CIRES Guide for Capturing Footage for a VR Tour

This guide is designed to support field scientists collecting footage during research campaigns. CIRES CEEE uses VR tours as a learning resource and tool to connect learners with a dataset, incorporate accessible placed-based learning into classrooms, and communicate the nature of science.

Since each field expedition is different, we meet with researchers in advance to discuss their itinerary, terrain, conditions, and research objectives to brainstorm opportunities for them to collect footage. Developing a tour plan with key learning objectives enables our team to tell your story, ensuring that important footage is collected, and researchers do not overlook compelling content that might be trivial to the storyline.

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Equipment

- Pelican case (orange)
- GoPro 360 MAX w/ all instructions OR InstaX
    - Includes GoPro MAX Camera, camera case, rechargeable battery, curved adhesive mount, 2 protective lenses + lens caps, microfiber bag, mounting buckle + thumb screw, and USB-C cable.
- Lens cleaners
- Tripod
- 2 – 256 Micro SD cards
- Extra battery
- Dual battery charger
- Seagate slim hard drive (500GB storage)

Guide to Shooting Video in the Field with 360 Cameras

When using 360 cameras in the field, there are several important practices to ensure high-quality footage that captures the scene's full potential and communicates your message effectively.

Preparation and Equipment Management

1. **Battery Management**:
    - **Charge Batteries**: Charge all camera batteries the night before your fieldwork.
    - **Maintain Charge**: Keep extra batteries close to your body, such as inside a jacket pocket, to preserve their charge, especially in cold environments. Handwarmers in a pocket can help keep the batteries warm.
2. **Footage Storage**
    - **Saving Footage:** We recommend backing up your footage daily in case the camera or SD cards are lost. You can use the provided hard drive to store footage. We also recommend uploading all footage to the cloud. CIRES CEEE can provide a OneDrive folder for cloud storage.
3. **Equipment Positioning**:
    - **Tripod Setup**: Use a tripod to stabilize your shots. Ensure the camera is level with the tripod on a flat surface to reduce the tripod's visibility in the shot.
    - **Camera Height**: The ideal filming height is about 5 feet, or eye level, for a natural adult perspective. Adjust the height according to your audience—for example, lower it for content aimed at children or to show an insect's perspective.
4. **Log Your Footage**:

- Maintain a log of the footage recorded, along with GPS locations. While some camera models can extract location data, having a manual backup is beneficial for accuracy and ease of access.

Filming Techniques and Scene Composition

5. **Scene Composition**:
   - **Foreground, Midground, and Background**: Include elements at all depths to create a rich, immersive experience. Using the full 360-degree capability of the camera allows viewers to explore all parts of the scene.
   - **Identifiable Objects for Scale**: Include recognizable objects or people to provide a sense of scale. This is especially crucial in vast landscapes where scale can be challenging to perceive.
6. **Detailing Foreground Content**:
   - **Close Proximity**: Place items of interest close to the camera to capture details, as fisheye lenses require subjects to be a few feet away. Check for obstructions, such as hands, that might block the view.
   - iPhone or point-and-shoot cameras are great for capturing details such as notes in a notebook and close-ups of interesting features (geography, plants, animals, etc.). We use still images and non-360 videos in the tours to highlight and zoom in on key features. We highly recommend using both the 360 camera and video/still images to fully capture the fieldwork.
7. **People in the Frame**:
   - **Human Element**: Including people can humanize the experience, providing scale and illustrating the scientific work being done. Plan to be part of the scene if necessary and use actions that enrich the narrative.
   - **Distance from Camera**: Ensure people are at least 3 feet away from the camera to avoid distortion. If you prefer not to be in the shot, use a timer or remote control to operate the camera.
8. **2D and Timelapse Footage**:
   - **2D Photos and Videos**: Capture additional angles and scenes to provide options for further exploration within the virtual tour. This can offer unique perspectives or interesting spots off the main path.
   - **Timelapse**: Use timelapse to capture long processes, like setting up equipment, which can be visually engaging and convey the passage of time.

Enhancing the Viewer Experience

9. **Eliminate Distractions**:

- Carefully curate the scene to include all necessary elements and remove unwanted distractions. Avoid having people unexpectedly enter or exit the frame, as this can disrupt the viewer's focus.

10. **Embrace Unexpected Moments**:
    - Film everything, including spontaneous or unexpected events. This can provide valuable insights or capture unique moments that enrich the narrative.
11. **Audio Considerations**:
    - Ensure all sounds have a visible source in the video. Unaccounted-for sounds can lead to confusion, as viewers might look for the source, breaking their immersion.

Post-Filming Considerations

12. **Editing and Final Production**:
    - When editing 360 videos, you can choose to produce flat movies by selecting specific portions of the field of view, allowing flexibility in how you present your content.
13. **Acknowledge Contributors**:
    - Creating VR tours or short movies showcasing research and fieldwork can be a meaningful way to thank participants and motivate future contributions.

