CATAC evaluation of the M7.6 Earthquake and Tsunami of February 8, 2025, near Cayman Islands

Wilfried Strauch

Director CATAC

wilfried.strauch@yahoo.com

- CATAC Processing

General

- CATAC processing was very fast and accurate
  - Initial evaluation based on location, magnitude
  - Moment Tensor solutions
- First message with tsunami evaluation – sent out 2 minutes after EQ was obtained by the 5 affected Central America Countries
- Later email messages failed due to computer problem
- CA countries were attended by phone calls and whatsapp messages
- Technical problems of messaging were solved by a previously already established plan until the end of march 2025

CATAC´s initial automatic message

Instituto Nicaragüense de Estudios Territoriales (INETER)
Centro de Asesoramiento de Tsunamis para América Central
C A T A C

INFORMACION AUTOMATICA PRELIMINAR DE SISMO

Hora de emisión: Febrero 08,2025 **5:25:25**PM de América Central
Febrero 08,2025 6:25:25PM Hora local de Panamá

PARAMETROS DEL SISMO

Tiempo de Origen : Febrero 08,2025 **5:23:09**PM Hora local de América Central

: Febrero 08,2025 6:23:09PM Hora local de Panamá

Epicentro : 17.903 N 82.256 O NEIC 17.65N 82.40°W

Región : 180 Km al suroeste de George Town, Islas Caimán

Profundidad : 5 Km

Magnitud : 7.1 M7.6

EVALUACION:

Posibilidad de un tsunami local destructivo en las costas del Mar Caribe de América Central, confinado a distancias de hasta 100 km del epicentro, debido a su magnitud y profundidad, Se sugiere aplicar planes de respuesta, de acuerdo a sus protocolos de actuaciones.

Los parámetros se calculan usando datos recibidos en tiempo real, con el aporte de estaciones sísmicas de observatorios sismológicos de América Central (INSIVUHEH, MARN, COPECO, INETER, OVSICORI, ICG-UPA, ACP, RSN-UCR-ICE), y de la red sismológica global.

Esta es una información automática y puede contener errores.

