SHOULD I SET UP TONIGHT?

How to maximize shooting time and keep your gear safe

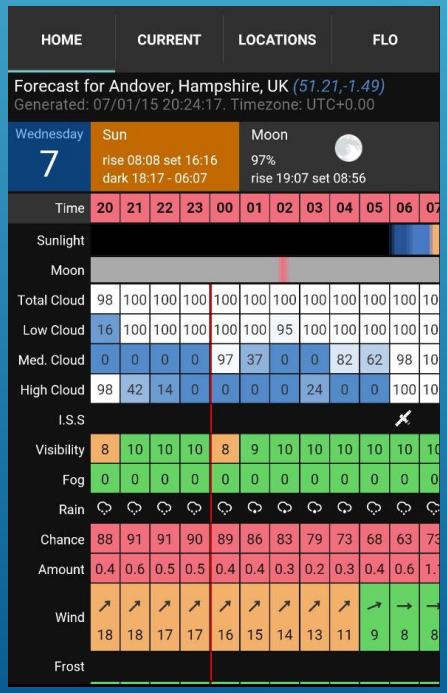
Forecasts vs Observations

- Based on climate/weather models
- Attempt to predict future conditions based on current conditions
- Only accurate to ~7 days (realistically more like 3 or less for our purposes)
  - Many variables contribute to ideal imaging conditions
- Good place to start planning, BUT would not risk gear solely based on forecast

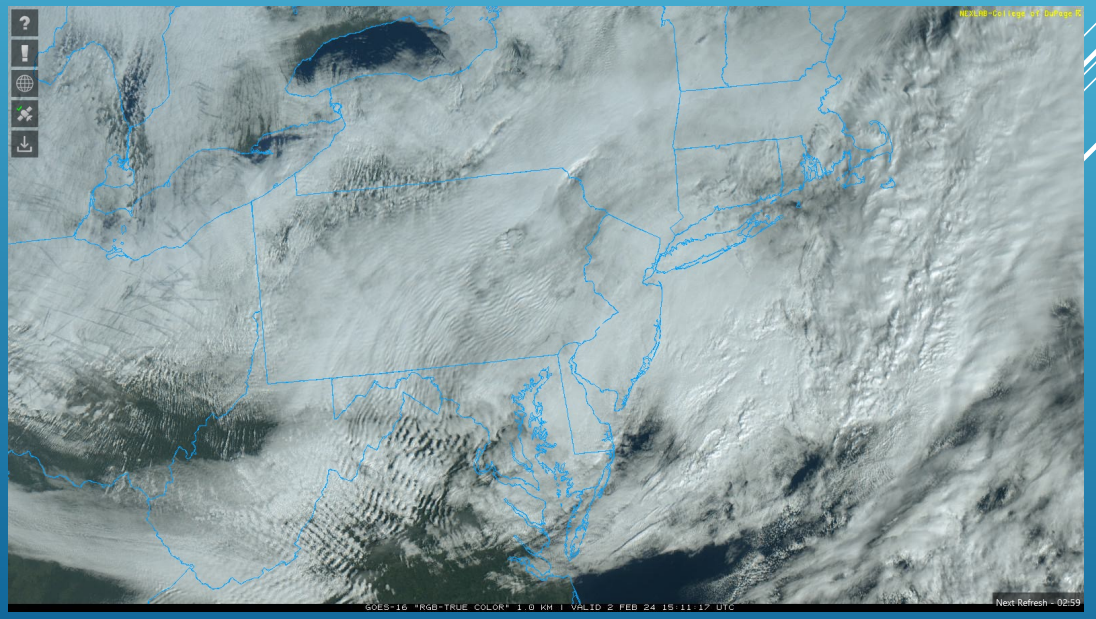
- Near-real-time satellite and radar data, or other in situ devices
- What is actually happening outside, overhead, right now
- Used to make 'in the moment' decisions
- "Now-casting"
- Only sure-fire way to know if good imaging conditions exists
- Caveat: conditions are constantly changing

Forecasts vs Observations cont'd

- Clear Outside
- Astrospheric
- Any online weather forecast (Accuweather, Weather Channel)

