



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Remote sensing technology for Tsunami Disasters Along the Andaman Sea, Thailand



Supapis Polngam

Email: supapis@gistda.or.th



Geo-Informatics and Space Technology Development Agency (Public Organization) : GISTDA
Ministry of Science and Technology, THAILAND

*International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan*



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA

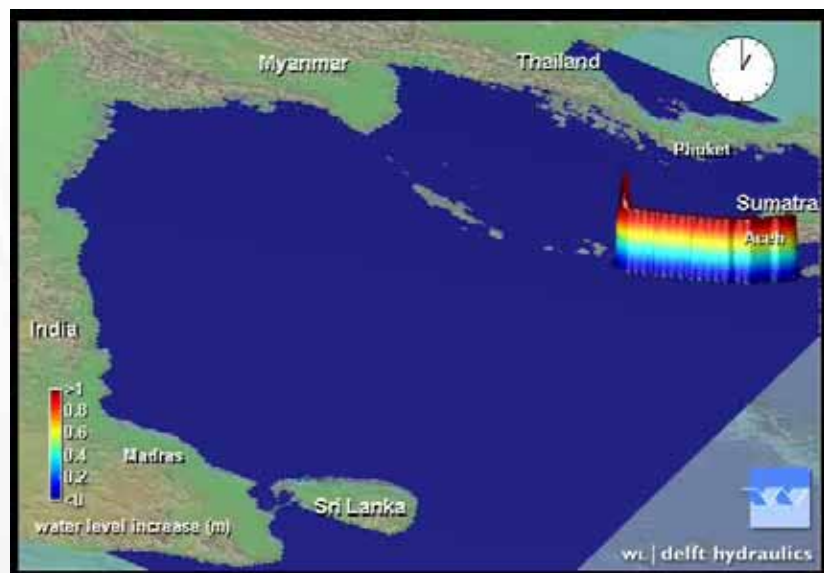


9.0 Magnitude Sumatra-Andaman Megathrust Earthquake

On December 26, 2004, The
Tsunami in the Indian ocean caused
large scale coastal flooding in
various countries namely

1. Indonesia
2. Malaysia
3. Myanmar
4. Bangladesh
5. India
6. Sri Lanka
7. Maldives
8. Somalia
9. Seychelles
10. Madagascar
11. Kenya
12. Tanzania
13. South Africa
14. Mozambique
15. Mauritius
16. Australia
17. Thailand

Source: USGS



*International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan*

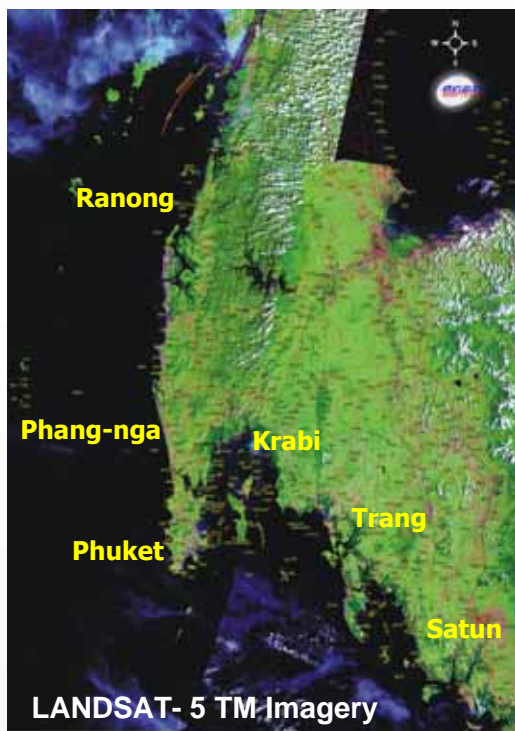


Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): **GISTDA**



Thailand, 6 provinces were affected by the 2004 Indian Ocean Earthquake and Tsunami



Death: 5,395
(Thai: 1,975,
Foreigner:
2,245, Unknown
: 1,975)

Injury: 8,457
(Thai: 6,065,
Foreigner:
2,392)

Missing: 2,822
(Thai: 1,924,
Foreigner: 898)

