

CARIBE EWS Sea Level Stations Network Operators Conference Call

The CARIBE EWS Implementation Plan (2013-2017) has 116 sea level stations, including 7 DART's. Currently there are 79 coastal sea level stations and 7 DARTS contributing data in real time to the system, for a 67% of sea level stations currently contributing to the EWS. Additional sea level stations are contributing to the system and should be included for the new implementation plan.

Notes for March 16, 2017 (11h00-11h30 AST)

Attendees: Sebastien Deroussi (OVSG-IPGP, France), Laura González (DIMAR, Colombia), Gwendelyn Monge, Carolina Hincapié (CTWP, Puerto Rico).

Excused (reported updates via email): Angela Hibbert (NOC, UK), Audra Luscher (NOS-COOP, USA), Jerard Jardin (UHSLC, Hawaii), Marcelino Hernandez (Instituto de Oceanología, Cuba).

In addition to IOC, the CTWP also is updating an operational map of sea level stations. Soon will be available on caribewave.info

No recording for this Webinar.

Next CARIBE EWS Sea Level Meeting: TBD.

Country	Pending Issues	February 23, 2016	May 24, 2016	July 7, 2016	Sep 15, 2016	Nov 17, 2016	Jan 31, 2017	March 16, 2017
Anguilla (UK)	Need Station	UK NOC - USA NOAA tide gauge project. In schedule for installation. CTWP will lead the project with support from local Operator and the Chair of the WG (Sebatien Deroussi).	Contract for equipment and installation is forthcoming	Mr. Jardin made the site visit with Mr. Deroussi last month to identify the place to install the station (2 radars). Damian (EM office) will follow up with authorities for administrative processes.	Installation of new stations supporting thru Caribbean Tsunami Warning Program.		Jerard Jardin mentioned that the equipment will be shipped later this week to Anguilla.	Jerard Jardin reported by email that the equipment is already in Anguilla. He will notify dates for the installation. Sebastien Deroussi is pending to assist if necessary.
Antigua and Barbuda	Antigua station out for almost two months (December)	No update			Barb is not reporting data			Audra Luscher (NOS-COOP) notified that barb station presents issues with the battery and they can't have remote access.

								Backup sensor (Paros) is working and displayed in IOC Facility.
Aruba		PRSN sent the antenna and modem to transmit to the goes sat.						
Bahamas	Settlement Point & Nassau station are operational, but Nassau has format problems. Inagua station was damaged by Hurricane Sandy, it needs to be repaired.	No update				Mr. Jardin reported on an email (Oct, 2016) that after Storm Matthew only PRS is working and will visit for maintenance.	Mr. Jardin reported that on December 2016 UHSLC performed maintenance and leveling and installed an upgraded GPS system.	
Barbados	Technical assistance requested for Port St. Charles station by CZMU to the CTWP. They continue to have power issues despite new battery and verification of solar power. The battery voltage is reported differently between GOES and the readings from the site.	Kareem Sabir, via email, shared that they are working on a proposal to install a sea level station in a fishing community on the East Coast of Barbados. CTWP is being consulted about the possibility of transmission methods (GOES, FTP box).						
Belize	No stations	No update	The Smithsonia				Angela Hibbert	Angela Hibbert

	<p>operational. There used to be a MAC station at the pier in Belize City.</p>		<p>n Field Station built a new instrument platform off the north point of Carrie Bow Cay, Belize in May 2015. The structure has pilings driven ~8 meters to refusal. In August 2015 SI Engineer Tom Opishinski installed a pressure sensor and a radar gauge, solar power, datalogger and GOES transmitter. The GPS built into the satellite transmitter provides a location of 16 48.216521 N, 088 04.922911 W. In Feb 2016 Opishinski and M. Toscano replaced the faulty satellite transmitter, completed radar gauge bracing, re-</p>				<p>is planning to visit Belize in March to see what they have in terms on sea level monitoring (contact Egbert Westby). NOC aims to assist them with the installation of 3 tide gauges (one in Belize City and 2 island locations), but is awaiting confirmation of funding availability.</p>	<p>notified that NOC is in Belize assisting the Met Service with the installation of tide gauges. Some maintenance and levelling training would be provided.</p>
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			<p>positioned and re-deployed the pressure sensor and leveled gauges to the platform benchmark.</p> <p>The Smithsonian Institution is providing GOES transmission of Carrie Bow Cay tidal data to the IOC sea level facility (http://www.ioc-sealevelmonitoring.org/station.php?code=cabc)</p>					
Bermuda		No update						
British Virgin Islands	OK	No update	<p>Jansen Penn informed that the BVI Tide Gauge is functioning as it was off for a while due to a faulty Satlink which was replaced.</p>			<p>Jasen Penn reported that the tide gauge was logging but not sending a data for a few days to a week a few months ago but the link was repaired. A rain gauge was added to that site so now they have a "full</p>	<p>Jason Penn reported that Tide Gauge is working fine the 19th and 20th displayed some spikes however will monitor and see if this continues. Their plan is to do some maintenance on the Tide Gauge</p>	

