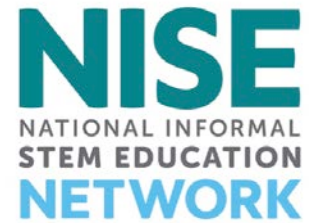


NISE Network Online Workshop



The Science Behind the 2019 Explore Science: Earth and Space Toolkit - Exploring Earth and Our Solar System

Tuesday, February 26, 2019

Welcome!

Today's presenters are:

- **Laura Peticolas**, Sonoma State University
- **Frank Kusiak**, Lawrence Hall of Science, UC Berkeley
- **Darrell Porcello**, Children's Creativity Museum

As we wait to get started with today's discussion, please:

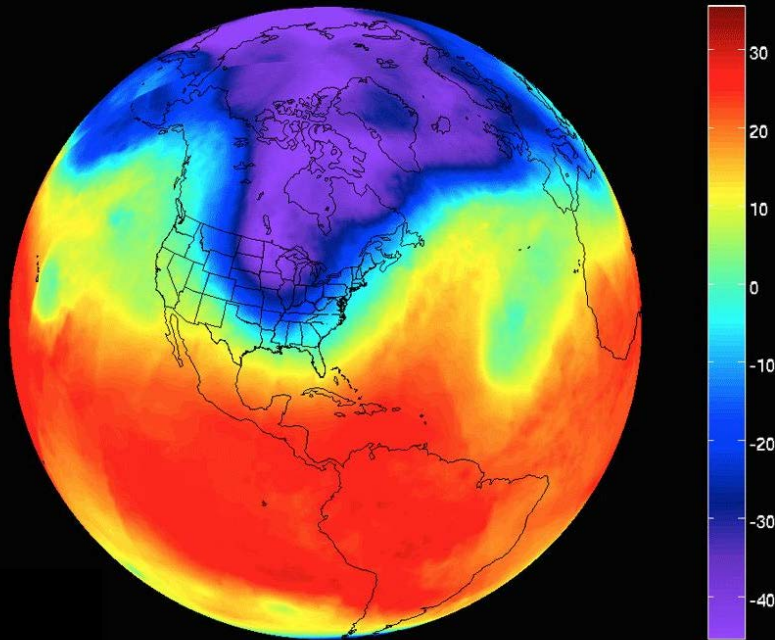
Introduce yourself! Type your name, institution, and location into the Chat Box

Questions? Feel free to type your questions into the Chat Box at any time throughout the webinar or use the raise your hand function in the participants list and we'll unmute your microphone.



Today's discussion will be recorded and shared online at nisenet.org/events/online-workshop

Online Workshop Overview



5 min

NISE Network introductions & toolkit overview

30 min

Dr. Laura Peticolas on Earth and the Solar System connections to the 2019 Explore Science: Earth & Space Toolkit

Frank Kusiak with highlights from “Land Cover”, “Observe the Sun”, and “Temperature Mapping”

20 min

Q & A from our audience

Your Friendly NISE Net Webinar Crew



Dr. Laura Peticolas
Associate Director
Education & Public Outreach Group
Sonoma State University



Frank Kusiak, M.A.
NISE Net Western Regional Hub Leader
Lawrence Hall of Science, UC Berkeley

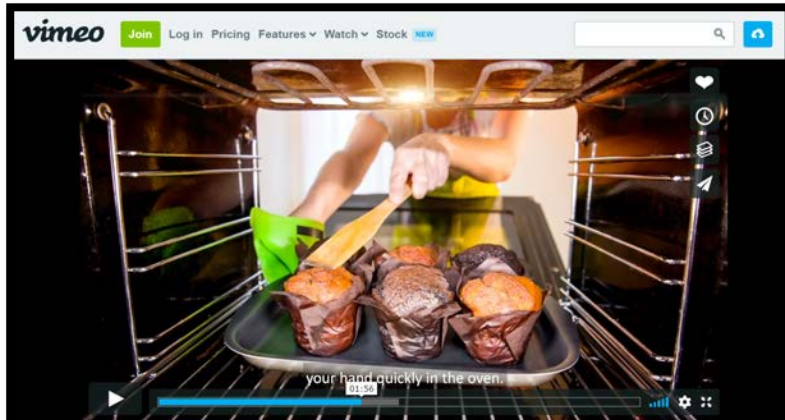


Dr. Darrell Porcello
NISE Net Earth & Space, Co-I
Children's Creativity Museum



Lindsay Bartolone, M.S.
NISE Net Earth & Space Content Expert
Chicago, IL

2019 Explore Science: Earth & Space Toolkit + Videos



your hand quickly in the oven.