กระทรวงมหาดไทย
กรมป้องกันและบรรเทาสาธารณภัย
(ฉบับที่ 112)
เรื่อง มาตรการป้องกันและบรรเทาสาธารณภัยกรณีพิเศษ
ตามที่กระทรวงมหาดไทยได้พิจารณาเห็นสมควรว่าสมควรกำหนดมาตรการป้องกันและบรรเทาสาธารณภัยกรณีพิเศษกรณีเกิดภัยพิบัติจากเหตุแผ่นดินไหวและสึนามิ ซึ่งได้เกิดเมื่อวันที่ 26 ธันวาคม 2547

ร.ก.	จังหวัด	พื้นที่ประสบภัย			พื้นที่ได้รับผลกระทบ			พื้นที่ได้รับความเสียหาย		
		พื้นที่	จำนวนประชากร	จำนวนบ้านเรือน	พื้นที่	จำนวนประชากร	จำนวนบ้านเรือน	พื้นที่	จำนวนประชากร	จำนวนบ้านเรือน
1	ภูเก็ต	1,200	1,400	1,200	4,200	4,300	1,200	4,200	4,300	1,200
2	พังงา	100	100	100	300	300	100	300	300	100
3	กระบี่	100	100	100	300	300	100	300	300	100
4	ตรัง	100	100	100	300	300	100	300	300	100
5	สตูล	100	100	100	300	300	100	300	300	100
6	สุราษฎร์ธานี	100	100	100	300	300	100	300	300	100
7	นครศรีธรรมราช	100	100	100	300	300	100	300	300	100
8	สงขลา	100	100	100	300	300	100	300	300	100
9	ปัตตานี	100	100	100	300	300	100	300	300	100
10	ยะลา	100	100	100	300	300	100	300	300	100
11	นราธิวาส	100	100	100	300	300	100	300	300	100
12	กาฬสินธุ์	100	100	100	300	300	100	300	300	100
13	ขอนแก่น	100	100	100	300	300	100	300	300	100
14	อุดรธานี	100	100	100	300	300	100	300	300	100
15	ชัยภูมิ	100	100	100	300	300	100	300	300	100
16	มหาสารคาม	100	100	100	300	300	100	300	300	100
17	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
18	ยโสธร	100	100	100	300	300	100	300	300	100
19	อุบลราชธานี	100	100	100	300	300	100	300	300	100
20	สุรินทร์	100	100	100	300	300	100	300	300	100
21	บุรีรัมย์	100	100	100	300	300	100	300	300	100
22	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
23	ขอนแก่น	100	100	100	300	300	100	300	300	100
24	อุดรธานี	100	100	100	300	300	100	300	300	100
25	ชัยภูมิ	100	100	100	300	300	100	300	300	100
26	มหาสารคาม	100	100	100	300	300	100	300	300	100
27	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
28	ยโสธร	100	100	100	300	300	100	300	300	100
29	อุบลราชธานี	100	100	100	300	300	100	300	300	100
30	สุรินทร์	100	100	100	300	300	100	300	300	100
31	บุรีรัมย์	100	100	100	300	300	100	300	300	100
32	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
33	ขอนแก่น	100	100	100	300	300	100	300	300	100
34	อุดรธานี	100	100	100	300	300	100	300	300	100
35	ชัยภูมิ	100	100	100	300	300	100	300	300	100
36	มหาสารคาม	100	100	100	300	300	100	300	300	100
37	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
38	ยโสธร	100	100	100	300	300	100	300	300	100
39	อุบลราชธานี	100	100	100	300	300	100	300	300	100
40	สุรินทร์	100	100	100	300	300	100	300	300	100
41	บุรีรัมย์	100	100	100	300	300	100	300	300	100
42	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
43	ขอนแก่น	100	100	100	300	300	100	300	300	100
44	อุดรธานี	100	100	100	300	300	100	300	300	100
45	ชัยภูมิ	100	100	100	300	300	100	300	300	100
46	มหาสารคาม	100	100	100	300	300	100	300	300	100
47	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
48	ยโสธร	100	100	100	300	300	100	300	300	100
49	อุบลราชธานี	100	100	100	300	300	100	300	300	100
50	สุรินทร์	100	100	100	300	300	100	300	300	100
51	บุรีรัมย์	100	100	100	300	300	100	300	300	100
52	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
53	ขอนแก่น	100	100	100	300	300	100	300	300	100
54	อุดรธานี	100	100	100	300	300	100	300	300	100
55	ชัยภูมิ	100	100	100	300	300	100	300	300	100
56	มหาสารคาม	100	100	100	300	300	100	300	300	100
57	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
58	ยโสธร	100	100	100	300	300	100	300	300	100
59	อุบลราชธานี	100	100	100	300	300	100	300	300	100
60	สุรินทร์	100	100	100	300	300	100	300	300	100
61	บุรีรัมย์	100	100	100	300	300	100	300	300	100
62	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
63	ขอนแก่น	100	100	100	300	300	100	300	300	100
64	อุดรธานี	100	100	100	300	300	100	300	300	100
65	ชัยภูมิ	100	100	100	300	300	100	300	300	100
66	มหาสารคาม	100	100	100	300	300	100	300	300	100
67	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
68	ยโสธร	100	100	100	300	300	100	300	300	100
69	อุบลราชธานี	100	100	100	300	300	100	300	300	100
70	สุรินทร์	100	100	100	300	300	100	300	300	100
71	บุรีรัมย์	100	100	100	300	300	100	300	300	100
72	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
73	ขอนแก่น	100	100	100	300	300	100	300	300	100
74	อุดรธานี	100	100	100	300	300	100	300	300	100
75	ชัยภูมิ	100	100	100	300	300	100	300	300	100
76	มหาสารคาม	100	100	100	300	300	100	300	300	100
77	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
78	ยโสธร	100	100	100	300	300	100	300	300	100
79	อุบลราชธานี	100	100	100	300	300	100	300	300	100
80	สุรินทร์	100	100	100	300	300	100	300	300	100
81	บุรีรัมย์	100	100	100	300	300	100	300	300	100
82	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
83	ขอนแก่น	100	100	100	300	300	100	300	300	100
84	อุดรธานี	100	100	100	300	300	100	300	300	100
85	ชัยภูมิ	100	100	100	300	300	100	300	300	100
86	มหาสารคาม	100	100	100	300	300	100	300	300	100
87	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
88	ยโสธร	100	100	100	300	300	100	300	300	100
89	อุบลราชธานี	100	100	100	300	300	100	300	300	100
90	สุรินทร์	100	100	100	300	300	100	300	300	100
91	บุรีรัมย์	100	100	100	300	300	100	300	300	100
92	หนองบัวลำภู	100	100	100	300	300	100	300	300	100
93	ขอนแก่น	100	100	100	300	300	100	300	300	100
94	อุดรธานี	100	100	100	300	300	100	300	300	100
95	ชัยภูมิ	100	100	100	300	300	100	300	300	100
96	มหาสารคาม	100	100	100	300	300	100	300	300	100
97	ร้อยเอ็ด	100	100	100	300	300	100	300	300	100
98	ยโสธร	100	100	100	300	300	100	300	300	100
99	อุบลราชธานี	100	100	100	300	300	100	300	300	100
100	สุรินทร์	100	100	100	300	300	100	300	300	100

