



International Charter Space and Major Disasters

Monitoring and Management Support for Disaster Response

48th Scientific and Technological Subcommittee
UN Committee on the Peaceful Uses of Outer Space
Vienna, Austria
10 February 2011





The Hyogo Framework for Action

1. Ensure that disaster risk reduction is a national and local priority
2. Identify, assess and monitor disaster risks and enhance early warning
3. Use knowledge, innovation and education to build a culture of safety and resilience at all levels
4. Reduce the underlying risk factors
5. Strengthen disaster preparedness for *effective response* at all levels





The Charter - Purpose

- An International agreement among Space Agencies to support relief efforts in the event of emergencies caused by major disasters.
 - ***Disaster response***
 - **Multi-satellite data acquisition planning**
 - Fast data turn-around – 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**



Charter Members





Mechanisms to Activate the Charter

- Direct activation (in-country members)
- Activation via an AU on behalf of a user from a non-member country ("Sponsor AU")
- Activation via the UN for UN users
- Activation for Asia-Pacific Users
 - Sentinel Asia and the Asian Disaster Reduction Center





Charter Activation Cases (disaster types)

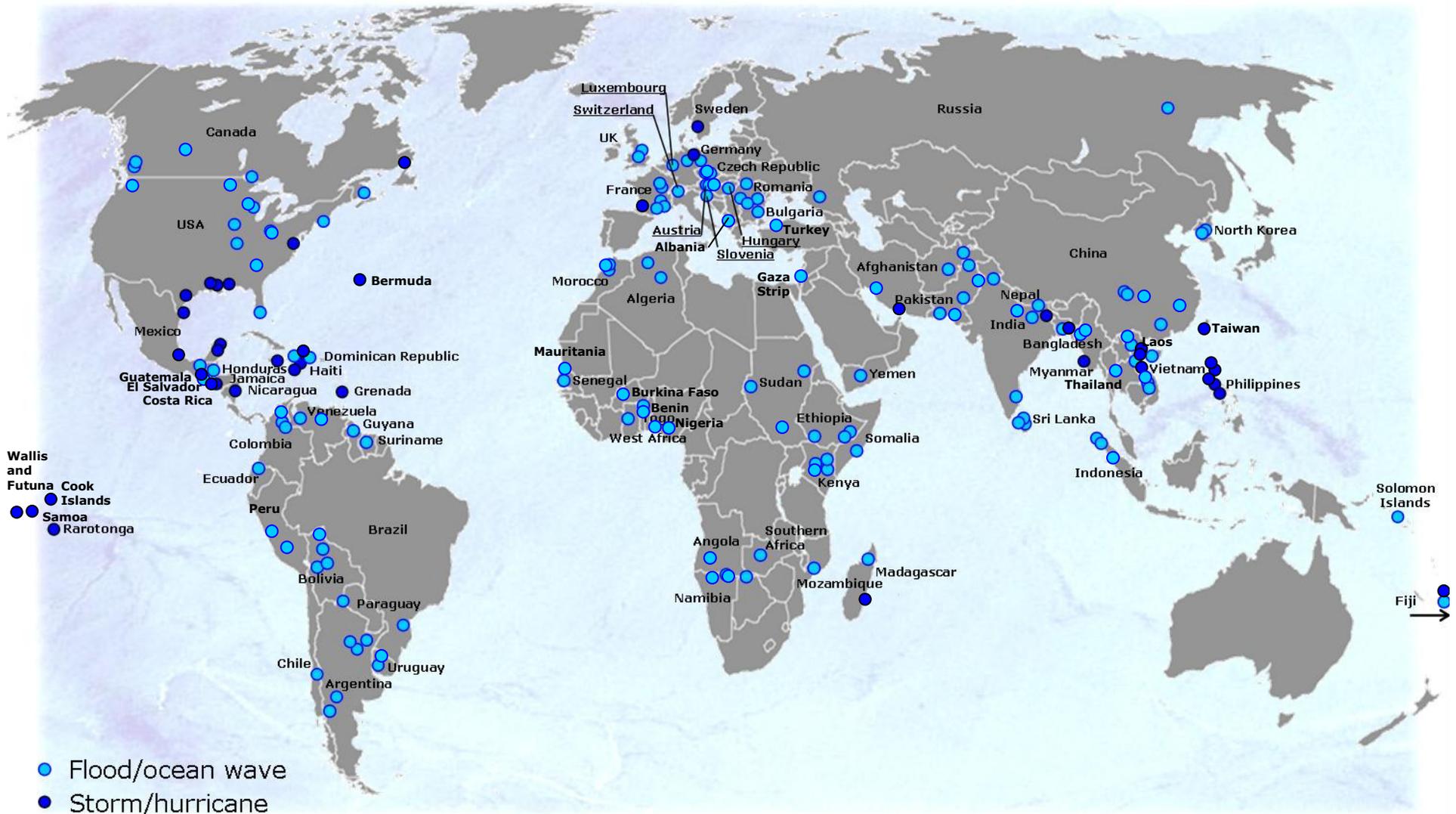
		2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Sub-totals	Total
Solid Earth	<i>Earthquake</i>		3	1	3	5	3	2	5	4	3	5		34	65
	<i>Landslide</i>	1	1	2	2			1			4	2		13	
	<i>Volcano</i>		1	1	2	2	1	1	2	3	3	2		18	
Weather / Atmospheric	<i>Storm/hurricane**</i>			1	2	3	6	1	8	8	8	11		48	211
	<i>Ice/snow hazard</i>								1			1		2	
	<i>Flood/ocean wave*</i>		3	8	4	9	13	16	22	23	18	25	1	142	
	<i>Fire</i>				5	1	2		4	2	4	1		19	
Technological	<i>Oil spill</i>		3	2				4	3			1		13	17
	<i>Others</i>					1						3		4	
Total / year		1	11	15	18	21	25	25	45	40	40	51	1		

