

# **Capturing Weather Moments Successfully While Spotting**

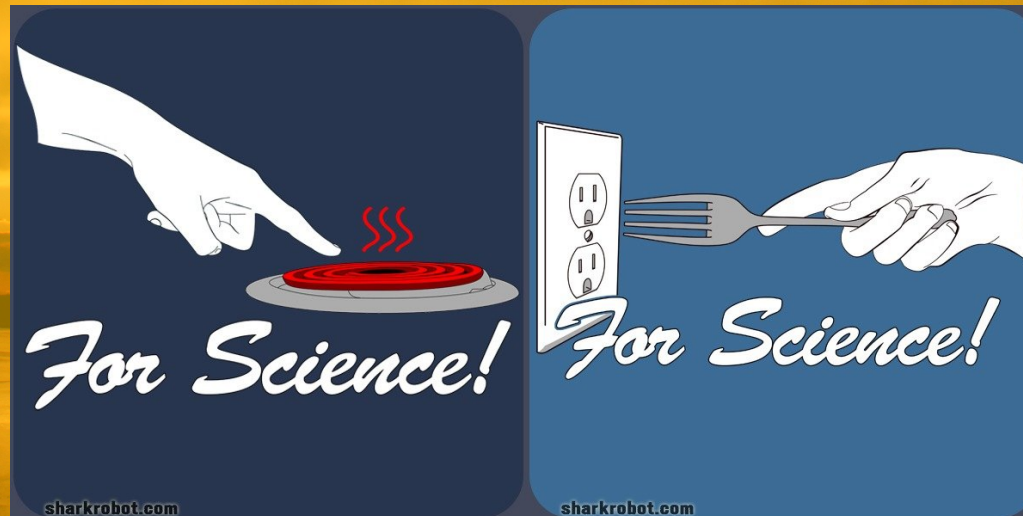
Jarrold Schoenecker





# Types of Spotters

- Mobile
- Stationary/Home
- Chasers and "For Science"
  - If you aren't relaying information, you are not a spotter!
  - If you are taking unnecessary risks, you are not a spotter!





# Types of Spotters - Mobile

- PROs
  - Can position yourself best to capture what you want
  - Most likely to see more weather features
- CONs
  - May have to move out of the way just before you get what you wanted to see
  - Less time for setting up and adjusting shots
  - More at risk of elements



# Types of Spotters - Stationary

- PROs
  - Lots of time to set-up shots
    - Great for lightning and time lapses
  - Safety is only steps away!
- CONs
  - Least likely to see storm features due to restricted visibility
  - No variety in foreground & background material





# **You can't take pictures/video of this!!!**

- Private property
  - Need permission from the property owner if on their property
- Public land/right-of-ways
  - Can document anything within view of you while on public land while following the laws
- DO NOT
  - Go around barricades without permission or get in the way of emergency personnel duties
  - Use best judgement



# What's the best camera to buy?!

- No magical answer
  - Used is okay. You don't have to break the bank.
  - Research, research, research!
- For photo go DSLR crop sensor (APC-S)
  - Most economical and most options without sacrificing quality
  - Similar results to full frame DSLR's
- For video go prosumer
  - Costs a little more but allows for control and better quality
  - Similar results to pro camcorders



# So what is the best camera to buy?

- What fits for your desires and your budget
- Put a good case around your equipment
  - Watch out for cheap foam
  - Good foam padding is dense
- NOTE: DSLR's do both video and photos
  - A compromise for video on DSLR
    - Adds quality but doesn't operate the same
    - CINE lenses help a little but cost more
    - Can't capture both on one unit effectively



# Mobile Phones for Photos and Videos

- Not a substitute to get quality results
- Can miss what you want to capture while holding it
- There's an app for that
  - Always evolving
- A fast and great way to share
- Real-time reporting
  - Don't forget to watermark
  - Live streaming
  - Photographic proof instantly
  - Don't forget to tag the National Weather Service!
  - #Hashtags help





# Video and Photo Mobile Apps

- Add Watermark Pro for Photos (Android)
- Video Watermark by Z Mobile Apps (Android)
- Adobe Photoshop Express (iOS/Android)
- Layout by Instagram (iOS/Android)





