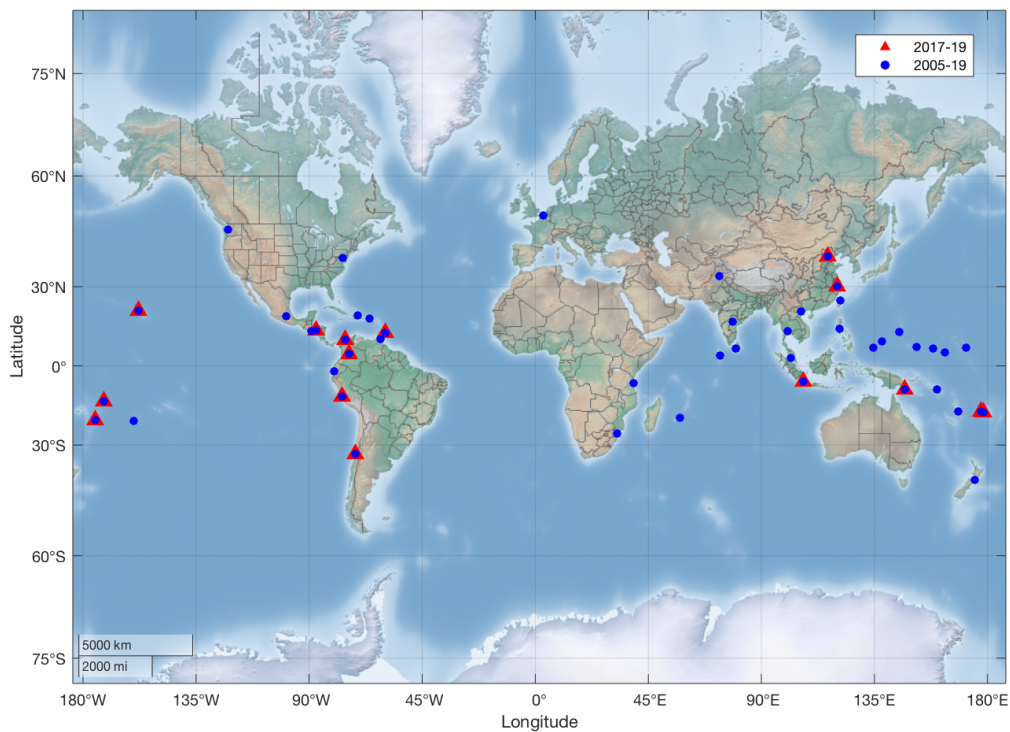


## UNESCO/IOC – NOAA International Tsunami Information Center Capacity Building - 2005 to January 2020

Since the December 26, 2004 Indian Ocean Tsunami that killed nearly 230,000 across the Indian Ocean (180,000 in Indonesia), the ITIC has played a central role in support of the UNESCO Intergovernmental Oceanographic Commission (IOC) to inform and train countries on how to establish sustainable tsunami early warning and mitigation systems. Through training and distribution of its awareness materials and decision support tools, it has reached nearly 70 countries worldwide and trained over 3300 government officials in its 130+ courses (typically 1-week long). Estimated through January 2020, 50% of the international trainings were focused on Pacific Countries, 23% were focused on Indian Ocean countries, 8% on Caribbean countries, 2% on Mediterranean and North Atlantic countries and 17% were focused on domestic training of US coastal states, territories, and commonwealths.

Trainings have emphasized an end-to-end approach to tsunami warning, covering hazard risk assessment, warning guidance, and preparedness. Topics have included the science of earthquakes and tsunamis, real-time detection and analyses and tsunami warning center and emergency response standard operating procedures, and education, preparedness, and mitigation, as together these are the key components for successful, coordinated warning and evacuation. Beginning in 2014, training focused on building country warning and response capabilities to interpret and use the Pacific Tsunami Warning Center enhanced graphical forecast products. Since 2015, newly developed trainings help communities to prepare for tsunami evacuation by teaching inundation and evacuation mapping, response planning and exercising.



