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Decision Making Regarding Weather: Lightning

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To keep things simple with such a complex subject such as the atmosphere, this is an attempt of best use practices, with simple step by step instructions, when making decisions when away from power and shelter. There are more than a million weather apps on the Apple Store alone and their counterparts on Android devices, and none of them really help those not trained in making a decisive call regarding personal safety.

When the day begins for a meteorologist:

Find out how stable the air is. Is today's air Stable?

Yes: Enjoy the day!

No: Discover;

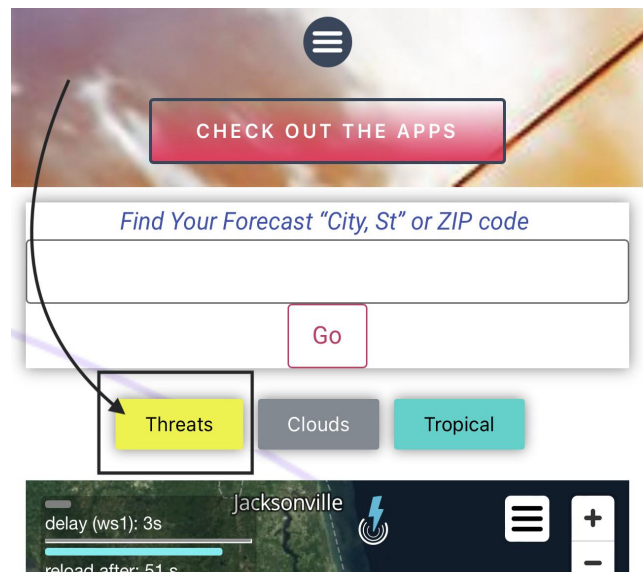
1. How unstable is the air today?
2. What are the threats of this instability?
3. What will precipitate?
4. When will instability precipitate?
5. Monitor the development of instability throughout the day.

*This is not a training module on how to forecast the weather, rather a simple guide to show the process (very simple) meteorologists use as a template to better understand the process. We start each day this way, and restart the models every 4-6 hours. This is why the confidence of any 7 day forecast is so low for all of us; the atmosphere changes each minute. Commonly referred to as the 'Butterfly effect'.

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Steps anyone can use at any time; by following these steps found on [this app.](#)

You can always find any forecast by typing in the zip code or “City, St” for anywhere in the Continental United States. This allows you to travel anywhere and be prepared, or if having an outside event that day (never trust a forecast beyond 36 hours) you have at your fingertips what all million apps provide with a bit more accuracy for traveling.



Planning the day:

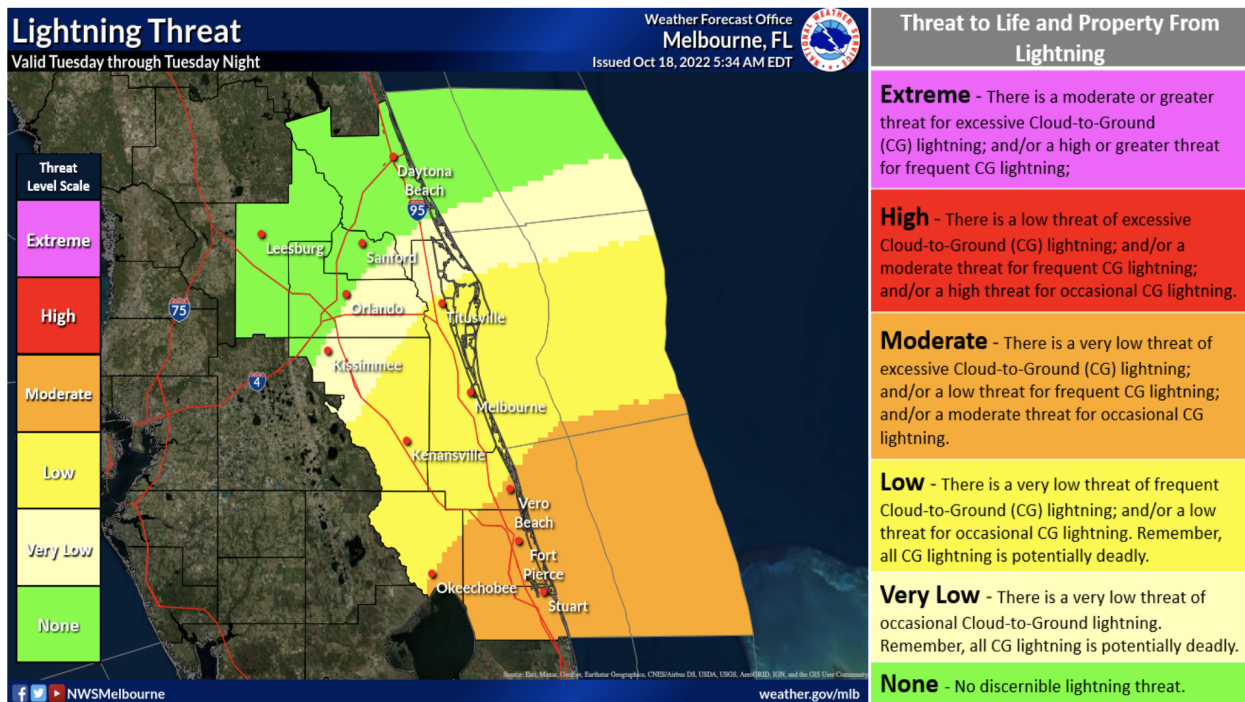
In Florida from Mid May/Early April until November the air is ALWAYS unstable. The degree to its instability can be found by clicking the button called **Threats** (above). 🙌

