

WebSights features announcements and reviews of select sites of interest to physics teachers. All sites are copyrighted by their authors. This column is available as a web page at *PhysicsEd.BuffaloState.Edu/pubs/WebSights/*. If you have successfully used a physics website that you feel is outstanding and appropriate for WebSights, please email me the URL and describe how you use it to teach or learn physics—*macisadl@buffalostate.edu*.

• **Neil deGrasse Tyson links climate deniers, the eclipse, and Hurricane Harvey**

<http://veritasium.com/education/eclipse-2017/>
<https://tinyurl.com/WSseclipse1>
<http://photos.tmahlmann.com/Astrophotography/Solar-Eclipse/>
<http://apenwarr.ca/log/?m=201708#27>>
<https://www.ecowatch.com/neil-degrasse-tyson-climate-deniers-2479120896.html>
<https://tinyurl.com/WSNndt>
<http://physicscentral.com/explore/action/hurricane.cfm>
<https://tinyurl.com/WSrsmith>
<https://en.wikipedia.org/wiki/Cyclone>
<http://www.nytimes.com/packages/pdf/climate/2017/climate-report-final-draft-clean.pdf>

Recently I had the privilege of viewing the Great American Solar Eclipse in “Eclipse City” (Hopkinsville, KY), and now total eclipse videos abound on the internet; the ones from Veritasium and Smarter Every Day (who caught the ISS transiting the Sun during the eclipse) are notable. I also noticed that the temperature in Hopkinsville dropped (from unbearable to unpleasant) well before the sunlight appreciably dimmed and found a nice blog by Apenwarr, who modeled this effect—perceived skin temperature changes linearly with time while visual light level perception is logarithmic. Astrophysicist and science popularizer Neil deGrasse Tyson makes the point that science models and predicts eclipses exceptionally well and enjoys unquestioned widespread acceptance, but that climate change science models encounter extraordinary levels of denial.

Further, at the time of this writing, Hurricane Harvey is flooding the Southeastern United States, particularly Texas and Louisiana. Cyclonic storms are driven by greenhouse effect heating ocean water, where the immense amount of energy localized in the Gulf of Mexico is being thermalized and redistributed through air movement and water distillation and transport. Unusually, Harvey’s damage is not primarily storm surge related (ocean water driven into the coastline), but via rainfall flooding, which cannot be controlled by erecting coastal barriers. As an outcome of science denial (and for Houston, flood management planning denial), entirely predictable (and indeed, well-predicted) loss of life, unnecessary human suffering, and economic catastrophe are taking place. The leaked 1200 page *U.S. Global Change Research Program Climate Science Special Report* (CSSR) coordinated by NSF, NOAA, and NASA scientists (that the Trump EPA is widely expected to censor or suppress) discusses extreme storms

and global warming both in the key findings and a dedicated chapter.

There are several excellent resources describing the physics of hurricanes (mainly developed after Katrina in 2005). Given our inability as science educators to sway the public, perhaps we could advise our students to consider careers in the promising fields of flood management and water engineering.

• **Green laser safety**

<http://laserclassroom.com/are-green-lasers-more-dangerous-than-red-lasers/>

An interesting note from the laser classroom people arrived in my mailbox; it seems that inexpensive green lasers with missing shields put out a lot of 808-nm IR and so there is additional radiation that your brain will not detect and which does not contribute to the “look away” reflex. Sounds like the eclipse dangers all over again—stuff you can’t see and that your brain won’t react to and will cook your eyes. Science for safety!

• **Making really big bubbles**

<https://tinyurl.com/WSbubbles1>

As an aficionado of the beauty and physics of thin film interference in introductory optics, I ran across a Twitter post that led me to Ben’s NightHawkinLight YouTube channel, which presented considerable detail on “How To Make Giant Bubbles”—bubbles over 10 m in length. Most impressive.

• **Some sharp aerodynamics toys**

<http://www.sciencetoymaker.org/>

This site features some nice moderate-length projects that students might undertake if you include project-based learning in your classes. I found the aerodynamic toys very compelling; the “walk-along glider” is a nose-heavy foam glider that surfs a small wave of air that the pilot generates by tilting a book, laptop, or whiteboard, etc. and walking forward—the glider hovers in front of the board and can be steered around by redirecting the board. The “tumblewing” air surfer relies on similar propulsion. The more elaborate 2-L bottle rubber band driven helicopters are also very impressive. Both would be great Next Generation Science Standards-style engineering design plus physics projects, as the designs can be iterated.

*Posted to the NY physics teachers listserv OPHUN-L by
Jerry Licht*