# Special Interest: DRONE'T Do It!

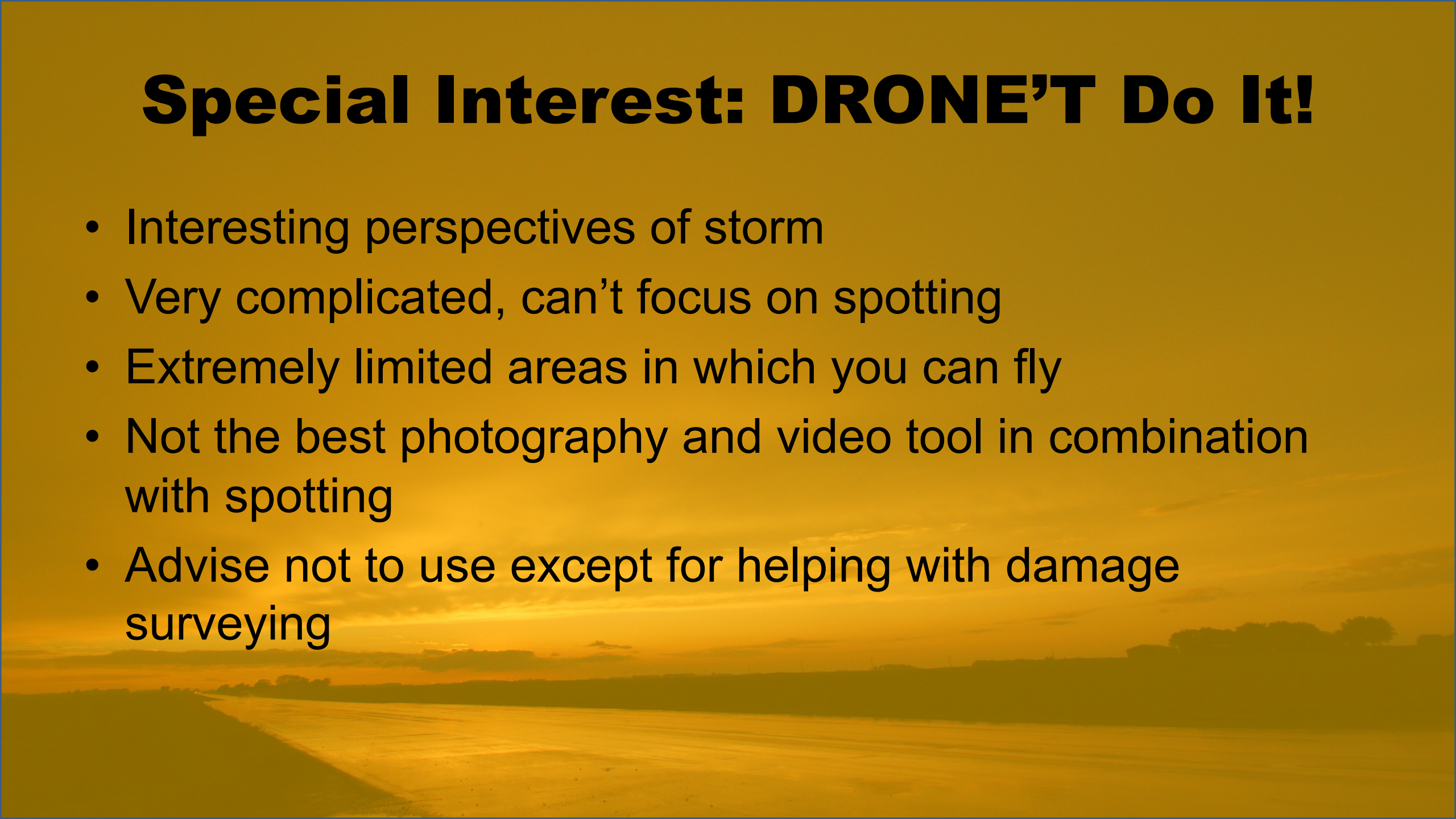
- Register with FAA
  - Good for 3 years
  - Need license with you while flying
- New requirements coming out soon
- UAS license, MnDOT Registration and Insurance Needed
  - For monetary gain of any sorts
  - Considered commercial pilot





# **Special Interest: DRONE'T Do It!**

- Interesting perspectives of storm
- Very complicated, can't focus on spotting
- Extremely limited areas in which you can fly
- Not the best photography and video tool in combination with spotting
- Advise not to use except for helping with damage surveying





# Special Interest: Time-Lapse Cameras

- Provide overall good results but not excellent
  - Typically great in night and low-light conditions (comparably)
- Only do time-lapse
- Only provide a wide angle view or are expensive to purchase additional lens types
- Great for REALLY LONG time periods elapsed
- Some regular video cameras now have option
- Action cameras with external power pack work well



# Special Interest: Action Cameras

- Off-brands are okay
  - Research carefully which one you want to buy
  - Offer substantial savings
  - Usually offer a time-lapse and motion control modes
- Great at capturing the wider story of things but terrible at capturing smaller details
- A nice supplement for photos and videos taken with more capable cameras





# **So, how do I get the shot AND report?**

Good Question!