This will take you to a page where all the threats to life and property are created and updated throughout the day. It’s good practice to use this at the start of the day. When the color is green, then all is good. Any Yellow above to Magenta shading of East Central Florida there is a chance according to the guidelines listed for decision makers.



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This is what the page looked like on Tuesday, October 18th in the morning. I was able to understand that while the 'forecast' said 'chance for thunderstorms' I now had a map to show the greatest area of the threat. DO NOT underestimate the yellow. Things called "Bolts from the Blue" are a real term in Meteorology which means you can have trees blocking your view of the skyline and hear thunder, and that means lightning is close.



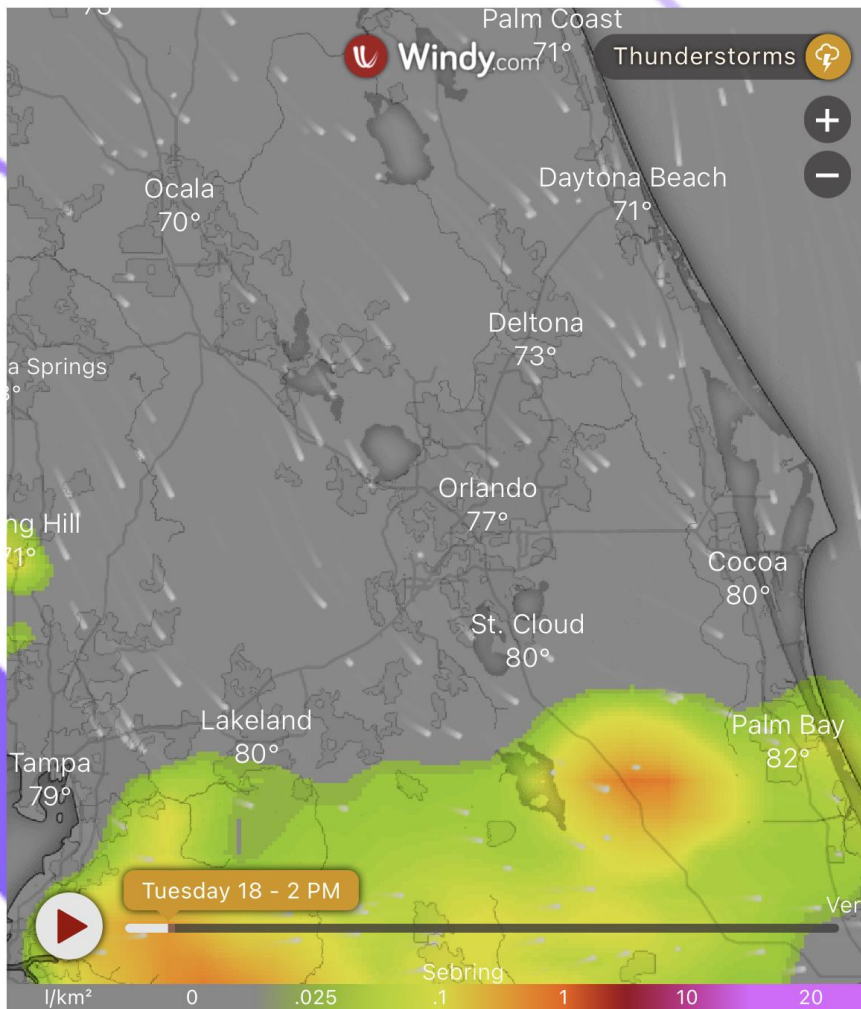
Now that we know the forecast and the threats for the day we have what we need for events outside later in the day when away from power and shelter. However, I have another added feature called future radar that shows the highest probability of when this will happen later in the day.