						weather station". They have some issues with the programming of the rainfall collection. They are requesting assistance with this matter.	in March if not then the second quarter.	
Colombia	Problems decoding the data at OTT.	Problems decoding, they will contact directly the vendor OTT. They are asking if is possible to change the platform system or need to contact UHSLC to try to resolve the software problems. Santa Marta - prs sensor needs to be repair after a bad weather event. DIMAR contacted University of Hawaii for technical assistance. Regarding to decoding problems, Sebastien proposed them to have the data		Santa Marta station needs to change the batteries already sent by UHSLC and received by DIMAR. In July DIMAR will be working on visits of the stations for maintenance including Santa Marta. UHSLC will be visiting next year (or 2018) for general maintenance of Santa Marta and San Andres stations.		Gabriel Herrera Díaz, DIMAR, reported that they made the second maintainance for the Caribbean stations (San Andrés y Santa Marta). Pressure sensor of St. Marta station will be replaced by Jason Klem (U. Hawaii).		Laura Gonzales reported that Pto Estrella station was damage during the Hurricane Matthew (is out of IOC Facility). They expect to have functional and contributing again this tide gauge in two months. Also mentioned that they will be working with IOC Facility to resolve decoding issues of Malpelo station (Pacific Coast). Deroussi suggested use ASCII code instead binary code to make feasible the decoding process.

		available in a web page, for easy access to the Tsunami Warning Centers.						
Costa Rica	Gaps along Caribbean coast	Limon station is working well. UHSLC will be doing maintenance in the second week of March, 2016. Jose Vega mentioned that site visit to propose a point for a new sea level station in the Caribbean coast of Costa Rica is pending because they need to identify local funds for the field trip.						
Cuba	Sebastien continue in conversations with Mr. Marzo. 14 stations have been upgraded 7 with radar, 2 pressure stations No RT transmissions could have data every 6 minutes. No plans in Guantánamo for the transmittion of	No update		Site visit to Siboney Sea Level Station by NOS/NOAA commission. UHSLC is interested in help/upgrade Cuban stations, the Red Mareográfica Nacional (Orlando Marzo	Marcelino said that they have install two buoys off the south coast of Cuba that does not have water level sensors.			The National Tide Gauge Network has 19 Cuba tide gauges at present. Was installed new radar sea level gauge at La Isabela. Additionally, two mooring buoys were installed in the south of Cuba (Jardines de La

	data.			Lobaina) will be in touch with Dr. Merrifield. Dr. Hernandez is promoting a course/training in SLO for 2017-18.				Reina Archipelago and Gulf of Cazones), with sea level sensors and other oceanographic parameters, although not in real time yet. We are working to create conditions for real time data transmission.
Curacao	UHSLC reinstalled station is working fine. Met Services was to install a second station.	No update						
Dominica	OK	No update						
Dominican Republic	ISU interested in installing Tide Tool. Puerto San Andrés is not reporting data since September 9, 2014. There are still several sites for which funding is required for new stations.	No update						
French Guiana (Ile Royal)	OK	No update						
Grand Cayman Island	Problem with station pressure sensor, in talks to fix it.	No update						
Grenada	SRC at one time	No update						

