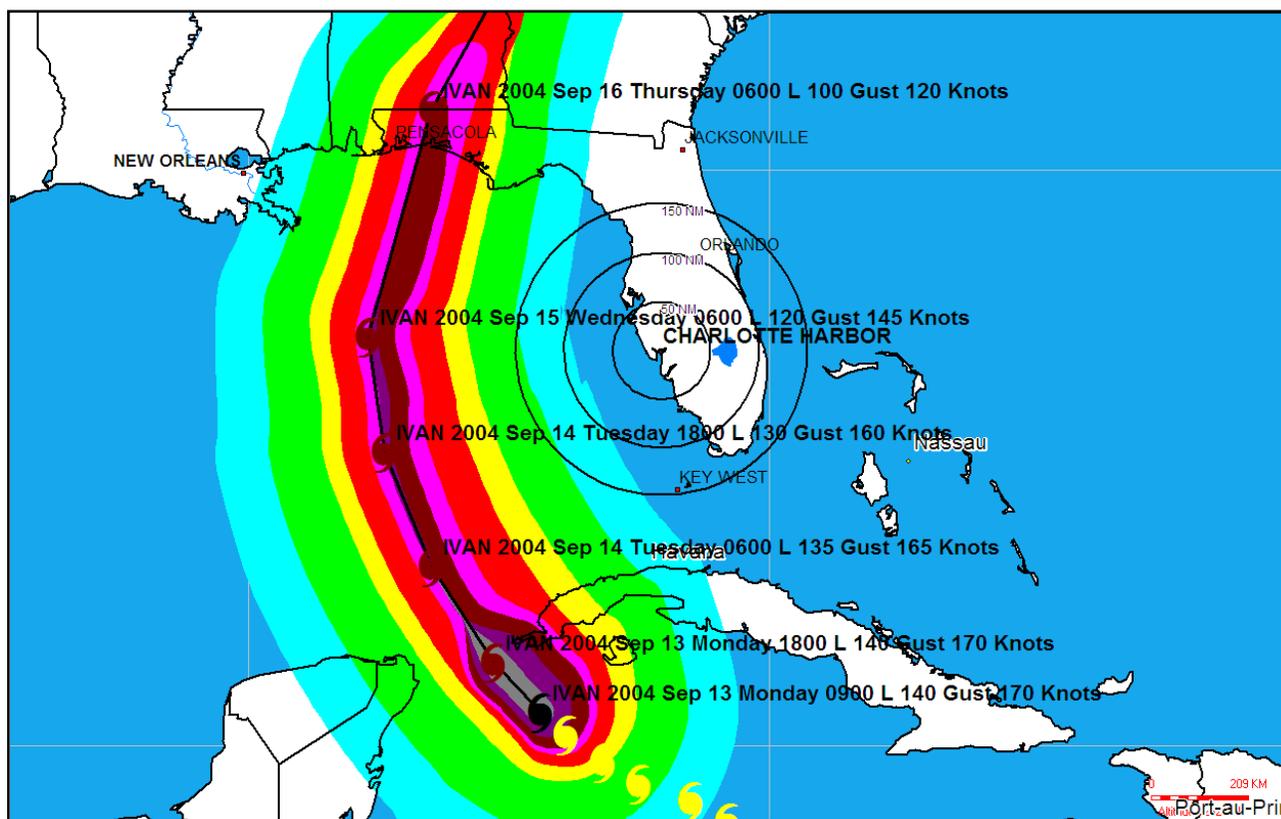


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### Tropical Storm Tracking with Sailmail/Winlink (Revised 7-25-11)

*There's a hurricane out there. Is it likely to affect you?? In less than 30 seconds you can tell at a glance.*

If your boat is in hurricane waters, keeping an eye on tropical storms is a primary concern. But how do you do it when you can't just turn on The Weather Channel? A weatherfax will show you where the storm is, but won't give you a detailed forecast of where it may go. For a while, we tried listening to various weather broadcasts on SSB, writing down coordinates and then transposing them to a chart. Then I discovered that I could get National Hurricane Center advisories e-mailed to me, which I then spent a half hour or more plotting. This was better, but still took too long. There had to be a better way!

