



Missions for
America
Semper vigilans!
Semper volans!

The Coastwatcher

Publication of the Thames River Composite Squadron
Connecticut Wing
Civil Air Patrol

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<http://ct075.org>

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Issue 10.29

20 September, 2016

CADET MEETING *20 September, 2016*

The meeting was devoted to a class to enable cadets to qualify for operation of CAP radios. This is a requirement for the Emergency Services rating and must be completed to maintain status in ground teams and aircrews.

The standardized online training consists of videos, quizzes, and a test. After completing the online class, candidates will need to meet in person with an evaluator for a skills demonstration, including operating the radio and

basic communication skills. Lt Jay Lavoie, Wing Communications Instructor directed the training.



Lavoie and Lt Col Ridley, CTWG Chief of Staff chat as cadets review notes.



**I WANT YOU
TO FIGHT SCURVY**

ANNUAL SQUADRON FUNDRAISER

The citrus fruit sale, our squadron's major source of income is ready to start. Briefing will be held for the membership at the next meeting and order forms will be distributed.

September 2016						
SUN	MON	TUE	WED	THU	FRI	SAT
Fruit Sale - Kick Off				1	2	3
4	5	6	7	8	9	10 SUI upload due
11	12	13 CC CALL	14	15 Fin forms due	16	17 TLC
18 OFlight	19	20 SUI	21	22	23	24 LISP
25 LISP	26	27 G1000	28	29	30	

October 2016						
SUN	MON	TUE	WED	THU	FRI	SAT
1/2 Traex Month	3	4	5	6	7	8 Groton Fair Rifle
9	10 Col Day	11 CC CALL	12	13	14	15
16 OFlight	17	18	19	20	21	22 LISP ST WD
23 LISP	24	25	26	27	28	29
30	31 Hlwn	Sell Sell Fruit Sale				

November 2016						
SUN	MON	TUE	WED	THU	FRI	SAT
Fruit Sale		1	2	3 ELKS	4	5 Cadet Ball Rifle
6	7	8 Election CC CALL	9	10	11 Veterans	12 Traex
13	14	15	16	17	18	19 CLC
20 OFlight CLC	21	22 No Mtg	23	24 Thksgvg	25	26
27	28	29	30			

December 2016						
SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3 UCC
4 UCC	5	6 CC CALL	7	8	9	10
11	12	13 Holiday Party	14	15	16	17 Oflight
18	19	20 No Meeting	21	22	23	24
25	26	27 No Meeting	28	29	30/31	April OpsEval SLS Mar 11/12

Conference: 712-432-0075; 900387

Other	Ground	Tranex	O-Flight	Meeting	Wing	National
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Respect

Date	Senior	Cadets
3		
6	Planning-Staff/ SUI Upload complete	Cadet Staff Mtg, Testing, Admin (civies)
10		
13	Commanders Call/Clean up SUI	Drill, Insp, Sfty, CD, Lead, Promo (Blues)
17		TLC course for cadet leaders East Haven
18		Oflights
18		
20	SUI, 1830, POC Farley (Blue)	Drill, ICUT (3) DDR (BDU)
24		
27	G100 training - Neilson	PT, DDR, Guest Speaker

Excellence

Date	Senior	Cadets
1	Traex Startford	
4	Staff Mtg	Staff Mtg, Program Development (civ)
11	Commanders Call	Drill, CD, Flight Time, Promotions (Blue)
18	AE - AEO Rocketto	PT, DDR, Guest Speaker (PT)
25	ES - AP	Drill, leadership, guest speaker (BDU)

Integrity

Date	Senior	Cadets
1	Staff Mtg	Staff Mtg
3		Elks
5		Cadet Ball- Formal
8	Commanders Call	No School; No Cadet Meeting
19/20	CLC Class Hartford	
15		Drill, Guest Speaker, Promotions (blue)
22		No Mtg
29	LISP	PT, DDR, Flight Time (PT)

Volunteer Service

Date	Senior	Cadets
3/4	UCC Course Stratford	
6	Commanders Call	Drill, CD, PT, admin, flight time (PT)
13		Holiday Party
20	Staff Conference Call (2000)	Staff conference Call (1900)
17		Oflights

This schedule is not a replacement for good communications.

