


# Results from the Eclipse of August 21, 2017



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Mary Kidd,<sup>8</sup>

Eva Kloostra, Isadora Germain, and the other students sponsored by the INSPIRE Project<sup>9</sup>

1. NASA/MSFC, 2. NASA/NPP. 3. NASA-retired, 4. U.S. Space and Rocket Center,  
5. University of Maryland, 6. Austin Peay State University (APSU), 7. UAH, 8. Tennessee Tech,  
9. the INSPIRE Project

Image Courtesy of Joe Matus, ST 24, NASA/MSFC

# Partnerships

- U.S. Space and Rocket Center
- Austin Peay State University
- University of Alabama in Huntsville
- The Inspire Project
- Christian County Schools
- The City of Hopkinsville, KY
- Citizen CATE
- Tennessee Tech



# Animal Behavior Observations: Cows



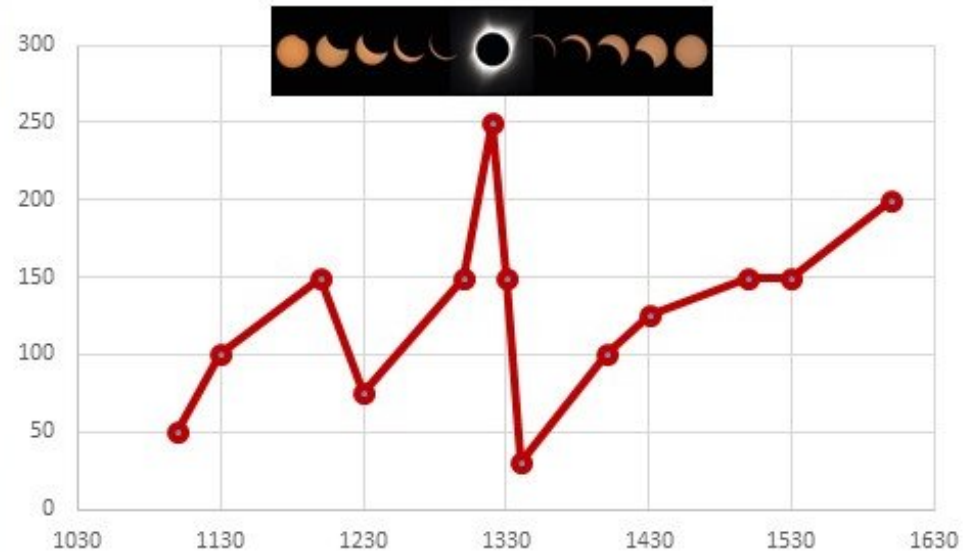
- Ten Cows painted with numbers for tracking
- Before totality all ten were arranged under a tree
- During totality only one moved from under the tree



# Animal Observations: Bees

Bees were observed to return to their hive at two locations:  
Austin Peay State University (100% total) and Ardmore, TN. (97% total)

*A. mellifera* on hive landing board, 21 Aug 2017



R.L. Moore and E.D. Rendleman at APSU Farm observed:

- As totality approached bees rushed back to hives
- Bees clustered on landing boards and hive faces
- Bees formed buzzing cloud, similar to when a hive is dropped
- Almost every bee was back in hive by 12 min after totality
- Takeoffs began ~ 1/2 hour after totality



# Animal Observations: Crickets



10 male crickets,  
1/cage  
w/orange slice for  
food/water

Observations Made:  
11:00, 12:00, 12:34,  
13:00, 13:26, 14:00,  
14:30, and 15:00  
CDT