Exploring Earth: Temperature Mapping Content Training Video from the Explore Science: Earth & Space 2019 Toolkit

3 months ago | More

NISE Network PRO + Follow

More from NISE Network

- Autoplay next video
- Exploring Earth: T... NISE Network
- Exploring the Sola... NISE Network
- Exploring the Sola...

Watch all the facilitation and content training videos:
<https://vimeopro.com/nisenet/explore-science-earth-space>

Explore Science: Earth & Space 2019 toolkit

In collaboration with NASA, the NISE Network has assembled a new set of engaging, hands-on Earth and space science experiences with connections to science, technology, and society.



Links to download the entire digital toolkit (zip files):

Digital version of the Explore Science: Earth & Space 2019 toolkit

COMING SOON - FEBRUARY 2019

Open Me First - Four Parts

Open Me First (1 of 4): Planning Materials	18.32 MB
Open Me First (2 of 4): Explore Science Ads	40.86 MB
Open Me First (3 of 4): Explore Science Banner	42.96 MB
Open Me First (4 of 4): Explore Science Logos	39.63 MB

Educational Products - COMING SOON!

Training Materials

Training Guides	3.21 MB
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Training Films - including:

- Activity & content training films
- Edu-Cathalon: A facilitation strategies and best practices training film
- Strategies for approaching common misconceptions training films

Download the 2019 digital toolkit now:
<http://www.nisenet.org/earthspacekit-2019>

Submit your questions...

We will be collecting your Questions in the chat window to your right throughout the talk.

We will go through these questions in the Q&A section of the webinar. Those we don't get to today we will reply over email.



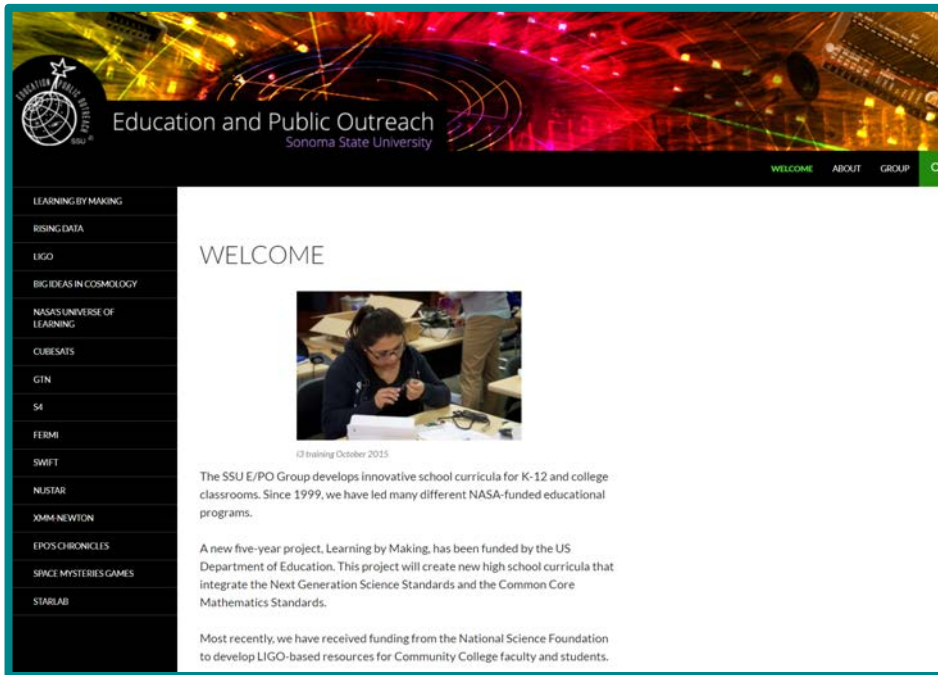
...in the chat box.