## TRAINING SUMMARY

Year	Number Courses	International Pacific	International Indian Ocean	International Caribbean	International Medit – N Atl	Domestic USA
2005	1	0.5	0.5	-	-	0
2006	14	5	9	-	-	0
2007	8	4	3	1	-	0
2008	10	3.5	6.5	-	-	0
2009	17	9	6	-	-	0
2010	13	4.5	1.5	-	-	7
2011	6	1.5	1	0.5	-	3
2012	9	3.5	0	0.5	-	5
2013	14	8	1	2	-	3
2014	10	5.5	1	1.5	-	2
2015	8	5.5	-	1.5	-	1
2016	6	4	-	1	-	1
2017	6	3.5	1	~1.5	-	0
2018	4	~2.7	0	~0.2	~0.1	1
2019	7	~5.2	0	~1.7	~0.1	0
2020	1	0.5	0.5	0	0	0
<b>TOTAL</b>	<b>134</b>	<b>66.4</b>	<b>31</b>	<b>11.4</b>	<b>0.2</b>	<b>23</b>
%		50%	23%	8%	1.75%	17%

## TRAINING COURSES CONDUCTED

Region: PTWS (Pacific), IOTWS (Indian Ocean),  
CARIBE-EWS (Caribbean), NEAMTWS (Mediterranean and North Atlantic)

Tsunami Course	Dates / Number	Location	Region
<b>2005</b>	<b>1</b>		
The International Training Workshop on Numerical Modeling of Tsunami for Developing Countries in Southeast Asia, the Pacific, and the Indian Ocean	7-17 Nov 2005	Philippines	PTWS, IOTWS
<b>2006</b>	<b>14</b>		
ITP-Hawaii: End-to-end Tsunami Early Warning Systems	Jan-06	Hawaii	IOTWS
USGS-IOC Seismology and Tsunami Warning Training	3-7 Apr 2006	Sri Lanka	IOTWS
USGS-IOC Seismology and Tsunami Warning Training	8-17 May 2006	Indonesia	IOTWS
USGS-IOC Seismology and Tsunami Warning Training	15-22 May 2006	Thailand	IOTWS
UNESCO-IOC International Training Course on Tsunami Numerical Modeling: Course I: Tsunami Sources and Tsunami Propagation	8-19 May 2006	Malaysia	IOTWS, PTWS
UNESCO-IOC International Training Course on Tsunami Numerical Modeling: Course I: Tsunami Sources and Tsunami Propagation	5-16 Jun 2006	Belgium	IOTWS, PTWS
USGS-IOC Seismology and Tsunami Warning Training	20-24 Aug 2006	Thailand	IOTWS, PTWS
USGS-IOC Seismology and Tsunami Warning Training	21-25 Aug 2006	Malaysia	IOTWS, PTWS
USGS-IOC Seismology and Tsunami Warning Training	27-31 Aug 2006	Maldives	IOTWS
Development of Standard Operating Procedures in Support of an Indonesia Tsunami Drill on 26 December 2006 (September 2006 - May 2007) - I	Sep-06	Indonesia	IOTWS, PTWS
ITP-Hawaii: End-to-end Tsunami Early Warning Systems	16-27 Oct 2006	Hawaii	PTWS