After searching the internet, I found the answer. If you have Sailmail, Winlink or other e-mail onboard, adding a FREE software program called Global Tracks to your on-board computer will make tropical storm tracking easy, fast and stunningly visual. With Global Tracks, you can take an e-mailed copy of any public hurricane forecast and display it as a track in about 30 seconds, without having to manually re-enter the data. (Related article: [Speeding Up Sailmail/Winlink](#) (PDF)).

Global Tracks was not designed for use with radio-based e-mail (in fact, it's designed for use with full internet access) but it works. This isn't intended to be an ad for Global Tracks. But I do want to show how to easily track storms, and this works for me. Further, just as the prudent navigator

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doesn't rely on only one means of determining position, you shouldn't rely on just one source of information about tropical storms. Check out the weatherfax, and listen to the various weather forecasters. Global Tracks adds one more tool. Here's how to do it:

### ***Obtain and Install Global Tracks***

The current version of Global Tracks – as of this revision – is 7.4.2. Download it at [www.extremewx.com/gt/](http://www.extremewx.com/gt/) -- the top of the screen will look like you're in the wrong spot, but scroll down and you'll see a download link. The screen shots in this article are from a slightly earlier version of GT, but it looks substantially the same. It's a large download, about 54 meg, so it's best to do with a fast connection.

The system requirements will state that you “must” have an internet connection to download data – don't worry about this, I'll show you below how to get around it. Install the software. I strongly suggest that you try the software and become familiar with plotting a storm *before* one is headed towards you.

### ***Subscribe to Weather E-Mails***

I'm going to assume that you are either in the Atlantic/Caribbean or Eastern Pacific hurricane areas. There are two ways to get the NOAA forecasts for your area: straight from NOAA or via SailDocs, which is supported by Sailmail, but can be used by anyone who agrees to their terms and conditions.

Both methods of receiving forecasts will give you warnings that they may not operate with 100% reliability – in other words, some forecasts may not reach you. I've had infrequent problems with both systems, so it's best not to rely on an e-mail system as your sole source of information about tropical storms. If you are in a different area of the world, you can use SailDocs to get the forecast for your area (Global Tracks can also plot forecasts from the Joint Typhoon Warning Center) – check the SailDocs index for details.

The forecasts seems to be available a little sooner (as much as an hour in my experience) with NOAA subscriptions, so that's what I recommend. If you need to subscribe through SailDocs, the procedure is explained in a sidebar at the end of this article.

To subscribe directly from NOAA, go to: [www.nhc.noaa.gov/signup.shtml](http://www.nhc.noaa.gov/signup.shtml). Click on the link to go to the Gov Delivery service. You'll go through a couple of screens where you enter the e-mail address where you want the forecasts sent, then you'll come to a “Quick Subscribe” screen with a big list and checkboxes.

Scroll down to the bottom and click on the + next to National Hurricane Centers. This will give you more choices. Choose East Pacific or Atlantic as appropriate for you, then click on the sub-menu

#### **Anti-Spam Software**

If your e-mail service uses spam filters, be sure to add the following address to your list of allowed mail:

**NOAA:**  
nws.noaa@service.govdelivery.com

**SailDocs:**  
sub-server@SailDocs.com

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for Tropical Cyclone Advisories (**NOT** on the “Marine” link). Click on the boxes next to the following entries (this should put a check mark in the boxes, indicating you want the associated document):

- Forecast Discussions
- Forecast/Advisories (Marine)
- Tropical Weather Outlook (I like “all”)

Then click Submit. You’ll get a e-mail confirming your subscription fairly quickly, and you **MUST** click on the link in that e-mail before your subscription will actually begin.

So what will you be getting? “Outlook” is a brief e-mail telling of any disturbances or advisories in the relevant area. It doesn’t give details, just a broad overview. It is important because in addition to telling about existing storms, it also tells about tropical disturbances that could become depressions, storms or hurricanes. This isn’t used by Global Tracks in storm plotting, but I recommend that you subscribe to it just to get a little earlier warning of what could be brewing.

**Sample Eastern Pacific Tropical Outlook**

TROPICAL WEATHER OUTLOOK  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL  
4 AM PDT THU AUG 26 2004

FOR THE EASTERN NORTH PACIFIC...EAST OF 140 DEGREES WEST LONGITUDE.