1. Get the shot set-up
2. Take the Shot/Start Recording
  - i. Make sure it is recording!
3. Report!!!
4. Continue shooting/recording
5. Re-evaluate if additional reports are warranted



# Photo Specifics: Standard Lens

- Good quality multi-purpose lens with high range
  - Average range from 18/28mm to 200/400mm range
- Most of your shots will be with this lens
- Allows for capturing the moment in a hurry
  - No need to change lenses





# Photo Specifics: Wide Angle Shots

- Merging photos
  - A lot of overlap in each photo
  - Software does good job but doesn't always work
- Wide-angle lenses
  - 4.5-16mm
  - WYSIWYG
  - Distortion grows wider the angle
  - Zoomable allows for flexibility over fixed



# Photo Specifics: Wide Angle Merge





# Photo Specifics: Wide Angle Lens





# Photo Specifics: Wide Angle Shots

- Unless dark, typically don't need a tripod
- Uses
  - Shelf clouds
  - Structure that is close
  - Whole-storm structure





# Photo Specifics: Telephoto Lenses

- 100mm-600mm Typically
  - Zoomable allows for flexibility
- Needs to be on a tripod
  - May even need to use a photo trigger
- Uses
  - Tornadoes
  - Wall clouds from far away
  - Individual hail stones, especially when macro capable
  - Capturing damage without going onto personal property
  - Creating Depth-of-Field