On the following page are some examples of what future radar looks like, and is the final preparation tool you can use in the morning when making decisions. Because today (October 18, 2022) does not have any severe weather, it will show where the storms are most likely to occur and when by using the timeline at the bottom. You can scroll across using your finger on the phone and see up to 10 days in advance. Remember, never trust the accuracy or confidence of any model solution beyond 36 hours. Always check back.



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Here is a Future Radar example for today at 2pm.



While it appears that most of the activity will be south of Cocoa, St. Cloud and Lakeland at 2pm, the light colors indicate the chances at this hour are low. When you see darker colors like red or magenta the chances are much higher.

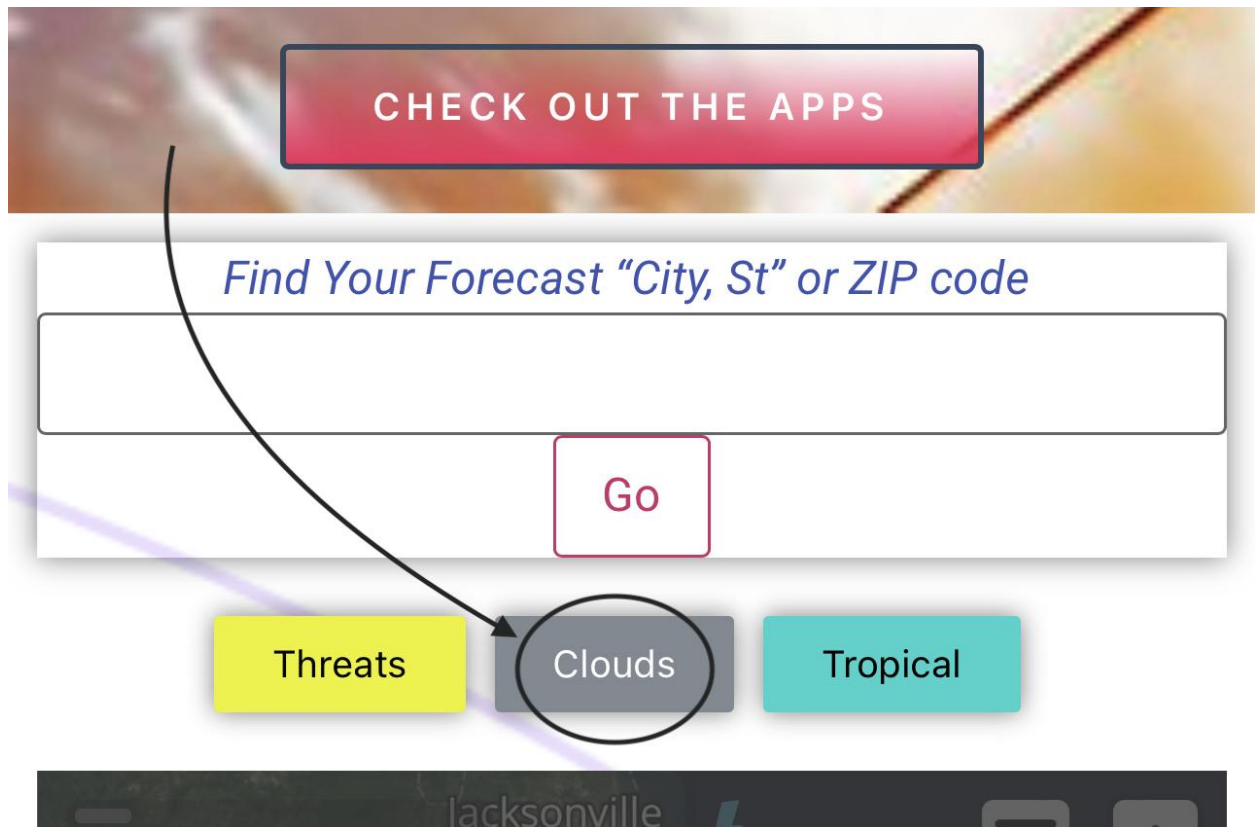
So, you have started your day and have;
The forecast, the *threats expected and where*, and lastly *when* by scrolling the bar.



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Time for the event outside away from power and shelter.