THE NATIONAL HURRICANE CENTER IS ISSUING ADVISORIES ON WEAKENING TROPICAL DEPRESSION FRANK CENTERED ABOUT 610 MILES WEST OF THE SOUTHERN TIP OF BAJA CALIFORNIA...AND ON TROPICAL DEPRESSION NINE-E CENTERED ABOUT 1300 MILES WEST-SOUTHWEST OF THE SOUTHERN TIP OF BAJA CALIFORNIA.

A TROPICAL DISTURBANCE...LOCATED ABOUT 410 MILES SOUTHWEST OF ACAPULCO MEXICO...IS MOVING WEST-NORTHWESTWARD AT 12 MPH. THIS SYSTEM HAS BECOME BETTER ORGANIZED THIS MORNING AND A TROPICAL DEPRESSION COULD DEVELOP LATER TODAY OR FRIDAY.

AN AREA OF DISTURBED WEATHER IS LOCATED ABOUT 790 MILES SOUTH-SOUTHWEST OF THE SOUTHERN TIP OF BAJA CALIFORNIA. DEVELOPMENT...IF ANY...SHOULD BE SLOW TO OCCUR.

ELSEWHERE...TROPICAL STORM FORMATION IS NOT EXPECTED THROUGH FRIDAY.

The “Discussion” is a discussion of the current advisory and also contains a brief forecast of locations and wind strength. More importantly, it tells (a) how the forecasters came up with their forecast location and strengths and (b) how much confidence they have in the prediction. Some of the abbreviations and model names may confuse you, but just look at the general comments – are all models in agreement, or are they divergent? Sometimes, the forecasters will state that a prediction is of “low confidence” or “uncertain.” Again, this isn’t used directly in Global Tracks plotting, but I strongly recommend reading it to know how confident the forecasters are of the predicted track.

The “Forecast/Advisory” is the detailed forecast with position and wind strength information that will be used by Global Tracks.

Okay, so now you’ve got everything set up. What do you do when you get a storm forecast and want to plot it??

**Sample Eastern Pacific Discussion**

TROPICAL DEPRESSION TEN-E DISCUSSION NUMBER 1  
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL  
8 AM PDT THU AUG 26 2004

CONVENTIONAL AND MICROWAVE SATELLITE IMAGERY...ALONG WITH A 25-KT SHIP REPORT AT 12Z...INDICATE THE LARGE TROPICAL DISTURBANCE LOCATED ABOUT 305 NMI SOUTH-SOUTHWEST OF MANZANILLO MEXICO HAS DEVELOPED INTO TROPICAL DEPRESSION TEN-E. THE INITIAL INTENSITY OF 30 KT IS BASED ON A DVORAK SATELLITE INTENSITY ESTIMATE OF 30 KT FROM TAFB AND IMPROVED BANDING FEATURES SINCE THE 12Z SATELLITE FIX. UPPER-LEVEL OUTFLOW IS FAIR TO GOOD IN ALL QUADRANTS...EXCEPT SLIGHTLY RESTRICTED TO THE SOUTHEAST.

THE INITIAL MOTION ESTIMATE IS AN UNCERTAIN 290/10. THE CENTER HAS BEEN REFORMING NEAR THE STRONGEST CONVECTIVE BURSTS THE PAST 12 HOURS...SO ASCERTAINING BOTH CENTER PLACEMENT AND FORWARD MOTION HAS BEEN DIFFICULT. HOWEVER...THE OVERALL MOTION OF THE CONVECTIVE CLOUD MASS HAS BEEN WEST-NORTHWESTWARD...AWAY FROM MEXICO...THE PAST 24 HOURS. NHC MODEL GUIDANCE IS IN GOOD AGREEMENT ON A GENERAL WEST-NORTHWESTWARD MOTION FOR THE NEXT 48 HOURS OR SO UNTIL THE CYCLONE REACHES MUCH COLDER WATER. AFTER THAT...SIGNIFICANTLY AND A DECOUPLING OF THE LOW-LEVEL CIRCULATION FROM THE MID-AND UPPER-LEVEL CIRCULATIONS SHOULD ALLOW THE SYSTEM TO BE DRIVEN MORE WESTWARD BY THE MODERATE LOW-LEVEL EASTERLY TRADE WIND FLOW. THE OFFICIAL TRACK IS A BLEND OF THE GFS AND MEDIUM RAN MODELS.