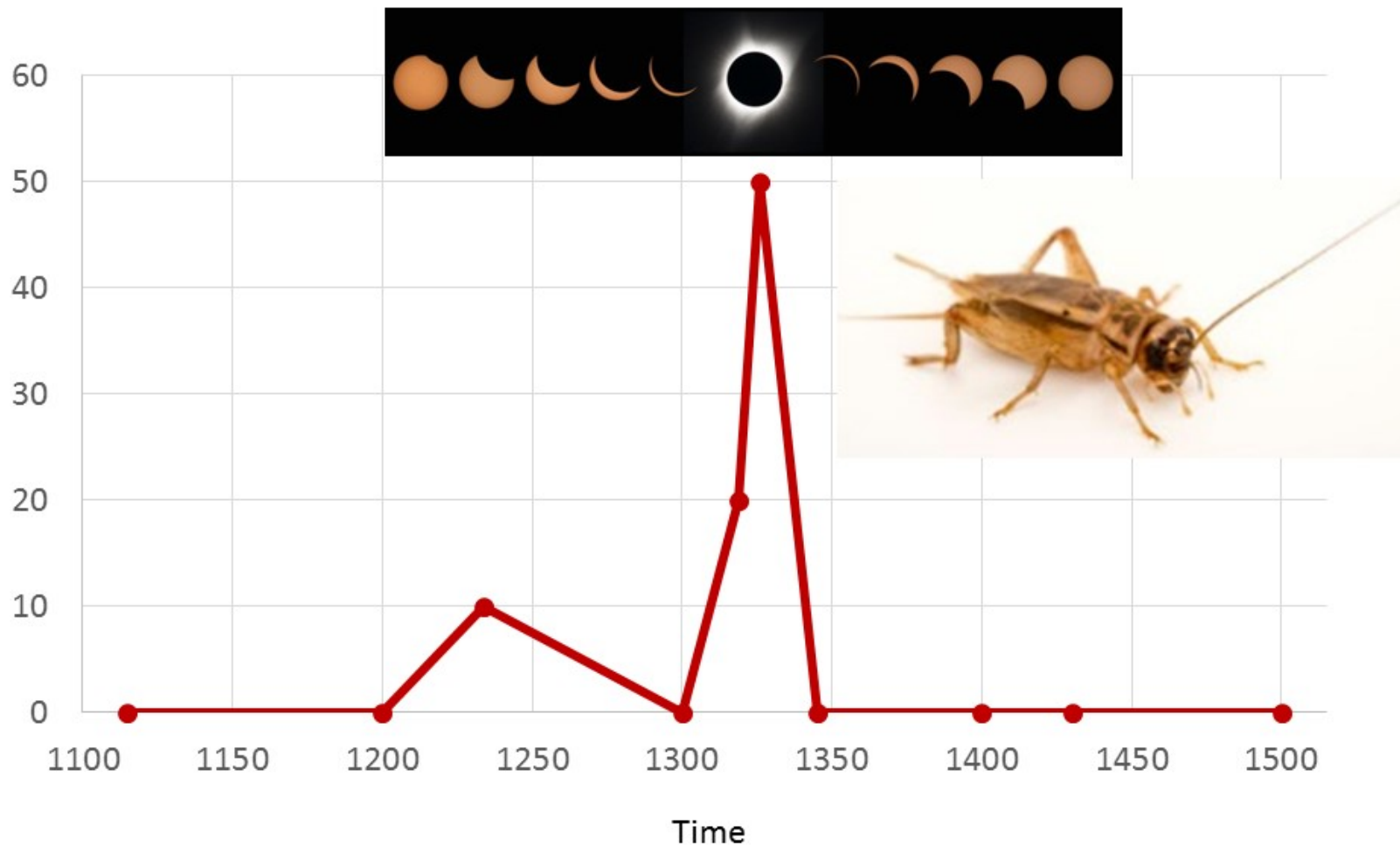
Totality:  
13:25:34-13:27:53

At 13:26:  
Half crickets chirping,  
exploring, cleaning

Photos used with  
permission from  
Nicole Regimbal

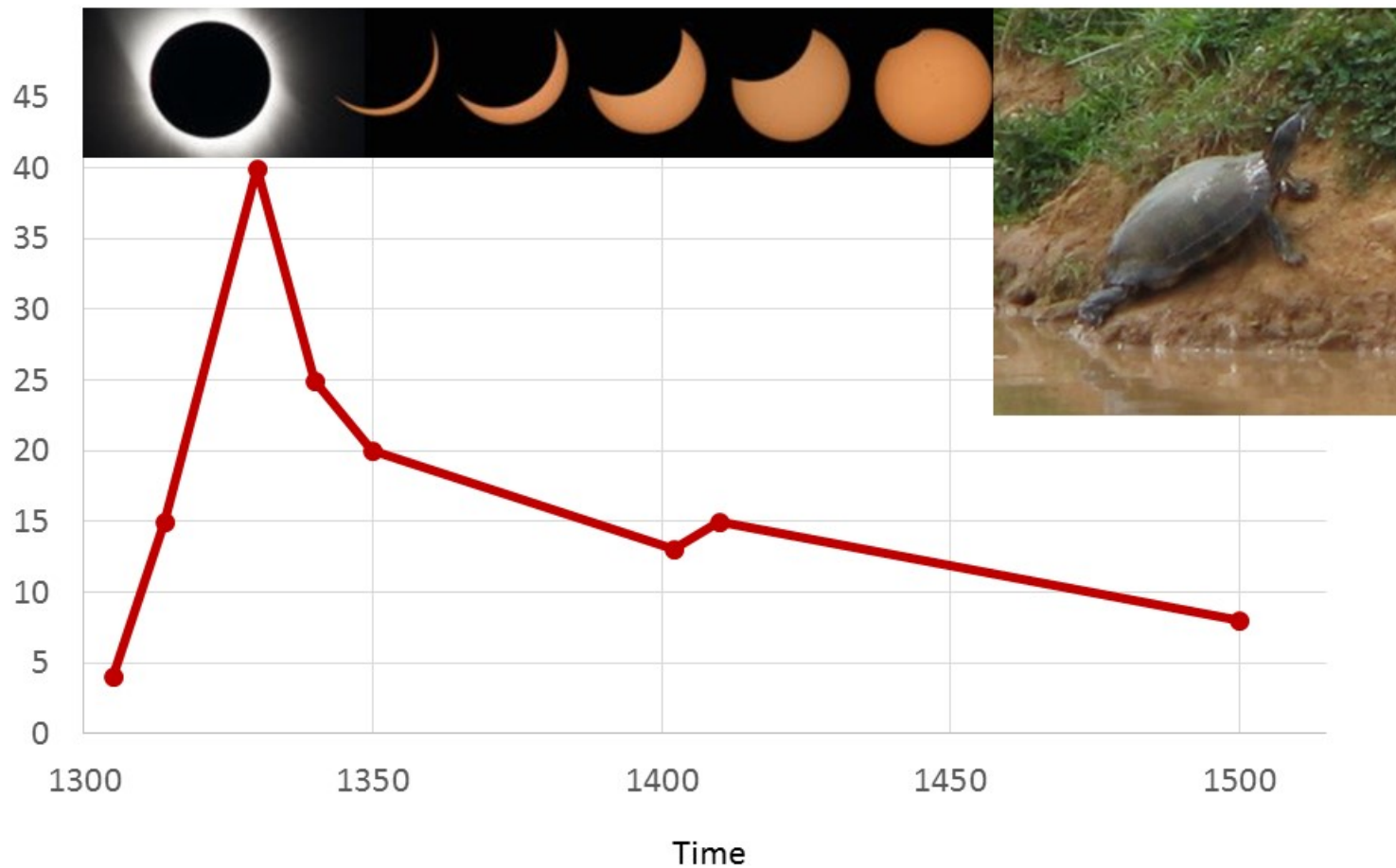
# Animal Observations: Crickets

Percentage of active/chirping male *Acheta domesticus*, 21 AUG 2017.