Source : Dept. of Disaster Prevention and Mitigation
Ministry of Interior (Updated April 29, 2005)

International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): **GISTDA**



(Tsunami) Disaster Management

EO Satellites data

- Modis
- Landsat
- IRS
- Spot
- Ikonos
- QuickBird

Field Investigation

- GPS
- Photos

Historical data

Image Processing

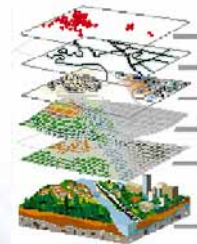


Put into the Database

Affected Area

Distribute to the Users

Geodatabase



- Buildings
- Affected Areas
- Land Use
- Cotour Lines
- Satellite Imagery



GISTDA : Perform quick response in providing EOS images for rescue and rehabilitation action

GISTDA established a specialised Center named Satellite Imagery based Information Center for Tsunami Recovery aiming to aggregate relevant satellite imageries prior to and after the Disaster

- **TERRA – MODIS, AQUA**

22 Dec. 2004, 11.00 h.

26 Dec. 2004, 10.35 h. & 13.35 h.

- **LANDSAT**

30 Dec. 2004

5 Feb. 2005

5 Apr. 2005

- **QUICKBIRD**

02 Jan. 2005

- **SPOT**

30 Dec. 2004

07 Jan. 2005

- **RADARSAT**

13 Jan. 2004

- **ASTER**

31 Dec. 2004

- **IKONOS**

24 Jan. 2004

29 Dec. 2004

21 Apr. 2005

- **IRS**

28 Dec. 2004

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



GISTDA : Perform quick response in providing other supportive data for aid planning and recovery effort to the Tsunami- affected communities