TD-10E HAS A LARGER THAN AVERAGE CIRCULATION...WHICH MAY PRECLUDE ANY RAPID DEVELOPMENT FROM OCCURRING. HOWEVER...THE DEPRESSION ALREADY HAS GOOD BANDING FEATURES AND IT COULD BECOME A TROPICAL STORM LATER TODAY AND A HURRICANE JUST BEFORE IT MOVES OVER MUCH COLDER SSTs BY ABOUT 48 HOURS. THE OFFICIAL INTENSITY FORECAST IS SIMILAR TO THE SHIPS INTENSITY MODEL THROUGH 48 HOURS...BUT MUCH LOWER THAN THE SHIPS MODEL AFTER THAT WHEN THE CYCLONE WILL BE OVER COLD SSTs.

FORECASTER STEWART

FORECAST POSITIONS AND MAX WINDS

INITIAL	26/1500Z	14.4N	106.4W	30 KT
12HR VT	27/0000Z	15.1N	108.1W	35 KT
24HR VT	27/1200Z	16.1N	110.5W	45 KT
36HR VT	28/0000Z	17.0N	112.8W	55 KT
48HR VT	28/1200Z	17.5N	115.1W	60 KT
72HR VT	29/1200Z	18.2N	120.0W	50 KT
96HR VT	30/1200Z	18.5N	125.0W	35 KT
120HR VT	31/1200Z	19.0N	130.0W	25 KT

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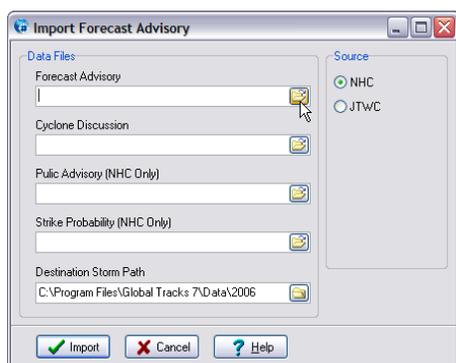
## Storm Plotting

This is the easy part. You could, of course, manually plot the information in the technical advisory e-mails onto a paper chart. But using Global Tracks is quick and produces a great visual interpretation of the forecast.

Start by making a folder to put the forecasts in. It's best to put it in My Documents and call it something like "NHC Forecasts."

Note: every e-mail program, and every version of each one, works a little differently. Here, I try to keep the instructions fairly generic – so your menu choices may be worded slightly differently.

In your e-mail program, open the e-mail containing the technical advisory. Click on **File/Save Copy As**. Save it in the **My Documents/NHC Forecasts** directory (or whatever you called the the folder). I give the document a name related to the storm, advisory number and year: for Advisory 7 about Hurricane Frank, I name it **Frank7** (you may prefer some other naming system). **VERY IMPORTANT:** You **must** save it as a .txt file, not a .eml, which most e-mail programs use as the default. In most e-mail programs, the format can be selected in a drop-down box.

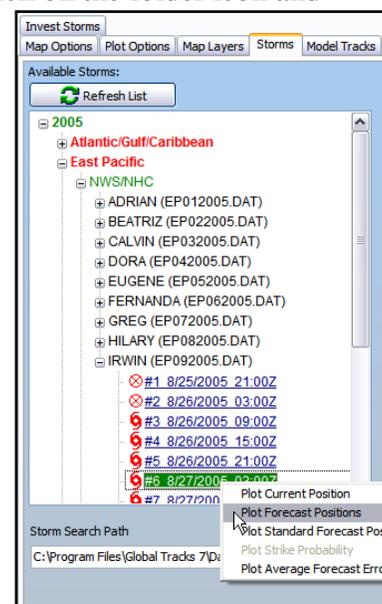


Now open Global Tracks. Click on **File/Import Forecast Advisory**. You'll see a window appear like the one at left. Click on the file folder icon in "Forecast Advisory" and double-click on the new forecast that you want to plot (make sure that you're in the **My Documents/NHC Forecasts** directory). In the Destination Storm Path, verify that the last 4 digits are the current year – if not, click on the folder icon and change it if needed.

Then click on the "Import" button.