# Animal Observations (not planned): Turtles (Red-Eared Slider)

Number of *Trachemys scripta* on pond bank, 21 AUG 2017.



First noticed by Nicole Regimbal



# Montana State Balloon Project



50 Teams from across the nation flew payloads

Three teams at APSU:  
APSU, Arkansas State, and UAH





# Montana State Balloon Project

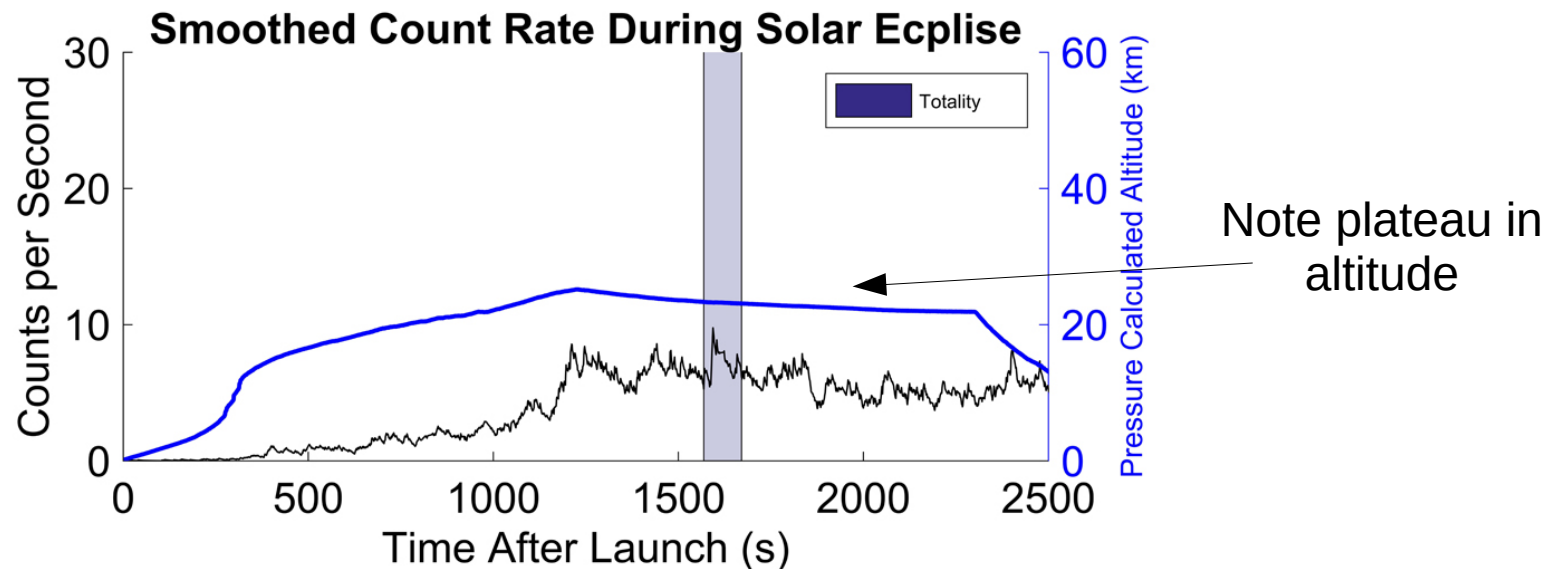
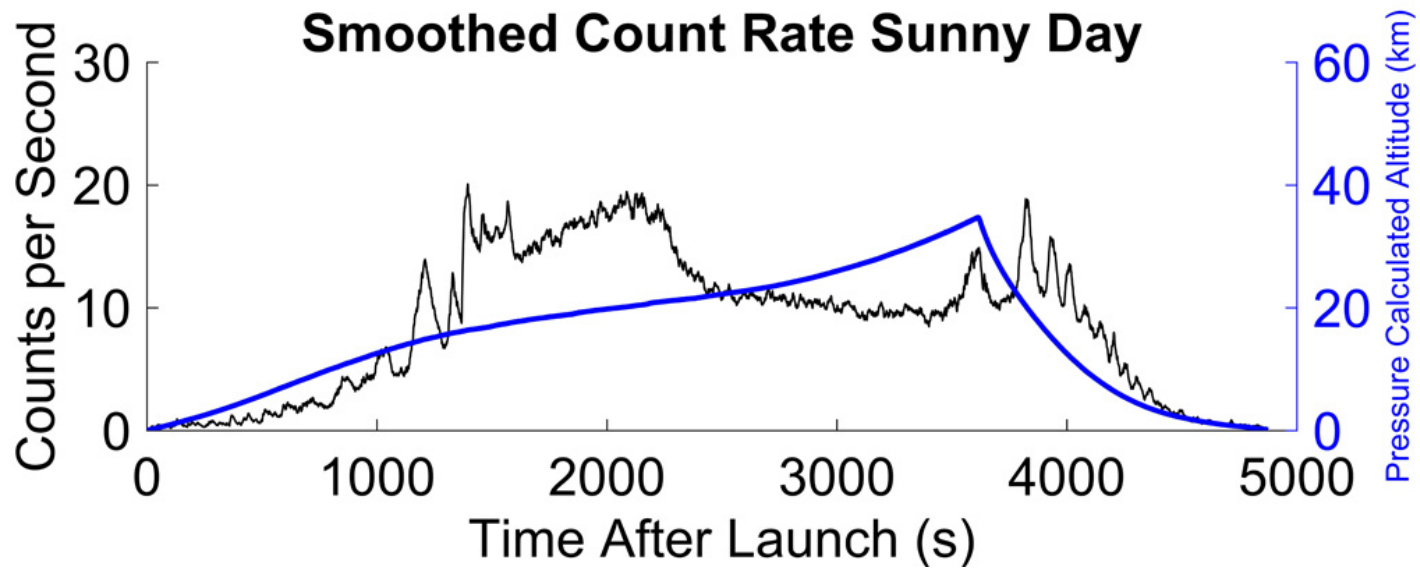