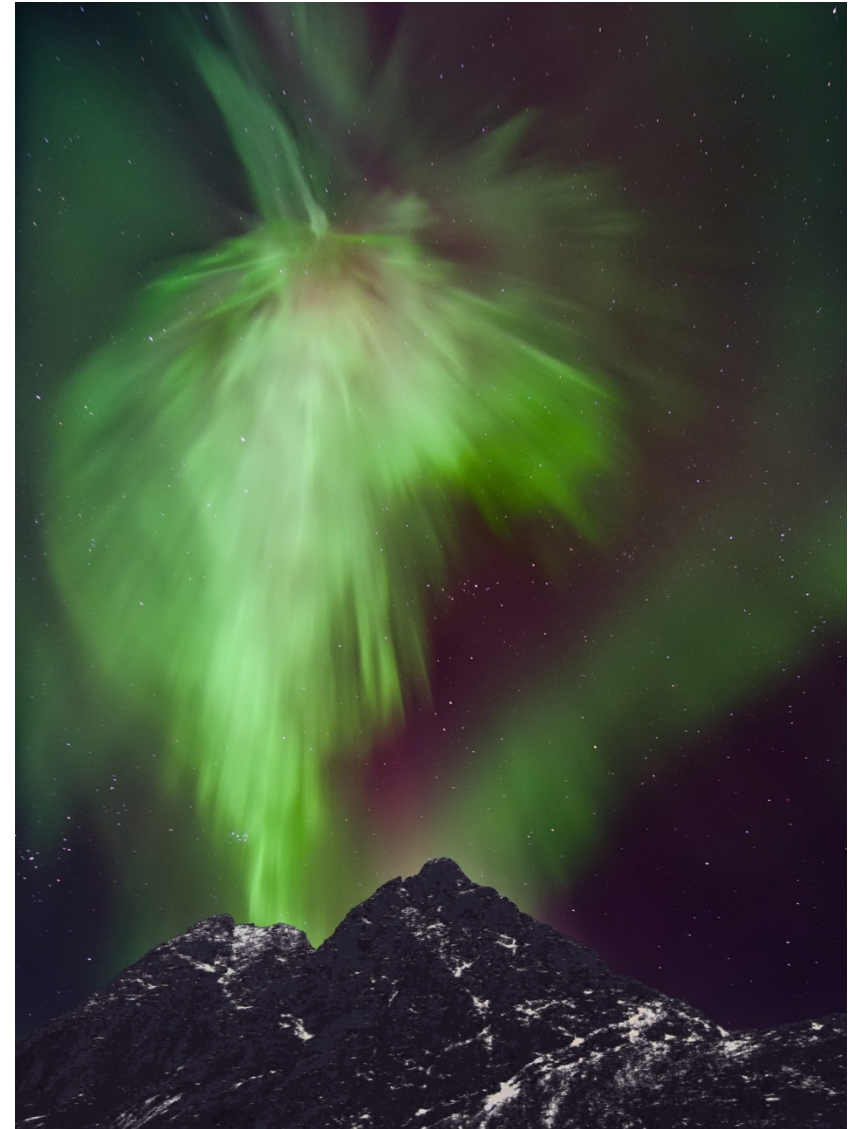
**The Science Behind
2019 Explore Science: Earth and Space Toolkit
Exploring Earth and Our Solar System**

Image credit: U.S. Geological Survey

Hi. I'm Laura.



