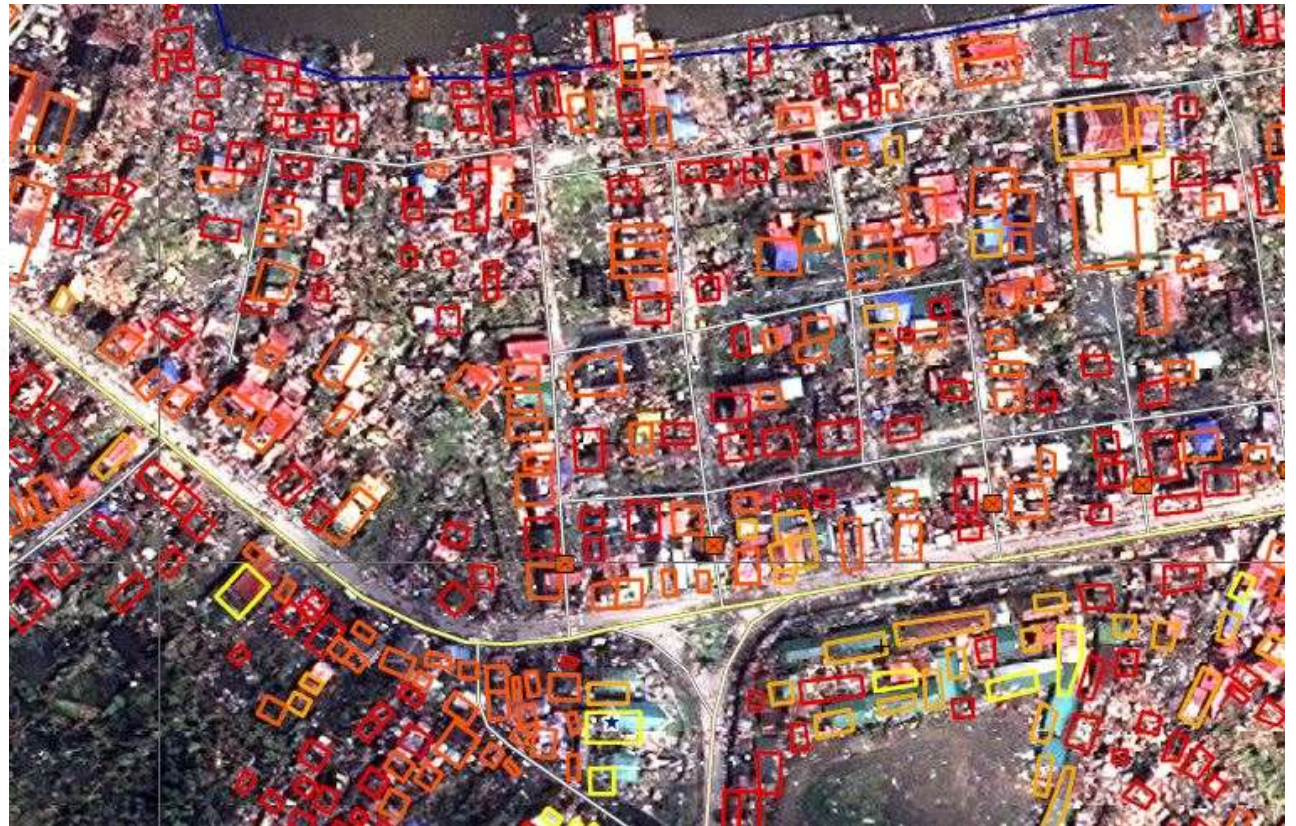
Typhoon in Philippines

Event Time (UTC): 2013-11-08 06:00
Event Time (LOC): 2013-11-08 14:00
Event Type: Wind storm
Activation Time (UTC): 2013-11-08 12:16
Reference maps produced: 9
Delineation maps produced: 8
Grading maps produced: 0
Activation Status: Open
Affected Countries:
 🇵🇭 Republic of the Philippines
Area Descriptor: Central Philippine Islands
Activator: EC Services|DG ECHO
Activation Reason: Tropical Storm Haiyan hit the Philippine Islands
Requested Product: Ref + Del

[+] Feedback

<http://ohri.jrc.ec.europa.eu/results.aspx>

Tacloban city (Philippines)



<http://ohri.jrc.ec.europa.eu/results.aspx>

18 November 2013

The Destruction in Tacloban

The typhoon decimated Tacloban, destroying many of the residential and commercial buildings in this once bustling city of 220,000. This map shows an estimate of damaged areas based on an initial survey of aerial and satellite imagery.