Provide GIS data including an affected boundary, field investigation data and other relevant information

Provide up-to-date and ready - to - use satellite data for organizations responsible (3D images)

Provide technical consultations and to cooperate with interested organizations in data integration

Publish the story book entitled Geo-informatics data for monitoring the Tsunami disaster in Thailand

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



GISTDA : Perform quick response in providing other supportive data for aid planning and recovery effort to the Tsunami – affected

EOS Data Distribution to Concerned Agencies

governmental organizations
private sector
educational institutes

> 50 agencies

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



GISTDA Activities in response to Tsunami disaster



**Rescue in Tsunami
Disaster Affected
Area During 27
December 2004 to
4 January 2005**

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters
Along the Andaman Sea, Thailand

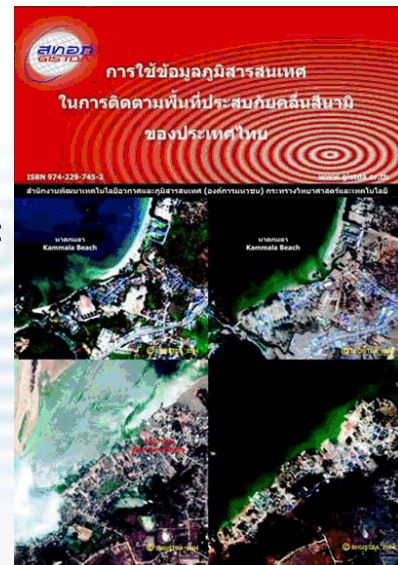
Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



GISTDA Activities in Response to Tsunami Disaster

Contents :

About Tsunami
Geo-informatic Data for monitoring and Management
Ground Photos
Evacuation plans



Tsunami Story Book

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters
Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Tsunami Warning Towers

Warning Towers, Phuket



Evacuation drill at Patong Beach,
Phuket province

Phuket : 7 sites

Ranong	_____	→ 50 Sites
Phang-nga	_____	
Krabi	_____	
Trang	_____	
Satun	_____	

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Table : Estimation of Tsunami Damage Areas by District/Province, Thailand

District/Province	Built-up Area		Agricultural Area		Forest Area		Water body		Miscellaneous		Total	
	area (ha)	area %	area (ha)	%	area (ha)	%	area (ha)	%	area (ha)	%	area (ha)	%
Ranong	15	28.68	-	-	-	-	-	-	37	71.32	52	0.26
Suk Samran	15	28.68	-	-	-	-	-	-	37	71.32	52	0.26
Phang-nga	988	5.64	2,286	13.06	993	5.67	196	1.12	13,050	74.51	17,515	89.35
Ko Phra Thong, Khura Buri	63	0.79	498	6.25	-	-	7	0.08	7,405	92.88	7,973	40.67
Ko Kho Khao, Takua Pa	102	2.50	205	5.04	993	24.39	38	0.93	2,734	67.14	4,072	20.77
Ban Nam Khem, Takua Pa	130	8.01	496	30.59	-	-	110	6.77	888	54.63	1,642	8.29
Khao Lak, Takua Pa	661	17.59	1,086	28.90	-	-	42	1.10	1,969	52.41	3,758	19.17
Ban Khao Lak, Thai Muang	33	37.79	-	-	-	-	-	-	54	62.21	87	0.44
Phuket	1,247	63.59	74	3.79	-	-	26	1.35	613	31.27	1,961	10.00
Hat Kamala, Kathu	305	40.22	44	5.85	-	-	13	1.69	396	52.24	759	3.87
Hat Patong, Kathu	942	78.34	30	2.50	-	-	14	1.13	217	18.03	1,202	6.13
Krabi	60	79.47	12	15.26	-	-	-	-	4	5.27	76	0.39
Ko Phi Phi, Muang	60	79.47	12	15.26	-	-	-	-	4	5.27	76	0.39
Total	2,311	11.79	2,372	12.10	993	5.06	223	1.14	13,704	69.91	19,604	100.00