By following these guidelines, you'll create engaging, informative, and visually captivating footage that brings your field experiences to life for viewers.

GoPro Max 360 Footage Collection Instructions

Adapted from/for more details:
https://gopro.com/content/dam/help/max/manuals/MAX_UM_ENG_REVB.pdf

Setting Up the Camera

The lens covers pop on and off, to remove/switch between the solid covers and the clear bubble covers simply lift up by the rubber edge. Make sure to remove the plastic from the clear lens bubbles/keep them clean to decrease glare.

The MicroSD card, USB-C port, and battery are all located in the right side (if you are looking at the screen) of the camera. To access them, unlock the “door” using the toggle in the center, slide the door down and flip it up to open.

The MicroSD card goes into the slot with the label facing the battery compartment. To remove the card, press on it using your nail and it will pop up.

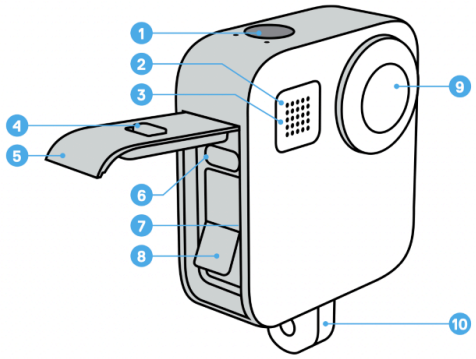
Add the battery into the large slot. To remove, use the flap on the side of the battery to pull it out.

To charge the batteries, you can either use the GoPro battery charger or, with the battery in the camera, plug a USB-C charger into the port above where the battery is inserted and charge.

Once you are done, flip the door back down and slide it all the way up and switch the toggle back to its original position to lock it.

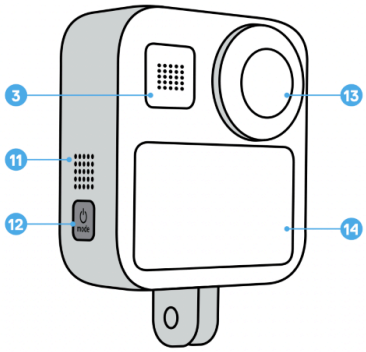
To attach the camera to a tripod, flip down the two pieces on the bottom of the camera, each with a hole in them. Place it onto the mount, aligning the two flaps in between the slots so that all of the holes line up, and then place the screw through the holes and tighten.

Meet MAX



1. Shutter Button
2. Status Light
3. Microphone
4. Door Lock
5. Door
6. USB-C Port
7. microSD™ Card Slot
8. Battery

Meet MAX



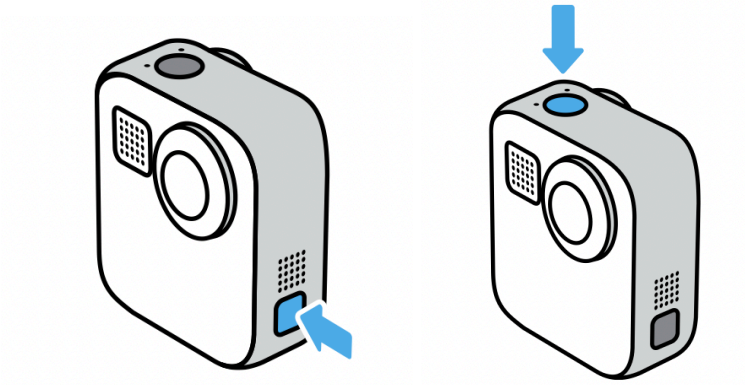
9. Camera Lens (Non-Screen Side)
10. Folding Fingers
11. Speaker
12. Mode Button
13. Camera Lens (Screen Side)
14. Touch Screen

Capturing Footage

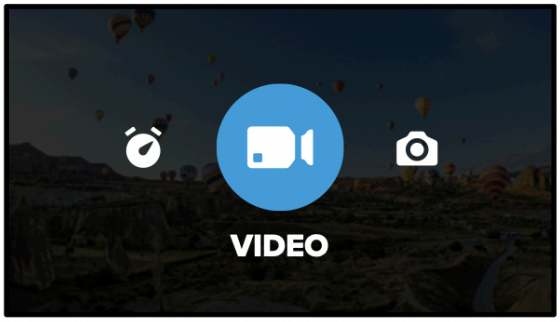
The power button is located on the left side (if you are looking at the screen) of the camera. To turn it off, press and hold this button for at least 3 seconds.