PORT AREA

Several ships washed onto shore near a warehouse complex north of the city's downtown.

DOWNTOWN

People lined up for supplies in a downtown plaza, where debris from surrounding buildings littered the streets.



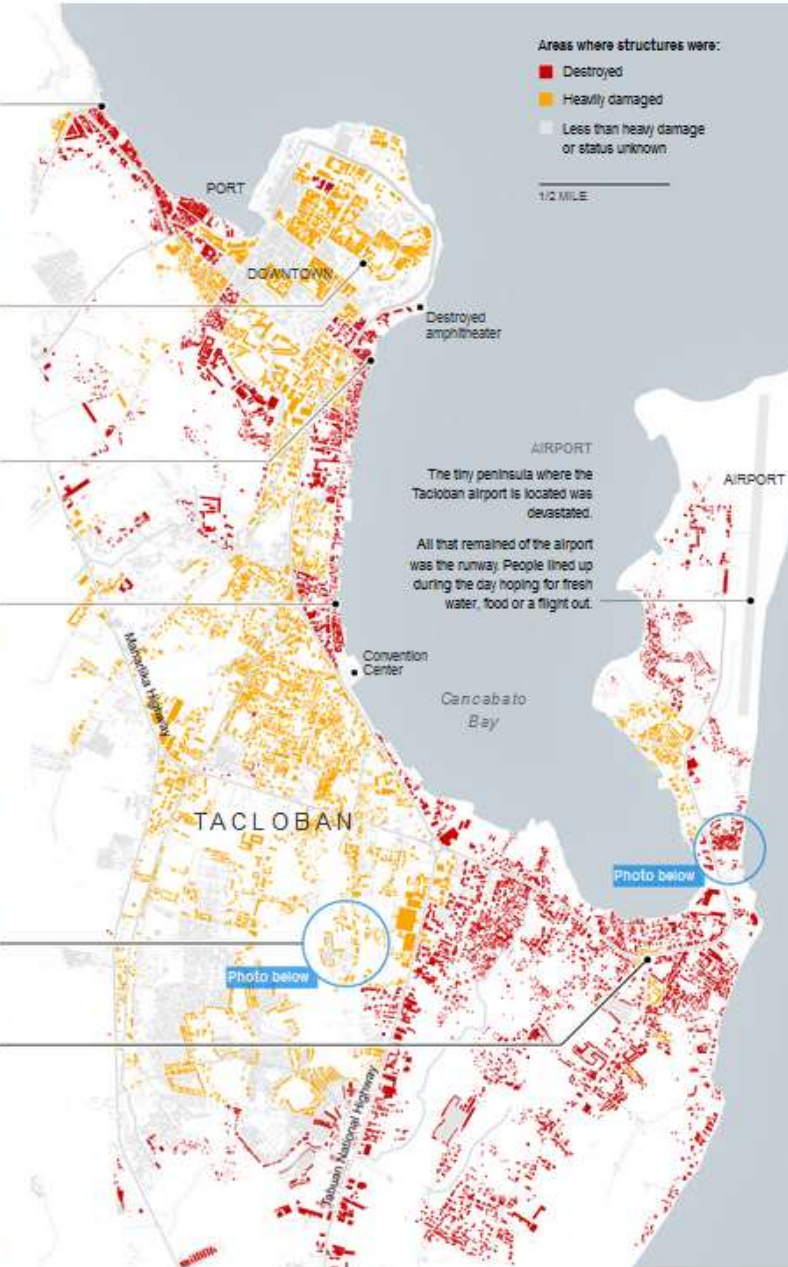
DEVASTATED COASTLINE

Buildings near the fish port were leveled by the storm surge, which sent water over half a mile inland in some places.

Homes all along the coast were completely destroyed. According to the Philippine census office, about one third of homes in the city have wooden exterior walls, and one in seven have grass roofs.

FLOODED AREAS

Neighborhoods south of the city's downtown were inundated with water.