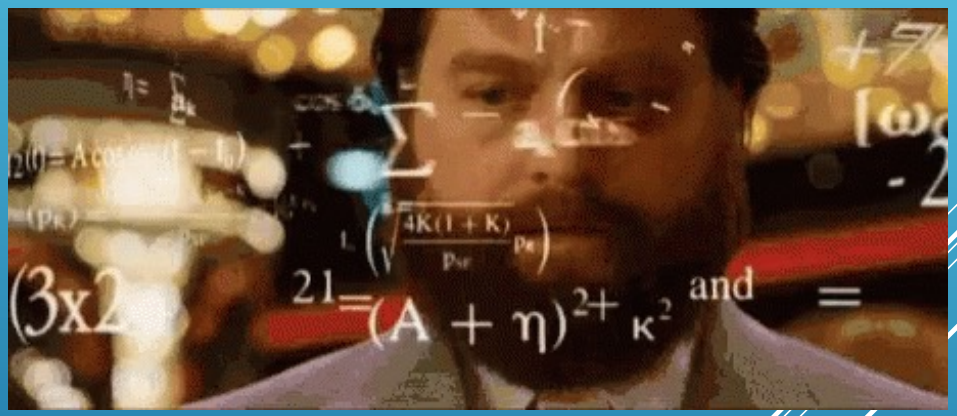


- RadarScope
- RainAlarm
- NJAA Skyeye, SkyAlert, Davis
- College of Dupage (https://weather.cod.edu)

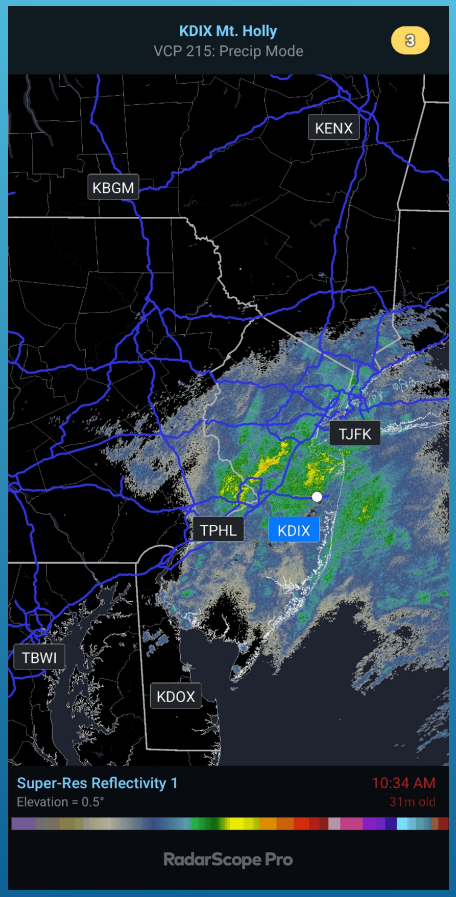


How do we use this information?

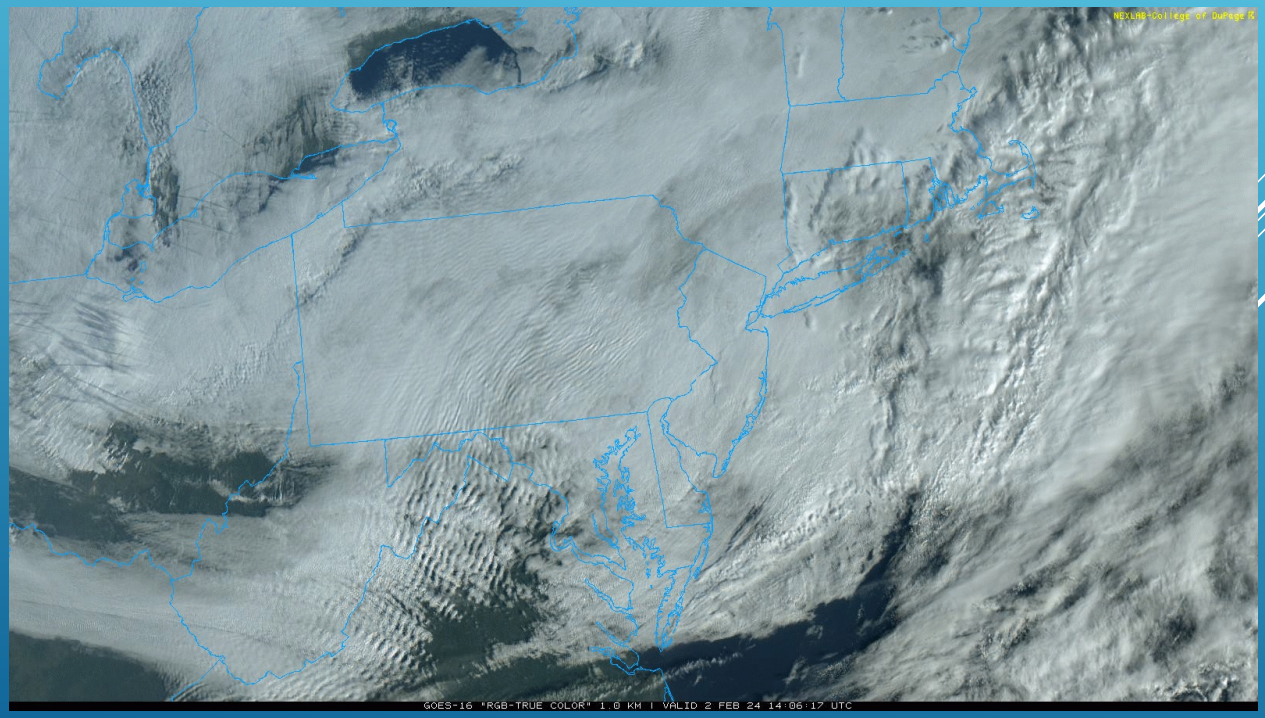
1. Use forecast products to look a few days to 1 week ahead to get an idea of what nights might be good, recheck the afternoon of as things may have changed
2. If forecast looks good, cross reference it with observational product
3. Use the satellite/radar animated loop to gauge imaging time (few hours or all night) and decide