*includes solid earth related phenomenon of a tsunami

**includes all wind type storms (hurricane, cyclone, typhoon and tornado)

Activation Distribution

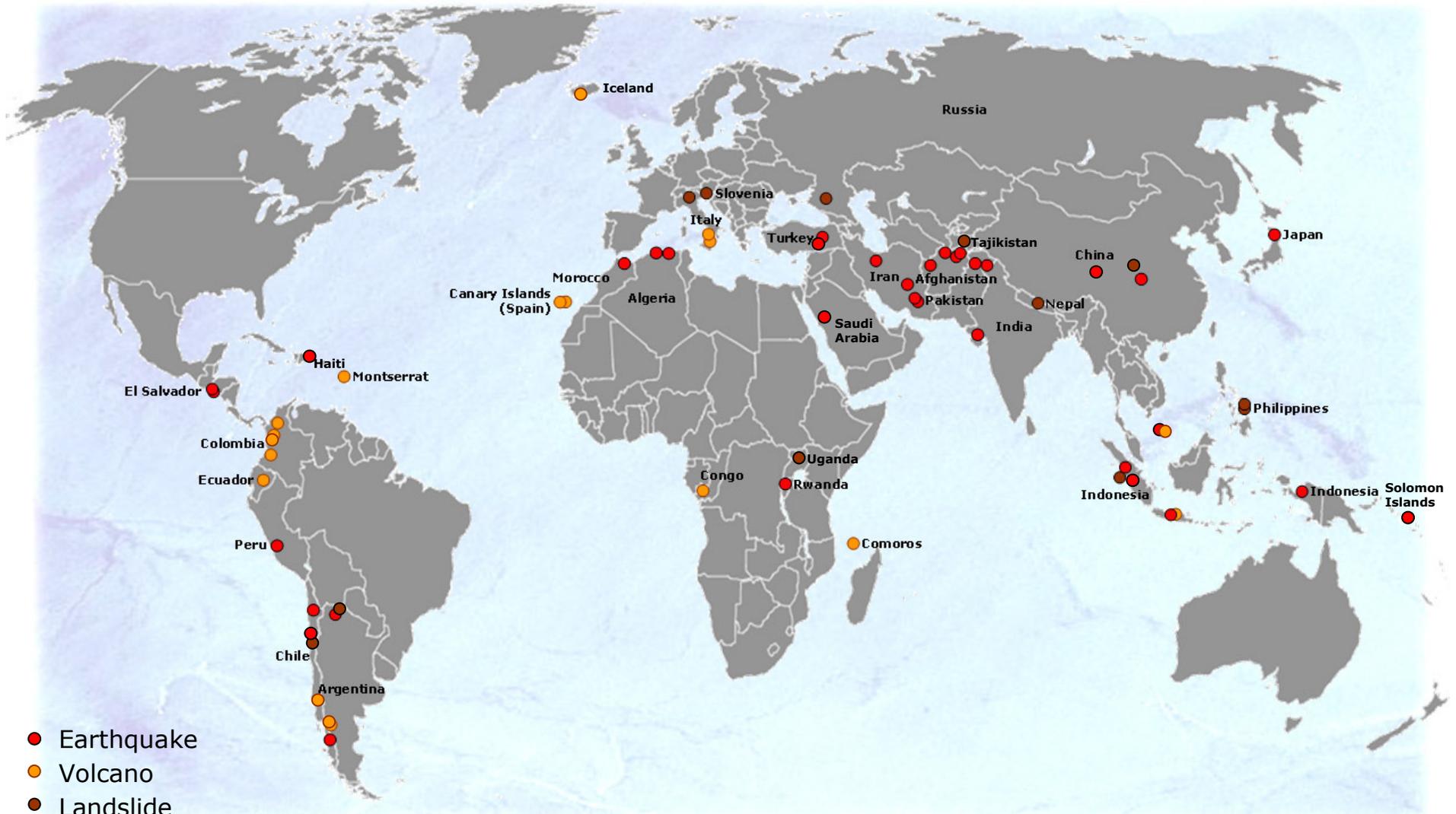