Source: Land Development Department (LDD), Thailand, 2005



International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan

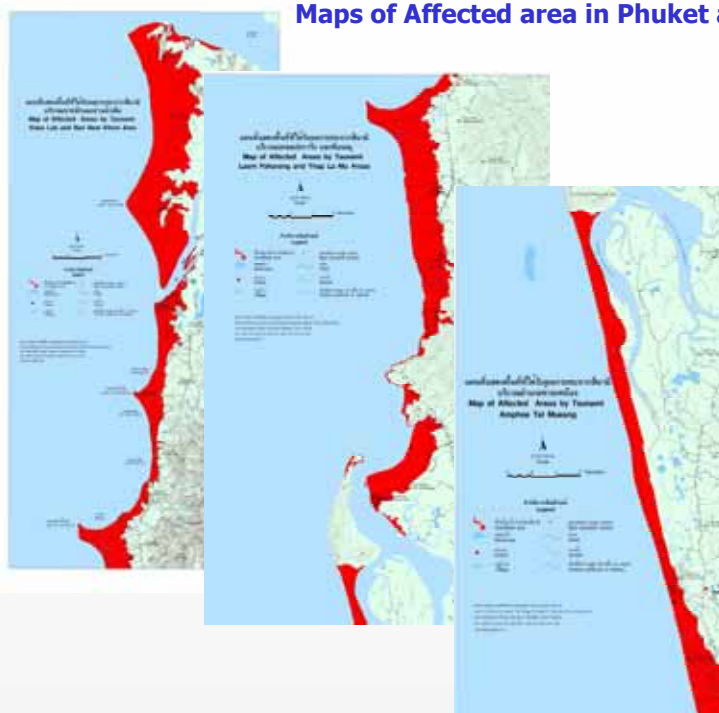


Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Maps of Affected area in Phuket and Phang-nga provinces



แผนที่แสดงพื้นที่ที่ได้รับผลกระทบจากสึนามิ บริเวณอำเภอเกาะ อำเภอน้ำพอง
Map of Affected Areas by Tsunami in Ao Kamala Ao Patong



International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



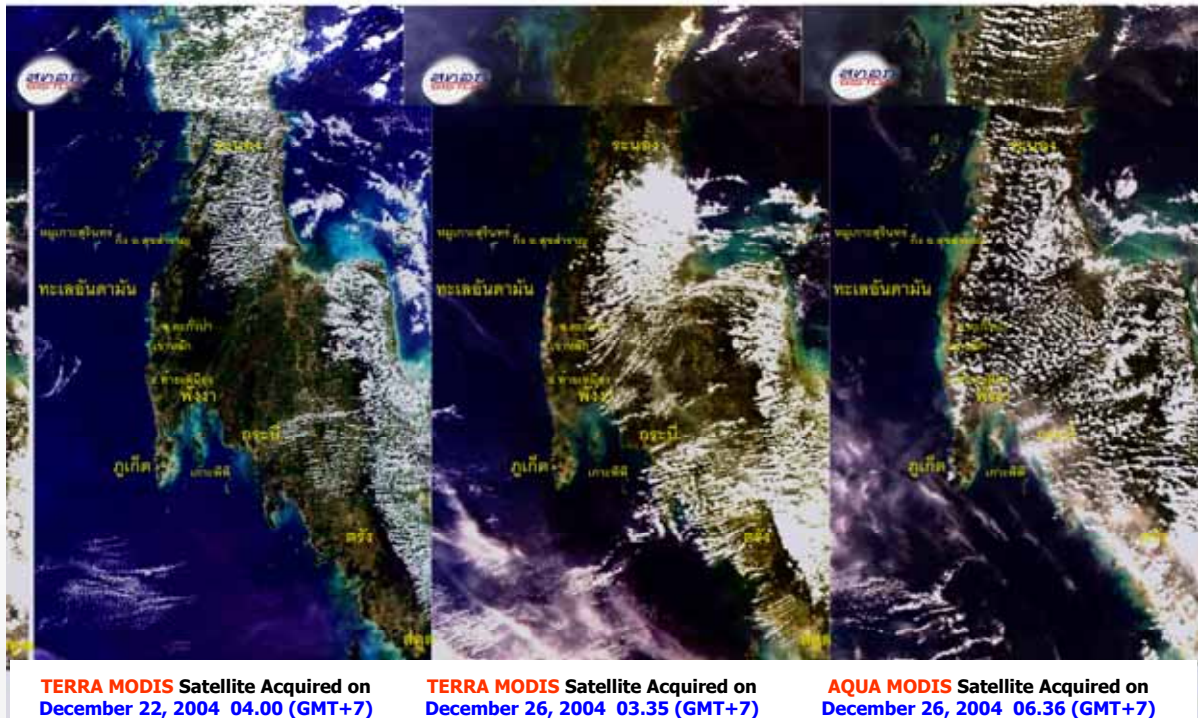
Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Along the Andaman Sea, THAILAND : Before and after the Tsunami impact