Animate the radar/satellite products

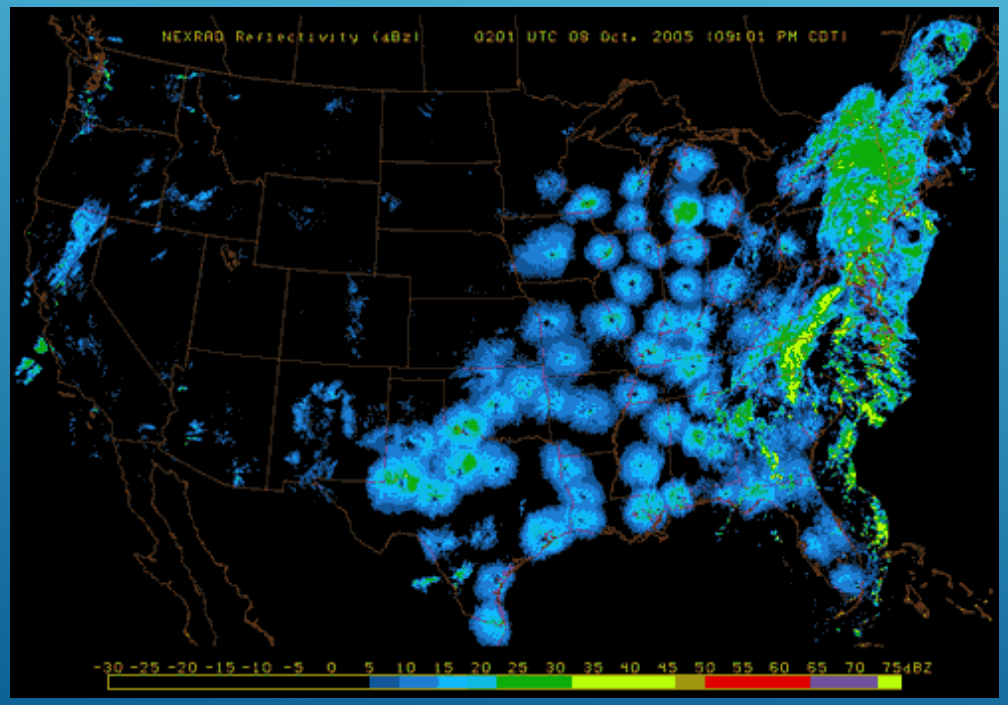


Feb 2, 2024 ~11AM EST

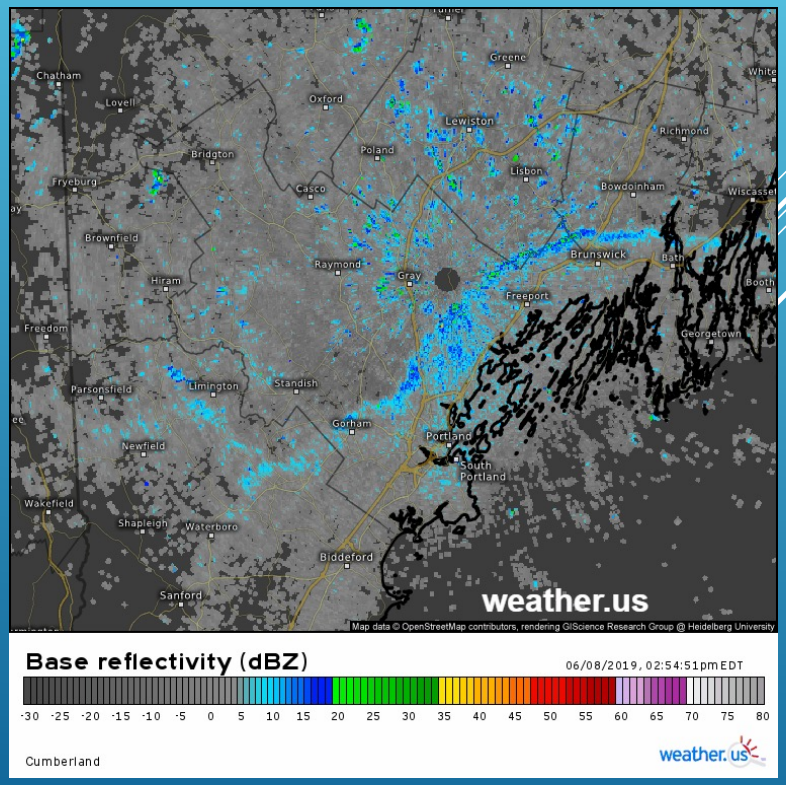


Radar oddities

Radar Bloom



Sea Breeze

