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1. Solar Eclipse Safety

A rare astronomical event, a total solar eclipse, will occur on August 21, 2017. A solar eclipse occurs when the moon passes between the earth and the sun. While the eclipse will be viewable over much of the United States, a total eclipse occurs only in a band across North America. The totality band crosses Nebraska from west to east at an angle, allowing many Nebraskans to easily view this rare event.

The sun's light is about a half million times brighter than the full moon in visible light and emits potentially harmful ultraviolet (UV) and infrared (IR) radiation. **Never** look directly at the sun without properly rated and designed eye protection or viewing equipment (note: regular sunglasses are **not** designed for looking directly at the sun). Looking directly at the sun, even during an eclipse can cause irreparable and permanent eye damage.

In order to safely view the eclipse, there are two methods. One is the use of "eclipse glasses". Eclipse glasses are "special purpose" eyewear. That means they are designed **exclusively** for looking directly at the everyday sun. Eclipse glasses are safe for use only if they have an ISO (International Organizations for Standardization) certification. Filters with this certification not only reduce visible sunlight to safe and comfortable levels but also block solar UV and IR radiation. There are a number of venues to purchase such glasses, either lightweight intended for single use or a more substantial pair. Any eyewear for viewing the eclipse should be labeled with ISO certification.

Another method is **indirect** observation using a pinhole or pinhole camera. To use the pinhole method that is very low tech, quick and easy to make, begin with a 3x5 index card or another substantial piece of paper. Make a round hole in the paper using a paper punch or similar item. When the eclipse is scheduled, hold the paper so that the sun shines through the hole onto a smooth surface such as a sidewalk. Before the eclipse, the "paper" will cast a shadow but the "hole" will be bright, a view of the sun. During the eclipse, by watching the smooth surface you can **indirectly** observe the progress of the eclipse as

projected through the hole in the paper. The image will be small but is a safe and free way to observe an eclipse. Directions for making/using various devices for safely observing the solar eclipse are provided in the videos listed in the Safety Shorts section below.

Other considerations:

- Never use damaged or scratched eclipse glasses or filters.
- Never use eclipse glasses without the proper ISO number printed on it.
- Never use eclipse glasses as a filter for or in conjunction with telescopes, binoculars, or other optical devices such as cameras. Such equipment uses different filters for viewing the Sun.

At UNL the Department of Physics and Astronomy is planning a Science and Engineering Fair outside Haymarket Park, home of the Lincoln Saltdogs. The fair will have free demos, activities, and information booths in the Haymarket Park parking lot. The department will set up several portable sun-viewing telescopes. They will also stream live video from the UNL Student Observatory. A Minnich Solar Telescope will be set up with a “beam-splitter” that will allow viewing directly through an eyepiece while a camera picks up the same image for streaming online and the Haymarket stadium screens. The Society of Physics Students will have several tables of interactive demos.

The last time there was a total solar eclipse across the continental United States was 1918! A partial eclipse begins in Lincoln NE on 8/21/17 at 11:37:17 a.m. and the total eclipse begins at 1:02:36 p.m. CDT. In Lincoln, the approximate length of totality is 1 minute, 24 seconds. This totality event, while lasting only between 1 and 2.5 minutes depending on your location, is certainly one worth observing - but be sure to do so safely!

Resources:

- UNL Department of Physics and Astronomy “2017 Total Solar Eclipse”
<http://www.unl.edu/physics/2017-total-solar-eclipse>
- Where To Watch 2017 Nebraska Eclipse <http://neclipse17.com/where-to-watch/lincoln/>
- Space.com “Total Solar Eclipse 2017: When, where and How to See It (Safely)” <https://www.space.com/33797-total-solar-eclipse-2017-guide.html>
- NASA (National Aeronautics and Space Administration) “Total Solar Eclipse of 2017 Aug 21”
<https://eclipse.gsfc.nasa.gov/SEgoogle/SEgoogle2001/SE2017Aug21Tgoogle.html>
- Forbes Science “Seven Things You Must Anticipate For the 2017 Solar Eclipse”
<https://www.forbes.com/sites/startswithabang/2017/06/27/seven-things-you-must-anticipate-for-the-2017-solar-eclipse/#6dc0cd9347b8>

- Sky & Telescope “2017 Total Solar Eclipse: A Guide to Totality on August 21, 2017” <http://www.skyandtelescope.com/total-solar-eclipse-august-2017/>

2. Safety Shorts – Solar Eclipse Safety

This series features links to short safety resource(s) each month. Provided this month are resources on how to use/make devices to help safely view the solar eclipse if eclipse glasses are not available.

- **How to Make a Solar Eclipse Viewer** (Space.com, 2:07 minutes)
<https://www.space.com/15752-solar-eclipse-viewer.html>
- **How to view Total Solar Eclipse USA August 21, 2017** (SpaceBalloon Fr, 5:24 minutes)
<https://www.youtube.com/watch?v=rHHTfGzaiuA>

NOTE: Resources provided are for informational purposes only. Publication does not indicate endorsement a particular company or product or affect current UNL policies and procedures.

3. Situational Preparedness – Heads Up! Resources

Situational preparedness is so important that we will be looking at various aspects over time, as well as providing resources to assist you to “be prepared” for whatever situations you may encounter at UNL.