# Photo Specifics: Telephoto Lenses

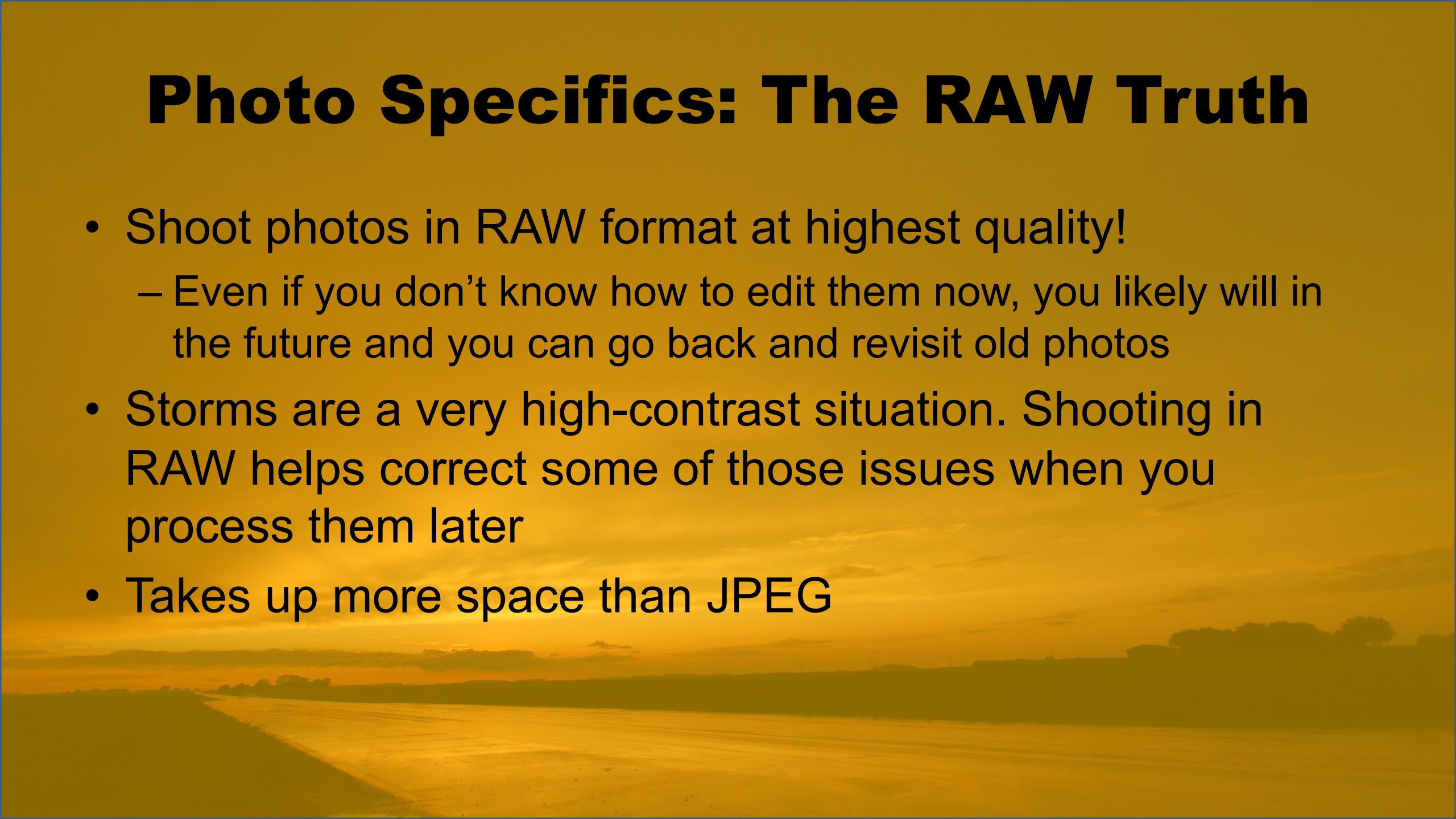


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# Photo Specifics: The RAW Truth

- Shoot photos in RAW format at highest quality!
  - Even if you don't know how to edit them now, you likely will in the future and you can go back and revisit old photos
- Storms are a very high-contrast situation. Shooting in RAW helps correct some of those issues when you process them later
- Takes up more space than JPEG





# Photo Specifics: The RAW Truth





# Video Specifics: All Video

- Should almost always be on a mount or tripod
  - Exceptions are quick situations
    - Lean/brace yourself on something and use both hands
- Talk minimalistically with purpose and avoid swearing
  - Some narration is good.
  - A lot of narration is bad. Let the user enjoy what they are seeing.
- Do not have radio or music playing!
  - Copyright issues
  - Weather radio is okay and at times encouraged!



# All Video and Photos

- Get the whole scene
  - Capture the environment to make the viewer understand what it is they are looking at
  - Can be good for reference later if there are questions
- Get the details by zooming in
  - A lot can be told from the close up action
  - Adds interest and a feeling of what it could be like to see
- Move to a good position without interruptions



# All Video and Photos



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# All Video and Photos

- Frame your subject
  - Wall Clouds/Tornadoes - Can you put between trees or with the sun in the background?
  - Shelf Clouds/Roll Clouds – Can you find an interesting building to give perspective as it approaches?
  - Et cetera
- Move to a good position without interruptions
  - Power lines
  - Vehicles driving
  - People (sometimes)
  - Et cetera



# All Video and Photos



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# All Video and Photos

- Is your subject in frame?
  - The object of your documentation is moving. Don't forget to follow it.
- Exposure
  - Changes often as storms move over you
- FOCUS!
  - Focus is everything or your media will be useless
  - Manual control is NECESSARY



# All Video and Photos

- High Humidity
  - A/C SET ABOVE DEW POINT!
  - Too cold will result in lenses internally fogged
  - Cameras going from cold to hot will be the issue





# All Video and Photos

- I'm so far away!
  - Being zoomed too far out on a subject. Zoom in.
- Can you see me?
  - Clean your lenses ahead of time and keep covers on them
  - UV lens filters help keep them crisp
- Are you charged up?
  - Have extra long-life batteries and multiple sets
  - Make sure they are charged ahead of time