Development of Standard Operating Procedures in Support of an Indonesia Tsunami Drill on 26 December 2006 (September 2006 - May 2007) - I	Oct-06	Indonesia	IOTWS, PTWS
Development of Standard Operating Procedures in Support of an Indonesia Tsunami Drill on 26 December 2006 (September 2006 - May 2007) - I	Nov-06	Indonesia	IOTWS, PTWS
Development of Standard Operating Procedures in Support of an Indonesia Tsunami Drill on 26 December 2006 (September 2006 - May 2007) - I	Dec-06	Indonesia	IOTWS, PTWS
<b>2007</b>	<b>8</b>		
Development of Standard Operating Procedures in Support of an Indonesia Tsunami Drill on 26 December 2006 (September 2006 - May 2007) - I	Jan-07	Indonesia	IOTWS, PTWS
PTWS Tsunami Warning Operations Seminar	2-3 April 2007	Malaysia	PTWS
Aceh, Indonesia Tsunami Emergency Response Capacity Building	30 Apr - 1 May 2007	Indonesia	IOTWS, PTWS
Development of Standard Operating Procedures in Support of an Indonesia Tsunami Drill on 26 December 2006 (September 2006 - May 2007) - I	May-07	Indonesia	IOTWS, PTWS
USGS-IOC Seismology and Tsunami Warning Training	25-30 Jun 2007	Trinidad	CARIBE-EWS
Tsunami Capacity Building for Mauritius	21-25 Oct 2007	Mauritius	IOTWS
ITP-Hawaii: End-to-end Tsunami Early Warning Systems	5-16 Nov 2007	Hawaii	PTWS
ITP-Hawaii: End-to-end Tsunami Early Warning Systems	26 Dec - 4 Jan 2008	Hawaii	IOTWS, PTWS
<b>2008</b>	<b>10</b>		
Tsunami Capacity Building for Mauritius	13-17 Jan 2008	Mauritius	IOTWS
Tsunami Capacity Building for Mozambique	19-23 Jan 2008	Mozambique	IOTWS
Tsunami Capacity Building for Mauritius	28 Apr - 2 May 2008	Mauritius	IOTWS
Tsunami Capacity Building for Mauritius	19-23 May 2008	Mauritius	IOTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries	12-16 May 2008	Thailand	IOTWS, PTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - I	4-8 Aug 2008	Philippines	PTWS
End-to-end Tsunami Standard Operating Procedures	11-15 Aug 2008	Indonesia	IOTWS, PTWS
USGS-IOC Advanced Seismology and Tsunami Warning Training	25 Aug - 5 Sep 2008	Malaysia	IOTWS, PTWS
Tsunami Capacity Building for Mozambique	8-12 Sep 2008	Mozambique	IOTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - I	8-12 Dec 2008	Vietnam	PTWS
<b>2009</b>	<b>17</b>		
Tsunami Capacity Building for Mozambique	14-17 Jan 2009	Mozambique	IOTWS
Tsunami Capacity Building for Mauritius	19-23 Jan 2009	Mauritius	IOTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - II	26-30 Jan 2009	Philippines	PTWS

Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - I	Feb-09	Pakistan	IOTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - II	Apr-09	Vietnam	PTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - III	May-09	Philippines	PTWS
SOP Strengthening for Maldives	28 Jun - 3 Jul 2009	Maldives	IOTWS
Tsunami Capacity Building for American Samoa	29 Jun - 2 Jul 2009	American Samoa	US
Tsunami Capacity Building for Samoa	3-10 Jul 2009	Samoa	PTWS
Tsunami Capacity Building for Tonga	13-15 Jul 2009	Tonga	PTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - II	Aug-09	Pakistan	IOTWS
ITP-Hawaii: End-to-end Tsunami Early Warning Systems	24 Aug - 9 Sep 2009	Hawaii	PTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - III	Sep-09	Vietnam	PTWS
Tsunami Capacity Building for American Samoa	15-22 Nov 2009	American Samoa	US
Tsunami Warning Decision Support Tools - Met Svc/Geology & Mines	Oct-09	Vanuatu	PTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) for Indian Ocean & Southeast Asian Countries - III	Nov-09	Pakistan	IOTWS
National Emergency Operations Center Training	30 Nov - 4 Dec 2009	Pohnpei	PTWS
<b>2010</b>	<b>13</b>		
US East Coast Tsunami Hazard, Warning, and Preparedness (6 1-day trainings in 6 locations over 2 weeks)	Feb 2010	East Coast, US	US
Tsunami Capacity Building for American Samoa	Apr-10	American Samoa	US
Tsunami Capacity Building for American Samoa	May-10	American Samoa	US
Tsunami Capacity Building for American Samoa	Jun-10	American Samoa	US
Tsunami Warning Decision Support Tools Training	May 2010 (2x)	Samoa	PTWS
Tsunami Capacity Building for Guam, including USDHS/FEMA AWR-217 Tsunami Awareness (2 1-day)	Jul-10	Guam	US
Tsunami Capacity Building for CNMI, including USDHS/FEMA AWR-217 Tsunami Awareness (2 1-day)	Jul-10	Saipan, CNMI	US
USDHS/FEMA - AWR-217 Tsunami Awareness (3 1-day)	Feb, Jul, Oct 2010	HI, WA	US
Tsunami Capacity Building for Tonga	23-27 Aug 2010	Tonga	PTWS