International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan



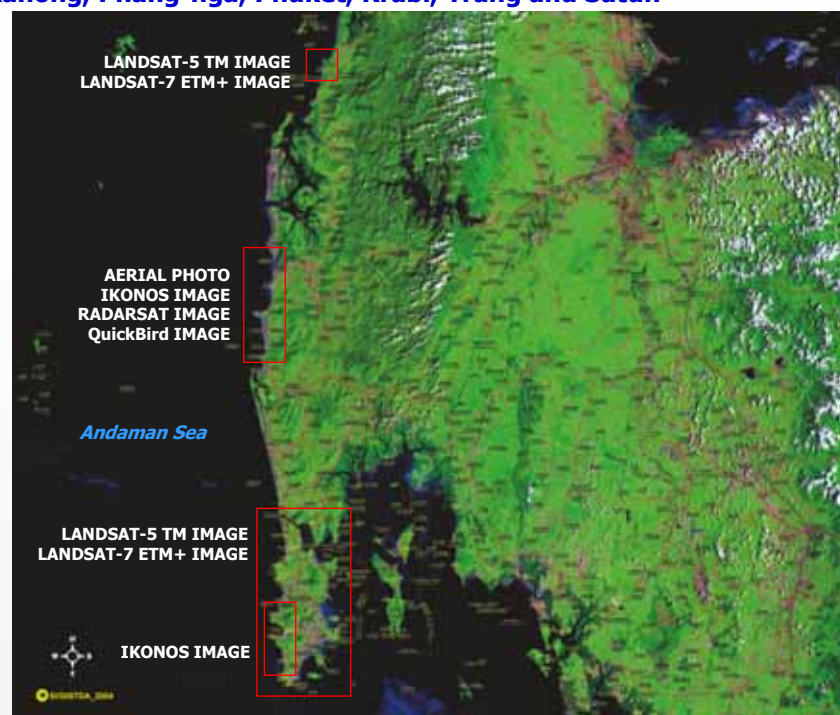
Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Mosaic of LANDSAT-5 images covering 6 provinces along the Andaman Sea, namely Ranong, Phang-nga, Phuket, Krabi, Trang and Satun



International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan



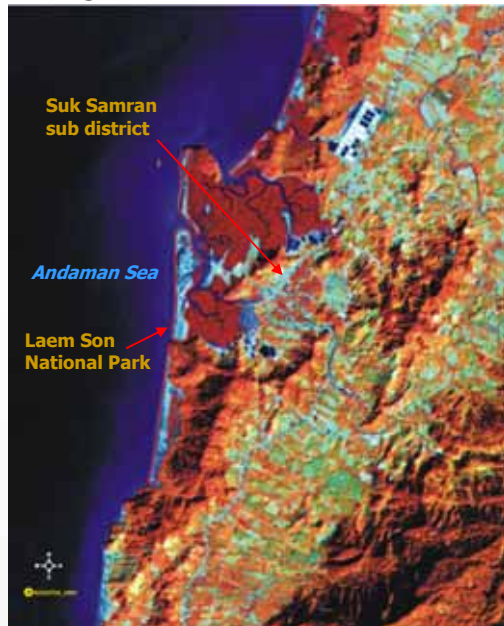
Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Pre image of LANDSAT-7 taken on April 8, 2003
showing former shoreline in red line



Post image of LANDSAT-7 taken on December 30, 2004
showing an affected area in yellow boundary



Tsunami damage at Laem Son National Park, Ranong province

*International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan*



Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Ban Nam Khem Recovery After Tsunami Impact