	had plans for two other stations, need to follow up.							
Guadeloupe	OK	Sebastien informed that desi (La Désirade Island) station is confronting problems with the data logger configuration and is the main reason to appear in the report as Not Data for January.	Sebastien Deroussi informed that problems on Desirade station are fixed (data logger changed).		New problems at Desirad Island, now with power will travel in October to change batteries and solar panels			Sebastien Deroussi mentioned that desi station is working properly (since Feb14) after the electric power systems was fixed.
Guatemala	OK	Sergio Vega sent an email to inform that their Caribbean station (prba) has communication problems due to configuration issues. They have logistic constrictions to go to the site and fix the problem. Only their radar is working because the pressure sensor suffered corrosion and they are asking for support to replace this sensor. Sergio provided the new						

		site coordinates.						
Guyana	3 stations, no data.	No update						
Haiti	<p>Problem with Pressure sensor in Jacmel as of 15 Feb. RS malfunction in Cap Haitien.</p> <p>All OK Port au Prince.</p>	No update	Gerard reported that they have problems with the sensors in Jacmel (jaca) as shown in IOC since February 15.	Gerard mentioned that they need support to identify replacement of their sensors (Jacmel – radar&pressure sensors / Port au Prince pressure sensor)		CTWP will ask PRSN if they are going to do some levelling in Cap-Haitin. Jardin noticed that the battery will need to be check. In Jacmel they need to check the radar and the antenna.		
Honduras	Honduras reported having finished the installation of 10 sea level stations (pressure sensors), 7 in the Caribbean side and 3 on Pacific side.	No update	Juan José informed that Honduras has 10 Sea Level Stations, 5 in the Atlantic coast as shown in IOC facility. Puerto Castilla is out because was damaged by a boat. In Honduras has developed its own software PROMETEO to check online the data, and will be for public access soon.					
Jamaica	Adrian Shaw reported that they got funding for	No update		Tim reports that they have problems with		Mark Cunningham from Met	Mark reinstalled the tide gauge in Port Royal;	

	<p>station. They request help in choosing the correct bidder to install the station.</p> <p>UNAVCO is coordinating the installation of a COCO NET sea level station in Port Royal.</p>			the transmission of data.		<p>Service reported that he is visiting the location for the new tide gauge that Jamaica is acquiring.</p>	<p>data is reaching IOC but seems a problem displayed in the graphs. Jerard verified the configuration and gave support to Mark with IOC webpage. Angela said that people from University of West Indies are interested in getting additional tide gauges in Jamaica.</p>	
Martinique	OK	No update						<p>Le Robert station radar is down. Replacement is planned within few weeks. Pressure sensor is OK.</p>
Mexico	<p>New data on GOES, rest of stations still FTP, plans for 2 new GOES transmitters for Caribbean. UNAVCO was going to install a COCONET SL station in Puerto Morelos, but the UNAM already has funding and</p>	No update						

	equipment to upgrade so it is possible the new station could go in Cozumel or Nicaragua.							
Montserrat	Christa FWUP with UK UNESCO office and Tsunami TNC.	No update						
Nicaragua	<u>Needs funding for stations.</u>	No update						
Panama	<p>2 good stations. One operated by UPA/UHSLC (El Porvenir), and another station operated by the Smithsonian (Bocas del Toro)</p> <p>Limon Bay station is operated by the Panama Canal Authority (ACP)-the station is operational, but does not transmit data.</p>	No update	<p>Arnulfo Sanchez informed via email: Este año se estarán comparando e instalando 10 estaciones Mareográficas, de las cuales 5 se instalarán en lado Pacifico y 4 en el caribe, quedando de las siguiente manera, 6 p en el caribe y 5 en el Pacifico.</p> <p>De la Misma forma que mis colegas de Honduras, necesitaremos apoyo, como capacitaciones en los distintos</p>	<p>Panama selected a supplier to install their sea level network. Cesar Toro shared the report of the site visit for the selected places.</p>	<p>Sergio dos Santos del Smithsonian Institution va participar en el entrenamiento en St. Lucia</p>	<p>No news about the new tide gauges. ETESA is the agency in charge of the project.</p>	<p>Sergio dos Santos reported maintenance work on Bocas Del Toro station in Panama during the month of December. The radar was replaced and the tide switches plus the pressure sensor got a cleaning. Also, they worked on improving the satellite transmission. The station is working a lot better and there are hardly any transmission gaps.</p>	