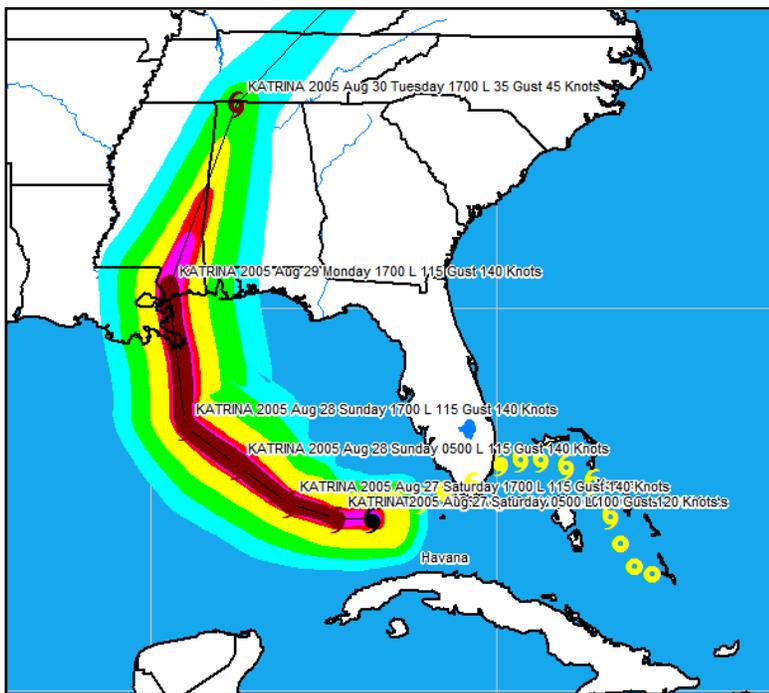
You'll get a message that the forecast has been added to the database of storm information, and click OK to close the File Import window.

To plot the storm, click on the "Storms" tab in the left window (if the left window is not on your screen, click on View/Show Left Panel). Click "Refresh List" to add the latest forecast to the index, then use the index tree to select the year, storm and forecast number that you want to plot, as shown at right. "Plot Forecast Positions" will give you the wind swath as shown in the samples in this article.



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To get a basic plot, that's all you have to do – the forecast track will appear in a few seconds. It will



show the name of the storm and plot where the storm is forecast to go, with points labelled with the date and time and forecast wind strength. The black hurricane symbol shows the current position of the storm and the yellow ones the past track (if you downloaded and imported the past forecasts). The green area shows winds over 34 knots, yellow over 50 knots, red over 64 knots (hurricane force), pink over 83 knots (Category 2), and brown over 96 knots (Category 3). Category 4 and 5 are shown by purple and grey, respectively.

To plot another advisory on a clean map, right-click anywhere on the map and select “Clear Globe.” Of course,

if there is more than one storm in the area, you can plot them both on the same map by not clearing it between plots.

### ***A Few Refinements***

A few refinements make the visual representation even better and take only a few minutes to set up and then will be in place for all future plots.

***Preferences.*** Under Tools/Program Preferences/Position Labels, you can select whether times will be shown in local or UTC, 12 or 24 hour, how storm points are labelled, and more. These items are self-explanatory but note that many pertain to features of the program that are only available with full internet access.

***Locations.*** If you click on Locations/Modify, you can specify what location names to show on a plot. Even better, you can add locations to the database and show locations that are of interest to you – the location of your boat, nearby hurricane holes, towns, whatever.

To add a location that is already in the program (primarily US cities), begin by clicking on the “Create New Layer” button and give your layer a name such as “My Locations” then click on OK. Then click on your new layer to highlight it, click on the name of the location you want to show, and click on the “Add Location” button. A window will appear where you can change the font appearance if you want, but you are not required to make any changes – the defaults will work fine.

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To add a new location, click on the “+” button, then enter the information for the location and click on the check mark to post your addition to the database. Then follow the same steps as for locations that are already in the database for displaying it.

Once the location of your boat is in the database, set it as your “home location” by clicking on it, then clicking on the “Set as Home Location” button. Then, click on View/Display Home Range Ring to show the range rings. Use View/Range Ring Setup if you want to change how many or how far apart they are – I like having 3 rings, 50 miles apart.

With these modifications, you can have a plot that looks like the one at right. This is the forecast of Hurricane Marty that we were watching in September 2003 – while sitting in Puerto Escondido. A quick glance was all that was needed to show we needed to get back to our hurricane preparations – immediately!