Ban Nam Khem Before Tsunami Impact



Ban Nam Khem After Tsunami Impact



*International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan*



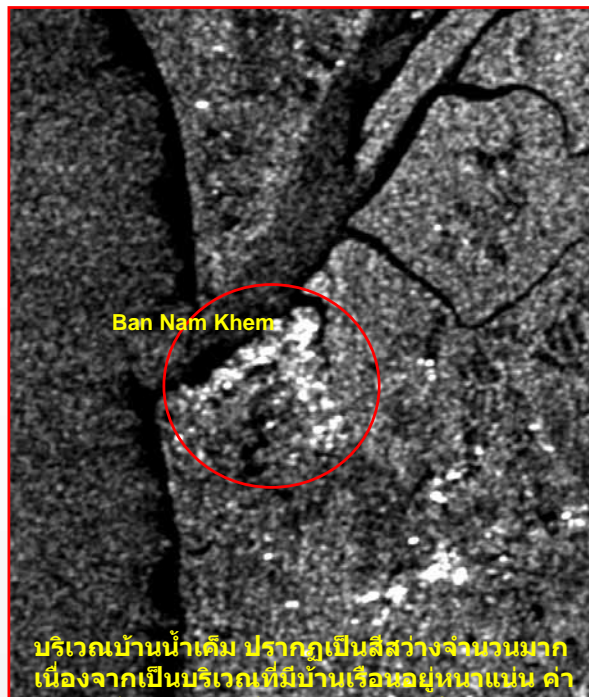
Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Before: RADARSAT dated 24 Dec 2002



บริเวณบ้านน้ำเค็ม ปรากฏเป็นสีขาวจำนวนมาก เนื่องจากเป็นบริเวณที่มีบ้านเรือนอยู่หนาแน่น ค่าการสะท้อนกลับบนข้อมูล Radar จะมีค่าสูงกว่าพื้นที่ข้างเคียง

After: RADARSAT dated 11 Jan 2005



บริเวณบ้านน้ำเค็มหลังเกิดเหตุการณ์คลื่นยักษ์ ปรากฏเป็นสีขาวจำนวนน้อยกว่าภาพด้านบน เนื่องจากมีบ้านเรือนที่น้อยลงหนาแน่นกว่า

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Laem Krang Yai, Takua Pa District, Phang-nga province



Acquired on 30 January 2003



Acquired on 29 December 2004



Acquired on 21 April 2005



Pre and Post IKONOS natural color images indicate damage of beach, coastline and roads at Laem Krang Yai, Takua Pa District, Phang-nga province.

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Blue Village Pakarang Resort, Takua Pa District, Phang-Nga Province



Acquired on 30 January 2003



Acquired on 29 December 2004



Acquired on 21 April 2005



Pre and Post IKONOS natural color images indicate damage and recovery of buildings, beach, shoreline and roads at Blue Village Pakarang Resort, Takua Pa District, Phang-Nga Province.

Red vector = shoreline on Jan 30, 2004
Yellow = shoreline on Dec 29, 2004
Blue = shoreline on Apr 21, 2005

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Ban Bang Sak, Takau Pa District, Phang-Nga Province



- 10 m. height above msl.
- 500 m. From coastal line

QuickBird Natural Color Image dated 02 January 2005

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters

Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Ban Bang Niang, Takua Pa District, Phang-Nga Province

IKONOS Natural Color Image dated 29 December 2004

IKONOS Natural Color Image dated 21 April 2005



International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters

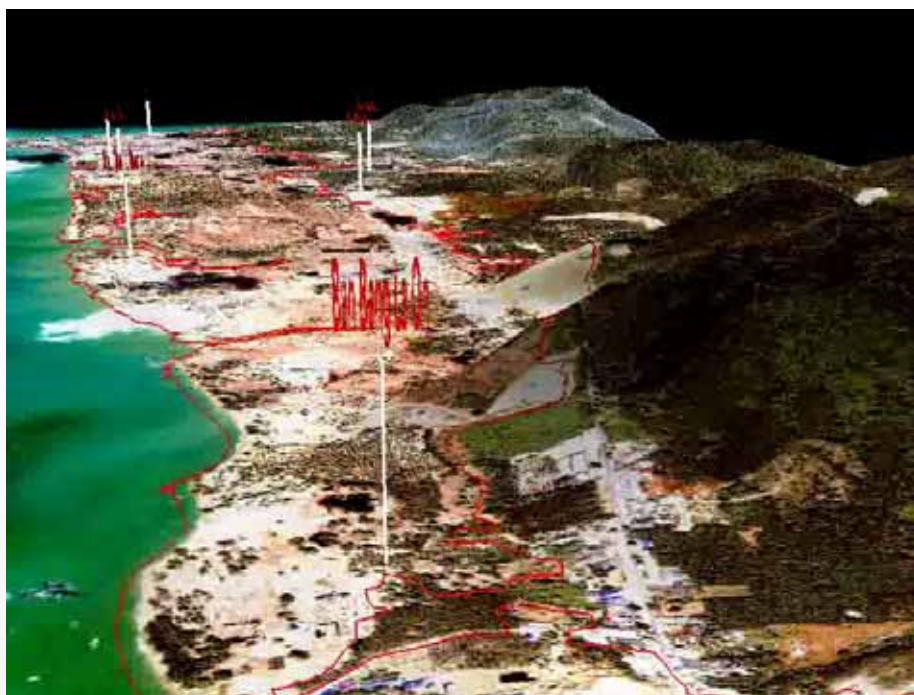
Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