USCGA CELEBRATES USAF BIRTHDAY

On Monday last, the Coast Guard Academy celebrated the birthday of the Air Force with a briefing and reception. Five members of the Thames River Composite Squadron attended.



AFA Cadets and Thames River Composite Squadron Officers gather for a group photo.

The event opened with “Colors” in front of Hamilton Hall. The Air Flag was raised accompanied by the playing of The Air Force Song. The attendees then adjourned to the Henriques Room for a briefing about the USAF role in national defense.



The briefing was conducted by a USAF Academy Cadet 2/c Thomas Kirby who is one of six “zoomies” on one semester exchange tours.

The briefing was followed by refreshments and a time for the guests and cadets to exchange views.



Lt Col John deAndrade socialized with Rear Admiral James Rendon.

SENIOR MEETING

20 September, 2016.

Subordinate Unit Inspection

Thames River Composite Squadron underwent its biennial subordinate unit inspection (SUI). An SUI is a review and assessment of the unit's past activities and the quality of its programs in accordance with mission requirements as established by regulations and policies.

The inspection team was led by Lt Col Rob Roy, CTWG Inspector General. His staff consisted of Lt Col James Ridley, Lt Col Ronald Rudolph, Lt Col Bruce Roy, 1st Lt Rachel Silverberg and 2nd Lt Michael Buchand.



Squadron officers and the inspection team gather for the in-brief.

The inspection started with an in-briefing in which explained the purpose of the visit and the procedures to be followed. Each of the inspectors was assigned several squadron departments and met with the department heads to discuss documents which were submitted in advance and ask questions about past and current programs.



Lt Col Rudolph and Lt Schmidt, logistician review the station inventory.

The final report grades performance from “highly successful” to “unsatisfactory.” A highly successful evaluation means that “Performance or operation exceeds mission requirements. Procedures and activities are carried out in a superior manner. Resources and programs are efficiently managed and relatively free of deficiencies and existing deficiencies do not impede or limit mission accomplishment.

If performances are graded “unsatisfactory” this means that management of procedures, personnel, and resources are below CAP standards and that significant deficiencies exist which limit mission accomplishment.

At the conclusion of the inspection, an out-briefing was held and highlights were noted. A final written report is expected in two to four weeks.

MERIDEN FLY-IN

The 3rd annual Meriden-Markham Fly-in & Public Safety Festival will be held at the airport on Saturday, October 1st.

The Silver City Squadron is looking for pilots to assist with flight line marshaling and general crowd control at the event. Major Malagutti and Capt. Hoffman will be overseeing this area. If you can attend and are available to assist, please contact Roger Malagutti at rmalagutti@aol.com or 203-597-7106. Uniform of the day is either flight suits or BDU's.

CURRENT EVENTS

The loss of airports in the United States is a growing problem for the general aviation community. Since the 1970s, Connecticut has lost about 50% of its airports.

The latest news is the the city fathers of Santa Monica, California have given tenants 30 days to vacate the airport. Long term leases, important for business planning, were not issued by the city. They have been putting pressure on service providers and flight schools, have some of the stringent noise ordinances in the world, and have increased the price of their outrageous landing fees. Even tenants must pay for each take-off and landing. If you are learning to fly in a Cessna 172 and practice ten take-offs and landings, the city will collect \$109.60.

The field is historically significant. Originally known as Clover Field, the airport served the Douglas Aircraft Company. All of the piston powered "DC-" series were manufactured there from the -1 to the -7. When the city refused to allow a runway extension so Douglas could test fly the jet DC-8, the company moved aircraft production to Long Beach, driving out Santa Monica's largest employer.

The airport must continue to serve the aviation community because of agreements with the federal government but this is being litigated. Of course, if there are no aviation businesses and aircraft at the field, the issue is moot.