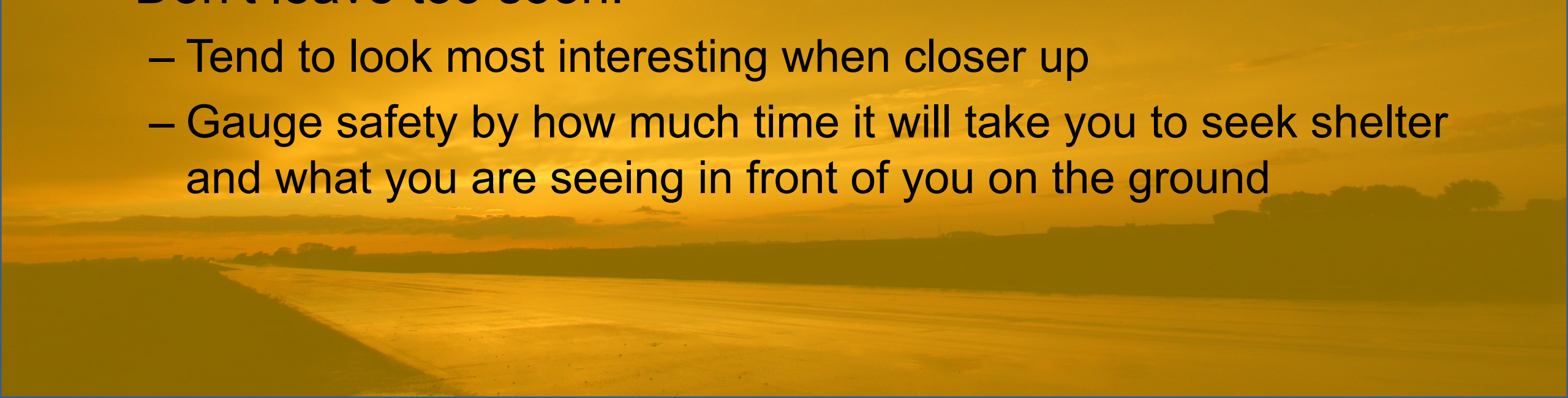
# **Getting the Shot: Shelf and Roll Clouds on Video**

- Use a wide angle lens
- Angle it somewhat perpendicular to it
- Make sure bottom view has a little bit of the horizon on it
- Record continuously as it approaches
- Great for time-lapses
- Easy to do from a stationary position
- Find interesting buildings or subject matter to have in the foreground as contrast



# **Getting the Shot: Shelf and Roll Clouds in Photos**

- A wide-angle lens or photo merge subject matter
- Take multiple takes of it as it approaches
- Try both landscape and portrait modes
- Don't leave too soon!
  - Tend to look most interesting when closer up
  - Gauge safety by how much time it will take you to seek shelter and what you are seeing in front of you on the ground





# **Getting the Shot: Shelf and Roll Clouds in Photos**

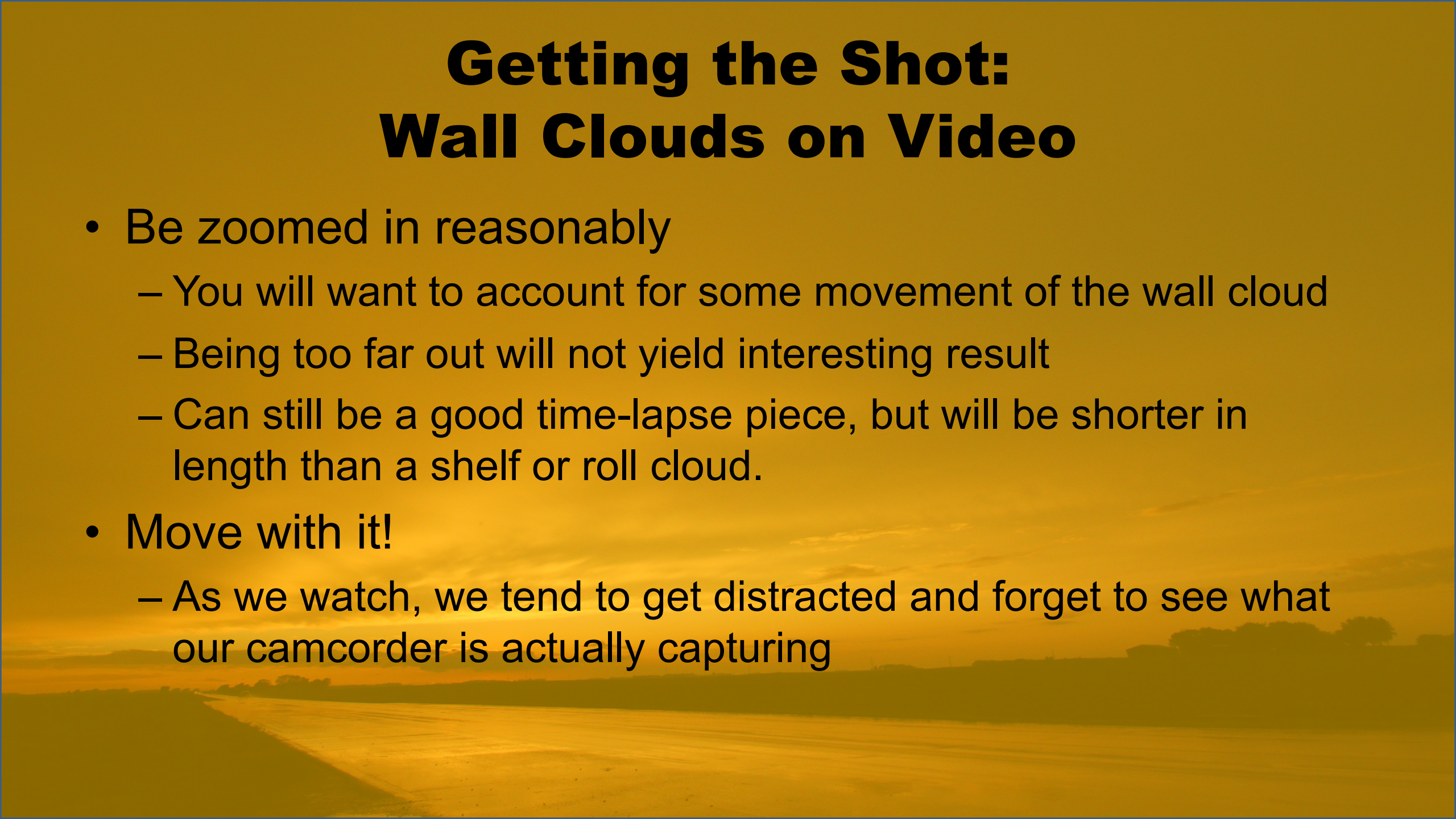
- For photo merges...
  - Be sure to have plenty of overlap in each photo
  - Keep the horizon consistent across the set of photos.
- Must use manual controls or exposure will be off
  - Check an area of the shelf/roll cloud that is bright and one that is dark. Find a happy medium.