## Payloads:

- Video-streaming camera
- Two pounds of hops for Straight to Ale Eclipse Brew
- Geiger Counter, temperature, pressure



# Montana State Balloon Project: UAH Geiger Counter





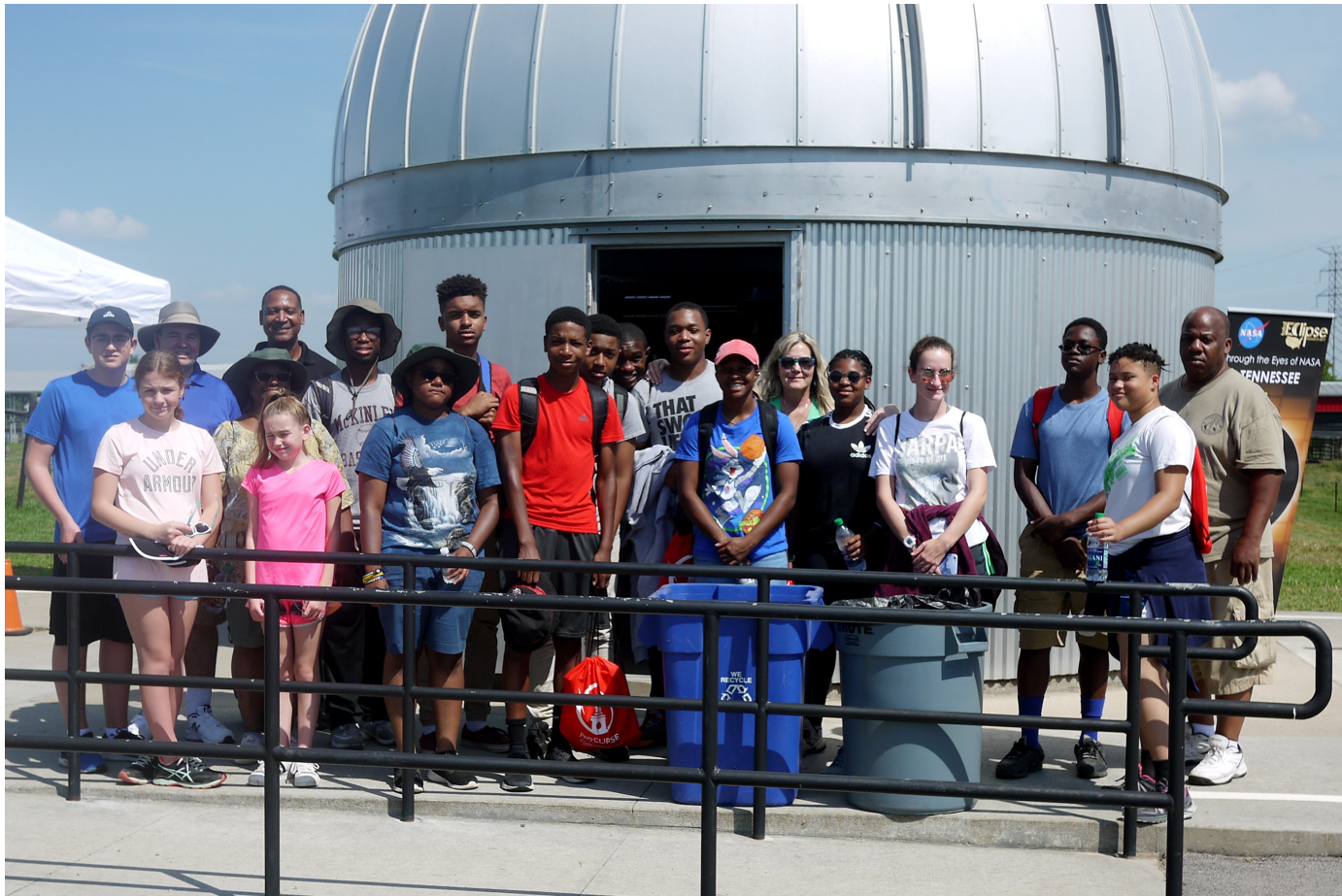
# Reverse Beacon Network

42 ft from center mast to each support  