Solberg Airport, where CAP flies gliders, is facing a similar problem. Family owned and operating for 77 years, Hunterdon County has been waging a continuous campaign against the Solberg family for over ten years. The county fears increased activity at Solberg and argues that if ownership reverts to them, it can be converted to open space!"

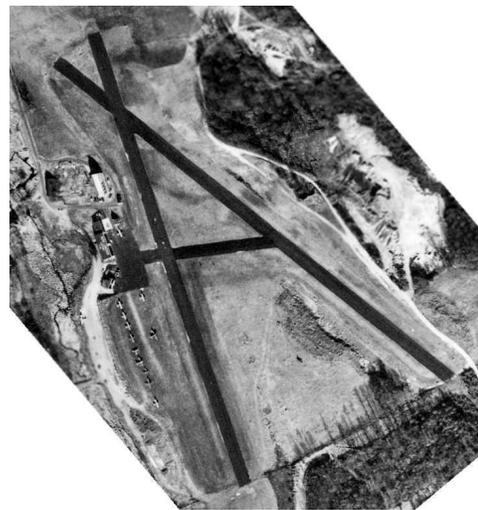
The County's latest move is to seize the land using the power of eminent domain. However, in a recent 2015 ruling, The Honorable Judge Paul Armstrong noted that "the condemnation plan implemented by the Township of Readington was orchestrated to prevent airport expansion under the pretextual banner of open space policy amounting to a manifest abuse of the power of eminent domain. Moreover, the resulting lack of transparency in the Township's action subverted the political process."

The issue touches upon constitutional grounds: a the sanctity of private property and government power to seize it. In the main, eminent domain has been used to forcibly purchase private property but traditionally, the land was turned to public use. An example might be a public project to construct approaches to a bridge. However, recent decisions such as the Kelso case in New London is sometimes claimed to overstep constitutional boundaries. The city used the power of eminent domain to condemn a tract of property in the Fort Trumbull area and turn it over to Pfizer, a private corporation. The claim being that the economic development which would ensue is a public benefit to the community.

Legal restrictions do not necessarily stop the forces of government. The case in point, Meigs Field, downtown airport similar to Hartford' Brainard. Meigs field was situated on the Chicago lakefront. On the night of March 30 2003, without notice, Mayor Richard Daley bulldozed the runways. The federally supported airport required that 30 days notice be given the Federal Aviation Administration (FAA). He also neglected to notify the owners of aircraft on the field where 16 planes were stranded. Daley's excuse was that his act saved Chicago from the time and expense of further litigation which

would be needed to close the airport. Chicago returned its federal aviation grants and was fined \$33,000 for closing an airport without giving 30 days notice to the FAA. So much for public input and the rule of law. "It's good to be King."

Nearer to home, Waterford Airport was lost when people who purchased homes near the airport complained about noise and managed to get the tract of land rezoned. A bank, which went belly-up, purchased the property in 1984, four years before the airport was closed. Ed Reeves, the owner-operator of Yankee Airways and New London Flying Service was given a lease with a 30 day cancellation clause. In 1987, a new owner, Reynolds Metals gave Reeves 60 days to vacate the premises. Reeves moved his operation to Westerly Airport and a succession of owners failed to develop the property. Today, 20 years later, it is an overgrown field with torn up runways and discarded trash.



Waterford Airport circa 1957

(US Gov't air survey courtesy of Abandoned and Little Known Fields)

Anyone interested in pursuing the subject is advised to go to a website entitled "Abandoned and Little Known Airfields" which can be found at: <http://www.airfields-freeman.com/index.htm>

ORIENTATION FLIGHTS

Two TRCS cadets flew O'Flights with Major Noniewicz last week. C/TSgt Ryan Schantz was introduced to advanced flight maneuvers. C/Amn William Burns practiced ground handling, preflight inspection, and take-offs and landings.