# Getting the Shot: Wall Clouds on Video

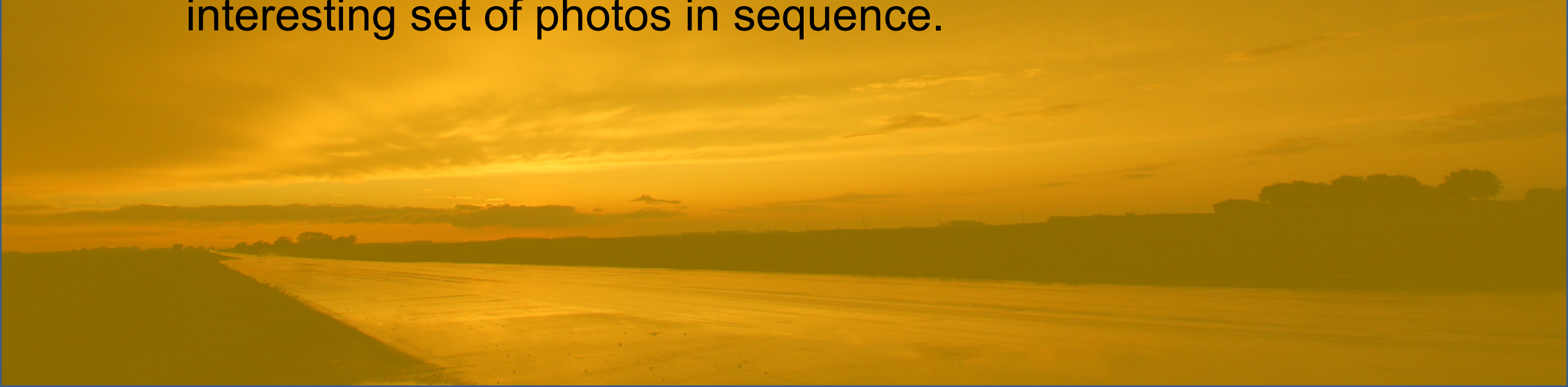
- Be zoomed in reasonably
  - You will want to account for some movement of the wall cloud
  - Being too far out will not yield interesting result
  - Can still be a good time-lapse piece, but will be shorter in length than a shelf or roll cloud.
- Move with it!
  - As we watch, we tend to get distracted and forget to see what our camcorder is actually capturing





# **Getting the Shot: Wall Clouds in Photos**

- Be zoomed in reasonably
  - Same as video
- Great as a set over time
  - Wall clouds change a lot. A series of photos will yield you a very interesting set of photos in sequence.