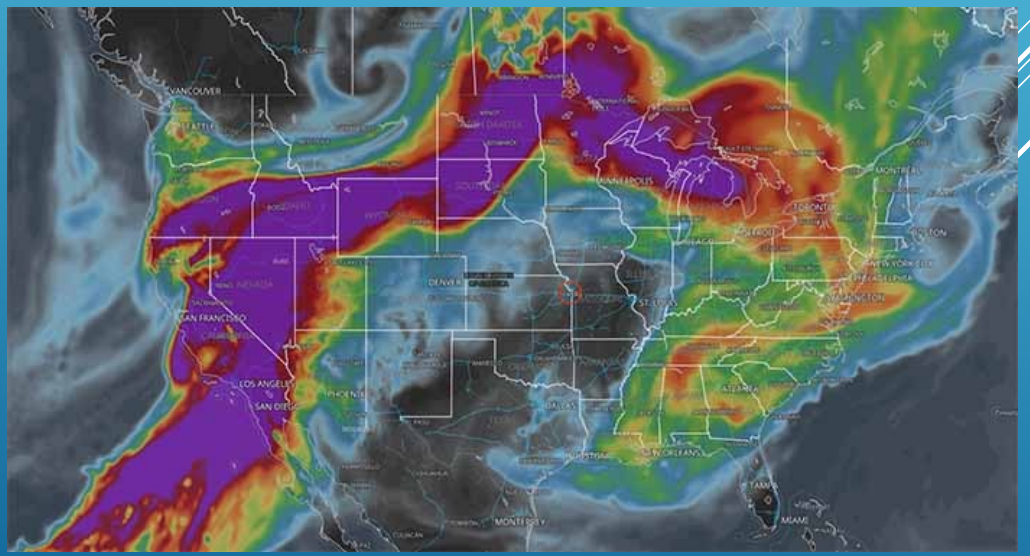


Seeing and Transparency

- Poor seeing causes stars to wobble and twinkle (atmospheric turbulence)
- Poor transparency blocks light transmission (high clouds, smoke)

