

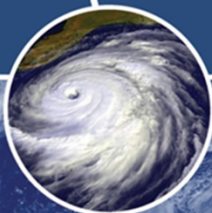


Pacific Outreach
U.S. PACIFIC COMMAND
All Hazards and Interagency Coordination

» Wildfire



» Hurricane



» Tropical Cyclone

» Tsunami



» Flooding

» Earthquake



» Pandemic Influenza



Fostering Disaster - Resilient Communities



INFO SHARING PACOM J91

INFO SHARING

Connect communities of interest to information and information to communities of practitioners...

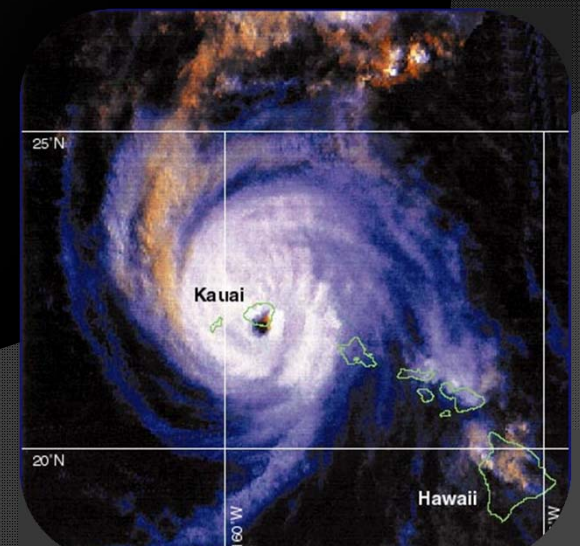
Through Fostering Disaster-Resilient Communities Information, Science, Technology, and Exchange

Concept & Origin

- Conceived in the aftermath of Hurricane Iniki (Impacted Kauai on Sept 11, 1992)
- A center to establish access to innovative, and more effective information resources supporting all levels of emergency management to **better prepare for** and **respond to** disasters.
- Today, PDC is an acknowledged leader in using the application of science and technology to advance international best practices in **Disaster Risk Reduction (DRR)**.
- Open and unclassified



Iniki – Sept 11, 1992



Active Country NDMO Users

- » Cambodia
- » Vietnam
- » Thailand
- » Taiwan
- » Pakistan
- » Philippines
- » Indonesia
- » New Zealand
- » Australia
- » Burma
- » Laos
- » Nepal
- » Brunei
- » Mongolia
- » Malaysia
- » Singapore
- » Peru
- » Marshall Islands
- » Palau
- » Micronesia
- » Malaysia
- » Singapore
- » Peru
- » Bahamas

Stakeholders

◎ United States

- Pentagon (GSAF, NMCC)
- PACOM, SOUTHCOM, NORTHCOM
- White House (EOPUS)
- State Department (Global Operations Center, US Embassies OFDA, USAID)
- Veterans Affairs (Operations Center)
- National Guard (Hawaii, Rhode Island, New York, New Jersey, Oregon...)
- DHS Ops / FEMA (Region I & IX)
- State EOCs (Hawaii, Florida, New Jersey, Utah....)

◎ Foreign Nations

- Indonesia (BMKG)
- Thailand (NDWC)
- Vietnam (MARD)
- Honduras
- Philippines
- Bahamas
- Peru
- El Salvador
- Chile
- Cambodia
- Myanmar
- Barbados
- Bangladesh

◎ Regional & International

- UN (OCHA, ...)
- ASEAN (AHA Centre)
- CDEMA
- American Red Cross
- Salvation Army

◎ General Public

- Mom & Dad
- Family, Friends
- Colleagues, ...