One more tool will give you more detailed information about what is currently forecast for your location. If you right-click on your location (assuming that you have your home location set) and then select “Analyze this Point”, you will get an hour by hour forecast for your specific location and you can determine the forecast closest point of approach. A big caution is due here – don’t put too much faith in this, particularly if the storm is more than 24 hours away. Storms can speed up, slow down, change course and change intensity seemingly on a whim. For most sailors, the map is a better quick tool as you can easily see what even a small change in the forecast track will do to your location. The hour-by-hour analysis is best for just giving you a rough estimate of when winds are likely to begin building in your area – but you should have your hurricane preparations done well before then, just in case the storm speeds up (when we were hit by Hurricane Marty in 2003, the storm was moving at less than 4 knots and sped up to 20 knots overnight; many boats couldn’t complete their hurricane preparations before it hit).

This will get you started with creating your own hurricane maps. Global Tracks has many other features, including historical tracks. Without internet access, some features can’t be used. The included “Help” function can teach you about many more of the advanced features of the program if you want, but just the basic plot adds a great tool for the sailor who is in a hurricane zone.

**One final caveat: remember that hurricane forecasts are just that – forecasts, not guarantees. Plotting the position can give you a quick visual understanding of what the storm is likely to do, but don’t place too much confidence in either it or the historical tracks. Hurricanes can change direction and speed very rapidly. The forecasters’ models aren’t perfect. The discussions will give you a feel for how much confidence they have in their predictions. It’s better to head to a hurricane hole unnecessarily than to get caught unprepared. You are responsible for your own safety!**

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## Sidebar – Signing Up for Forecast E-mail with SailDocs

To subscribe using SailDocs, send an e-mail to [query@SailDocs.com](mailto:query@SailDocs.com) from your onboard e-mail account. The subject line can be blank or anything you want, but the message text should be as follows.

Atlantic/Caribbean	Eastern Pacific
sub atl.outlook interval=1 days=365	sub epac.outlook interval=1 days=365
sub atl.disc1 interval=1 days=365	sub epac.disc1 interval=1 days=365
sub atl.disc2 interval=1 days=365	sub epac.disc2 interval=1 days=365
sub atl.disc3 interval=1 days=365	sub epac.disc3 interval=1 days=365
sub atl.disc4 interval=1 days=365	sub epac.disc4 interval=1 days=365
sub atl.disc5 interval=1 days=365	sub epac.disc5 interval=1 days=365
sub atl.tech_advis1 interval=1 days=365	sub epac.tech_advis1 interval=1 days=365
sub atl.tech_advis2 interval=1 days=365	sub epac.tech_advis2 interval=1 days=365
sub atl.tech_advis3 interval=1 days=365	sub epac.tech_advis3 interval=1 days=365
sub atl.tech_advis4 interval=1 days=365	sub epac.tech_advis4 interval=1 days=365
sub atl.tech_advis5 interval=1 days=365	sub epac.tech_advis5 interval=1 days=365

The number after “disc” or “tech\_advis” relates to the NHC’s system of numbering storms. This is simply because the NHC may be monitoring several systems in an area at one time and they assign the numbers in rotating order – 1 through 5, then beginning again at number 1. A single storm will carry the same number from beginning to end.

By subscribing to all five storm discussions and technical advisories, you will be sure to get information on each storm as the NHC first delivers warnings on it and throughout the life of the storm.

In your subscription request, “interval=1” asks that the system check at one-hour intervals to see if there is updated information available. If your e-mail account already has received the most recent information, it won’t send anything more. Usually the NHC issues updates every 6 hours, but will put out information more often if the situation is rapidly changing. By setting the interval to one hour, you will know that you always have the most up-to-date information. “Days=365” means that the subscription is good for one year. You can, of course, set the interval to a longer period or the days to a shorter number. These are my preferences.

Okay, so this sounds like you’re going to be getting a ton of e-mail and totally overwhelming your system. There are some built in safeguards against this. When you first subscribe, you’ll get the most recent outlook and each of the discussions and technical advisories – a total of 11 e-mails. After that, however, you’ll only get the documents when they change: when a storm becomes active or new information is issued about one. And should new information be sent out before you retrieve a previous message, the earlier message text will be replaced with a one-line note that the message has been superceded. Because of this, I generally don’t have problems with Sailmail’s usage limit of 10 minutes per day, even using Factor II.