# Getting the Shot: Wall Clouds in Photos





# Getting the Shot:

## Tornadoes (and Funnels) on Video

- Long and medium zooms
  - Both the whole tornado and close to the base
- Look up!
  - Often interesting things happen during the rope-out stage. You may be able to get interesting video near the top at that time.
- Contrast is key
  - These are high contrast. Adjust for best light to see the tornado/funnel.
- Keep an eye out for satellites
  - As a spotter, you should be far enough away to avoid these already, which gives you a unique opportunity to capture them with the parent tornado.
- Capture the aftermath, damage
  - Don't forget to help those in need
  - Call 911 if necessary



# **Getting the Shot: Tornadoes (and Funnels) in Photos**

- Long and medium zooms
  - Both the whole tornado and close to the base
- Set to high-speed continuous shooting
  - Because they change and move so rapidly, continuous shooting will allow you to get the most out of your subject
- A static set over time
  - Much like other features taking multiple shots in sequence can be very interesting here as well too. Do not change the framing of the camera at all.
  - I recommend a tripod with a photo trigger to capture this



# **Getting the Shot: Greater Structure on Video**

- Great time-lapse subject across the board
- One of the safest spotting footage you can acquire
- Low-level clouds often interfere
- Focus on what you want to
  - Keep your exposure consistent





# Getting the Shot: Greater Structure on Video

- Items you will want to catch
  - Overshooting tops
  - Striations/circular motion of updraft
  - Anvil spread
  - Flanking line towers entering main updraft
  - Entire structure as it evolves
  - Mammatus
  - Tornadoes/Funnels
  - RFD
  - Shelf/Roll Clouds



# **Getting the Shot: Greater Structure in Photos**

- Wide to telephoto
  - Over time, you will likely find yourself switching lenses to fit your subject of interest in view as the storm moves
- Items you will want to catch
  - Same as before





# Getting the Shot: Greater Structure in Photos





# Getting the Shot: Lightning on Video

- Mostly a night-time ordeal
- Need a DSLR or prosumer camcorder minimum
  - A few DSLR's out with super-high ISO (250-400,000)
- Focus is tricky. Set to infinity unless you can see well enough to focus on the object you want to.
- A lense at maximum aperture is best
  - Most lenses are 4.0 or so
  - Better lenses for this are 2.8 or less



# Getting the Shot: Lightning in Photos

- Need a DSLR for sure
  - Less than this will have VERY grainy and unusable photos
- Buy a cheap headlamp
  - I always have one for being able to see what I am doing at night
- Settings
  - Longer exposure, typically between 1/4 second to 2 seconds.
  - If using self timer, you may need to exceed 2 seconds to get a shot.
  - Aperture should be wide open in most cases



# Getting the Shot: Lightning in Photos

- Poorest way – Self timer option
  - Set to 2 seconds and hope for the best!
  - At high risk of getting hit by lightning
- Better way – Wired/wireless handheld trigger
  - Able to watch and have better luck. Some lag time.
  - Can stay inside, reduces chances of being struck by lightning.
- Best way – Lightning trigger
  - Automatically operates camera based off of settings
  - Safest



# Getting the Shot: Hail on Video

- What is the hail doing?
  - Capture that.
  - Trees, vehicles, siding, signs, crops, et cetera
- Dangers
  - Wind driven – stay away from windows
  - Exceptionally large – Seek shelter if in vehicle
  - Where's the updraft?
- Get the aftermath
  - Divits, Damage, piling, et cetera



# Getting the Shot: Hail in Photos

- Long exposure fun
  - Set exposure longer in photos to be able to see hail streak down
- Measurable options
  - When safe, go out immediately and grab the largest hailstones you can find and measure them and photograph.
  - Place them next to coins or other fun objects consistent in size.
  - Do macro photography with an action figure posed with it.
- If you have an exceptionally large one, freeze it immediately.