			Software's, en el Mantenimiento , en la Calibración de los equipos e Interpretación de los datos , propongo Panama para realizar y/o desarrollar un TALLER, CURSO O SEMINARIO					
Puerto Rico		No update			Still fixing Aguadilla station. Equipment is going to be shipped out to Saint Lucia. 2 pressure sensors and radar. Caja de Muertos has Internet and Battery problems that are being addressed.			
St. Kitts and Nevis	OK	No update			Planning to replace bubblers with radar sensors.			
Saint Lucia	Probably need funding, station not operational, GOES PID used for met data for station in St. Vincent.	No update				Pr2 is bad manufactory and they disconnect it because is just a backup for Pr1. Pr1 is the	NOC has supplied a replacement pressure sensor, so pr2 will be replaced during next	

	St. Lucia Met Services had received funding for sea level stations. Sebastien has no response.					backup for the Radar.	maintenance and returned to manufacturer for replacement.	
Saint Barthlemy					New Station planned for 2017. Sebastien will be advisor in coordination SONEL and SHOM.			Is expected to have this station installed and contributing at the end of the year.
Saint Martin Island	-	Sebastien informed that the data of this station is displayed in the IOC web under stmt code. This station has a GPS. Sebastien will ask Stuart to include this station in the Tide tool.			Fajardo battery to be replaced. Plans for acquiring 2 sea level station.			
St. Vincent and Grenadines	OK	No update						
Trinidad and Tobago	Stations are transmitting hourly over GOES.	No update			Equipment is going to be shipped out to Saint Lucia. 2 pressure sensors and radar.			
Turks and Caicos	Looking for funding with the UK sea	Carolina from CTWP informs			New Station planned for	Mr. Jardin who is the contractor	Mr. Jardin mentioned that	CTWP is coordinating with

	level networks.	that the project UK NOC – USA NOAA tide gauge project is in the administrative phase to make the funds available for corresponding works. Rikardia asked about the time line and Carolina mentioned that when the details will be set, the information will be shared with the local authorities due to the importance of partner support during site visit, installation and maintenance of the sea level station.			2017. Sebastien will be advisor in coordination SONEI and SHOM.	for the installation of the station gave a brief overview of the status of the project.	Benjamin Robinson (Dep of Disaster Management) send pictures of the proposed site where could be installed the tide gauge.	DDM TCI (Rikardia Pardo) a visit to the site where the station is planned to be installed. Sebastien Deroussi will be supporting the recon visit.
USVI	4 stations operated by NOS OK	No update			Plans for acquiring 2 sea level stations.			
Venezuela	Plans for new stations thru FUNVISIS.	No update					Gloria Romero notified that an interagency group (FUNVISIS, Ministerio de Ecosocialismo y Agua, GEF,	

							PNUD) has been working in the Project "Fortalecimiento del Sistema Venezolano de Áreas Protegidas en las Zonas Marino Costeras al incremento de la capacidad de monitoreo de nivel del mar en tiempo real en el sur del mar Caribe". Stations multipurpose will be installed in the coastal zone.	
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Other Issues (Updates in Bold):

PRSN to report on the integration of sea level data into earthworm.

GLOSS. One of the regions with poorest statistics of GLOSS stations, with regards to annual reporting and availability of QC data is the Caribbean. In 2014-2015 a new list of stations was developed jointly between GLOSS and CTWP. It needs to be revisited to present in 2017 GLOSS meeting. CTWP needs to follow up with Chair of GLOSS

Need to follow up with Mexico and IOC for advance sea level data analysis workshop in 2017. Costa Rica does not have funding to host, so suggested to confirm with Mexico their offer to host a training.

A data base of sea level data for the Caribbean was being explored with Aruba Met Services; need to verify if they still have the resources and interest.

The Manual on Sea Level Measurement and Interpretation Volume V: Radar Gauges (IOC Manuals and Guides 14; JCOMM Technical Report No 89) has been published. The Manual has a Supplement titled Practical Experiences and is available at: <http://unesdoc.unesco.org/images/0024/002469/246981E.pdf>

For the **most updated Tide Tool version** please contact Stuart.weinstein@noaa.gov