Favor consultar nuestra página web: http://catac.ineter.gob.ni/gaps/eqview/

NEIC M7.6 17.65N 82.40°W

Options View Help

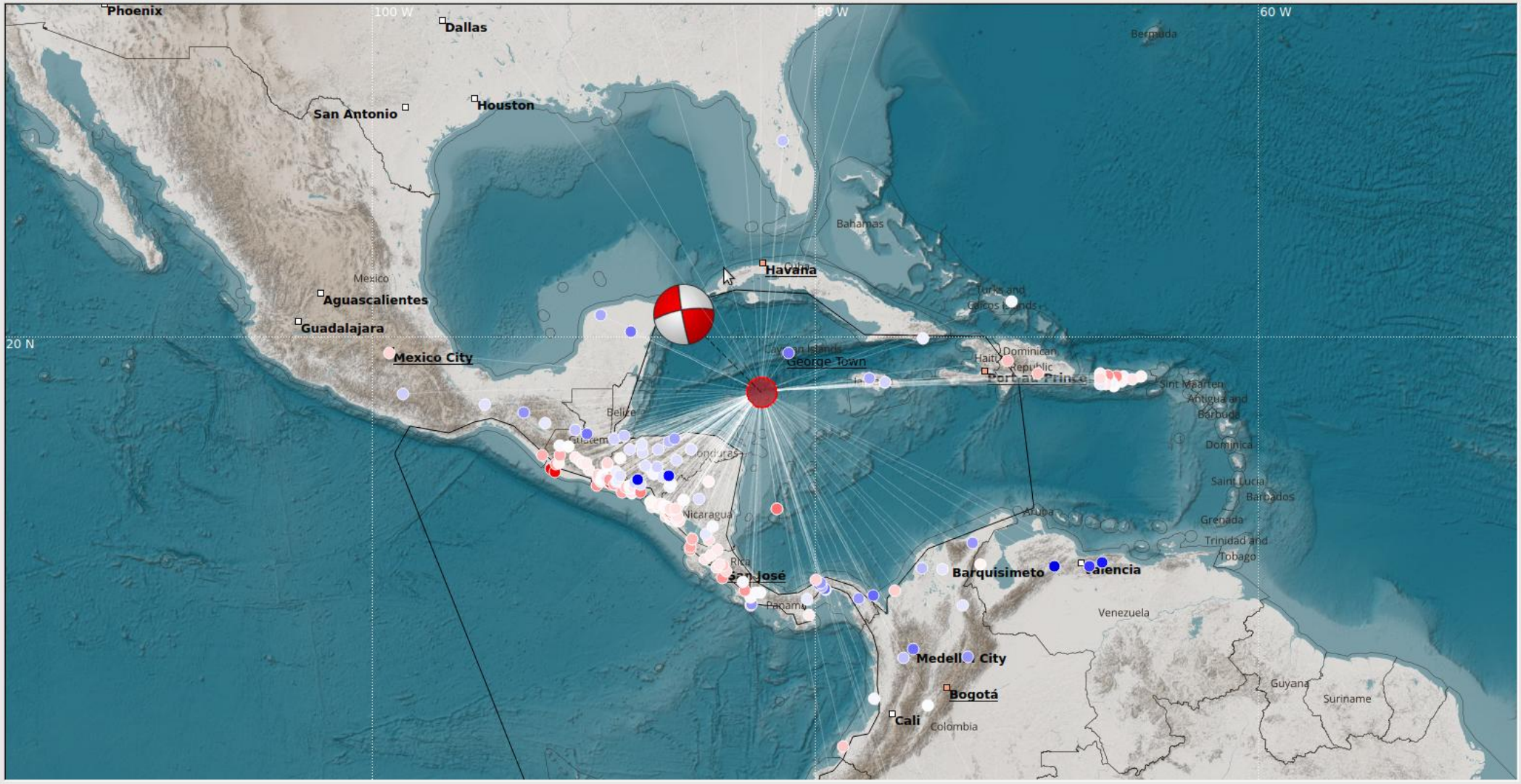
Summary | Events

Final solution

2025-02-08 23:23:13 UTC

3 days and 16 hours ago

North of Honduras



M 7.4 **10 km**

Type	Value	+/-	Count
M	**7.4**	**-**	**141**
MLv	7.7	0.33	84
Mw(mB)	7.7	0.40	141
mB	7.6	0.33	141
mb	6.8	0.36	113

Latitude:	**17.67 ° N**	+/-	1 km
Longitude:	**82.43 ° W**	+/-	1 km
Depth:	**10 km**	fixed	
Phase Count:	231		
RMS Residual:	1.7		
Agency:	CATAC		
Status:	manual		
First Location:	O.T. + 1m 17s		
This Location:	O.T. +39m 03s		
EventID:	CATAC2025ctfk		

FocalMechanism

Latitude:	**17.64 ° N**
Longitude:	**82.41 ° W**
Depth:	**38 km**
Moment:	**2.59E+20 Nm**
Mw:	**7.6**
Misfit:	0.14
CLVD:	0.40
Phase Count:	325
Min dist:	4.5 °
Max dist:	19.8 °
Nodal planes:	S: 169, D: 85, R: 166 S: 260, D: 76, R: 4
Type:	centroid
Agency:	CATAC
Status:	automatic