HURRICANES (PART II)

Hurricanes in the Scientific and Popular Literature
by
Stephen M. Rocketto

After my date with Hurricane Carol, I eschew wandering about in hurricanes without my slicker and galoshes. And I have amassed a rich trove of second hand hurricane experiences by reading about them. One of the best general texts about hurricanes is the *Hurricane Watch: Forecasting the Deadliest Storms on Earth* by Dr. Bob Sheets and Jack Williams. Dr. Sheets is the former director of the National Hurricane Center in Miami and Jack Williams is the founding editor of the USA Today Weather Page. Both have long experience in tropical meteorology and communications and their book is a compendium of the history and current status of hurricane prediction. I particularly enjoyed their chapters on hurricane prediction models, the practical application of models to study Hurricane Floyd, and the future of hurricane predictions.

The mathematical prediction of weather phenomena is hampered by a number of factors. These include coarse resolution of the data field, the difficulty in acquiring data, more equations, I believe, than known variables, lack of sufficient computer power, and the fact that turbulence is once of the most complex problems in modern science. A noted specialist in quantum mechanics was once asked why he took up the problems of subatomic particles. He replied that the study of turbulence was too difficult.

In the early days, pioneers like Irving Krick relied on statistical studies of past weather to make long term predictions. On the assumption that the future will resemble the past, they assembled data bases of past weather and tried to match the current situation to a similar one in the past. To a certain extent, this works. Warmer weather follows cold weather and wet weather follows dry weather as night follows day. However, the cost of evacuating a mile of coastline now tops a million dollars, lives are at stake, and, in our litigious society, the ramifications of bad forecasting may have legal consequences.

Books on Hurricane Theory

In order to predict the track, time and place of landfall, and storm surge, a number of computer models have been created. As might be expected, many have clever acronyms for names. CLIPER (CLImatology and PERsistence), an early statistical program, is a "Krick-like" model based upon the assumption that the storm will maintain its current velocity in the short-term, say 24 hours. After 24 hours, it will move in the same way as previous storms with similar climatological parameters. I have experimented with this myself and for well-behaved weather phenomena it works surprisingly well. However, hurricanes are like Monty Python's Spanish Inquisition and surprise is never far away.

Dynamic models rely on the fundamentals of physics. Six equations are commonly used. Three of them are called hydrodynamic equations and factor in the horizontal and vertical air velocities, friction, and the rotation of the earth. Two thermodynamic equations consider the condensation and evaporation of water and the concomitant release and absorption of energy and consequent temperature changes. The continuity equation models the ingress and egress of air in the volume under study. Before the massive increase in computing power and the increased use of data platforms such as weather satellites, and buoys and, numerical forecasts based on physics were generally inferior to the forecasts

based on statistical models. That is no longer true. The power of today's number crunchers is enhanced by specialized computer techniques in such a way that the enormous amount of data available can be analyzed in time to be useful but theoretically, no amount of calculation will probably ever yield perfect predictions.

MIT's Edward Lorenz discovered that very small changes in the initial input conditions of a system will yield enormous differences in the output. Most are familiar with the concept of chaos theory as the "butterfly hypothesis." In 1972, Lorenz published a paper entitled "Does the Flap of a Butterfly's Wing in Brazil Set off a Tornado in Texas?" The idea is that some small input at any of myriad places can have enormous effects down the line. As Sheets and Williams state, "The grid for the computer model...keeps getting smaller...but we're still talking in terms of miles while the actual weather is taking place at the level of molecules. Imagine trying the study all of the inputs possible on the molecular level for a system the size of the earth!"

A chapter on 1992's Hurricane Andrew describes how seven different computer models were utilized to develop the official prediction for the track of the storm. Sheets, then Director of the National Hurricane Center was a key performer in the juggling of the data and analyses during the 11 days of Andrew. The hurricane intensified as it approached and became the third most powerful documented storm to strike the United States causing damages in excess of 30 billion dollars but with a death toll of less than 30, thanks to solid forecasting and good emergency preparation. Ironically, one of the victims of the storm was the NHC building. Their radar, on the roof of the building, was blown off its mount when the wind speed was 147 mph. The anemometer stopped recording at 167 mph! Water, air-conditioning, necessary for the computers, and communications all experienced failures. Yet the personnel continued to perform their duties and are now graced with new and superior facilities on the campus of Florida International University.