could receive 80 m at night





# The Interactive NASA Space Physics Ionosphere Radio Experiments (INSPIRE) Project





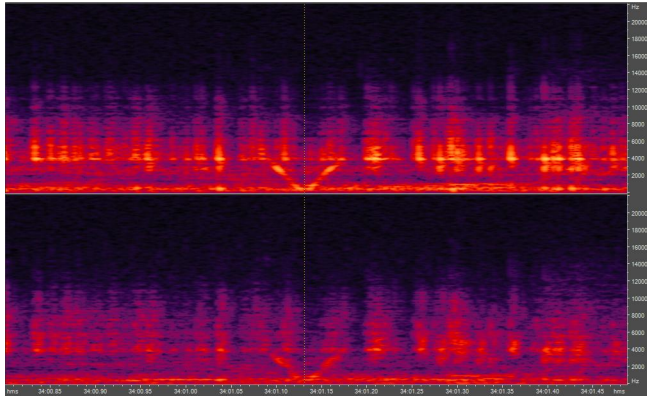
# INSPIRE Project



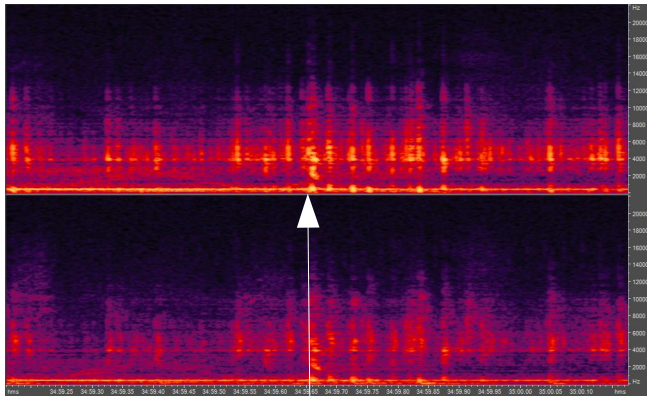


# INSPIRE Project

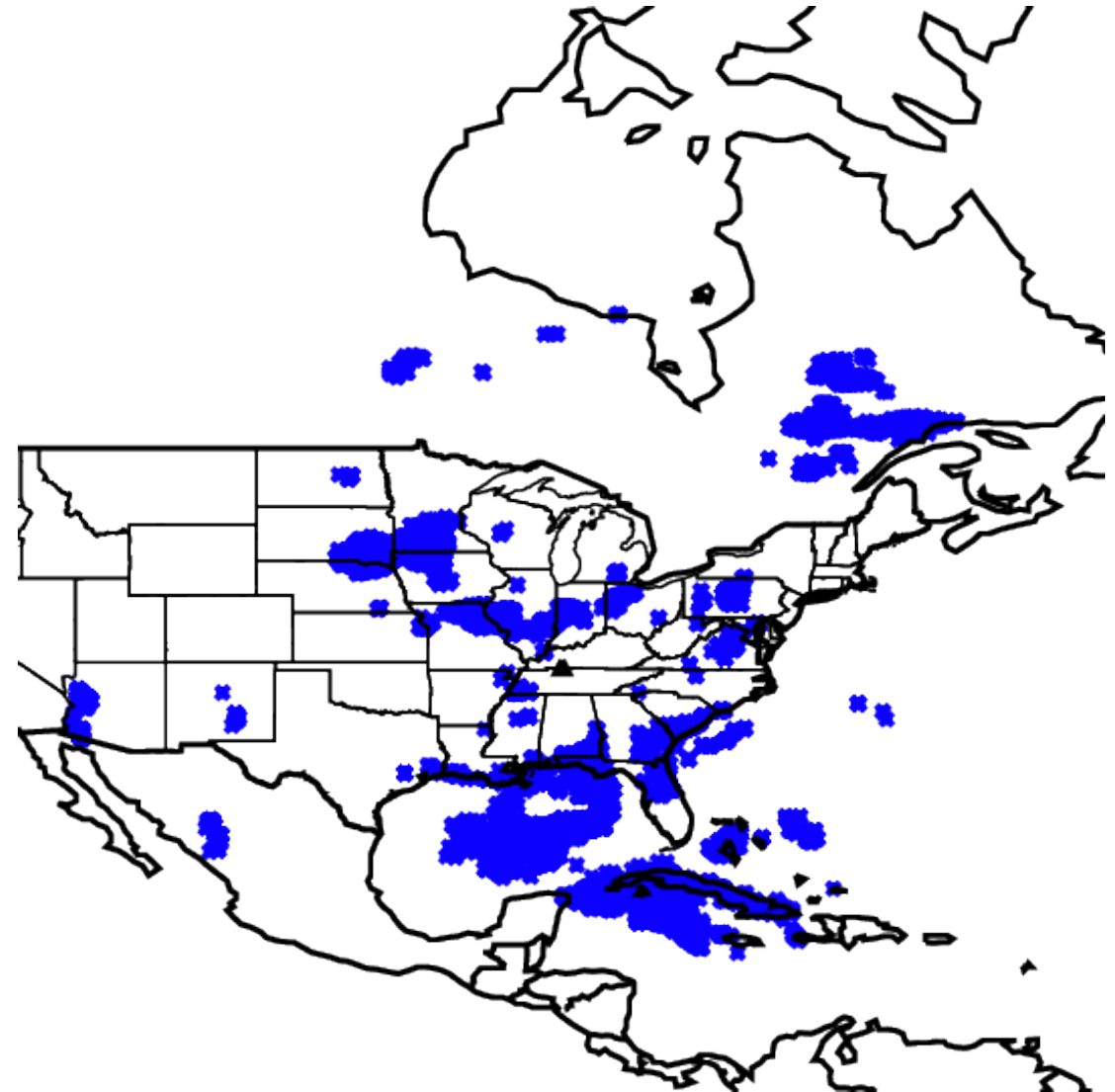