Associate Director
Education and Public Outreach
Sonoma State University



Space Physicist

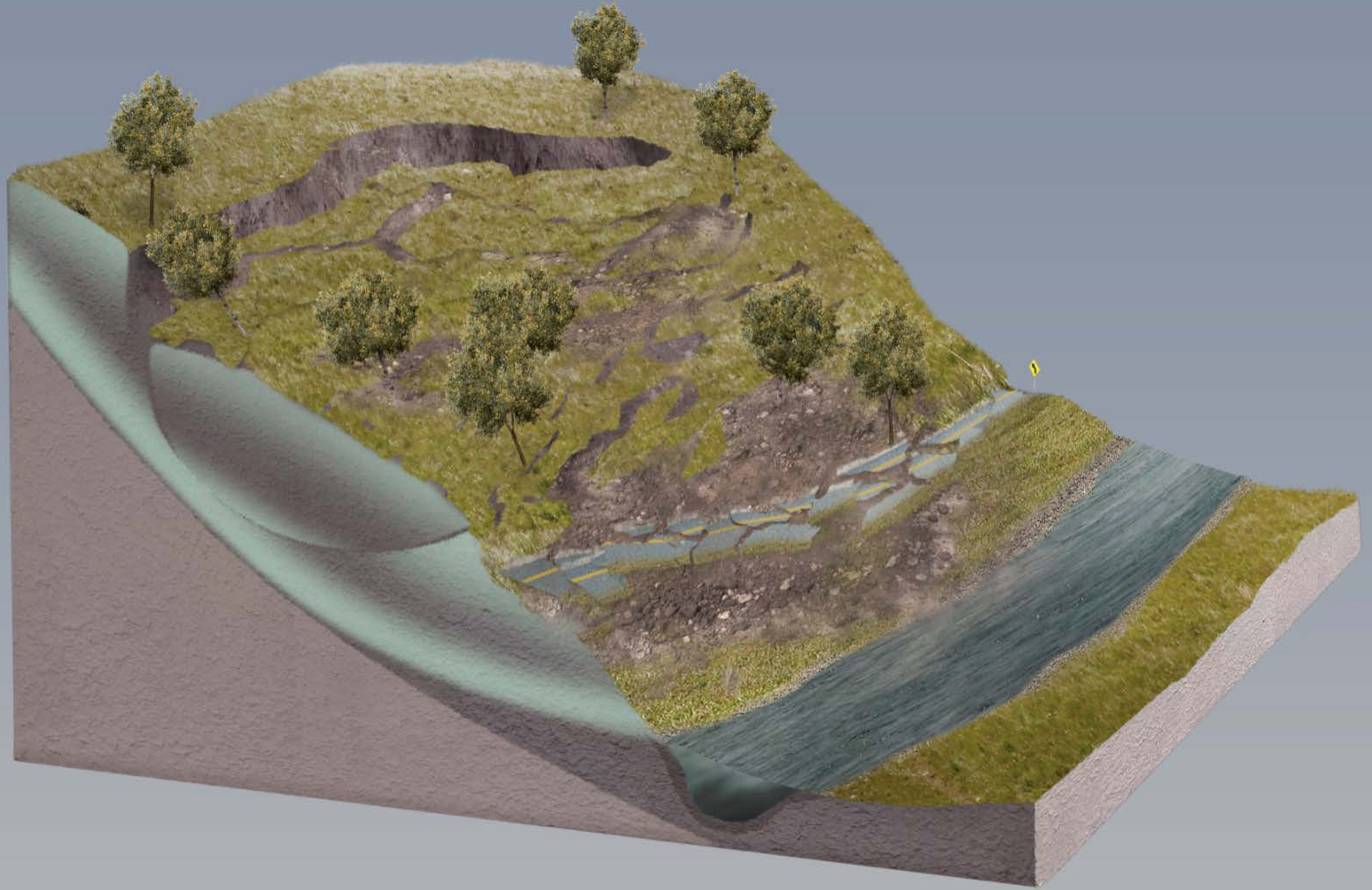
Image credit: Lars Tiede

Flooding in 2014

Oso, Washington

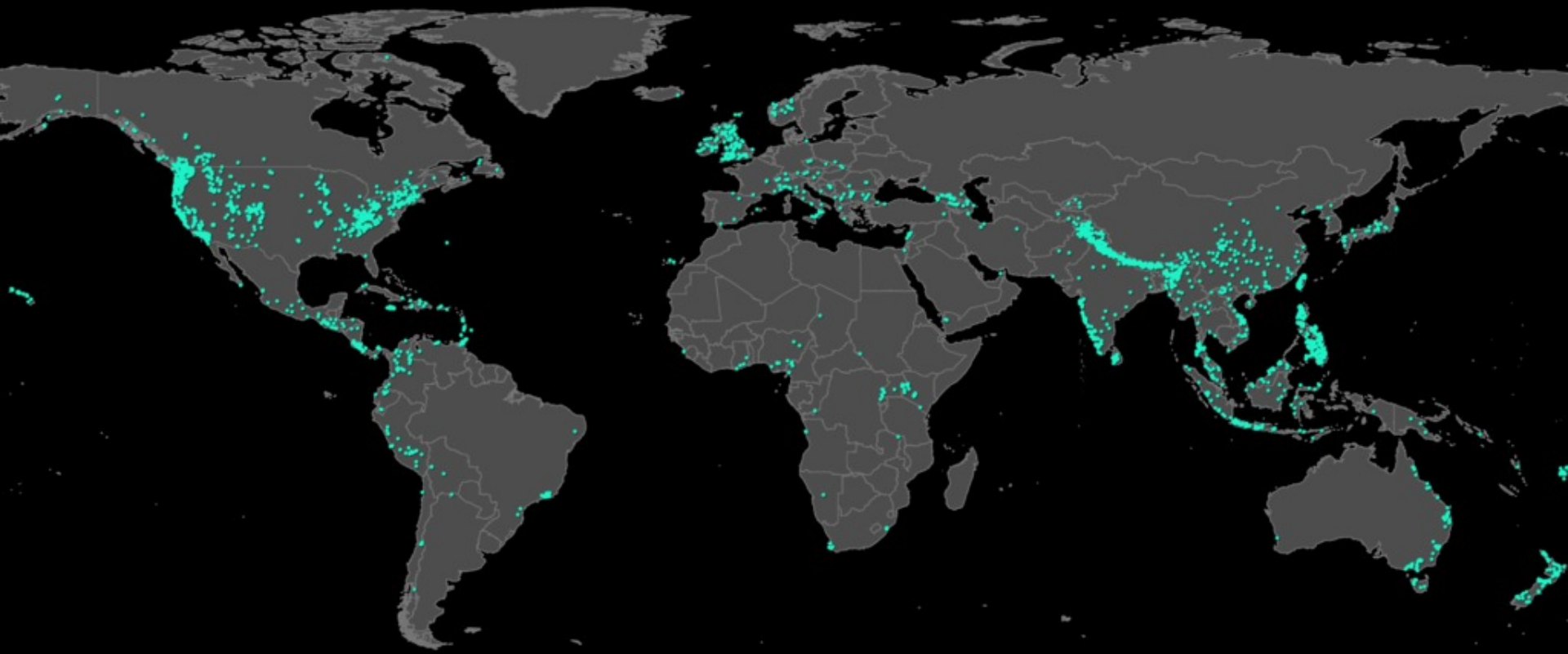


Image credit: Matthew Sissel, DIVDS

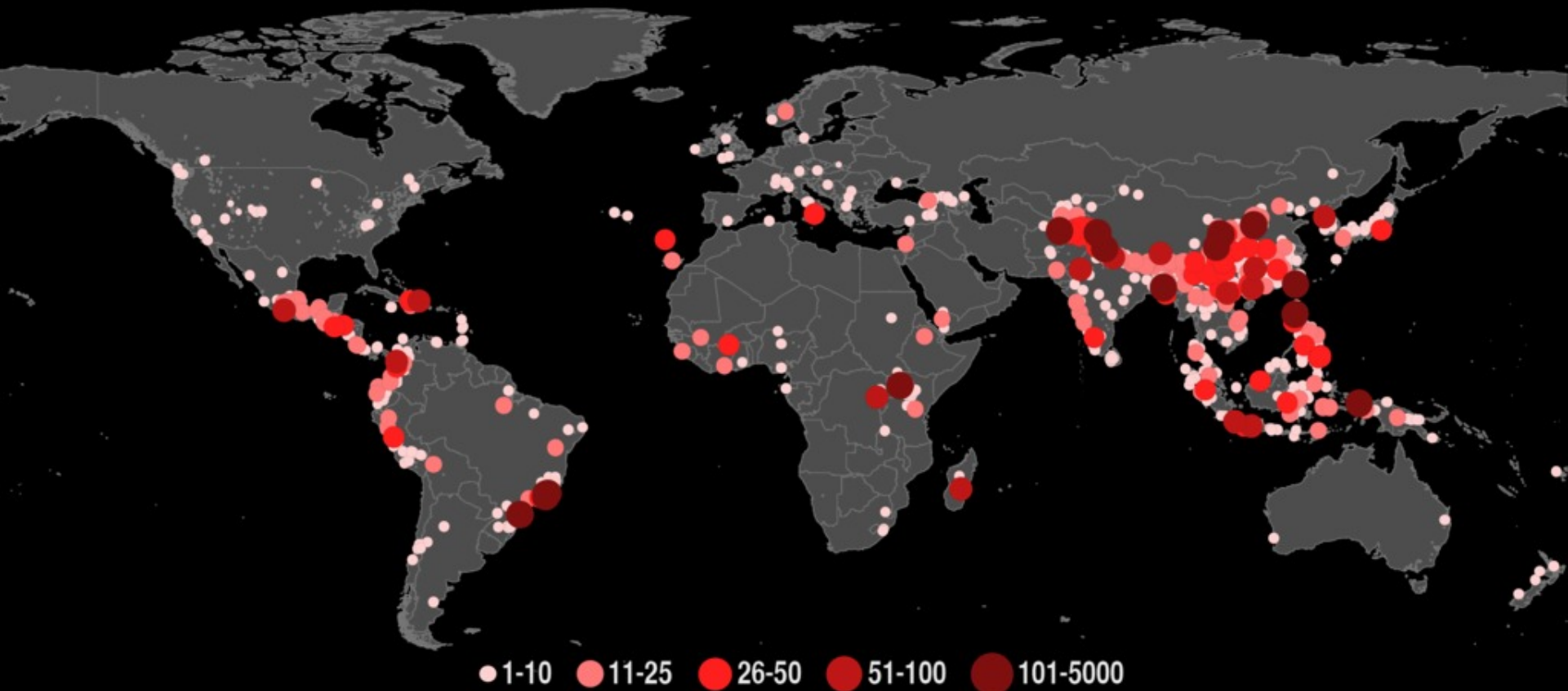


Soil saturated with water from heavy soaking rain and without sufficient vegetation.

Image credit: NASA's Goddard Space Flight Center, Conceptual Image Lab



Using the Global Landslide Catalog, a map has been produced to show the location of 5741 rainfall-triggered landslides from 2007-2013.



Using the Global Landslide Catalog, a map has been produced to show the distribution and number of fatalities associated with 5741 rainfall-triggered landslides from 2007-2013.