Books on Hurricane History

The most dangerous phenomena associated with hurricanes is the storm surge. The lowered air pressure over the sea and a higher than normal tide can combine with ocean bottom and coastline topography and heavy rains to produce extraordinary flooding. This flooding effect is increased even more if the storm is moving at a high speed and has high rotational velocities. The leading right quadrant of the storm will then give an extra forward push to the water. Add wave effects to these conditions and disaster is guaranteed. These conditions are similar to those which devastated the Long Island, Connecticut and Rhode Island shores when the Hurricane of 1938 struck. *The Long Island Express: Tracking the Hurricane of 1938* by Roger K Brickner with David M. Ludlum is a wonderful collaboration by a dedicated amateur, Brickner, and the dean of weather historians, Ludlum. The book contains reproductions of the National Weather Bureau maps, photographs and very good line drawings to present a detailed account of the 1938 storm.

The center of the 500 mile wide storm crossed Long Island near Lake Ronkonkoma and passed over the Connecticut coast. Rotational speed was around 100 mph but the forward speed of the storm approached 60 mph. This means that the shoreline east of the center of the storm experienced wind speed of 160 mph. *The Bostonian*, a New York, New Haven, and Hartford express train became stalled on a causeway near Stonington, Conn. The debris which blocked the tracks consisted of a house and a cabin cruiser! The train was eventually blown off the tracks but only two lives of the 275 on board were lost, both by drowning.

Two computer programs have been developed to predict the effects of the surge. SPLASH (Special Program to List Amplitudes of Surges from Hurricanes) is designed to predict coastline effects. SLOSH (Sea, Lake, and Overland Surges from Hurricanes) predicts the inland effects. In the Hurricane of 1938, the city of Norwich, 10 miles up the Thames River from Long Island Sound, suffered flooding which reached the

second story of riverfront buildings. Willimantic, some 30 miles inland was flooded. The rise of fresh water, incapable of draining off into saturated ground and swollen rivers can be prodigious. For people on the flats, it can be disastrous. A 1970 typhoon which struck the delta lands of what is now Bangladesh has been estimated to have caused over 300,000 deaths, mostly by drowning.

Some storms have their own "biographers." I have previously mentioned the Brickner volume about the New England Hurricane of 1938. Eric Larson published the best seller, *Issac's Storm: A Man, A Time, and the Deadliest Hurricane in History in 1900*. The book is a gripping portrayal of Issac Cline, a Weather Bureau official, and the horror of The Great Galveston Hurricane of 1900 which took as many as 10,000 lives in the worst natural disaster to ever strike the United States. A year later, Pete Davies published *Inside the Hurricane: Face to Face with Nature's Deadliest Storms*. He portrays the people who investigated and suffered during the 1998 and 1999 hurricane seasons and focuses on Hurricane Bret in '98 and Mitch and Floyd in '99. In 1992, Robert Mykle published *Killer 'Cane: The Deadly Hurricane of 1928*. This event is sometimes called the Lake Okeechobee Hurricane and in its wake left around 2,400 dead. All three of these books tend to emphasize the social aspects of a hurricane strike and rely heavily on documentary and eyewitness reports.

Read the accounts of the storms which occurred in the first half of the 20th century and one quickly becomes aware of the many orders of magnitude of progress which we have made in locating storms, predicting their future locations, and warning the threatened populace. The 1900, 1928, and 1938 storms were tracked over water by their occasional and somewhat random sightings by ships and their passage over islands. Aircraft reconnaissance did not become common and organized until the 1950's and satellite imagery had to await the 1960's.

People were caught unaware on low shorelines or the delta of large rivers such as the Ganges and the Mississippi and in areas prone to flash flooding such as piedmonts. As a result of this lack of data, loss of life was much higher in the past. Yet now, the inflationary pressures have increased property losses to astronomical levels.