## Very Low Frequency Radio Noise



Mystery "V" 08/19/2017 19:52 CDT



"Tweek" 08/19/2017 19:53 CDT



"Nearby" Lightning Strikes, 08/21/2017,  
12:08 - 14:09 CDT

# INSPIRE Project

## Very Low Frequency Radio Noise

# Shadow Bands

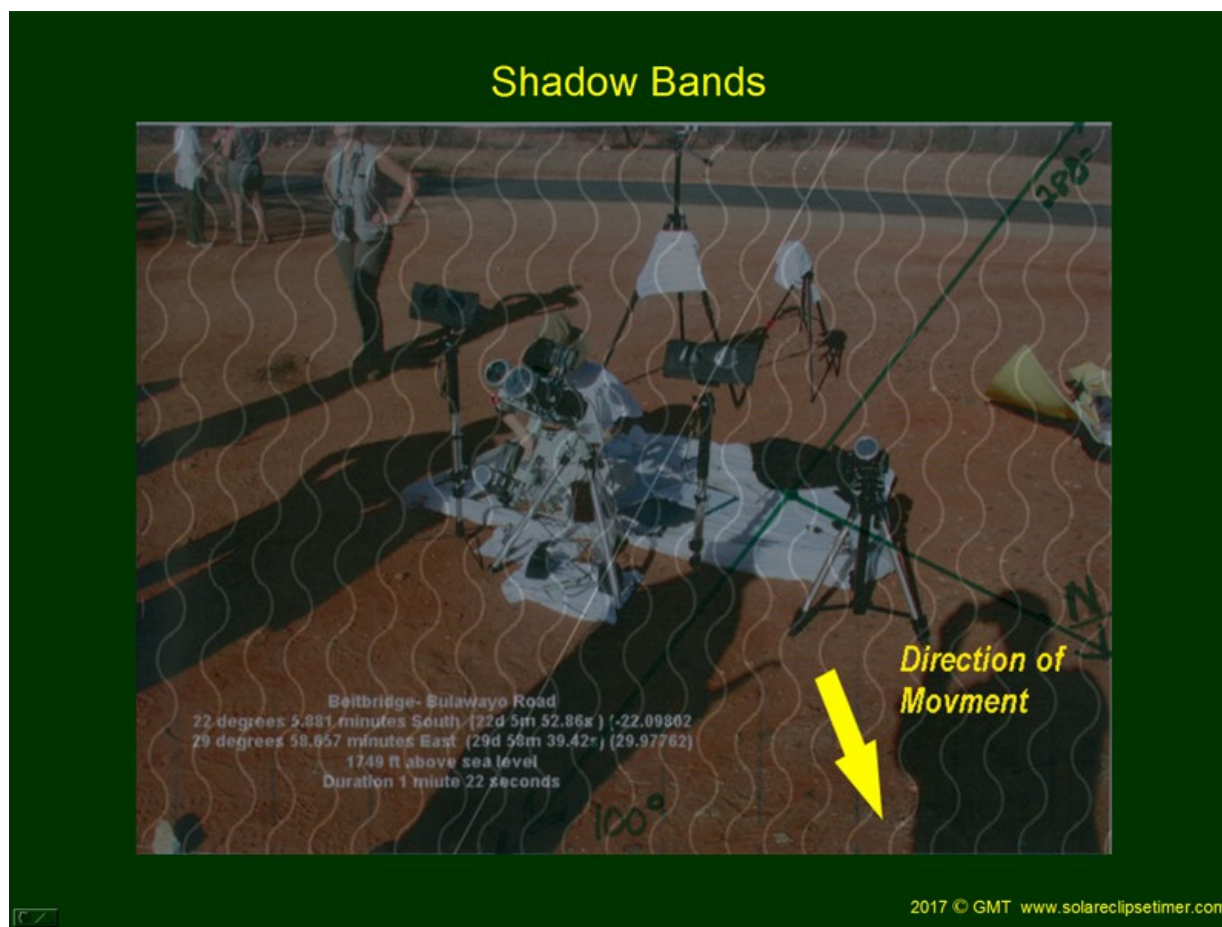
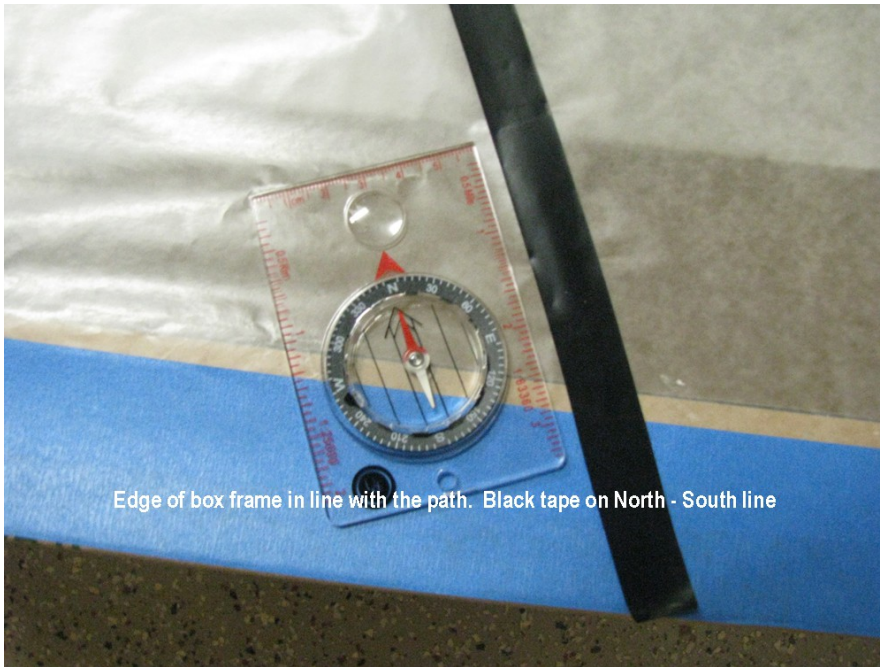