# Getting the Shot: Flooding on Video

- Flooding is tricky
  - Make sure you yourself are not in danger.
  - Turn around, don't drown.
- Capture it's raw power
  - What is it moving?
  - What is it overtaking?
- Flood gauges
  - Sometimes are visible markers



# Getting the Shot: Flooding in Photos

- The before, during and after
  - If you can be vigilant enough, you might be able to capture what a particular area looked like before, during and after the flooding has happened. This will tell a complete story.
- Flash flooding means usually capturing immediately.
  - May still be raining
  - Water shields for your camera
- Capturing the scope is difficult usually
  - Get objects that can show depth in the shot
    - Mailboxes, buildings, power poles, fences, et cetera



# Getting the Shot: Damage/Aftermath



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# Getting the Shot: Damage/Aftermath





# **I got the shot. Now what?**

- Whatever you do, don't give your work away!
  - Most likely, your work is worth something
  - People will try to get it for nothing all the time
  - DO offer to share with National Weather Service for training purposes! It can be very helpful.
- Watermark it!
  - Everything is for free grabs on social media with credit to the account it came from
  - People constantly steal work



# I got the shot. Now what?

- Edit it!
  - Despite best efforts, your photos and videos are not going to be ready to show immediately. It takes a little work.
- What do I use to edit them?
  - Video
    - Premiere Pro (Mac/PC)
    - Final Cut Pro (Mac)
  - Photo
    - Adobe Photoshop (Mac/PC/Phone)



# Editing Photos

- Learn to use Photoshop
  - YouTube, Linked-In Learning, Others
- Tips
  - View your entire set of photos at one time before editing and pick out your favorite ones. Less is more. Spend more time carefully editing on less photos.
  - After adjusting in RAW editing, ALWAYS adjust levels first.
  - Try some of your most interesting compositions in different modes, such as black and white only or spot color.



# Editing Video

- Get to know your editing program
  - YouTube, LinkedIn Learning, Others
- Tips
  - Audio Levels – Check that they are appropriate throughout. Easily overlooked.
  - If it looks boring, try speeding it up.
  - Try to match video setting between clips from different cameras. (Color/Hue/Exposure/Et cetera)
  - Label video so the viewer knows what they are looking at in different points throughout the video
    - Nothing shorter than 5 seconds or they will not comprehend it



# Sharing Video and Photos

- Abundance of Options
  - Facebook, YouTube, Vimeo, Instagram, Snapchat, Twitter
  - Make sure you fill in keywords on appropriate platforms so viewers can find it
- Always watermark before sharing
  - Keep your content yours
- Mark with appropriate #hashtags and @tags
  - #hail, #tornado, #flooding, #damage, #wind, #mnwx
  - @nwstwincities & @metroskywarn



# Challenges to Documenting

- Navigating
- Forecasting
- Can't see visually
- Traffic jams
- Poor roads
- Hail covered roads
- Objects in the way
- Storms moving too fast to keep up/reach
- Everything is against me!



# Tips to Help

- Mount every device you use in your vehicle
- Apply Rain-X regularly (Monthly)
- When exiting your vehicle, push down your drivers window all the way so you don't get locked out
- Keep the engine running
- Be sure you pull off completely out of the traffic lane when stopping. Use hazard lights if appropriate.
- Look out for good spotting positions that are also good photo/video positions in advance



# Tips to Help

- Keep all your stuff ready to go in your camera bag at a moments notice
- Always keep your gas tank above 1/2 full
- Avoid gravel road and freeway options if possible
- Don't mobile spot in urban areas during rush hour
- Do not apply window films that strengthen your glass



# Tips to Help

- Have good printed maps in your car for navigating
  - GPS/Phones can fail at times when you most need them
- Make sure you have the memory space to document
  - Clear your memory cards out
- Clean your windows before you plan to spot
  - Your lenses might be clean but if your windows are not, well...
- Spot with someone else
  - This will allow you more time to report and document what you are seeing

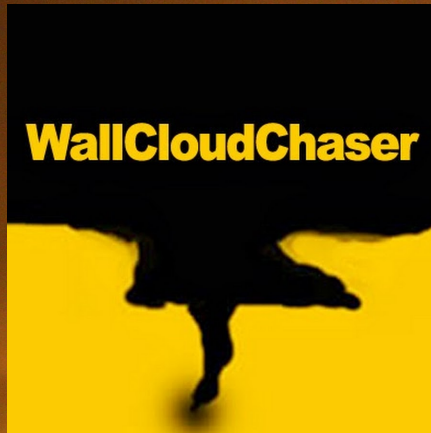


# Tips to Help

- Look at others' work for ideas on things you want to capture
- Remember to look around
  - Radar has limitations
  - You will see things before the radar does
- **BE OKAY WITH THE FAILURE OF NOT CAPTURING IT!**
  - Don't be in too much of a hurry
  - There will be other storms
  - The best videographers and photographers made mistakes and saw a lot of things they were not able to capture but wanted to!



# Capturing Weather Moments Successfully While Spotting



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