Image credit: NASA Goddard Vis Lab

Image credit: NASA's Goddard Space Flight Center



FIG. 6.—Schematic bisect showing the root and stem relations of important prairie plants. This and figures 7 and 8 were drawn from photographs and data obtained by the excavation and examination of 325 root systems of these 18 species: *h*, *Hieracium scouleri*; *k*, *Kaeria cristata*; *b*, *Balsamorhiza sagittata*; *f*, *Festuca ovina ingrata*; *g*, *Geranium viscosissimum*; *p*, *Poa sandbergii*; *ho*, *Hoorebekia racemosa*; *po*, *Potentilla blaschkeana*.

**Field of Native Wildflowers on
the Malheur National Forest**



Land Cover



EXPLORE
SCIENCE

EXPLORING EARTH

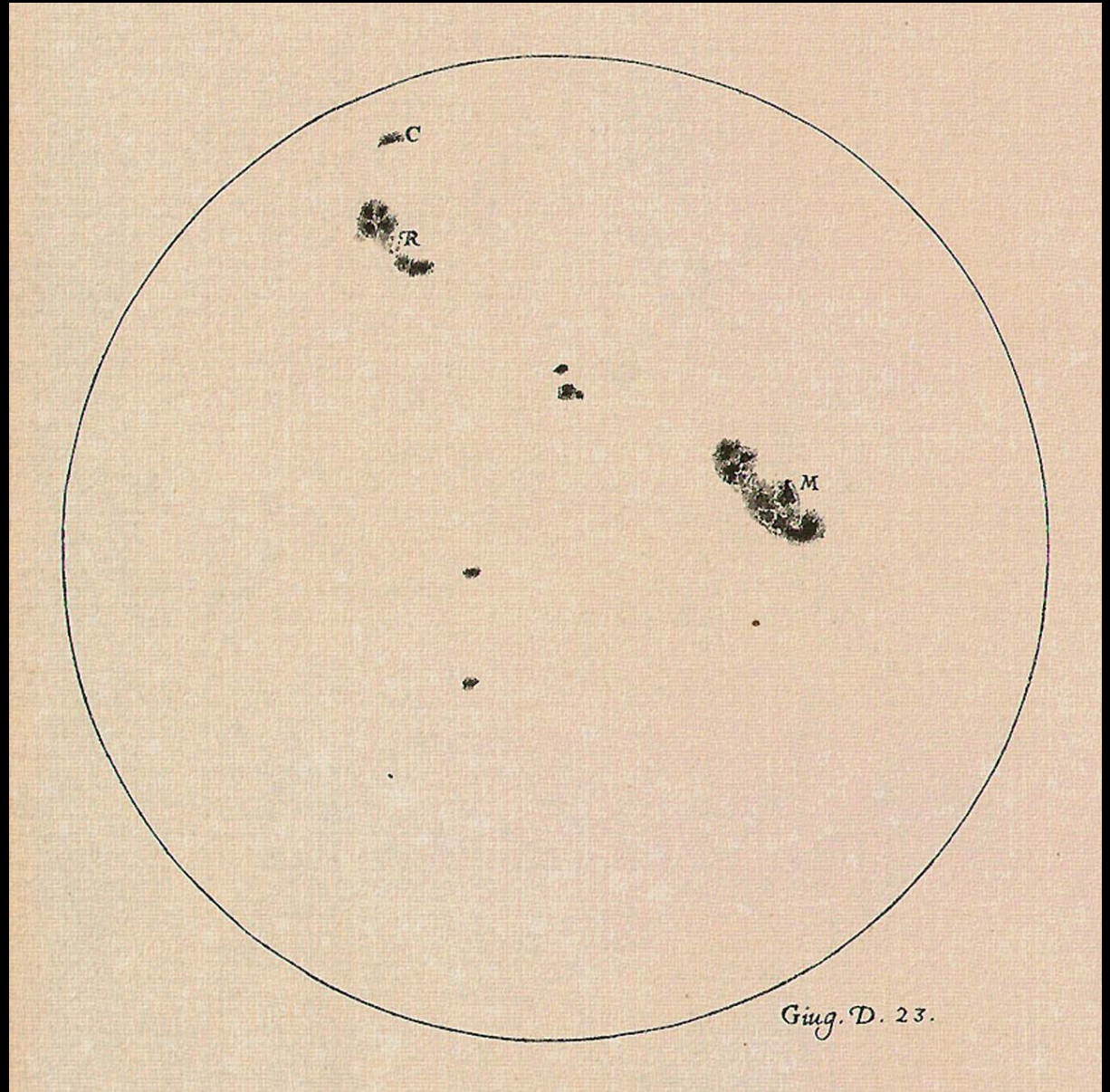
Land Cover

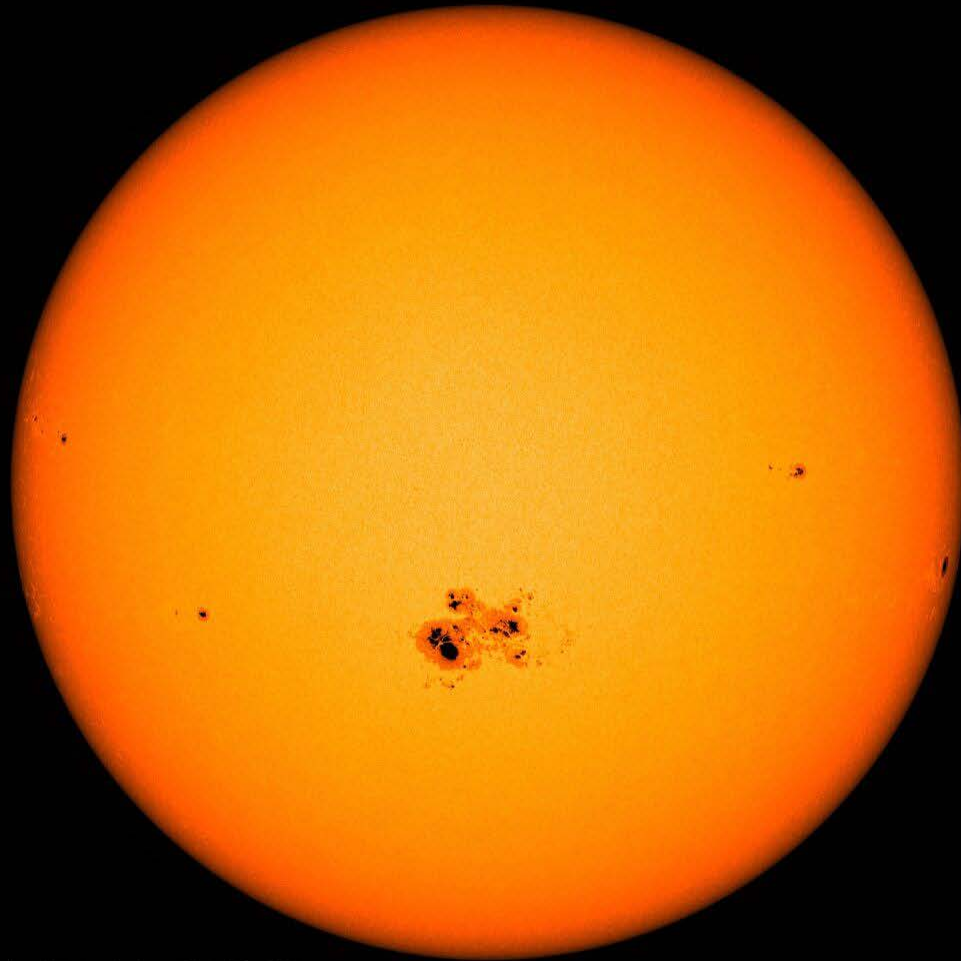
Where does the water go?
What keeps the soil in place?





Galileo Galilei was an Italian scientist who first recorded sunspots. One of his drawings is shown.