Image Used with Permission from Dr. Gordon Telepun



# Constructing Shadow-Band Boxes



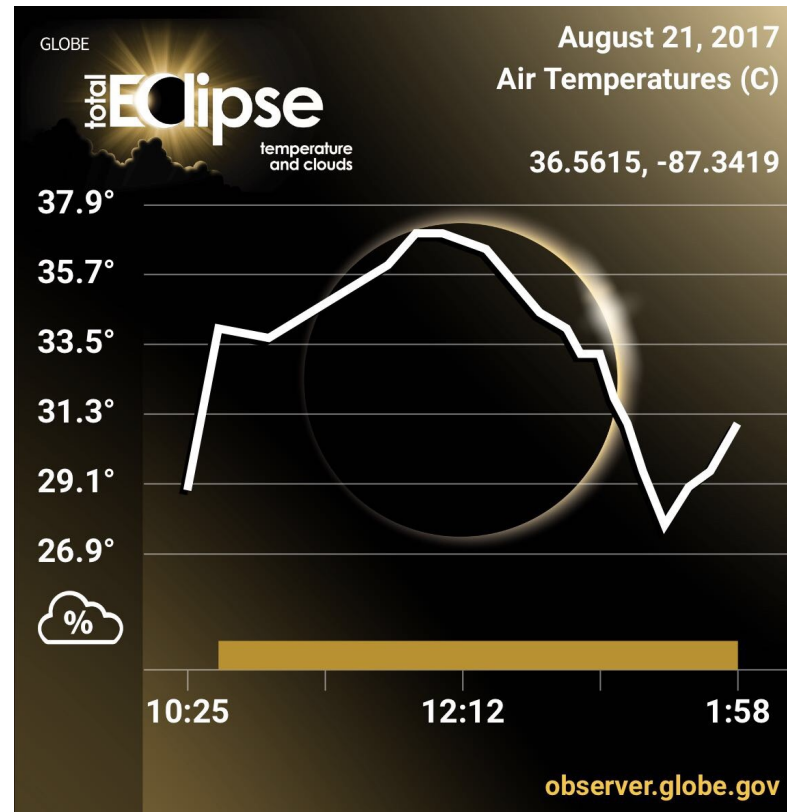


# Shadow-Band Boxes





# Air Temperature Changes for NASA's Global Learning and Observations to Benefit the Environment (GLOBE)



**Air Temperature Changes at APSU Farm, TN. The minimum recorded was 27.8°C at 1:30 PM CDT... a 9.2°C Drop!**

# Citizen Continental-America Telescopic Eclipse Experiment (CATE)

62 Sites Across Country Using  
Identical Equipment  
Obtained Data

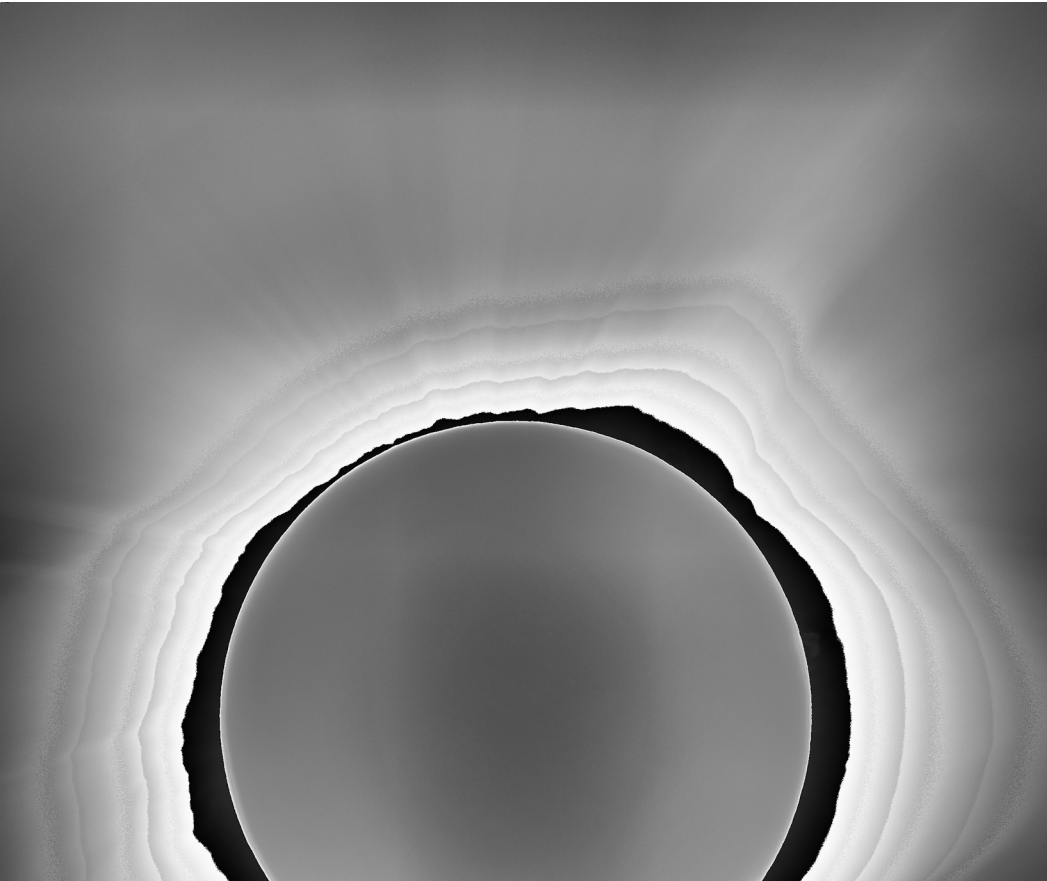


Test Images Used Full Moon,  
~Same Brightness as Corona

Users\default.LAPTOP-BLJ9UUEE\SolarEclipseApp\Data\_5\default\_total\_1\_450.tif



# Citizen CATE

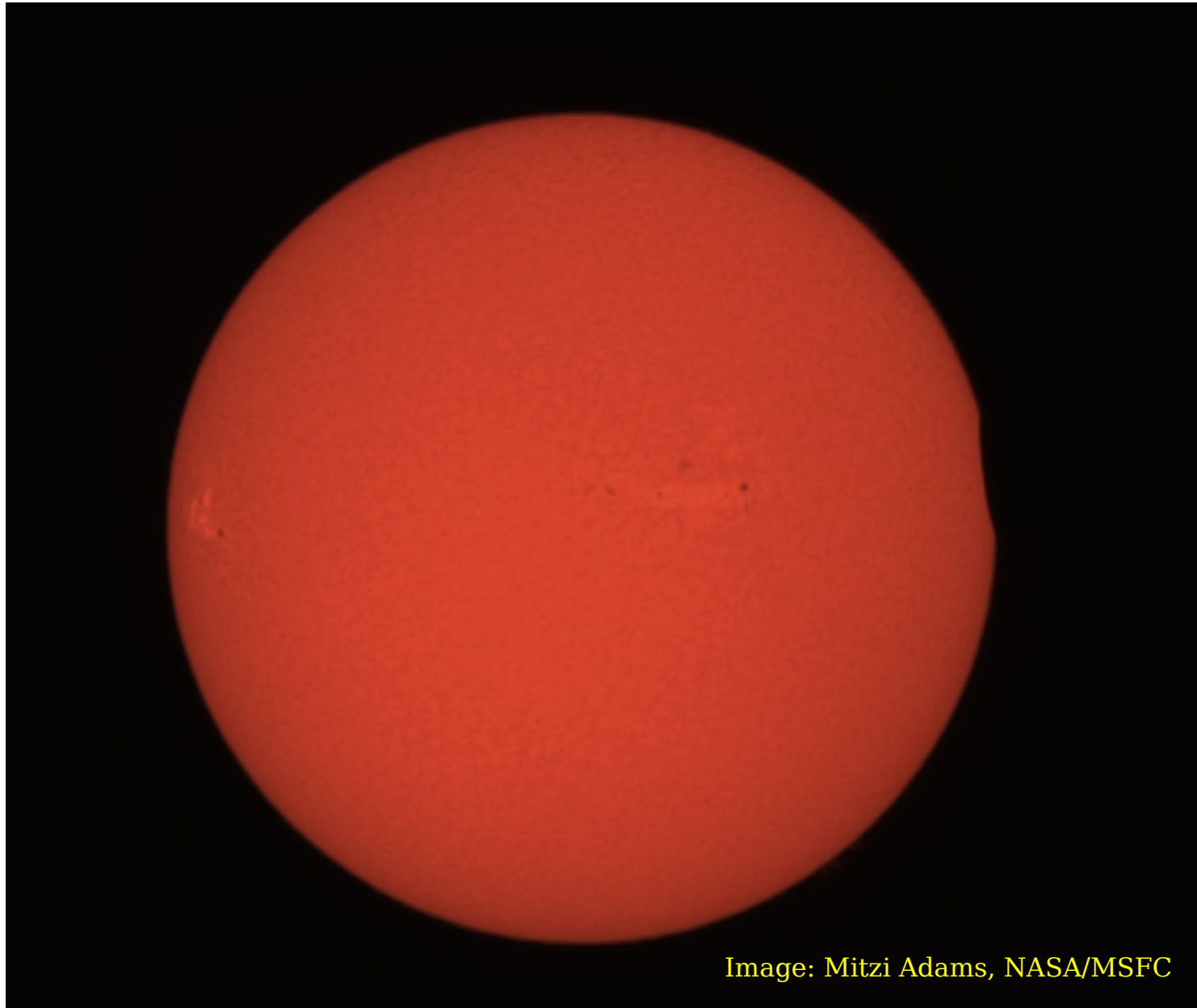


APSU's Image: Telescope was bumped when removing solar filter



Tennessee Tech's Image

# First Contact at APSU



In the Light of Hydrogen-alpha



# Totality at APSU



# Totality at Hopkinsville, KY



Image from Dr. Jesse-Lee Dimech,  
NASA NPP



Image from Joe Matus,  
NASA/MSFC/ST24

Images Used with Permission



# Totality at VLF Site Near Guthrie, KY



Image from Dr. Dennis Gallagher, NASA/MSFC/ST13

# Language Arts

With a little coaxing from  
Dr. Amy Wright:

It was an honorable death. The last burst of light escaped from behind the Moon and the Sun finally closed its massive eye. My eyes adjusted and I was on an entirely different planet. An earthquake grew up from my feet, into my hands, and out through my eyes. The tears formed almost as if they wanted to witness the event for themselves. It felt like being underwater, but at the same time taking my first breath of fresh air. My other senses shut off, opening my eyes to new colors, sensations, and emotions. Left in place of the Sun was the deepest shade of black I had ever seen. The halo of light around it throbbed like my heart was racing, bringing new life to the solar system around me. I had found extraterrestrial life, but not in the way most people would think. For two minutes and 39 seconds, the moon was more alive than ever. She had a pulse. She had hands. She was grasping onto our thin atmosphere in a struggle that left rich shades of orange and red all around the horizon. I was witnessing a hello. I was witnessing a goodbye. All of a sudden, the bright and familiar warmth was back. The Sun took back its throne and the Earth began to rotate again.

-Isadora Germain