ITP-Hawaii: End-to-end Tsunami Early Warning Systems	Aug 30-Sep 10, 2010	Hawaii	PTWS
Tsunami Capacity Building for Fiji	2-24 Sep 2010	Fiji	PTWS
Strengthening Tsunami Warning & Emergency Responses: Training Workshops on the Development of Standard Operating Procedures (SOP) - Sub-regional on South China Sea Standard Operating Procedures (SOP) for Tsunami Warning Centres	4-8 Oct 2010	Malaysia	IOTWS, PTWS
Regional Workshop on the Development of Standard Operating Procedures (SOP) for Tsunami Warning and Emergency Response for East African and Western Indian Ocean Countries	15-19 Nov 2010	Tanzania	IOTWS
<b>2011</b>	<b>6</b>		
USDHS/FEMA - AWR-217 Tsunami Awareness (2 1-day)	Feb-11	Hawaii	US
Tsunami Capacity Building for American Samoa including USDHS/FEMA AWR-217 Tsunami Awareness (4 1-day)	15-21 Mar 2011	American Samoa	US
Tsunami Capacity Building for Guam including USDHS/FEMA AWR-217 Tsunami Awareness (4 1-day)	Mar-11	Guam	US
ITP-Hawaii: End-to-end Tsunami Early Warning Systems, including PacWave11 and New Products	22 Aug - 2 Sep 2011	Hawaii	PTWS, CARIBE-EWS
Tsunami Early Warning and Mitigation Systems, including PacWave11 and New Products	12-16 Sep 2011	Vanuatu	PTWS
IOTWS Regional SOP Training / Workshop on Warning Dissemination and Emergency Response	18-23 Sep 2011	Indonesia	IOTWS
<b>2012</b>	<b>9</b>		
Hawaii: USDHS/FEMA - 2 deliveries, AWR-217 Tsunami Awareness	Jan, Apr, Jun 2012	HI	US
Two Samoa Tsunami Coordination Meeting, including PacWave13 and New Products, and Tsunami Warning Decision Support Tools	23-26 Jan 2012	American Samoa, Samoa	US
Tsunami Capacity Building for Guam and CNMI, including USDHS/FEMA AWR-217 Tsunami Awareness (4 1-day)	27 Feb - 3 Mar 2012	Guam, Saipan, CNMI	US
Tsunami Capacity Building for Puerto Rico, including USDHS/FEMA AWR-217 Tsunami Awareness (4 1-day)	23-27 Apr 2012	Puerto Rico	US
Regional Tsunami Capacity Building and Southwest Pacific Regional Workshop on Effective Tsunami Disaster Reduction: Implementation Progress in Pacific Island Countries, including PacWave Exercises and New Products	12-14 Jul 2012	Samoa	PTWS
ITP-Hawaii: End-to-end Tsunami Early Warning Systems	20 - 31 Aug 2012	Hawaii	PTWS, CARIBE-EWS
Tsunami Early Warning and Mitigation Systems, including PacWave Exercises and New Products - Papua New Guinea	24-28 Sep 2012	Papua New Guinea	PTWS
Tsunami Capacity Building for Guam and CNMI, including USDHS/FEMA AWR-217 Tsunami Awareness (4 1-day)	22-30 Sep 2012	Guam, Saipan, CNMI	US
Tsunami Early Warning System Technical Assistance (World Bank) - Vanuatu	14-22 Dec 2012	Vanuatu	PTWS
<b>2013</b>	<b>14</b>		
Hawaii County Tsunami Awareness and Operations Training - 1 Nov 2012, 22 Jan 2013	Nov, Jan 2013	Hawaii	US