Over 1.5 Million Users



Capabilities

RAPIDS
DisasterAWARE v5.2.3 GA

UTC	WASH DC	HAWAII	TOKYO	SYDNEY
04:28	00:28	18:28	13:28	14:28
APR 9, 2015	APR 9, 2015	APR 8, 2015	APR 9, 2015	APR 9, 2015

Layers

- PDC Active Hazards
- + FEATURED LAYERS
- + RECENT HAZARDS AND EVENTS
- + HISTORICAL HAZARDS
- + OBSERVATIONS AND FORECASTS
- + RISK AND VULNERABILITY
- + FOREIGN HUMANITARIAN ASSISTANCE (FHA) DATA
- + ECONOMIC DATA
- + CONFLICT DATA
- + BASE MAP LAYERS
- + REGIONAL DATA
- + DISASTER RESPONSE EVENTS

Background Map Layers

Regional Data

KML & External Layers

Search Location

2000 mi | 2000 km | SCALE 1 : 139 982 502

Imagery ©2015 NASA, TerraMetrics | Terms of Use

Shared Situational Awareness Tool

- + OEEM (SitReps)
by cstelow 01 Days 10 Hrs ago
- + NDRRMC (SitReps)
by mchatman 07 Days ago
- + UN (SitReps)
by cstelow 07 Days ago
- + AHA Centre (SitReps)
by cstelow 07 Days ago
- + USAID (SitReps)
by lpayne 08 Days ago
- + European Commission (SitReps)
by cstelow 09 Days ago
- + PDC (SitReps)
by mchatman 12 Days ago

Hazards & Products » #52393

Super Typhoon - Maysak (FSM Response)
TROPICAL CYCLONE **INFORMATION**
Reported: 13 Days ago
Updated: 07 Hrs 18 Min ago

Search

- + Default Layers (9)
- + Imagery/Data
by lpayne 03 Days 13 Hrs ago
- + PDC Weather Wall Updates
by achatman 06 Days 08 Hrs ago
- + Glide Numbers
by mchatman 07 Days ago
- + Situational Awareness (SA)
by tbosse 07 Days ago
- + Situation Reports (SitReps)
by mchatman 12 Days ago
- + PDC Impact Reports
by mchatman 12 Days ago

Internet-Based

EMOPS DisasterAWARE v5.0

5.1 - Central Mid-Atlanti... EARTHQUAKE ADVISORY
 Reported: 01 Days 06 Hrs ago
 Updated: 09 Hrs 54 Min ago

Multi Hazard Risk Index:
 Mexico ranks 88 out of 188 on the Multi-Hazard Risk Index with a score of 32. Mexico is estimated to have relatively high overall exposure, medium vulnerability, and medium coping capacity.

Lack of Resilience Index:
 Lack of Resilience represents the combination of susceptibility to impact and the relative ability to absorb, respond to, and recover from negative impacts that do occur over the short term. Mexico ranks 88 out of 188 on the Lack of Resilience Index with a score of 32.

Multi Hazard Exposure:
 Multi Hazard Exposure is based on the average annual exposure of population and GDP to four hazard types: tropical cyclone winds (Category 1-5), hurricanes, earthquakes (M6.0 and above), and floods. Overall exposure correlates both the average annual exposure and average annual exposure as a proportion of total population or GDP.

Legend
 PDC Integrated Active Hazards

Temperature
 4 Celsius
 8 Celsius
 8 Celsius
 2 Celsius
 0 Celsius
 6 Celsius
 0 Celsius
 4 Celsius
 8 Celsius
 2 Celsius
 6 Celsius
 8 Celsius