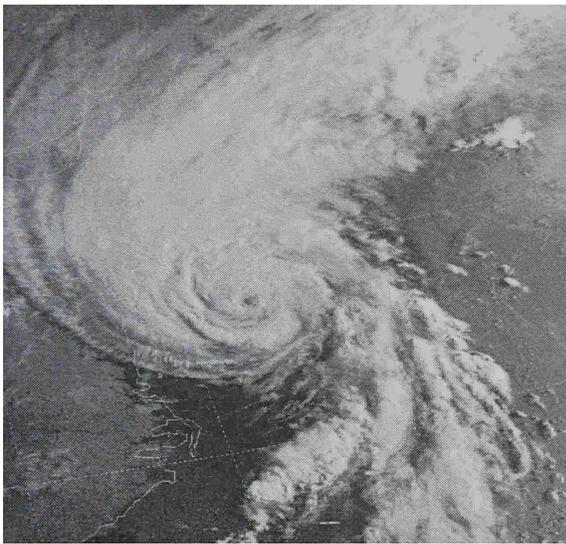
"STEM" before STEM

My professional interest in hurricanes has been as a teaching tool. Back around 1988, some of my students and I started developing weather satellite downlinking equipment and software so we could do real-time meteorology in the classroom. The initial enterprise was successful and has spun off several thriving companies. There are numerous pedagogical possibilities for using such equipment in the classroom. Hurricanes fascinate students and are a natural "hook" for capturing their attention. Studying the phenomena in real time adds the lure of realism. My program combined science, technology, engineering, and mathematics (STEM) and anticipated the national STEM movement by 20 years.



Grasso Tech Students manually track a polar orbiting satellite by maximizing the signal on a voltmeter.

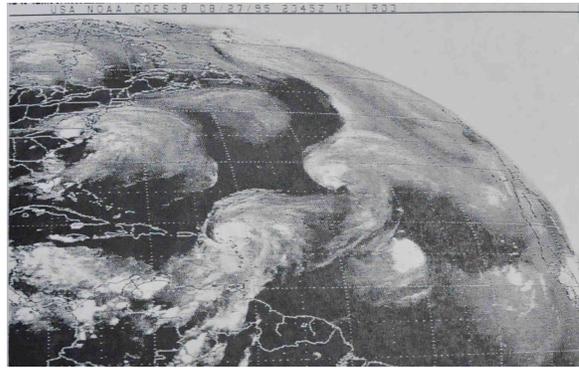
For example, following a storm requires perseverance and attention to detail. It is a natural time to teach mapping skills incorporating latitude and longitude and mathematical skills such as calculating of velocities. Equipment has to be built, tended, and repaired and eventually improved. From the point of view of physics, hurricanes are earth-scale engines of equilibrium and fluid flow, thermodynamics, and state changes may be profitably discussed to make the storm intelligible. These tasks incorporate, scientific thinking, technological skills, engineering talent, and mathematical proficiency. STEM!



August, 1991

Hurricane Bob steams up the east coast. It is just east of New Jersey and two hours away from Connecticut where it passed directly over Groton-New London. The eye of the storm is clearly visible. Note the distinctive shadows in the southeast quadrant. Their length can be used to predict cloud height.

After the near record 1995 hurricane season, we produced a CD-ROM, *Hurricanes 95*, a compilation of all of the imagery which we collected, hyper-texted annotations, and National Hurricane Center data. The construction of the hardware, writing of the software, operation of the equipment, and analysis of the data provided a full plate of science and technology education.



Tropic Activity Galore

A water vapor image from GOES-8 reveals five centers of activity. Iris is tracking north along the U.S. east coast. The remains of Jerry hover near Florida. Humberto and Karen dance in mid-Atlantic and Luis is the tropical depression forming off the west coast of Africa.

Although the use of satellite and surface based data are crucial tools to analyze the movement and possible effects of a hurricane, airborne observations are added to the mix to make a meteorological cocktail, each ingredient adding its own qualities to enhance the character of the final product. Part III will discuss the utilization of aircraft for hurricane studies.

GEOGRAPHY GAME



See if you can find the Finger Lakes, the Hudson River Valley, Martha's Vineyard, Cape May, Susquehanna River, and Orient Point.