Floods and storms



As of December 3, 2010

Activation Distribution

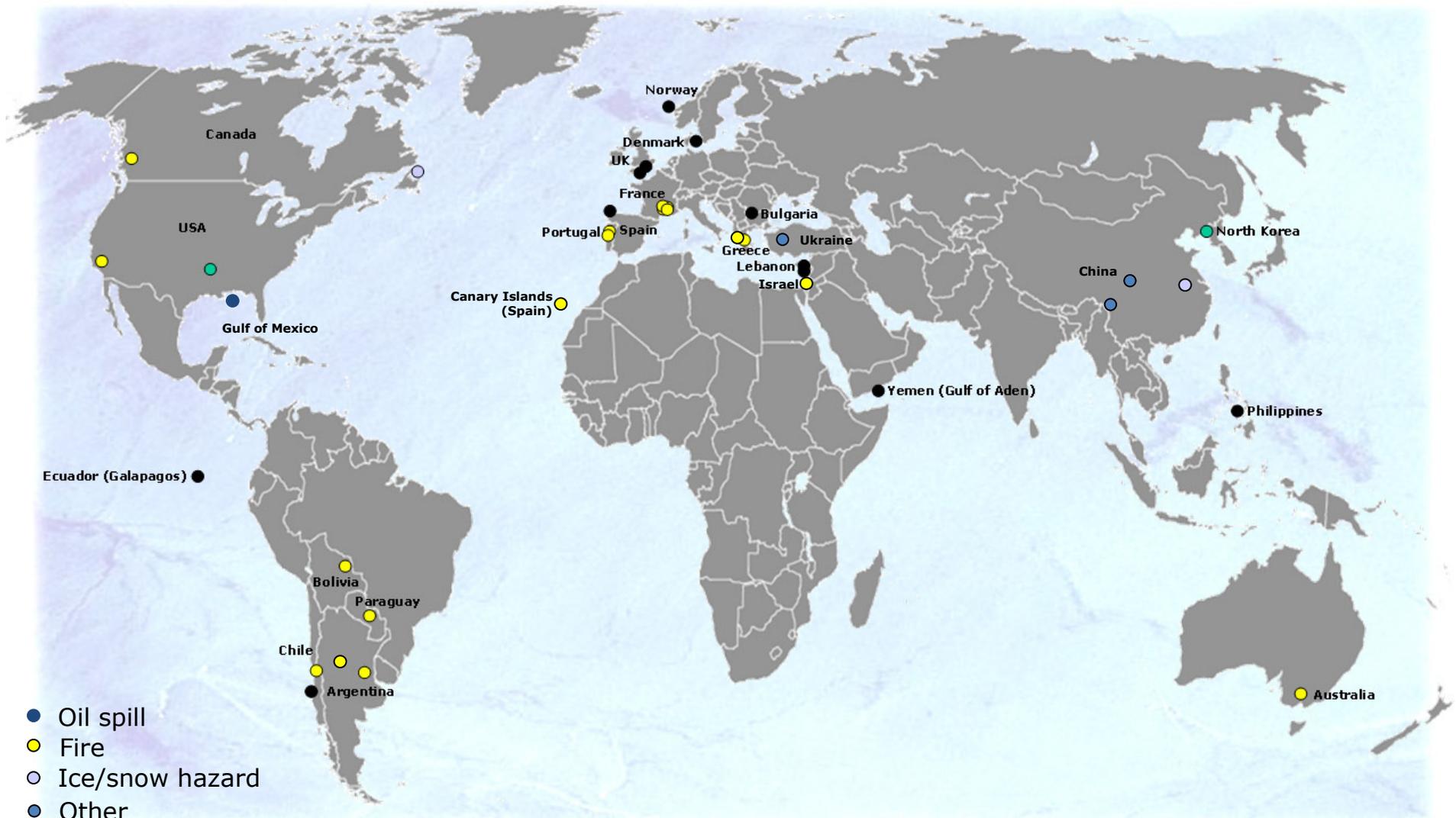
Earthquakes, volcanic eruptions and
Landslides



