

RAPID RECONNAISSANCE SURVEY OF THE FEBRUARY 27, 2010 CHILE TSUNAMI  
CONSTITUCIÓN TO COLCURA, QUIDICO TO MEHUÍN



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THE SURVEY:

Location	All distances and elevations reported with reference to shoreline location and elevation at time of field survey. No tidal correction		
	Max Elevation of Tsunami Evidence	Max Observed Runup Height	Max Observed Inundation Distance
	z+h [m]	R [m]	d [m]
Constitucion South	7.3		770
Constitucion South Cliffs	23.6+	23.6+	80
Las Cañas	--	--	1230
Los Pellines	8.7	6.9	250
Llanco	15.7	15.7	158
Chanco - Playa Monolito	11.3	11.3	97
Buchupureo	2.2	2.2	168
Cobquecura	no tsunami reported, no conclusive evidence of tsunami		
Mela	2.9	2.9	225
Coliumo	8.0	8.0	130
Rio Coliumo	--	--	1850
Bio Bio / San Pedro	no tsunami reported, no evidence of tsunami		
Maule	3.2	3.2	20
Playa Chivilingo	3.9	3.9	73
Rio Lieu Lieu	2.7	1.4	350
Quidico	3.1	3.1	233
Tirúa	10.6	7.8	729
Tirúa South	15.8	15.8	56
Puerto Saavedra	1.8	1.8	39
Boca Budi	3.2	2.4	321
Mehuín	1.5	1.5	60

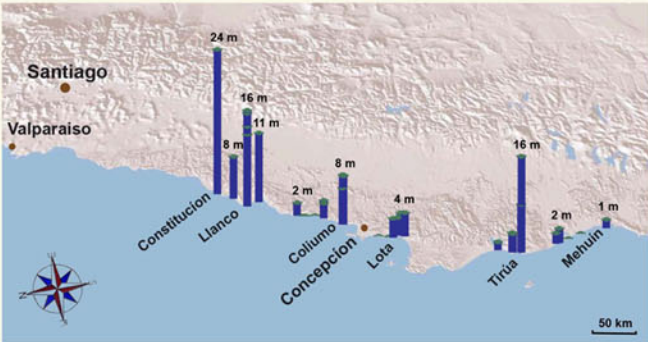
Selected observations of flow depth, runup and inundation from survey locations without correction for tides

This sub-team of the International Tsunami Survey Team (ITST) covered a northern segment of the coast between Constitución and Chivilingo and a southern segment between the Bio Bio River and Mehuín . The survey was conducted from March 12 until March 18, 2010 for more than 30 locations spanning 800 km of coastline. The effects of the tsunami were highly variable with some communities suffering little or no damage from the waves while, kilometers away, catastrophic damage and casualties occurred.

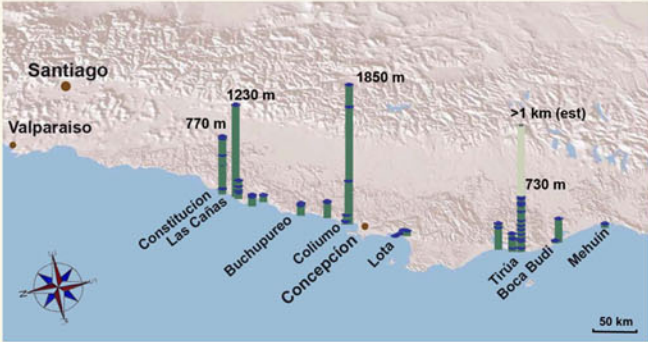


Map of Survey Area

THE DATA:



Runup elevations from survey data. Runup elevatons are reported without tide correction.



Inundation distances from survey data without correction for tides. The highest inundation values occur along rivers.

EXAMPLE OF SITEWORK - TIRUA



The extent of upriver inundation is visible in the field at the center of this photo although cleanup efforts after the tsunami and earthquake have covered over tsunami trace evidence.



Runup on the south side of the Tirua River was uniformly high at an elevation of ~ 16 m. The inset photo shows a perspective from the level of the river up to a typical level of vegetation removed by the tsunami. Six of the seven houses on this side of the river were washed away.

Remains of broken lightposts are seen at the plaza near the destroyed seawall. These posts were proably broken by debris impacts as the top sections show evidence of impacts. Despite the high level of damage, no cauasualties were reported at Tirua from the tsunami since residents evacuated after the earthquake.



The highest measured water surface elevation of 10.6 m above local tide level was at the roof of this school building. The outer edge of the roof (left side of photo) was lifted by water or debris.



Much of the beach vegetation was damaged or removed by waves leaving broken branches as well as reeds and grasses at high elevations in the trees.



Aerial view of Tirua showing surveyed water surface elevation measurements from tsunami trace evidence. The height of the colored markers is exaggerated by a factor of 10.

View looking North at the Town of Tirua from across the river. The seawall that appears in the center image (from 2005) was destroyed during the inundation. An eyewitness reported two waves about 5 minutes apart approximately 40 minutes after the earthquake.



Flow marks in dune grass and sand patterns in the dunes at the shore indicate that the water overtopped the beach berm.