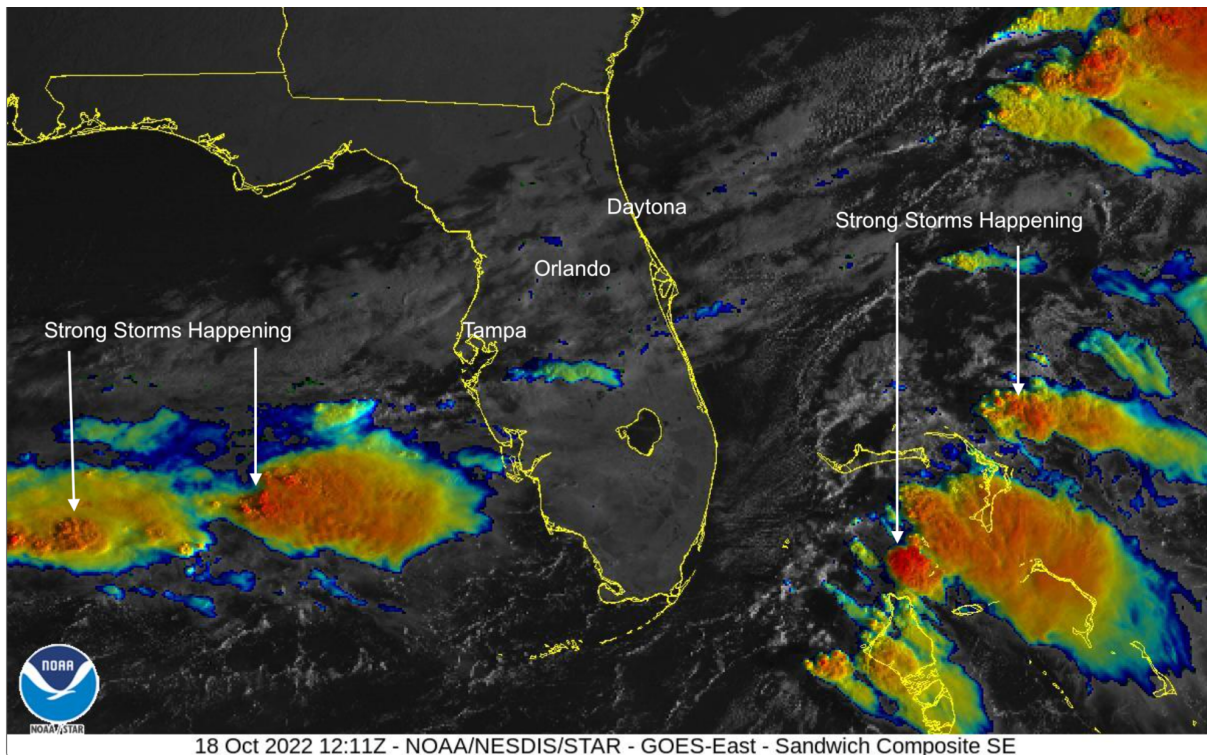
As the day progresses I must educate the following;
Radar images are never in real time. They are at best 4-6 minutes old depending on which radar of choice app you use. Radar is Radio Detection And Range or "R.D.A.R". Each Doppler image is taken from all National Weather Stations and combined to create something called NEXRAD II/III images. Companies then take all the combined images from all over the US and clean them up (it's a process). THEN they send those images all cleaned up back to all the app companies dealing with radar displays. They are not real time. Radar serves a purpose, however it's now the afternoon and the first thing that should be monitored is Satellite images. Why, because radar is precipitation that has already fallen to send a return back to the Doppler (past). Satellite images show clouds building (storms) before any precipitation. So the first thing to keep checking in the afternoon is the satellite images (clouds) found here by hitting the Clouds button.





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This will take you to cloud 'tops'; where the darker reds indicate storms. Lighter grays are clouds that are not currently building (storms), while the darker colors represent storm growth in height (the higher the storm, the stronger the storm...more lightning).



By using Satellite (Cloud Button) on a day where you see dark clouds, you can watch the progression of the storms BEFORE they precipitate with TODAY'S THREATS.

So, let's review.

Start the day with your forecast

Then click the Threats button for today's threats (if so, where and what to expect)

Then scroll using Future radar for location best probability of when and where to expect.

Then...