As of December 3, 2010

Activation Distribution

oil spills, forest fires and other hazards



As of December 3, 2010



Support to Flood Response, Pakistan

UPDATE 2: FLOOD WATER OUTFLOW FROM INDUS NEAR SUKKUR BARRAGE ENTERING BALOCHISTAN PROVINCE, PAKISTAN

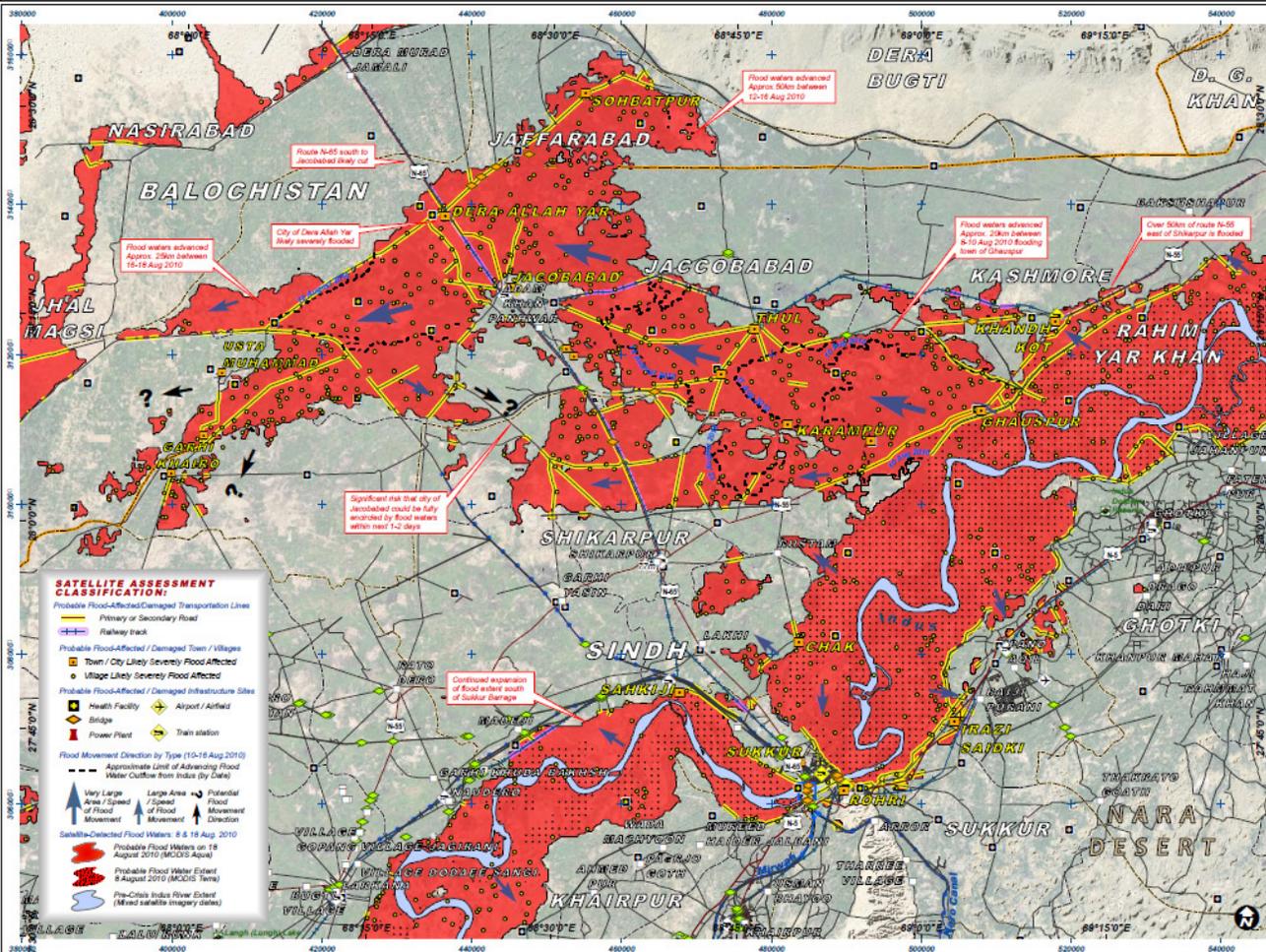
Flood Analysis Based on Satellite Data Recorded on 18 August 2010