Hybrid

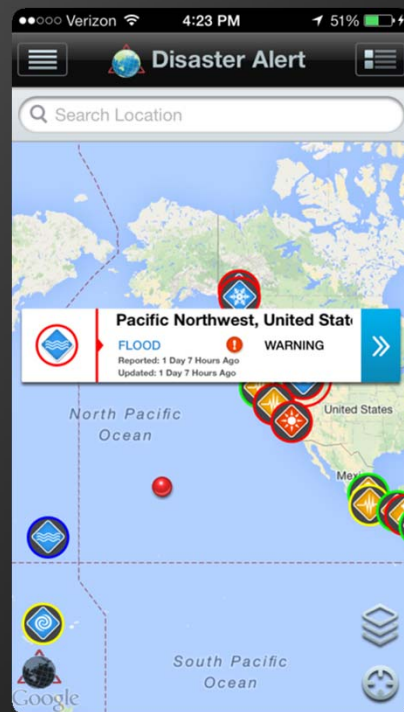
AS: 26UPE2256568803
 51 Lon: -25.137

Mobile Public Disaster Alert App

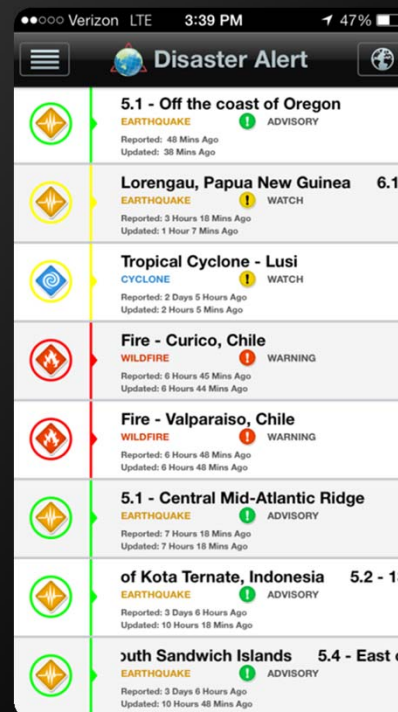
- Hazards occurring around the globe
- Android and iOS (iPhone/iPad) app via Android Market and iTunes



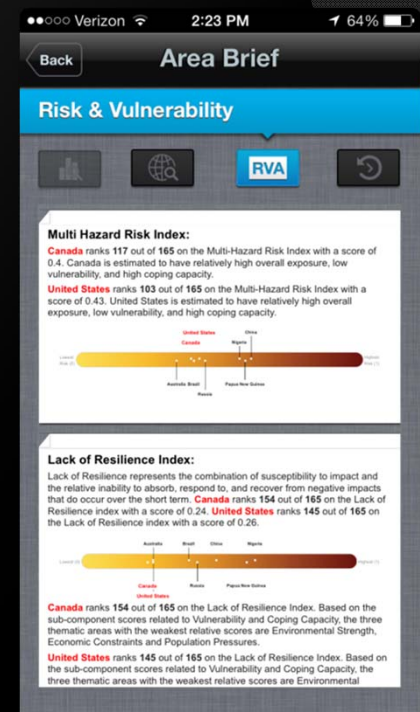
1.3M+ Downloads



Interactive map



Hazards list



Area Brief

Utilize Social Media


PDC Hazard Information

Tropical Storm - Maria

REGIONAL REPORT [Overview](#)

CYCLONE WATCH [MESSAGE ADVISORY](#)

Like Be the first of your friends to like this.



Status: UPDATE Source: NWS

Reported: September 06, 2011 21:00:00 GMT

Last Update: September 12, 2011 15:00:36 GMT

Resources / Information

Frequently Asked Questions (FAQ)

[RSS](#) [Twitter](#) [Facebook](#) [Message](#)

Powered by PDC's DisasterAWARE

Home @ Connect # Discover Me Search

Tweets

Following

Followers

Favorites

Lists

Tweet to DisasterAWARE

Photos and videos



DisasterAWARE
@disasteraware

Pacific Disaster Center uses information, science, and technology to help reduce disaster risks and impacts to peoples' lives and property.
Maui, Hawaii · pdc.org

8,412 TWEETS 51 FOLLOWING 3,233 FOLLOWERS

Following

Tweets

DisasterAWARE @disasteraware 6s

Storm - Pewa, NW Pacific Ocean, reported by JTWC.

4m

Storm - Pewa, NW Pacific Ocean, reported by JTWC.