Show Details

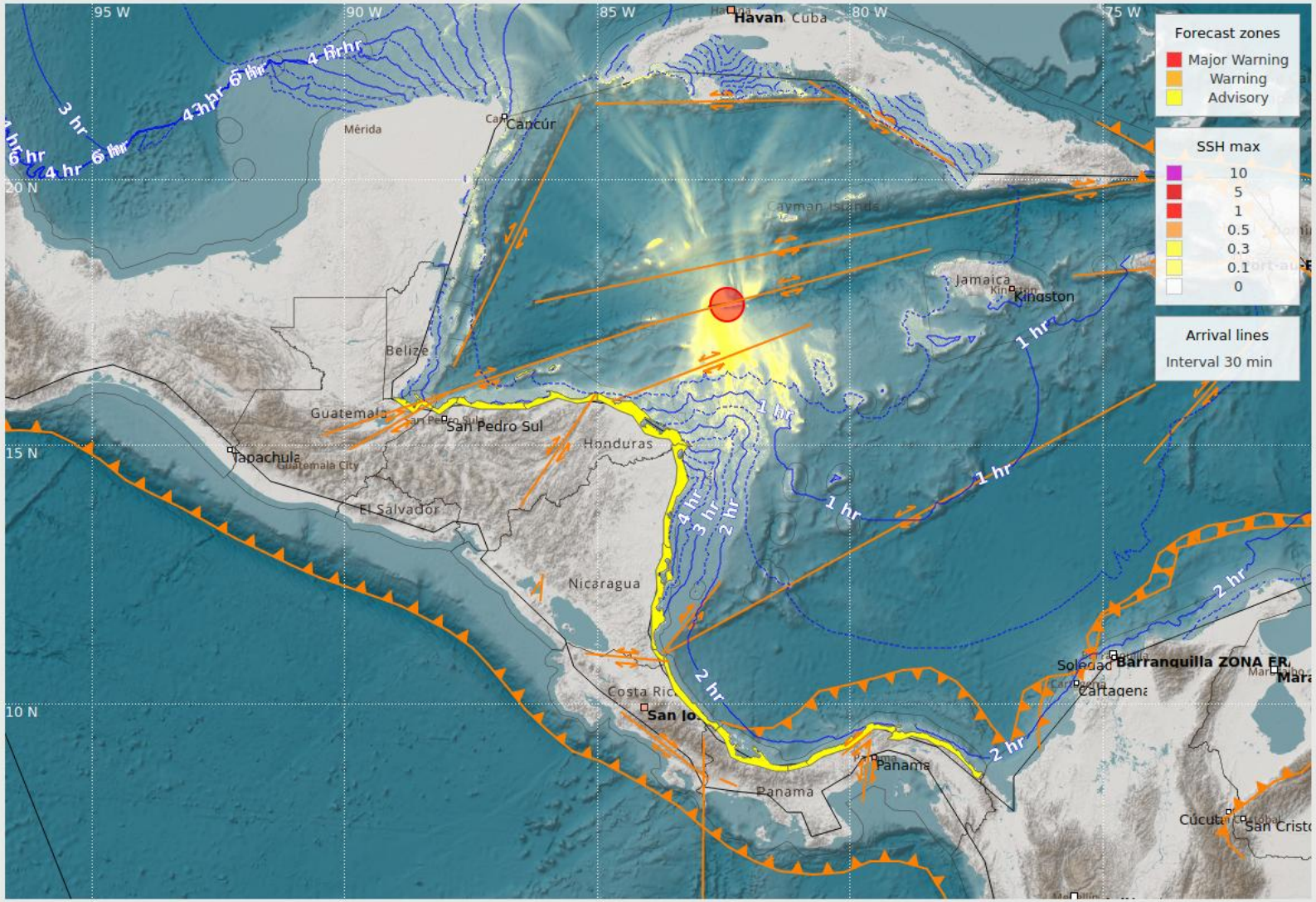
File Settings Simulation Traces View Extras Help

Final simulation

2025-02-08 23:23:13
3d and 15h ago
North of Honduras

FM M 7.4 D 10 km
CATAC2025ctfk

Map | Traces | Forecast Zones | primer mensaje | Video | tercer mensaje | catac mensaje 2 | mensaje ingles | Mensaje de prueba | segundo mensaje de texto | can



Map Layers

Color Profile: DefaultProfile

- Iso chrones
- SSH
- SSH max

Wave Propagation | Map Layers

Database - Simulations

Simulations: Show all | View | Sort by: Creation time

Creation time	M	D	Lon	Lat	Residual	FM
2025-02-10 14:35:34	7.4	14 km	-82.43°	17.67°	0.58	
2025-02-09 00:02:46	7.4	15 km	-82.43°	17.67°	0.58	
2025-02-09 00:02:46	7.4	14 km	-82.43°	17.67°	0.58	
2025-02-09 00:02:46	6.8	10 km	-82.43°	17.67°	0.62	
2025-02-08 23:54:42	7.0	10 km	-82.60°	17.80°	0.62	
2025-02-08 23:54:42	7.0	10 km	-82.60°	17.80°	0.62	
2025-02-08 23:40:41	7.0	10 km	-82.57°	17.80°	0.62	
2025-02-08 23:33:19	7.1	10 km	-82.58°	17.74°	0.60	
2025-02-08 23:33:19	7.5	15 km	-82.58°	17.74°	0.58	
2025-02-08 23:29:18	7.3	13 km	-82.83°	17.61°	0.62	
2025-02-08 23:29:18	7.3	13 km	-82.83°	17.61°	0.62	
2025-02-08 23:27:07	7.4	13 km	-82.83°	17.48°	0.62	
2025-02-08 23:26:51	7.7	18 km	-82.40°	17.78°	0.59	
2025-02-08 23:26:18	7.4	14 km	-82.33°	17.61°	0.58	
2025-02-08 23:25:55	7.2	12 km	-82.52°	17.97°	0.62	
2025-02-08 23:25:39	7.2	12 km	-82.41°	18.04°	0.63	
2025-02-08 23:25:39	7.2	12 km	-82.41°	18.04°	0.63	
2025-02-08 23:25:16	7.2	12 km	-82.26°	17.90°	0.61	
2025-02-08 23:25:16	7.2	12 km	-82.26°	17.90°	0.61	
2025-02-08 23:25:16	7.2	12 km	-82.26°	17.90°	0.61	