ANALYSIS SUMMARY: Flood waters breach the, covering a total of 2,670 km² to the east and west, leaving the only open route south, however 15km villages and 13 towns / cities, along with over 533 km of main roads and 57 km of roads. Based on a preliminary assessment of the water flow direction over the last few days it appears that the city of Jacobabad is at risk of being severely affected with flood waters completely encircling the city. Route N-65 nearby surrounding the city, Route N-65 and the railway leading north are having no functional land transport advanced over 120km from the original routes for aid or evacuation.

Disaster coverage by the International Charter 'Space and Major Disasters'. For more information on the Charter, which is about assisting the disaster relief organizations with multi-satellite data and information, visit www.internationalcharter.org



Monsoon Rains & Flooding
18 August 2010
Version 3.0
Slide No: FL-2010-00141-PAK



This map presents an updated time series analysis of the dramatic expansion of flood water outflow from the Indus River immediately north of the city of Sukkur, Sindh Province, Pakistan covering the period from 8 to 18 August 2010. This analysis is based on post-disaster satellite imagery collected by MODIS sensors from 8-18 August 2010 and historical data on 10 August 2010. Please note that the numbers of affected locations presented in this map represent minimum estimates, because of limitations in available settlement and transportation datasets it is certain that the numbers of affected villages, towns and affected infrastructure / transportation lines are underestimated. Also note that detected water bodies likely reflect an underestimation of all flood-affected areas within the map extent. This analysis has not yet been validated in the field. Please send ground feedback to UNITAR / UNOSAT.



MAP SCALE FOR A3: 1:500,000

0 2.5 5 10 15 Kilometers

Crisis Satellite Data (1) MODIS Aqua & Terra
Resolution: 250 meters
Image Date: 8-18 August 2010
Source: NASA Rapid Response

Crisis Satellite Data (2) RADARSAT-2
Resolution: 25 meters
Image Date: 5 August 2010
Copyright: © MDA 2010
Source: Canadian Space Agency
GIS Data: NGA, OCHA, USGS, OSM
Transport Data: Google Map Maker
Transport Data Copyright: © 2009 Google - Improve with Google Map Maker

Map Data: UNOSAT
Map Production: UNOSAT / UNOSAT
Projection: UTM Zone 42N
Datum: WGS-84

The depiction and use of boundaries, geographic names and related data shown here are not assumed to be endorsed by the United Nations. UNOSAT is a program of the United Nations Institute for Training and Research (UNITAR), providing satellite imagery and related geographic information, research and analysis to UN humanitarian & development agencies & their implementing partners.