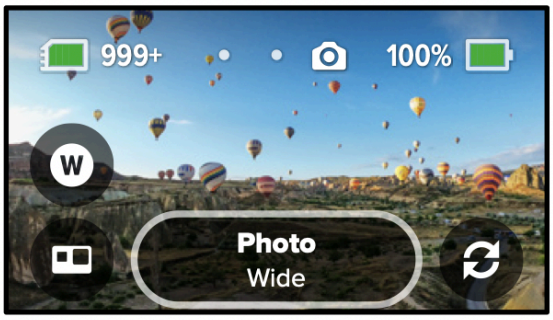
To begin recording or to take a photo, press the capture button on the top right of the camera once. To stop recording if you are taking a video, press the capture button again.

Power Button: **Capture Buton:**



To capture picture footage, switch to the photo mode (camera icon), and to capture video footage, switch to the video mode (film camera icon). You can see the mode you are in at the bottom center of the screen. Switch modes by pressing on that button and selecting a new mode, or by swiping left and right on the screen.





To switch between capturing regular and 360 footage, click the GoPro camera icon located on the bottom left of the screen.

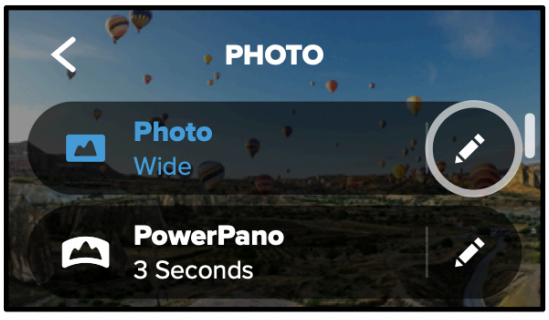
If you're taking regular photos, you can switch between the front and back lens by clicking the icon that has arrows in a circle in the bottom right corner (note that if you are capturing 360 footage this won't affect anything, since it will use both lenses, clicking this button in 360 mode simply changes what view you see on the camera screen).



1. Current Mode (Video, Photo, or Time Lapse)
2. Recording Time/Photos Remaining
3. Digital Lens Shortcut
4. HERO/360 Mode Select
5. Battery Status
6. Horizon Lock Shortcut
7. Lens Switch
8. Capture Settings

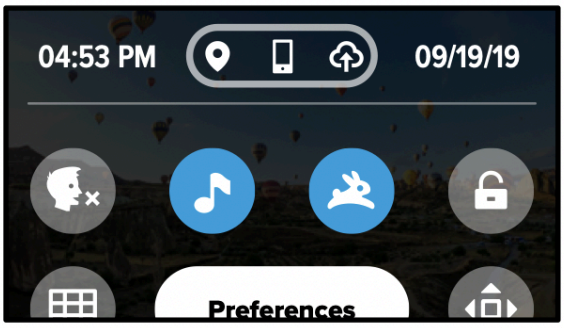
It's a good idea to be able to capture your 360 photos without you being in the shot/being able to get into position. To achieve this either change the timer settings, so that the photo will only capture after a few seconds have passed, or download the GoPro Quik app to control the camera remotely.

- To change the capture timer settings on the camera, press the mode on the bottom of the screen, and press the edit pencil icon next to the mode. Click on "Timer" and select your desired number of seconds.
- In the app, you are able to connect your GoPro via Bluetooth and control it from your phone. **If you plan on using the app, download and connect your camera before going out into the field.**



To make sure your camera is also capturing GPS information, swipe down on the top of the screen and press Preferences. There you will find the regional settings (gridded globe icon),

where you can turn on the GPS. To confirm that your camera is capturing GPS information, the map pin icon at the top of the dashboard (the screen you got when you swiped down) should be filled in white.



Exporting Footage/Other Tips

To transfer the footage off the SD card you can either use a MicroSD card reader if you have one, or simply attach the GoPro to your computer using the USB-C port in the camera and have the camera turned on.

You can format your MicroSD card right on the GoPro by going to Preferences, and Reset (circle arrow icon), and press Format SD Card. This will clear all the data off of your MicroSD card, which is good to do before you start capturing footage the first time (as long as there's nothing important on the card) or to clear the card after you've transferred your footage to a safe place on a computer or a hard drive.

When mounting the GoPro, make sure to try to make the camera as level as possible to make sure that as little of the tripod/base as possible will end up in the shot.

When capturing media for use in producing a 360/VR tour, please ensure that the camera is in the '360' mode. This can be verified on the camera's home screen and changed if it is not in the 360 mode. This can be verified on the home screen of the camera and changed if not in the 360 modes (by pressing 'point '8 in the following figure).

Note: Standard / flat photos can also be used in a 360 tour as supplementary media, but not as 'scenes'. There are ways to 'stitch together' regular photos to make 360 photos, but for our purposes, it's easiest to just use the '360 mode'. This will ensure ease of importing and production with the chosen VR/360 software.

Note: 360 videos can also be used as both scenes and as supplementary media in the production software - so feel free to capture some of that type of media, too!