3h

11.7km, Antofagasta, Chile, reported prod/39576

Pacific Disaster Center



Pacific Disaster Center

7,461 likes · 92 talking about this · 61 were here

Add A Category

Visit the Global Hazards Atlas or try the Disaster Alert mobile app. Details at pdc.org.

7,461 Likes

Map

Twitter

Monday, 19 August 2013 (AS OF 03AM HST)



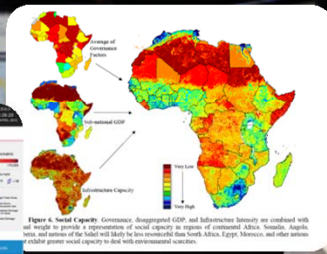
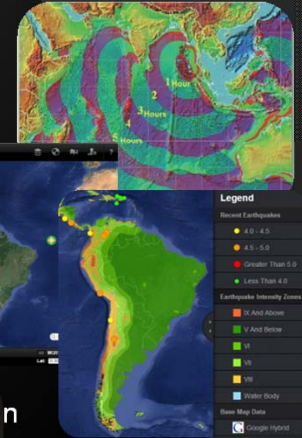
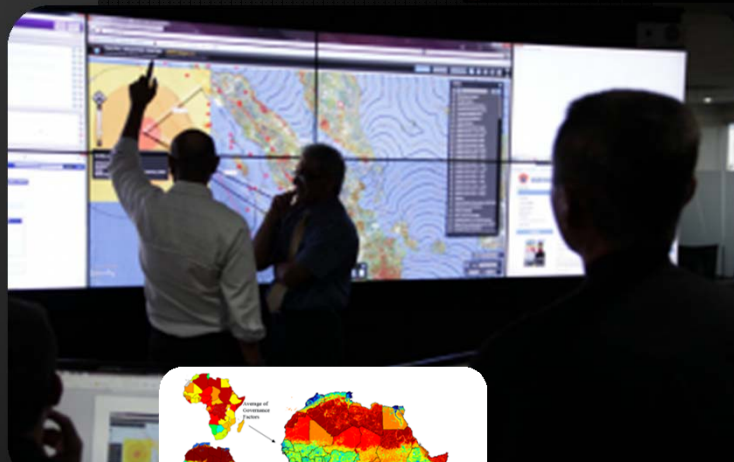
Integrated GEOSpatial Approach



Observation Systems & Data Collection

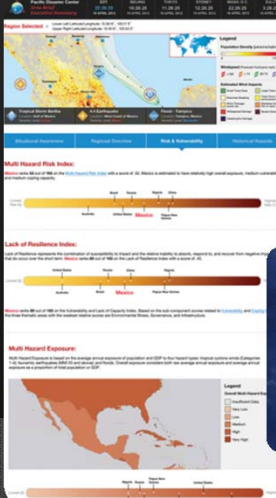
- ⦿ Applied Science & Technology
- ⦿ Capability Building
- ⦿ Evidence-Based Information Products
 - Policy & Decision Makers
 - Disaster Managers
 - Planners
 - Humanitarian Assist. Missions