21/21 simulations shown

Toast Waveform predictions (all) and recordings (only SIAN, SANA)

Runups and amplitudes on the coastal strips, predictions

File Settings Simulation Traces View Extras Help

2025-02-08 23:23:13
3d and 15h ago
North of Honduras

FM M 7.4 D 10 km
CATAC2025ctfk

Map | Traces | Forecast Zones | primer mensaje | Video | tercer mensaje | catac mensaje 2 | mensaje ingles | Mensaje de prueba | segundo mensaje de texto | can

Name	Runup	wir	Country	T1 Value	T1 Time	T3 Value	T3 Time
ISLA DEL CISNE	0.156 m		HONDURAS	0.010 m	2025-02-08 23:26:19	0.226 m	2025-02-08 23:42:13
GUANAJA SUR	0.092 m		HONDURAS	0.010 m	2025-02-08 23:44:55	0.110 m	2025-02-09 03:44:43
ISLAS DE LA BAHIA	0.053 m		HONDURAS	0.010 m	2025-02-08 23:46:42	0.088 m	2025-02-09 03:49:13
HAMBANTOTA	0.058 m	...	SRI LANKA	0.010 m	2025-02-08 23:48:24	0.057 m	2025-02-09 03:34:43
UTILA NORTE	0.047 m		HONDURAS	0.010 m	2025-02-08 23:52:57	0.052 m	2025-02-09 06:26:43
COLON	0.060 m		HONDURAS	0.010 m	2025-02-08 23:53:42	0.111 m	2025-02-09 05:19:43
GRACIAS A DIOS	0.066 m		HONDURAS	0.010 m	2025-02-08 23:54:27	0.125 m	2025-02-09 01:52:43
CAYO CHOCHINO GRANDE	0.044 m		HONDURAS	0.010 m	2025-02-09 00:04:13	0.062 m	2025-02-09 06:12:13
CORTES	0.038 m		HONDURAS	0.010 m	2025-02-09 00:04:39	0.063 m	2025-02-09 04:20:13
ATLANTIDA	0.040 m		HONDURAS	0.010 m	2025-02-09 00:06:06	0.065 m	2025-02-09 04:26:43
IZABAL	0.015 m		GUATEMALA	0.010 m	2025-02-09 00:15:15	0.041 m	2025-02-09 06:21:13
SAN BLAS	0.013 m		PANAMA	0.010 m	2025-02-09 00:24:15	0.048 m	2025-02-09 04:43:13
TURTLE ISLAND	0.018 m		PANAMA	0.010 m	2025-02-09 01:14:33	0.025 m	2025-02-09 06:48:13
COLON	0.017 m		PANAMA	0.010 m	2025-02-09 01:19:54	0.028 m	2025-02-09 06:40:43
CAYOS DE HONDURAS	0.055 m		HONDURAS	0.010 m	2025-02-09 01:30:13	0.083 m	2025-02-09 03:30:43
LIMON	0.009 m		COSTA RICA	0.010 m	2025-02-09 01:31:25	0.017 m	2025-02-09 07:37:43
VERAGUAS	0.012 m		PANAMA	0.010 m	2025-02-09 01:33:31	0.016 m	2025-02-09 07:39:43
BOCAS DEL TORO	0.005 m		PANAMA	0.010 m	2025-02-09 01:35:45	0.016 m	2025-02-09 07:37:13
CORN ISLAND	0.005 m		NICARAGUA	0.010 m	2025-02-09 01:41:43	0.006 m	2025-02-09 07:36:43
LITTLE CORN ISLAND	0.005 m		NICARAGUA	0.010 m	2025-02-09 01:45:13	0.006 m	2025-02-09 06:09:43
RIO SAN JUAN	0.005 m		NICARAGUA	0.010 m	2025-02-09 01:54:13	0.021 m	2025-02-09 06:34:13
REGION AUTONOMA ATL...	0.005 m		NICARAGUA	0.010 m	2025-02-09 01:57:27	0.010 m	2025-02-09 05:39:43
REGION AUTONOMA ATL...	0.028 m		NICARAGUA	0.010 m	2025-02-09 02:02:36	0.080 m	2025-02-09 06:56:43
CAYOS MISKITOS	0.050 m		NICARAGUA	0.010 m	2025-02-09 02:48:42	0.080 m	2025-02-09 06:18:43