Regional Tsunami Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures for Central America and Mexico, including PacWave13 and New Products	11-15 Feb 2013	El Salvador	PTWS
Regional Tsunami Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures for South America, including PacWave13 and New Products	4-8 Mar 2013	Chile	PTWS
Tsunami Capacity Building for Taiwan, including PacWave13 and New Products	22-27 Apr 2013	Taiwan	PTWS
Tsunami Technical Assistance - Samoa, Tonga	June	Samoa	PTWS
Tsunami Capacity Building for American Samoa including USDHS/FEMA AWR-217 Tsunami Awareness (4 1-day)	18-19 Jun 2013	American Samoa, Samoa	US
Tsunami Capacity Building for Federated States of Micronesia, including New Products	15-18 Jun 2013	Pohnpei, FSM	PTWS
Two Samoa Tsunami Coordination Meeting, including PacWave13 and New Products	8-9 Aug 2013	Samoa	PTWS
Regional Tsunami Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures for Pacific Island Countries, including New Products	12-16 Aug 2013	New Zealand	PTWS
Tsunami Capacity Building for Guam and CNMI, including USDHS/FEMA AWR-217 Tsunami Awareness (1 1-day) & Hotel / Business SOP development (3 0.5-day)	23-27 Sep 2013	Guam, Saipan, CNMI	US
IOTWS Regional SOP Training / Workshop on Warning Dissemination and Emergency Response	23-27 Sep 2013	Indonesia	IOTWS
ITP-CAR 1: Regional Tsunami Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures, including New Products	4-8 Nov 2013	Dominican Republic	CARIBE-EWS
ITP-CAR 2: Regional Tsunami Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures, including New Products	18-22 Nov 2013	Barbados	CARIBE-EWS
Regional Tsunami Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures for South China Sea Countries, including New Products	16-19 Dec 2013	China	PTWS
<b>2014</b>	<b>10</b>		
ITP-CAR 3: Regional Tsunami Workshop: Strengthening Tsunami Warning and Emergency Response Standard Operating Procedures, including New Products	1-5 April 2014	Mexico	CARIBE-EWS
Pacific Island Countries: ITP-PIC 2, PTWS PTWC New Products Training	22-24 May 2014	Vanuatu	PTWS
Latin American Countries: ITP-LAC, PTWS PTWC New Products Training	2-4 June 2014	Ecuador	PTWS
IOTWS Regional SOP Training / Workshop on Warning Dissemination and Emergency Response	23-27 Jun 2014	India	IOTWS
Tsunami Capacity Building for Guam/CNMI - PTWC New Domestic Products training (2 1-day)	Mar-14	Hawaii	US
RMI (Majuro) - PTWS PTWC New Products Implementation for US Compact Countries	28 Apr - 2 May 2014	RMI	PTWS
FSM (Pohnpei, Chuuk, Yap, Kosrae) - 1 mission to each State, PTWS PTWC New Products Implementation for US Compact Countries	Jul - Oct 2014	FSM	PTWS
Palau - PTWS PTWC New Products Implementation for US Compact Countries	4-9 Aug 2014	Palau	PTWS



ITP-Hawaii: End-to-end Tsunami Early Warning Systems, PTWC New Products	18-29 Aug 2014	Hawaii	PTWS, CARIBE-EWS
Tsunami Capacity Building for American Samoa - USDHS/FEMA AWR-217 Tsunami Awareness (2 1-day) and PTWC New Domestic Products training (1-day)	Sep-14	American Samoa	US
<b>2015</b>	<b>8</b>		
Tsunami Evacuation Maps, Plans, and Procedures (TEMPP1): Tsunami Modeling: Using ComMIT and MOST numerical model	27-31 Jul 2015	Honduras	PTWS, CARIBE-EWS
Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	24-27 Aug 2015	Tonga	PTWS
Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	22-25 Sep 2015	Solomon Islands	PTWS
Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	5-9 Oct 2015	Colombia	PTWS
Tsunami Capacity Building for Kauai, Hawaii - USDHS/FEMA AWR-217 Tsunami Awareness (1-day)	Nov-15	Hawaii	US
Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	16-19 Nov 2015	Cook Islands	PTWS
Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	30 Nov - 4 Dec 2015	Peru	PTWS
Regional Training Workshop on Pacific Tsunami Warning Center Enhanced Tsunami Products for ICG/CARIBE EWS	7-10 Dec 2015	Barbados	CARIBE-EWS
<b>2016</b>	<b>6</b>		
TEMPP2: Seismic Tsunami Sources and Tsunami Inundation Mapping	29 Feb - 3 Mar 2016	Honduras	PTWS, CARIBE-EWS
Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	5-8 Apr 2016	Vanuatu	PTWS
TEMPP3: Tsunami Evacuation Mapping	15-18 Aug 2016	Honduras	
ITP-Hawaii: End-to-end Tsunami Early Warning Systems, PTWC New Products	6-16 Sep 2016	Hawaii	PTWS
Tsunami Capacity Building for American Samoa - USDHS/FEMA AWR-217 Tsunami Awareness (1-day) and PTWC New Domestic Products training (1-day)	19-23 Sep 2016		US
TEMPP4: Tsunami Response Plans and Exercises	7-11 Nov 2016	Honduras	PTWS, CARIBE-EWS
<b>2017</b>	<b>6</b>		
TEMPP5: Tsunami Exercise (including evacuation) and Tsunami Ready	14-17 Feb 2017	Honduras	PTWS, CARIBE-EWS
ITP-Fiji: Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	10-14 Jul 2017	Fiji	PTWS
Using the PTWC Enhanced Products and the Tsunami Coastal Assessment Tool (TsuCAT) for Tsunami Hazard Assessment and Threat Decision-Making	16, 19, 20 Jun; 13 Oct 2017	Samoa	PTWS
Regional Training Workshop on Pacific Tsunami Warning Center Enhanced Tsunami Products for ICG/CARIBE EWS	31 Oct - 2 Nov 2017	Colombia	CARIBE-EWS
IOTWMS Training for Trainers: Tsunami Evacuation Maps, Plans, and Procedures (TEMPP)	13-24 Nov 2017	Indonesia	IOTWMS

Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	27 Nov - 1 Dec 2017	Peru	PTWS
<b>2018</b>	<b>4</b>		
Tsunami Capacity Building for Oahu, Hawaii - USDHS/FEMA AWR-217 Tsunami Awareness (1-day)	2 March 2018	Hawaii	US
ITP-Kiribati: Tsunami Warning and Emergency Response Using the PTWC Enhanced Products for National Tsunami Threat Decision-Making	16-18 April 2018	Kiribati	PTWS
ITP-SCS: Strengthening Standard Operating Procedures for Tsunami Warning and the use of the ICG/PTWS SCSTAC Tsunami Advisory Products (including the PTWC and NWPTAC new enhanced products)	8-11 May 2018	China	PTWS
ITP-Hawaii in Chile: Tsunami Early Warning Systems and the PTWC Enhanced Products	1-10 August 2018	Chile	PTWS-CARIBE-EWS, NEAMTWS
<b>2019</b>	<b>7</b>		
Caribbean Regional SOP Training Workshop	22-26 July 2019	Barbados	CARIBE-EWS
ITP-Papua New Guinea: Tsunami Early Warning Systems and the PTWC Enhanced Products	5-9 August 2019	Papua New Guinea	PTWS
ITP-Hawaii: Tsunami Early Warning Systems and the PTWC Enhanced Products, Tsunami Evacuation Planning and Tsunami Ready Programme	3-13 September 2019	Hawaii	PTWS, CARIBE-EWS, IOTWMS, NEAMTWS
TEMPP 1: Inundation Modeling and Mapping	30 Sept - 4 Oct 2019	Fiji	PWS
ITP-Tonga: Tsunami Warning Center Operations	Oct-Nov 2019 (2 weeks)	Tonga	PTWS
ITP-Colombia: Tsunami Early Warning Systems and the PTWC Enhanced Products	Oct-Nov 2019	Colombia	PTWS, CARIBE-EWS
IOC South China Sea Workshop on Tsunami Observing Systems (PTWC trainer)	21-25 Nov 2019	China	PTWS
<b>2020</b>			
ITP-Indonesia: SOPs and TWC Operations (USAID USGS)	13-17 Jan 2020	Indonesia	PTWS, IOTWS
<b>2020-2021 (planned or requested)</b>			
TEMPP 2/3/4: Evacuation Maps, Response Plans, Exercises	2020	TBD	PTWS
IOC Brunei Tsunami Preparedness	2020	Brunei	PTWS
ITP-Fiji: Tsunami Warning Center Operations	2020	Fiji	PTWS
ITP-Vanuatu: Tsunami Warning Center Operations	2020	Vanuatu	PTWS