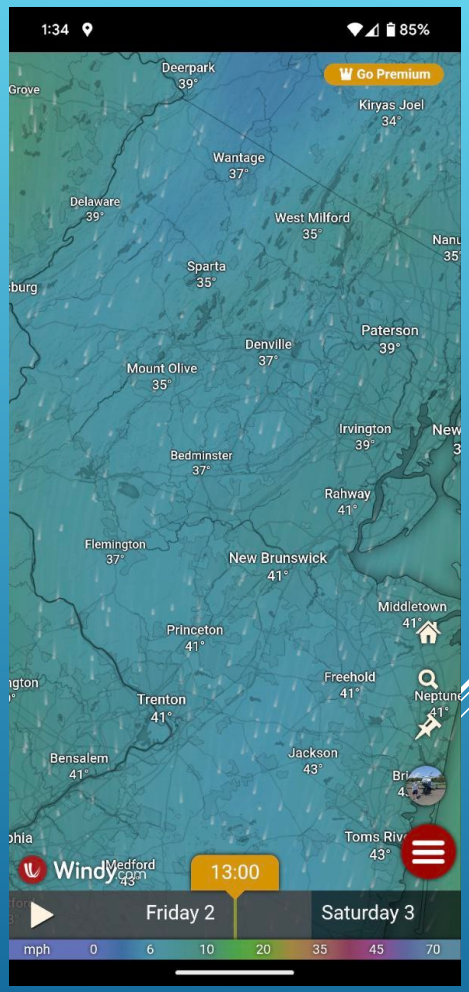
High clouds

Smoke forecast (Astrospheric)



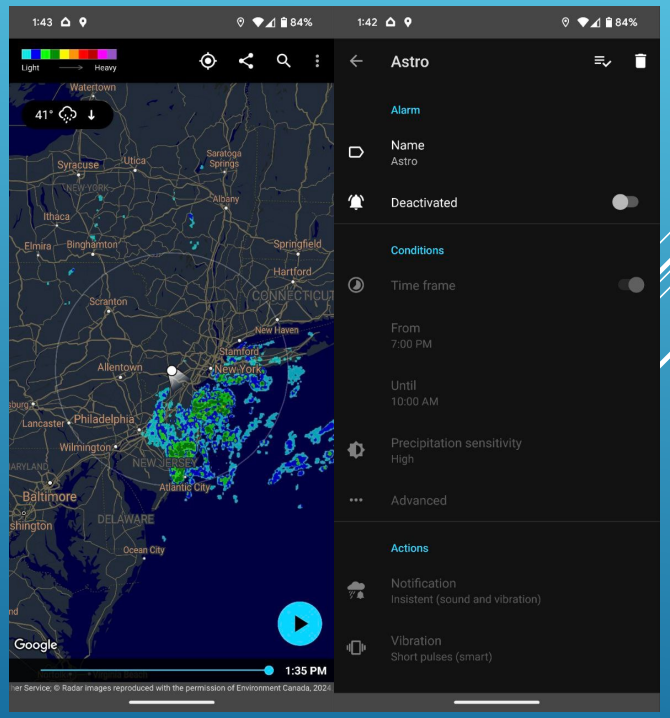
Wind

- Wind, especially gusts can cause star trails
- Scopes with big surface areas tend to be more susceptible
- Dangling wires can make this worse
- Some acquisition software can compensate for this by automatically aborting frames when guiding spikes (such as after a wind gust)
- Can be mitigated by setting up behind a structure or vehicle etc.
- Windy app, etc



What if I want to go to bed?

- Rain Alarm app will monitor NexRad radar in a user-defined perimeter
- Triggers alarm if any rain is detected within that perimeter
- Radar typically updates every 5 minutes
- Requires data connection
- SkyAlert system
- Actively monitors sky conditions
- Triggers mount park + roof closure when conditions exceed safe tolerances
  - Rain imminent, high wind, etc
- **These are last lines of defense! Do not leave gear unattended if there's a chance of rain!**



Summary

- Clouds: lose a few hours of imaging. Rain: lose days – weeks of imaging.
- Use forecasts to plan, use observations to execute
- Be conservative if you aren't sure; weather can change quickly and forecasts are difficult to get exactly right
- Have a safety net in place if you plan to leave gear set up unattended

Bonus Pixinsight tricks!

RC Astro GPU acceleration repository

- Installing this repository bypasses manual CUDA setup
- Only works for those running windows machines with CUDA-capable Nvidia GPUs (1000 series and onward)
- More info: https://www.rc-astro.com/gpu-acceleration-for-ai-powered-tools/

- Repository: https://www.rc-astro.com/TensorFlow/PixInsight/GPU
- Caveat: this is a large plugin as it downloads the necessary CUDA backend (~1.5-2gb)

Image containers for bulk processing

- Select multiple files or views to add to container
- Configure the process with desired settings
- Designate an output directory for processed files to be saved to
- Drag image container triangle onto process to run
- Automate some of the more tedious processes that need to be run on multiple images (BlurX, StarX, NoiseX, etc)