unitar
United Nations Institute for Training and Research

UNOSAT
United Nations Institute for Training and Research

Contact Information: unosat@unitar.org
24/7 Hotline: +41 76 487 4998
www.unosat.org

40 hours after the Earthquake First impact assessment over Port-au-Prince from ALOS and GEOEYE

STATISTIQUES D'ÉVALUATION
 Surface de la carte : 290 km²
 Surface analysée : 63 km²
 Nombre de quartiers : 307
 Surface moyenne d'un quartier : 0,21 km²
 Proportion moyenne de bâtiments visuellement endommagés : 26 %

Baie de Port-au-Prince

Ayuda CHARTE 287 à 291 / SAFER 11028
 Produit 0105

HAÏTI Port-au-Prince Dommages au bâti, évaluation par quartier

Carte de localisation



Légende

- Dommages très visibles à généralisés (>40%)
 - Dommages localement très visibles (11-40%)
 - Dommages peu ou pas visibles (0-10%)
 - Bâtiment non analysé
- Pour chaque quartier, le pourcentage exprime une évaluation de la proportion de bâtiments avec des dommages observables.

- Réseau de communication**
- Route principale
 - Route secondaire
 - Autre route
 - Aéroport

Interprétation

Le 12 janvier 2010 à 21h53 (GMT), 16h53 (locale), un violent séisme de magnitude 7 sur l'échelle de Richter a secoué Haïti. Cette carte constitue une première évaluation des dommages au bâti dans l'agglomération de Port-au-Prince fondée sur l'exploitation d'images satellites. Cette appréciation des dommages est réalisée sur la base d'une observation de la proportion de bâtiments présentant des dégâts observables. Cette première estimation doit être utilisée avec précaution, elle sera précisée dans les jours à venir.

Information cartographique

0 1 2
 km

Projection locale : UTM Zone 18 Nord, Datum : WGS 84
 Projection géographique : Lat/Lon (GMS), Datum : WGS 84
 Echelle : 1:25 000 pour impression A1

Sources des données

Fond cartographique
 Image SPOT 5 (2,50 m) en couleurs naturelles
 Acquis le 03 juillet 2007
 © CNES 2007, distribution Spot Image S.A.
 Les classes de dégâts sont dérivées des images GeoEye (05 cm) et ALOS AVNIR-2 (10 m) acquises le 13 janvier 2010.
 © SERTIT 2010
 Les routes sont dérivées de l'image SPOT 5 du 03 juillet 2007
 © SERTIT 2010
 Autres couches thématiques & toponymie
 © SERTIT 2010, GIS, ESRI

Cadre de travail

Les produits élaborés dans le cadre de cette action de cartographie rapide sont réalisés dans un court laps de temps, en optimisant au mieux la donnée disponible. Toutes les informations géographiques ont des limitations dues à l'échelle, la résolution, la date ainsi que l'interprétation de la donnée source. La responsabilité de l'absence de cette carte ne peut être engagée quant à son contenu et son éventuelle utilisation.