Sources: European Commission Copernicus Emergency Management Service; OpenStreetMap

New York Times

12 Nov 2013



Sources: European Commission Copernicus Emergency Management Service; OpenStreetMap



6. Global Human Settlement Exposure



JOINT RESEARCH CENTRE
Global Human Settlement Layer

European Commission > JRC > IPSC > GLOBESEC > ISFEREA > GHSL Home

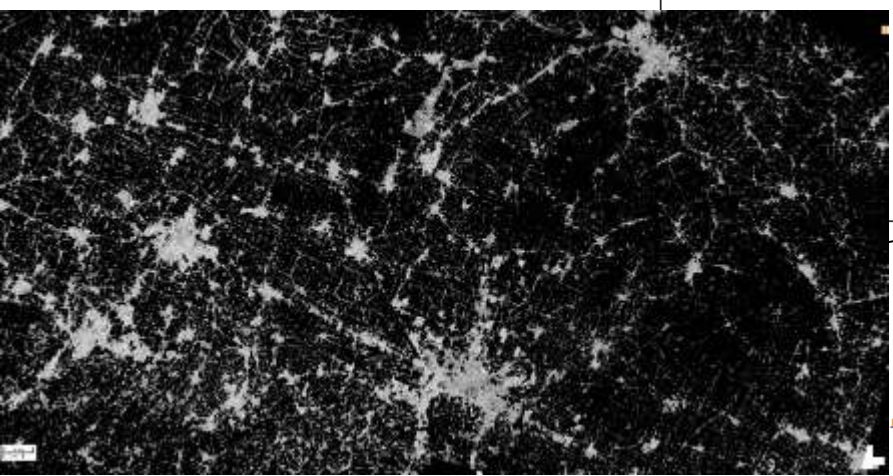
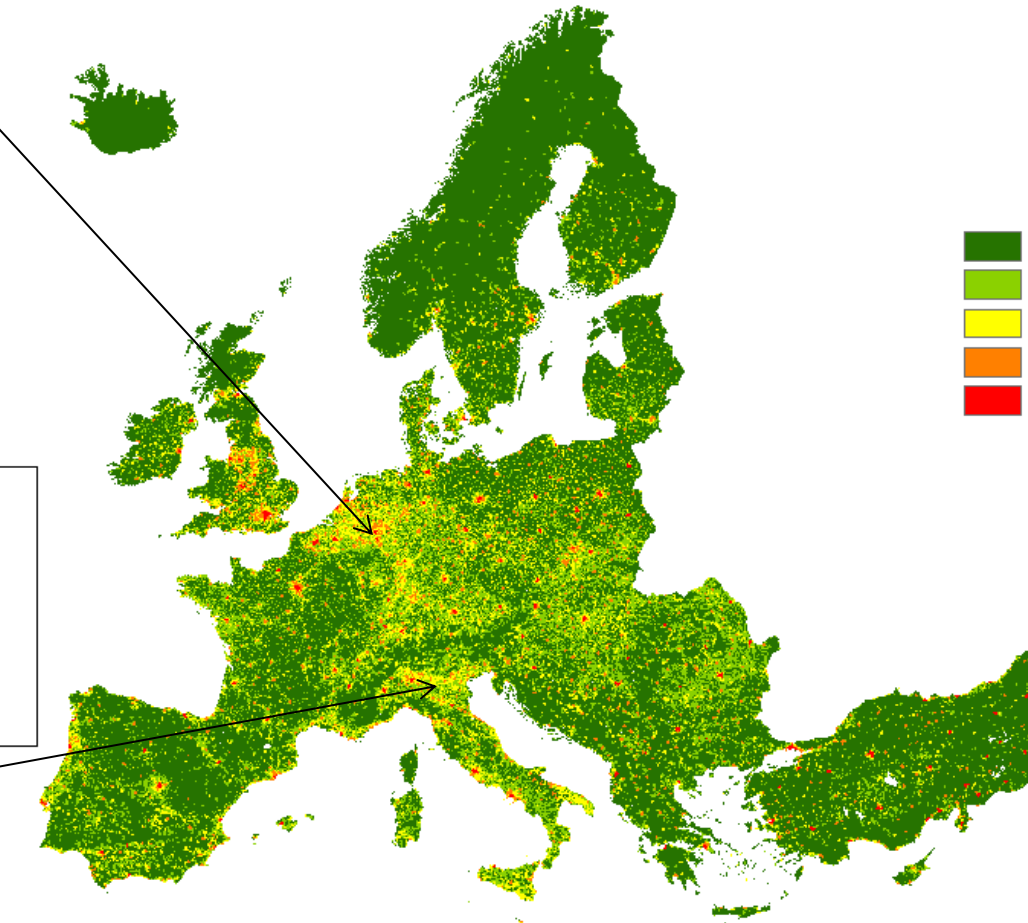
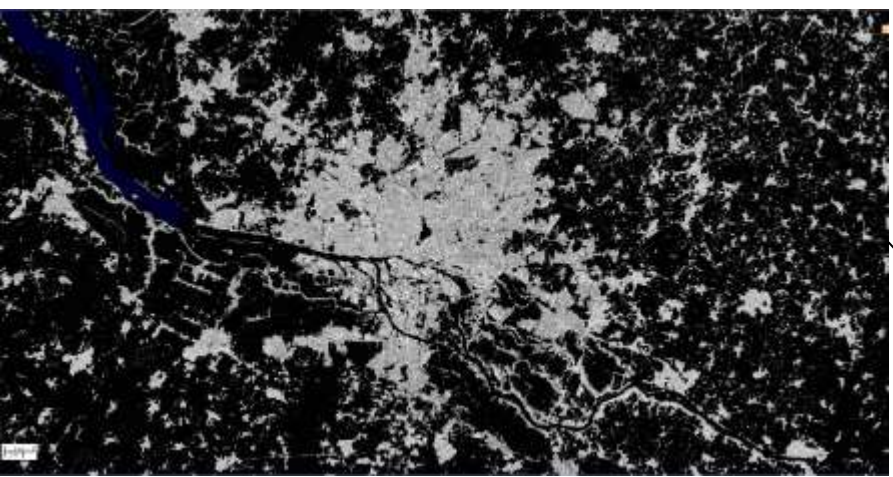
[Click to Activate the Interactive Map](#)