Export

Map Layers

Color Profile: DefaultProfile

- Faults
  - Names
- Forecast zones

Wave Propagation | Map Layers

Database - Simulations

Simulations: Show all | View | Sort by: Creation time

Return to Incident View

Creation time	M	D			FM	Duration	Trigger
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2025-02-09 00:02:46	7.4	14 km	-82.43°	17.67°	0.58	200 m	
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Final Location and Focal Mechanism

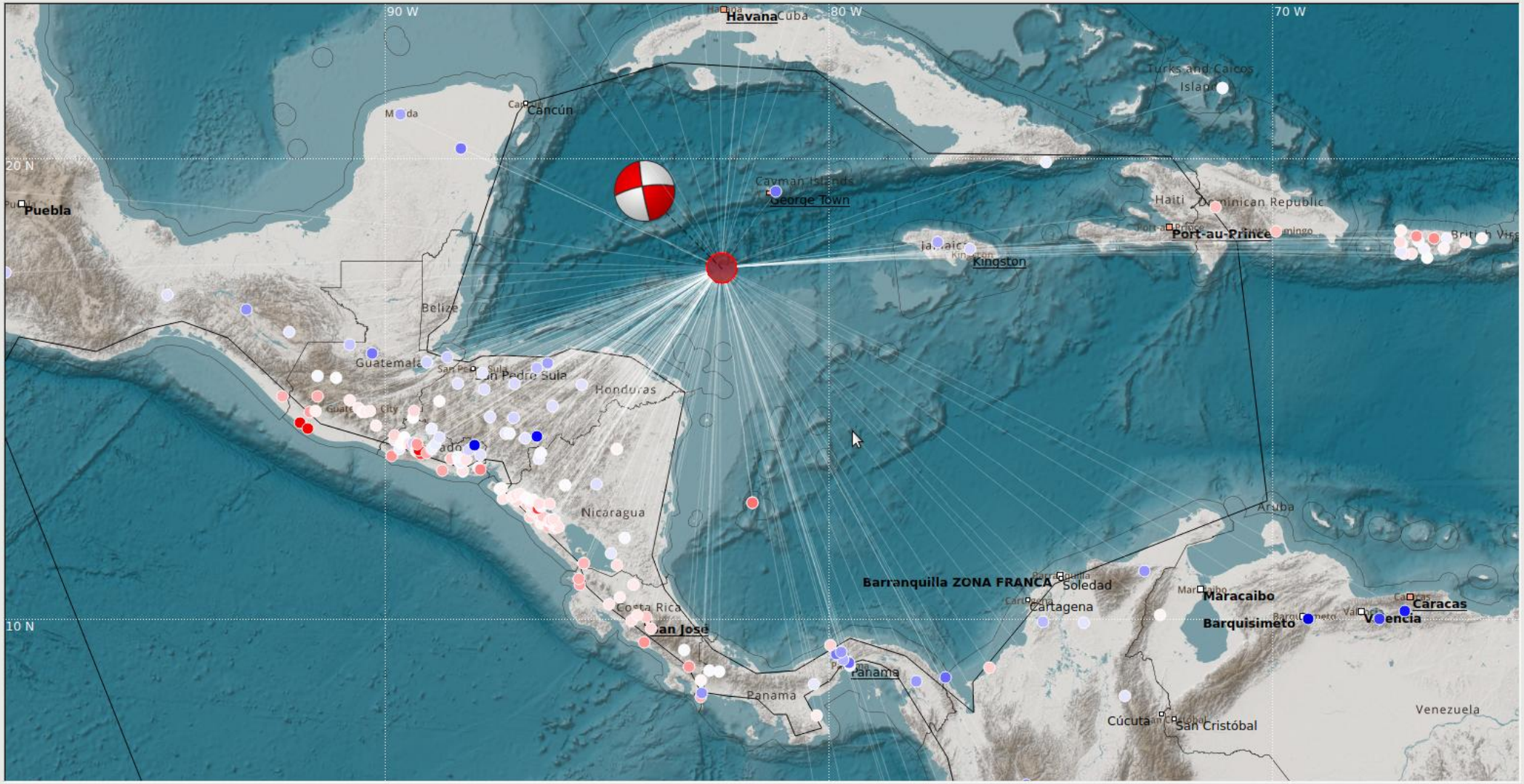
Options View Help

Summary | Events

2025-02-08 23:23:13 UTC

3 days and 16 hours ago

North of Honduras



