

## Collecting 360° Footage:

### Equipment:

- A 360° camera should be used to gather footage for a VE tour. Common options include: [Insta360 One X](#), [Insta360 One X2](#), [GoPro Max](#), GoPro Fusion
  - Extra battery packs and battery charges
- A good phone camera, DSLR camera, or video camera
  - Used to capture additional 2D images and videos.
- Monopod or Small Tripod
  - A monopod allows footage to be filmed at eye level for the VE tours and reduces shakiness in the footage which can cause distortions. Be aware that tripods with larger footprints could be visible in the 360° images.
  - Selfie sticks allow you to walk and move with the camera.
- SD Cards
  - Check if your camera requires an SD card or microSD cards.
  - Cards should be 128 GB at a minimum. Some camera require multiple SD cards of the same size whether it's 64, 128, or 256 GB.
  - SD cards should have a write speed of at least U3 (look for the [symbol of a 3 inside a U](#)).
  - Include extra SD cards in case of damage or corruption
- File Storage
  - Hard drives should be a minimum of 1TB. Lacie or Seagate 2 TB hard drives are preferred.
  - Cloud backup beyond what is typically available in a personal cloud drive.
- Camera-Specific Software
  - Viewing, managing, and exporting your footage requires the appropriate software for your specific camera model ([Insta360](#), [GoPro Player](#)). Be sure to have these applications downloaded to your computer and/or phone prior to going off-grid. The fall workshop will cover more details about stitching images and creating the VE tours.

### Tips for filming:

1. Keep a log of the footage you recorded along with GPS location. Location data can be extracted from the footage with some camera models, but having a backup is helpful.
2. Include objects that are identifiable for scale. Filming a person or people doing some activity in the shot is a great way to do this as it humanizes the experience. Human subjects should be at least 3 ft away from the camera to reduce distortion.

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3. Include content in the foreground, midground, and background. To make a scene interesting for a VE tour it is useful for there to be more versus less shown in the scene. Take advantage of the full 360-degrees of detail for viewers to rotate the full way around.
4. If you would like to highlight something in detail, such as research equipment or a notebook, it should ideally be placed in the foreground a couple feet from the camera and unobstructed. For the Insta360 Pro cameras, objects should be no closer than 3 feet. Check the owner's manual for the minimum distance of other camera models.
5. The ideal height to film with the 360 camera is about 5 feet or eye level for an adult perspective. Use a shorter height if you intend the tour to be primarily viewed by children, or to emphasize what the environment might look like for an insect or animal.
6. Take 2D photos and videos to provide options for the viewer to explore, like a scenic view off the main path. These can be embedded into the tours to add more context. If you find an area unique or interesting, so will your viewer! Filming more allows for options later.
7. Timelapses: Timelapses allow for you to film your work sped up. For example, if you are setting up your research equipment in the field, a timelapse might be more compelling to collect as that can run for a long time and add more movement in the film.

*This guide has been condensed from guidance given by the “360 Imagery Collection Protocol” by Lianna Nixon, from Kira Harris, and from the Virtual Ice Explorer at Ohio State University (<https://u.osu.edu/virtualice/filming/>).*