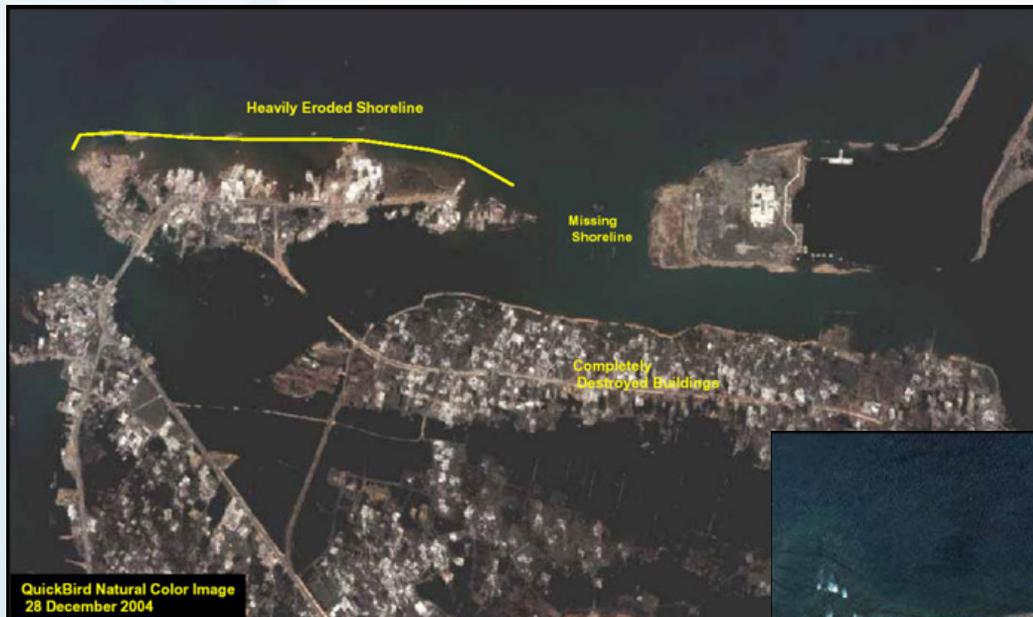
Cette produite le 14 janvier 2010 par le SERTIT
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sertit@sertit-entrading.fr
<http://www.sertit-entrading.fr>



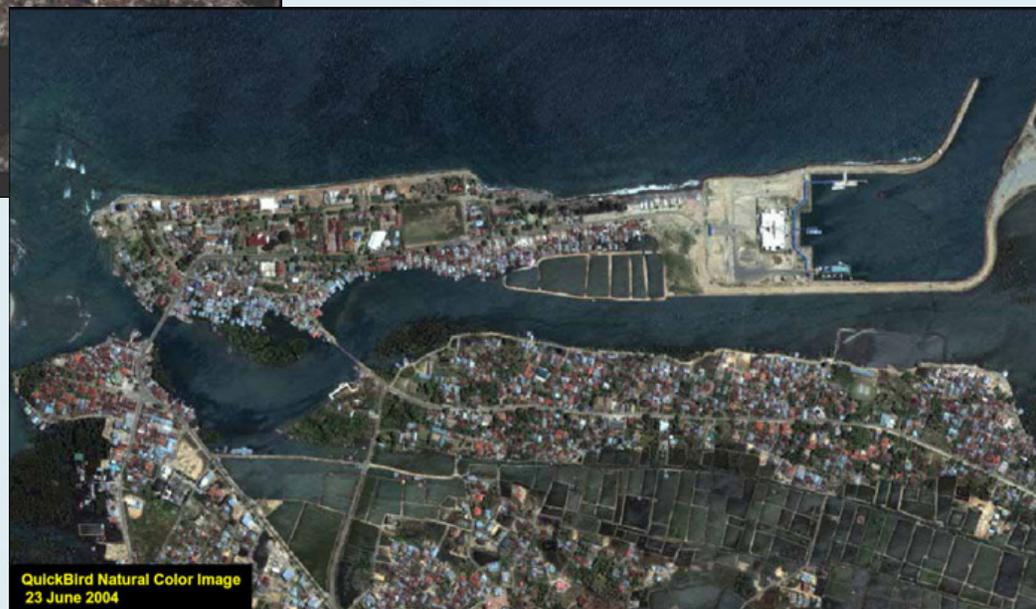
cnès Cette opération de la Carte Intercommunale Espace et Climat (CIE) MapInfo est gérée par l'Agence Spatiale Française - le CNES.



Support to Tsunami Response, Indonesia



28 December 2004
Crisis Image



23 June 2004
Reference Image



Collaboration with the UN

- Authority to Request Charter Activations
 - UN OOSA
 - UNITAR/UNOSAT
 - 30-40% of Charter activations annually
- Support UN disaster response globally
- Service UN Programs
 - OCHA, WFP, UNICEF, others
- Training and Capacity Building
- Outreach



UNISPACE III Opening Session

photo by: fotozentrum



International Charter Space and Major Disasters

www.disasterscharter.org

Emergency enquiries from users requiring direct access to Charter resources should be addressed to:

ExecutiveSecretariat@disasterscharter.org

General requests for information should be addressed to:

webmaster@disasterscharter.org