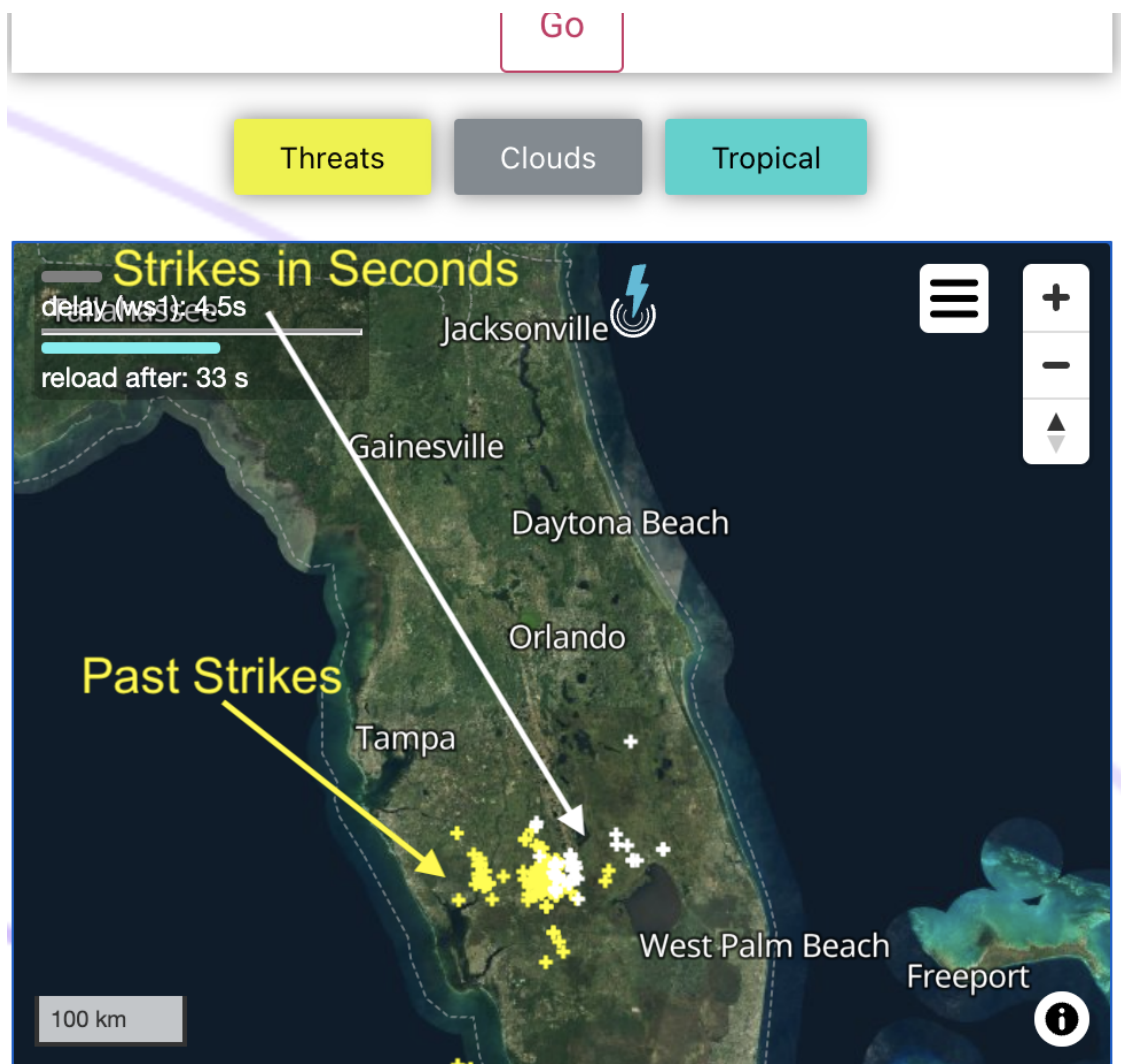
During the day monitor the clouds, not the radar, to locate the strongest storms.



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Final Step.

After you have been monitoring the clouds, I have installed a feature called real time lightning. You can set this up any way you want, I have it defaulted to Florida. Use the hamburger icon (the three lines on top of each other in the image below) upper right.



This image shows lightning strikes within seconds of each other, and the overall path moving from west to east (past strikes are west, white are less than 4.5 seconds)



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Conclusion:

On this day, October 18th 2022, I have taken the images shown above in this document. It is very challenging to show lightning strikes on a clear day to show examples.

It is clear that the future radar was correct in its location of the threat of lightning, and when it would start (now 2:50pm) and how intense. Using the threat image I would caution that as the sun sets there is a heat transfer from the land to the coast line; which is why the models show the areas under that specific threat for the day...entire day.

Using this step by step method it is my hope that the reader of this material is more informed about how important it is to check the threats, location, timing before the day starts to plan for the day. Then ultimately when away from power and shelter to NOT USE radar as a tool for forecasting rather use Satellite imagery to show building storms.

Finally, with the new Live Lightning feature, you can see the progression of the storm (which may very well still have nothing showing up on radar); thus enhancing the information needed moving forward for all decision makers when outside away from power and shelter.

My best, always.

Eric

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