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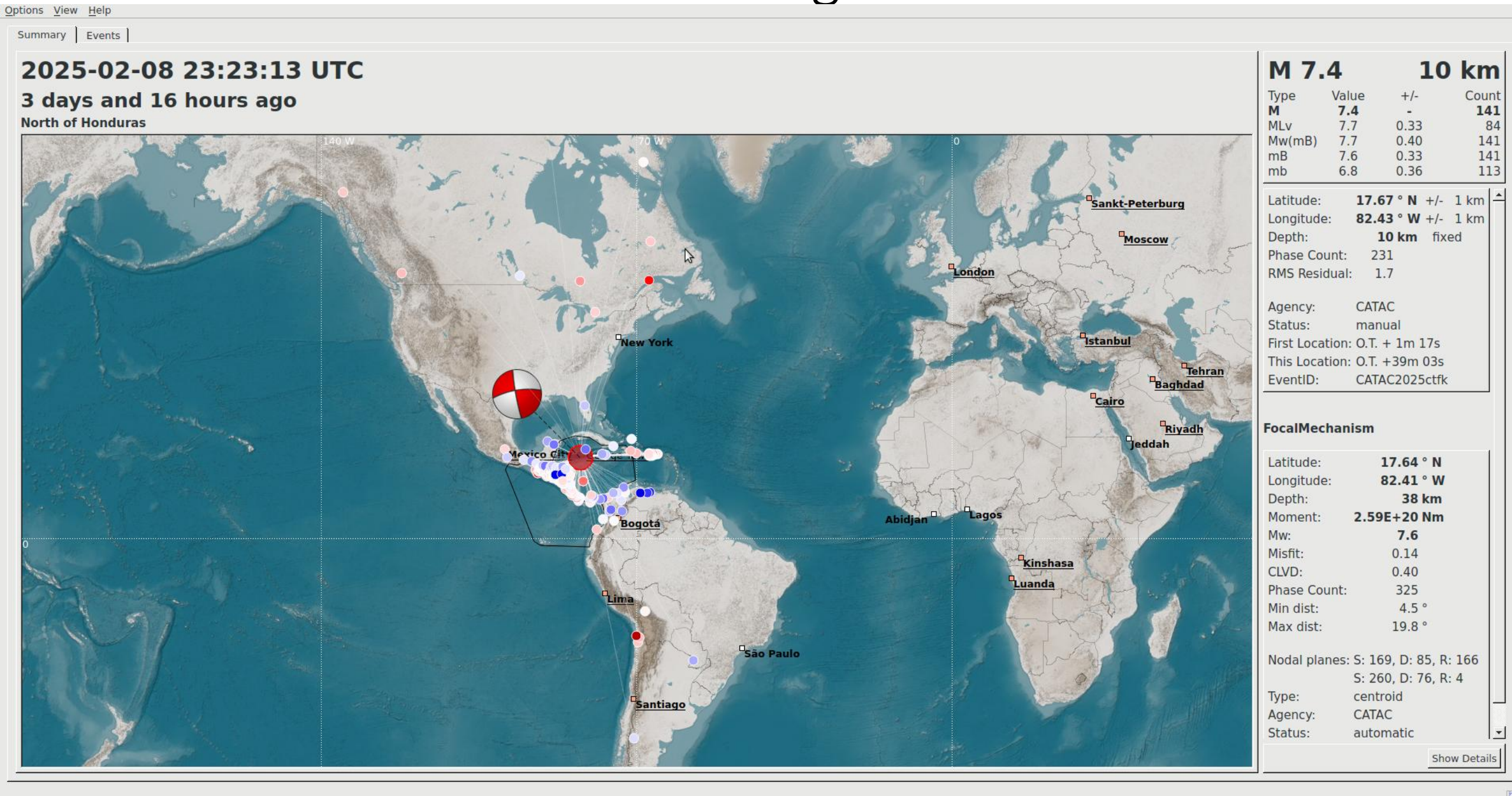
Type:	centroid
Agency:	CATAC
Status:	automatic

Show Details

Final Solution including remote stations



CATAC workstations with GPU:

routine new routine tests

Solution for the messaging problems of CATAC

2024 :

INETER bought 2 new additional Workstations for Seiscomp/TOAST

Since November 2024:

IT Programmer contracted to help with

- Work on improving the email messaging including new lists from Ocal
  On the new CATAC computer
- Messaging with social networks
- TOAST configuration

To be completed at the end of March 2025