Integrating Information, Science, & Technology



Support

Advanced Applications, Models, Risk & Vulnerability Assessments



Objective: Building a Bridge

**Science
Community**

**Decision
Makers**

Peer Review

Audience

The Public

Low

Comfort with Uncertainty

High

Complex

Vocabulary

Simple

**Technical
Groups**

Associations

Very Public

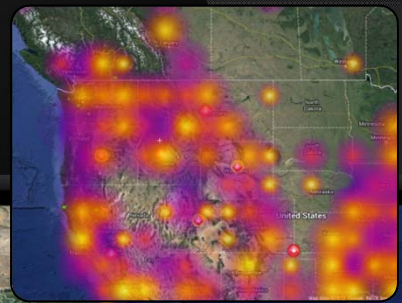
Knowledge ... Awareness

Public Advisory ...

```

... TSUNAMI INFORMATION BULLETIN ...
THIS BULLETIN IS FOR INFORMATION ONLY.
THIS BULLETIN IS ISSUED AS ADVICE TO GOVERNMENT AGENCIES. ONLY NATIONAL AND LOCAL GOVERNMENT AGENCIES HAVE THE AUTHORITY TO MAKE DECISIONS RE: ANY ACTIONS RE:
Hazard Severity Level: WARNING
AN EARTHQUAKE This is a Cyclone Hazard.
-----
Available Hazard Data:
ORIGIN TIME
COORDINATES
DEPTH Hazard ID = 39269
LOCATION Hazard Name = Hurricane - Sandy
MAGNITUDE Severity = WARNING
LONGITUDE Latitude = 30.2
EVALUATION Longitude = -75.2
NO DESTRUCTIVE Hazard End (GMT) = October 28, 2012 21:00:00 GMT
HISTORICAL Hazard End (HST) = October 28, 2012 11:00:00 MST
Hazard Type = CYCLONE
Category = EVENT
TSUNAMIS TD Comment = 201218AL
-----
Available Incident Data:
IN THE REGI
Incident ID = 32.1351371988319.1
Issued ID = EWHC
Current Advisory = 22
Incident Time (GMT) = October 22, 2012 18:00:00 GMT
Issued Time (GMT) = October 27, 2012 21:00:00 GMT
Message ID = 32.1351371988319
Incident Type = CYCLONE
    
```

Public Apps Private Domains



Heat Map



Pacific Disaster Center
 [INFO] NEW TSUNAMI, Pacific Ocean; Vanuatu Islands - 6.5, reported by PTWC.
<http://cp.pdc.org/x/7ee>
 3,085 Impressions · 0.10% Feedback
 March 16 at 5:12pm via Selective Tweets · Like · Comment

Sergei M
 It is good
 March 16

Mariangelie Figueroa Velez
 I'm from Puerto Rico and we felt a EQ of 5.0
 March 16 at 4:08am via Android · Like · Comment



Web, FB, Twitter,
Smart Phone, ...



Challenges & Gaps ...

- ◎ Inadequate Tools for the Decision Makers
 - Lack Situational Awareness
 - Warnings are Hard to Digest
 - Information is Scattered
 - Risks are not Understood
 - Dissemination is Limited
- ◎ Information not easily understood is not particularly useful



Starting time: HST 11/14/2005 11:39
 Starting time: UTC 11/14/2005 21:39
 Location: longitude 144.8 EAST latitude 38.2 NORTH
 Magnitude: 7.3

Arrival Time is in HST

Longitude	Latitude	Arrival Time	Location
141.750E	39.000N	2005/11/14 12:22:45	Ofunato, Honshu
145.570E	43.280N	2005/11/14 13:05:57	Hanasaki, Hokka
138.230E	34.600N	2005/11/14 13:13:24	Omaezaki, Honsh
132.970E	32.780N	2005/11/14 13:50:29	Tosashimizu, Sh
163.000E	56.000N	2005/11/14 14:39:53	Ust-Kamchatsk
156.000E	50.600N	2005/11/14 14:49:05	Severo Kurilsk
127.670E	26.220N	2005/11/14 14:58:13	Naha, Okinawa
166.618E	19.290N	2005/11/14 15:06:46	Wake
166.621E	19.289N	2005/11/14 15:06:47	Wake
144.652E	13.498N	2005/11/14 15:11:36	Guam
174.103E	52.731N	2005/11/14 15:16:28	Shemya

HURRICANE DAVID FORECAST/ADVISORY NUMBER 15
 NATIONAL WEATHER SERVICE MIAMI FL EP0402
 0000Z WED AUG 29 1979

HURRICANE CENTER LOCATED NEAR 13.7N 58.0W AT 29/0000Z
 POSITION ACCURATE WITHIN 30 NM

PRESENT MOVEMENT TOWARD THE WEST-NORTHWEST OR 285 DEGREES AT
 11 KT
 ESTIMATED MINIMUM CENTRAL PRESSURE 942 MB
 MAX SUSTAINED WINDS 120 KT WITH GUSTS 135 KT.
 WINDS AND SEAS VARY GREATLY IN EACH QUADRANT. RADII IN NAUTICAL
 MILES ARE THE LARGEST RADII EXPECTED ANYWHERE IN THAT QUADRANT.