IKONOS Perspective Image of Phang-nga Coastal

Laem Krang Yai – Ban Bang La On : 3 D IKONOS_29 Dec 2004



International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Phuket Island before and after the Tsunami Impact



Kammala beach
Patong beach
Karon beach

PHUKET

Before

LANDSAT-7ETM+ data
Acquired on 5 February
2001 Merged with IRS
Panchromatic band
(5.8 m) Acquired on
24 December 2001



Kammala beach
Patong beach
Karon beach

PHUKET

After

LANDSAT-5 TM data
Acquired on 30
December 2001 after the
Tsunami impact

*International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan*



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Kamala Beach, Kathu District , Phuket Province



BEFORE

Kamala Beach

IKONOS Natural Color Image 24 January 2004



AFTER

Kamala Beach

IKONOS Natural Color Image 29 December 2004

Shoreline, Sand Beach, Buildings and Roads damages
along Kamala Beach.



RECOVERY

Kamala Beach

IKONOS Natural Color Image 21 April 2005



AFTER



RECOVERY



source: Photos by Siam, 11 Jan 2005

*International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan*



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Patong Beach, Kathu District, Phuket Province



Acquired on 24 January 2004



Acquired on 29 December 2004



Acquired on 21 April 2005



AFTER



RECOVERY

Pre and Post IKONOS natural color images indicate damage and recovery of buildings, beach, coastline and roads at South of Patong Beach, Kathu District, Phuket Province.

Yellow boundary shown affected area from Tsunami impact on 26 December 2004.

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Trai-Trang Beach, Kathu District, Phuket Province



Acquired on 24 January 2004



Acquired on 29 December 2004



Acquired on 21 April 2005



RECOVERY

Pre and Post IKONOS natural color images indicate damage and recovery of buildings, beach, coastline and roads at Trai-Trang Beach, Kathu District, Phuket Province.

Yellow boundary shown affected area from Tsunami impact on 26 December 2004.

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Karon Beach, Mueang Phuket district, Phuket province



Acquired on 24 January 2004

Acquired on 29 December 2004

Acquired on 21 April 2005



Pre and Post IKONOS natural color images indicate damage of beach, shoreline and reservoir at Karon Beach, Mueang Phuket District, Phuket Province.

Red vector = shoreline on Jan 24, 2004 Yellow = shoreline on Dec 29, 2004
Blue = shoreline on Apr 21, 2005

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Conclusions

High and low resolution satellite data along with GIS technology are useful and practical for Tsunami. They can be used in monitoring and management, mitigation and recovery efforts. They also offer an excellent opportunity for creating a long - term database for the purpose of risk assessment and relief management.

Recommendation

As for coastal shoreline erosion study, the satellite data should be

International Workshop on the Application of Remote Sensing Technologies in Earthquake Damage Assessment, September 12-13, 2005, Japan



Tsunami Disasters Along the Andaman Sea, Thailand

Geo-Informatics and Space Technology Development Agency
(Public Organization): GISTDA



Thank you for your attention

Website : <http://www.gistda.or.th>

Tel. +66 (0) 2940 6345, +66 (0) 2579 0345 Fax. +66 (0) 2579 5618

*International Workshop on the Application of Remote Sensing Technologies
in Earthquake Damage Assessment, September 12-13, 2005, Japan*