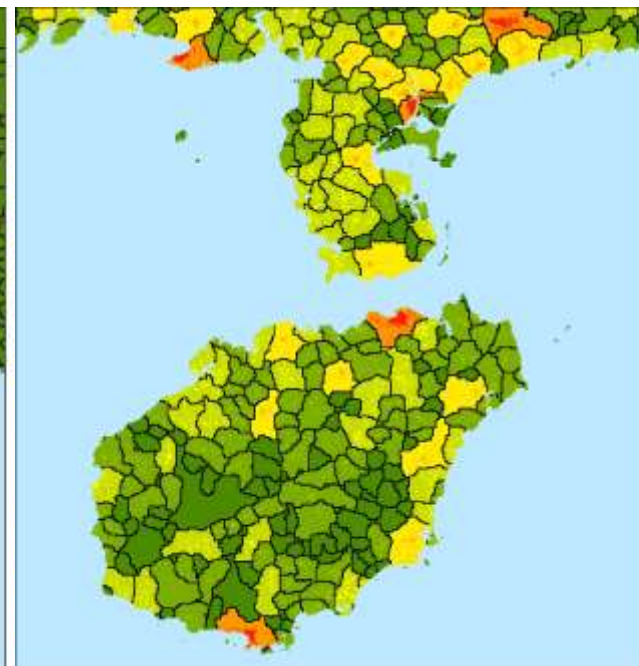
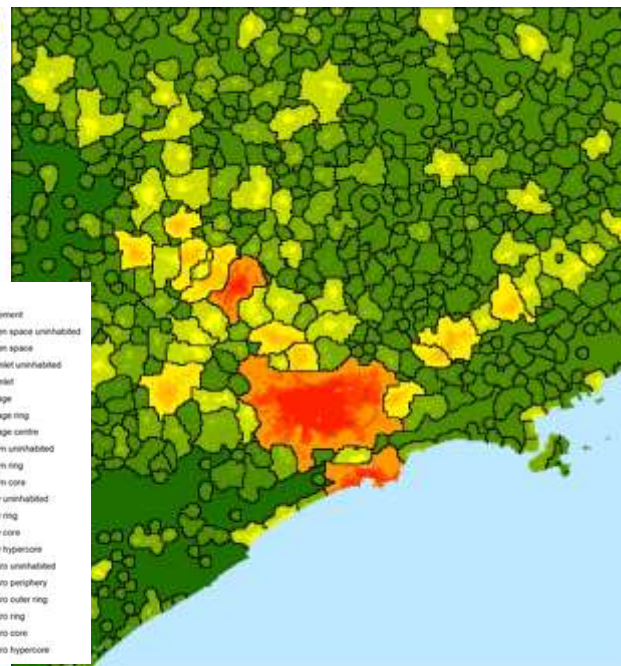
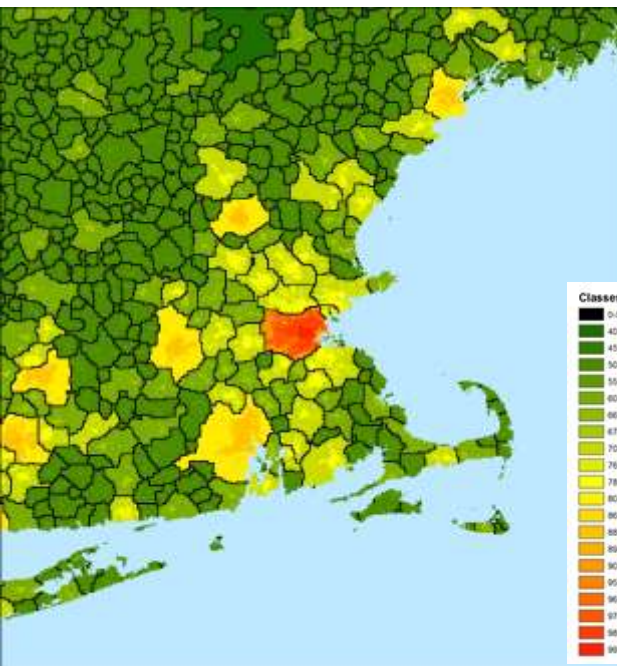
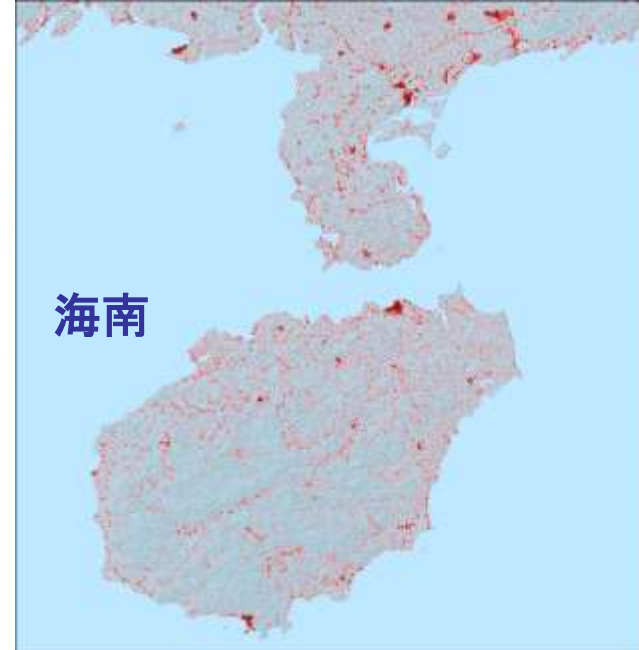
GHSL Run on any city
HR VHR Image Data



<http://ghslsys.jrc.ec.europa.eu/>

GHSL SETTLEMENT MAP OF EUROPE





Classes

- 0 Settlement
- 40 Open space uninhabited
- 45 Open space
- 50 Hamlet uninhabited
- 55 Hamlet
- 60 Village
- 66 Village ring
- 67 Village centre
- 70 Town uninhabited
- 76 Town ring
- 78 Town core
- 80 City uninhabited
- 86 City ring
- 88 City core
- 90 City hypercore
- 90 Metro uninhabited
- 95 Metro periphery
- 96 Metro outer ring
- 97 Metro ring
- 98 Metro core
- 99 Metro hypercore

Thank you

[Global Disaster and Coordination System](#)

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

[Inform](#)

<http://inform.jrc.ec.europa.eu>

<http://ohri.jrc.ec.europa.eu/results.aspx>

[Losses databases for Europe](#)

<http://publications.jrc.ec.europa.eu/repository/handle/111111111/29296>

GEO_EMS

<http://emergency.copernicus.eu/mapping/list-of-components/EMSR058>

Global Human Settlement Layer

<http://ghslsys.jrc.ec.europa.eu/>