REPEAT... CENTER LOCATED NEAR 13.7N 58.0W AT 29/0000Z
 AT 28/2300Z CENTER WAS LOCATED NEAR 13.7N 57.0W

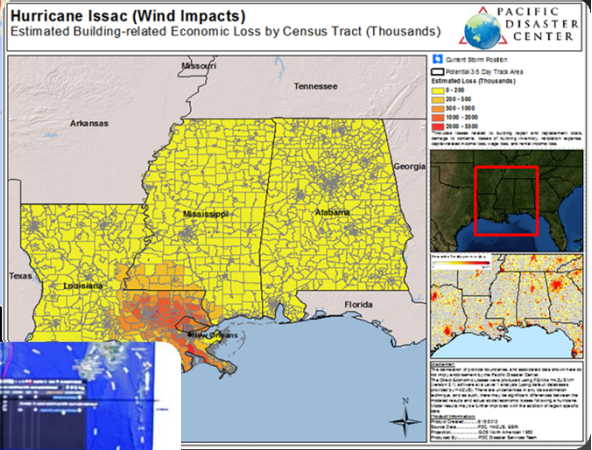
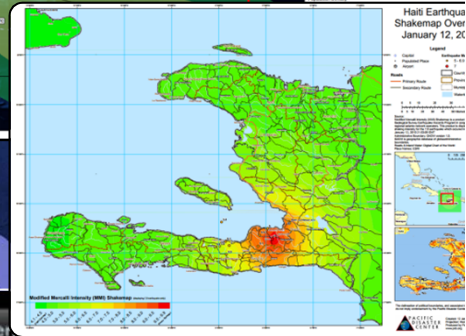
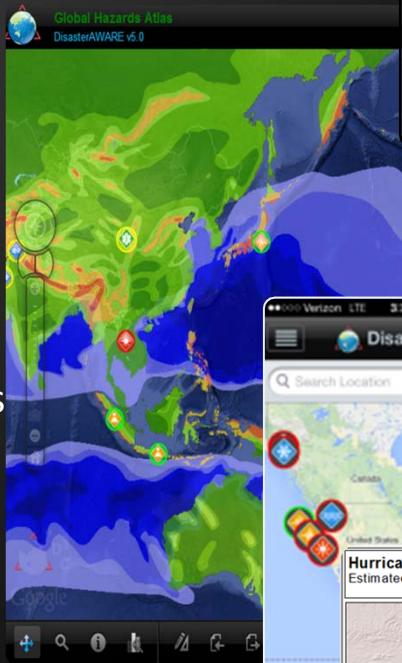
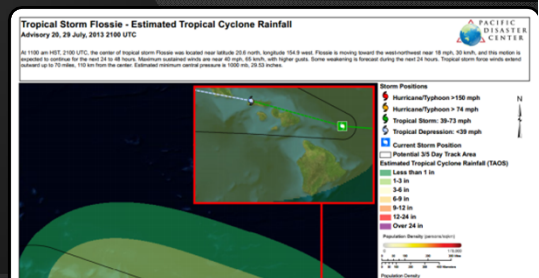
FORECAST VALID 29/0600Z 14.2N 59.2W
 MAX WIND 120 KT... GUSTS 135 KT.
 64 KT... 35NE 35SE 35SW 35NW.
 45 KT... 45NE 45SE 45SW 45NW.
 34 KT... 135NE 135SE 135SW 135NW.

