



## Padang - Indonesia

Scale 1:5000

Hazard and Inundation mapping - "Last-Mile - Evacuation project"

Map Reference ID: Series A - Water depth - Tile #2

### Location Diagram

### Initial displacement Scenario 2b

### Legend

Ikonos / Aerial Images		Background image RGB band		Points of interest	
0,10 m - 01,00 m	Red: Band_1	Church			
01,01 m - 02,00 m	Green: Band_2	Hospital			
02,01 m - 03,00 m	Blue: Band_3	Hotel			
03,01 m - 04,00 m		Market places			
04,01 m - 05,00 m		Mosques			
05,01 m - 06,00 m		Post office			
06,01 m - 07,00 m		School / Univ			
07,01 m - 08,00 m					
08,01 m - 09,00 m					

Infrastructure		Hydro-numerical simulation	
Streets			
Footprints of buildings			
		Boundary of the simulation domain	

### Map information and interpretation

The city of Padang is located at the western coast of Sumatra that is threatened severely by potential tsunami triggered by earthquakes along the Sunda arch. To date, inundation and hazard information is limited to coarse data basis. New modeling results are mapped here. Along with enhanced datasets of elevation and bathymetry (RSS GmbH, Franzius-Institute and German Aerospace Center DLR), a possible future rupture scenario has been applied and calculated by means of hydro-numerical modeling tools.

In result, a refined hazard map is proposed. It bases on the following assumptions: The initial seafloor displacement is exaggerated by a safety factor of 0.50. The initial water level at the Padang coast is fixed at an estimated high water level of 0.80m above MSL. Subsidence due to the rupture is approximately -1.38m at Padang. Earthquake related information is provided in collaboration with Agency for the assessment and application of technology (BPPT), Indonesian Institute of Science (LIPI) and Earth Observatory of Singapore (EOS). The topography includes surfaces of houses derived from an up-to-date aerial survey, where vegetation effects have been removed thoroughly. Displayed hazard is either qualified by means of the hydro-dynamical quantity of water depth or specific energy head (Map series A: water depth; Map Series B: Specific energy head). Numerical model used: ANUGATUNAMI. Further reference and citations therein:

Bonero, J. C., K. Siah, M. Chlieh, and C. E. Synolakis (2006): "Tsunami inundation modeling for western Sumatra, PHAS, 103(5), doi:10.1073/PHAS.060409103"

Sieh, K., et al. (2008): "Earthquake supercycle inferred from sea-level changes recorded in the corals of West Sumatra, Science, 322, 1674-1678"

Taubenböck, H., Grosseberg, N., Setaedi, N., Lämmel, G., Moder, F., Oczypka, M., Klüpfel, H., Wahi, R., Schumann, T., Strunz, G., Birkmann, J., Nagel, K., Sieget, F., Lehmann, F., Deth, S., Gross, A., Klein, R.: "Last-Mile preparation to a potential disaster - Interdisciplinary approach towards tsunami early warning and an evacuation information system for the coastal city of Padang, Indonesia. In: NHSS 9 (2009), Aug., No. 4, 1509-1528"

### Projection & Grid Information

	Reference Grid	Geographic Grid
Projection:	UTM Zone 47 South	Geographic (DMS)
Spheroid:	WGS84	WGS84
Datum:	WGS84	WGS84

### Satellite Information and Aerial Image

Satellite:	Ikonos	Company:	RSS GmbH, DLR
Pixel Size:	1m	Pixel Size:	0.25m
Acquisition Date:	April 12, 2005	Acquisition Date:	September, 2007
Georeferencing:	Orthorectification	Georeferencing:	GPS
Accuracy:	±-5 m RMSE	Accuracy:	±-0.30m

### Credits & Copyright

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- IKONOS © IKONOS 2005
- Vector Data © DLR 2009, RSS GmbH 2008
- Bathymetry / Hydro-numerical data © Franzius-Institute, LUH 2010

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### Map generation

**FRANZIUS-INSTITUT**  
for Hydraulic, Waterways and Coastal Engineering

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