The Chancellor’s University Safety Committee some time ago initiated a “*Heads Up!*” campaign to address concerns with unsafe walking/driving/bicycling at UNL. Now available online are a variety of “marketing materials” to help promote safety in all aspects of walking/driving/bicycling, in particular on campus. There are:

- Reminders. Short statements individuals can share with their peers.
- Discussion Questions: Short insightful questions to share within the work area, department, safety committee, etc.
- Resources. Additional information on hazards of distracted walking/bicycling/driving and mitigation strategies. Included are videos, infographics and more.
- Graphics to print yourself or available upon request in either JPG or PDF format to print/email within your sphere of influence.

Do you have other suggestions for reminders, discussion questions or resources? Contact Elizabeth (Betsy) Howe, ehowe2@unl.edu or 402-472-5488.



A message from the Chancellor's University Safety Committee

Resources

- Chancellor's University Safety Committee
<http://ehs.unl.edu/chancellors-university-safety-committee-cusc#cusc>
- EHS Safety Resources "Heads Up! Marketing Materials"
<http://ehs.unl.edu/heads-up-marketing-materials>

4. Housekeeping & Hoarding

Part of maintaining a safe work environment is keeping your work area clean and free of clutter and unneeded/unwanted supplies, chemicals, samples, etc. Routine cleaning of your workspace or laboratory serves multiple purposes, one of which is reducing the number of things you need to inventory or remember where they are within the work area/lab.

Additionally, some chemicals become unstable over time and can actually be more dangerous than the same chemical manufactured more recently. Finally, storing old and unneeded chemicals can enhance the risk of fire and health hazards should an accident occur. All of these are reasons to ensure routine housekeeping takes place in all work areas and hoarding of chemicals and other materials does not become commonplace. EHS can pick up unwanted or abandoned chemicals.

This advice also applies to biological research laboratories working with human, animal and/or plant pathogens and toxins. UNL adopted a policy in November 2014 requiring researchers working with these agents to submit to Environmental Health and Safety an inventory of pathogens and toxins stored or

in use in their laboratories. The list must be updated at least once per year or a notification submitted to indicate that the inventory has not changed since last reporting. While we understand the need to maintain culture collections and sample archives, we encourage researchers to use this annual pathogen inventory update as a chance to re-evaluate the need to keep certain samples in freezers and long-term storage.

This inventory requirement exists outside of the Institutional Biosafety Committee (IBC) protocol review process and is intended to document what pathogens are on campus in the event of an emergency, for example, a natural disaster. In 2015, the White House released a memo from the Office of Science and Technology Policy indicating that there may be action towards requiring material inventories be kept for:

“...any biological agent that could pose a serious threat to public health or agriculture.”

With this in mind all researchers, whether on campus or at a UNL research and extension center, are asked to comply with the UNL policy. Refer to the EHS Safe Operating Procedure (SOP), **Pathogens Inventories**, which provides guidance and explains what information is required as well as how to format and submit the pathogen inventory to EHS. If you have any questions or need assistance submitting the inventory, please contact the EHS Biosafety Team at ibc@unl.edu.

Resources

- **Pathogen Inventories** SOP http://ehs.unl.edu/sop/s-bio-pathogen_inventories.pdf
- Lisa O. Monaco, John P. Holdren. The White House. “A National Biosafety and Biosecurity System in the United States.” October 29, 2015. <https://www.whitehouse.gov/blog/2015/10/29/national-biosafety-and-biosecurity-system-united-states>
- **Hazardous/Radioactive Material Collection Procedures** SOP http://ehs.unl.edu/sop/s-chem_collection_procedures.pdf

5. Safety Poster – What’s in your freezer?

EHS provides a number of safety posters of relevance to the campus community. Does your laboratory freezer look like this? Now is good time to clean out your freezer, even if it does not look as bad as the poster shown below. And you can update your inventory at the same time.



Request your FREE poster(s). Contact ehs@unl.edu or 402-472-4925 with your name, campus mailing address, and quantity desired. If you have an idea for a safety poster, contact Elizabeth (Betsy) Howe, ehowe2@unl.edu, 402-472-5488.

Resources:

- Safety Posters <http://ehs.unl.edu/safety-posters>

6. Chemical Hazard Assessment and Risk Minimization Colloquium

If you missed the spring colloquium on April 12, 2017, or would like to review the contents, the video of this safety event is now online at <http://ehs.unl.edu/training/Colloquium>.

7. Your Opinion Matters

Environmental Health and Safety is committed to excellent customer service and offers a *Customer Satisfaction Survey* as an easy method for the campus community to provide feedback on our services and staff. By taking a few moments to complete the survey (<http://ehs.unl.edu/survey>), you will be helping us to identify areas where we might need to focus our attention. In order to effectively evaluate potential areas for improvement, please provide specific information or examples and your name and contact information. The Director, Brenda Osthus, follows up on all submissions. We greatly appreciate your participation.

Please feel free to contact Brenda Osthus, EHS Director, at 402-472-4927 or bosthus1@unl.edu if you would rather communicate outside the parameters of this survey.

8. Revised Safe Operating Procedures

- **Radioactive Material Inventory Tracking** SOP http://ehs.unl.edu/sop/s-RAM_inventory_tracking.pdf
Revised to include an updated version of the RAM Inventory Tracking Form.
- **Storm Water – Illicit Discharge Detection and Elimination (IDDE)** Safe Operating Procedure (SOP) http://ehs.unl.edu/sop/s-stormwater_IDDE.pdf
Added information about the receiving waters for City and East Campus, on reporting a concern related to permanent storm water control, and referenced the EHS online Stormwater Reporter tool.

Remember...SAFETY IS AN ATTITUDE!

Environmental Health and Safety

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