FORECAST VALID 29/1200Z 14.8N 60.3W
 MAX WIND 125 KT... GUSTS 140 KT.
 64 KT... 40NE 40SE 40SW 40NW.
 50 KT... 50NE 50SE 50SW 50NW.
 34 KT... 130NE 130SE 130SW 130NW.

MAG	UTC DATE-TIME y/m/d h:m:s	LAT deg	LON deg	DEPTH km	Region
5.9	2006/04/29 04:06:13	-11.313	118.534	30.0	SOUTH OF SUMBAW
5.1	2006/04/28 18:01:28	41.766	80.669	31.8	SOUTHERN XINJIAN
5.2	2006/04/28 09:05:26	23.978	121.655	8.2	TAIWAN
5.3	2006/04/27 19:13:10	-16.050	-173.789	75.2	TONGA
5.1	2006/04/27 16:35:23	-25.337	-105.586	10.0	EASTER ISLAND RE
5.2	2006/04/27 14:48:25	-6.174	147.711	87.8	EASTERN NEW GUI
5.3	2006/04/27 04:18:28	0.321	30.026	10.0	LAKE EDWARD REG
5.3	2006/04/26 16:38:54	4.499	95.944	74.5	NORTHERN SUMATR

Overcoming Challenges

- Tools for **Decision Makers**
 - Simplify, Integrate, & Expedite Processing
 - Understand Exposure
 - Disseminate Early Warning
 - Social Media, Mobile Apps
 - Support Decisions Based on Latest Assessments
- Info for **Policy Makers & Planners**
 - Assess Socio-Econ Risks & Vulnerabilities
- Capacity for **Practitioners**
 - Training & Exercise
 - Workshops



International Partnership Testimonies

- ❑ **Taiwan – National Center for Disaster Reduction – Typhoon Morakot**
“... During ... Typhoon Morakot, instant assistance provided by PDC does [ma] help us during the most difficult time. Partnership between PDC and NCDR is the best practice of international cooperation and collaboration ...”
Wei-Sen Li, Deputy Director, NCDR
- ❑ **UN OCHA - Major event support: Typhoon Nargis**
“... thank you for PDC’s support during the early stages of the Myanmar cyclone response. ... [Support provided by our] PDC colleagues was highly valued by all.”
Terje Skavdal, Head, UNOCHA, Regional Office for Asia and the Pacific
- ❑ **Thailand - National Disaster Warning Center (NDWC)**
“ ... PDC was the first organization to provide experts and assistance to help Thailand set up its early warning system [following the tsunami] ... I would like to again extend my grateful appreciation to PDC”
Vice Minister, Dr. Smith Dharmasaroja, Thailand
- ❑ **Cambodia – ASEAN Ministerial Meeting on Disaster Management**
“ ... ASEAN Countries will further exert [their] outmost efforts in managing and reducing regional disasters ... I would like to thank ... Pacific Disaster Center [and others] ... who have provided technical support”
Prime Minister of Cambodia, H.E. Samdech Hun Sen
- ❑ **Pakistan – Earthquake Support**
“ ... It was really heart warming to see the excellent work of the PDC ... May I add that all such works, in the interest of overall humanity, be widely distributed and global as well as regional responses br sought.”
Prime Minister’s Secretariat, ERRA, Islamabad, Pakistan, MAJ M. Hussain
- ❑ **Sri Lanka – NGO: Mercy Corp**
“Your imagery will have a profound impact on return to normalcy for people in this district.”
Mercy Corp GIS Coordinator in Sri Lanka, Glenn Brooks
- ❑ **Philippines – National Disaster Coordinating Council (NDCC)**
“... please allow me to extend our heartfelt thanks and appreciation to the PDC for supporting the initiatives and projects of the Council to make it more relevant and attuned to global trends in addressing the concerns of disaster management at the national, regional and global settings... to take a more proactive and scientific approach to disaster management ...”
Administrator and Executive Officer, NDCC, Philippines, COL Elma C. Aldea