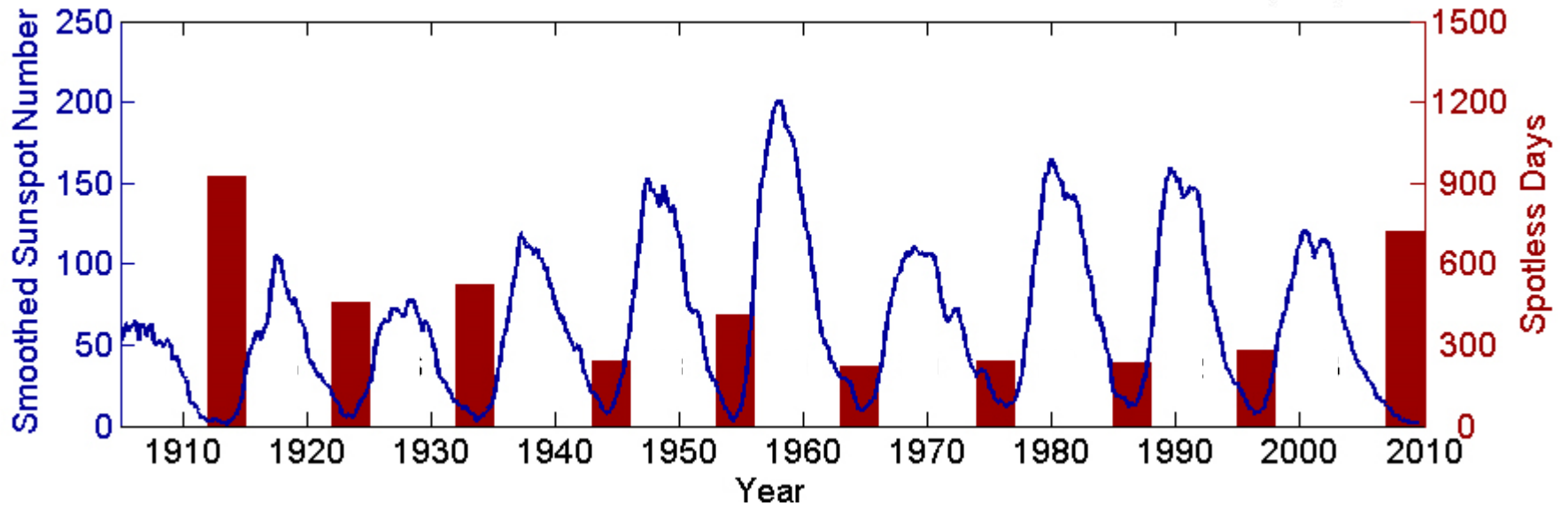
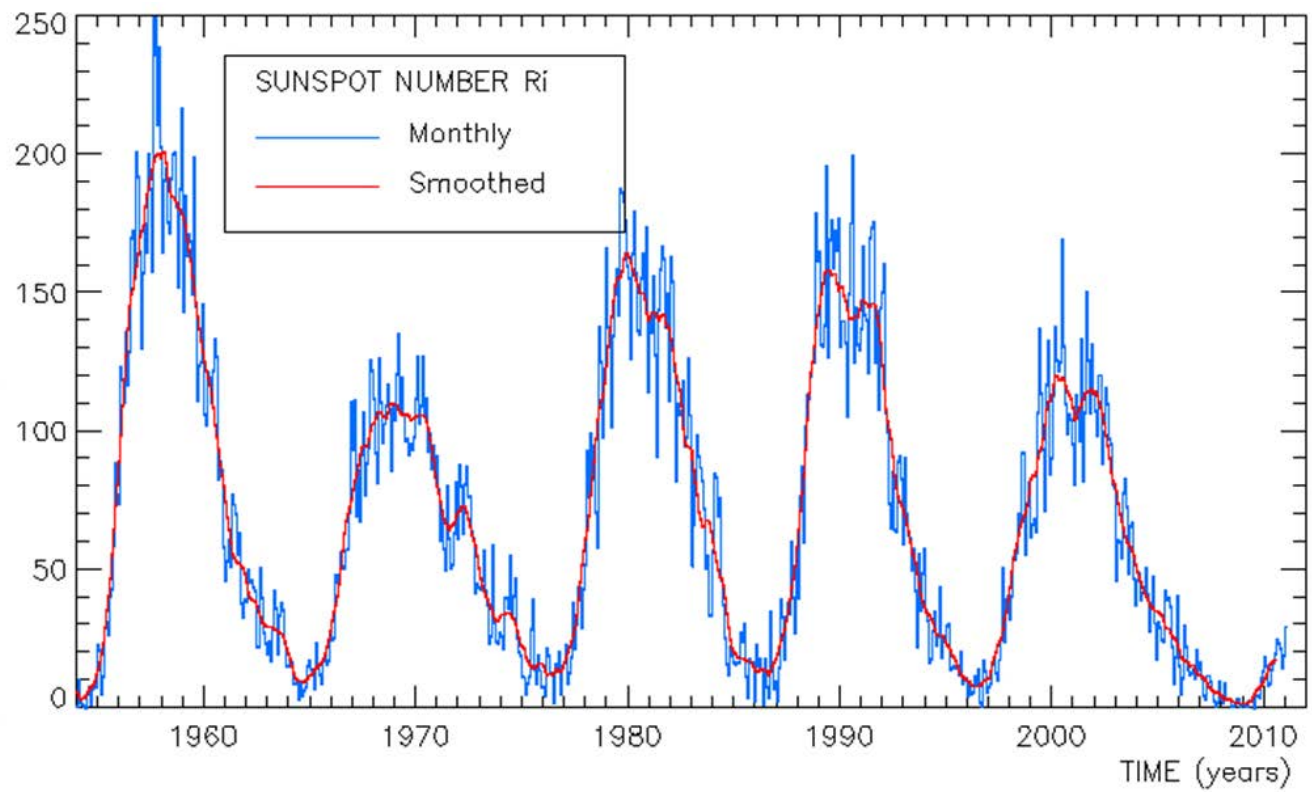




SDO/HMI Quick-Look Continuum: 20141023_131500

NASA's Solar Dynamics Observatory Satellite provides data for scientists to learn about the Sun.

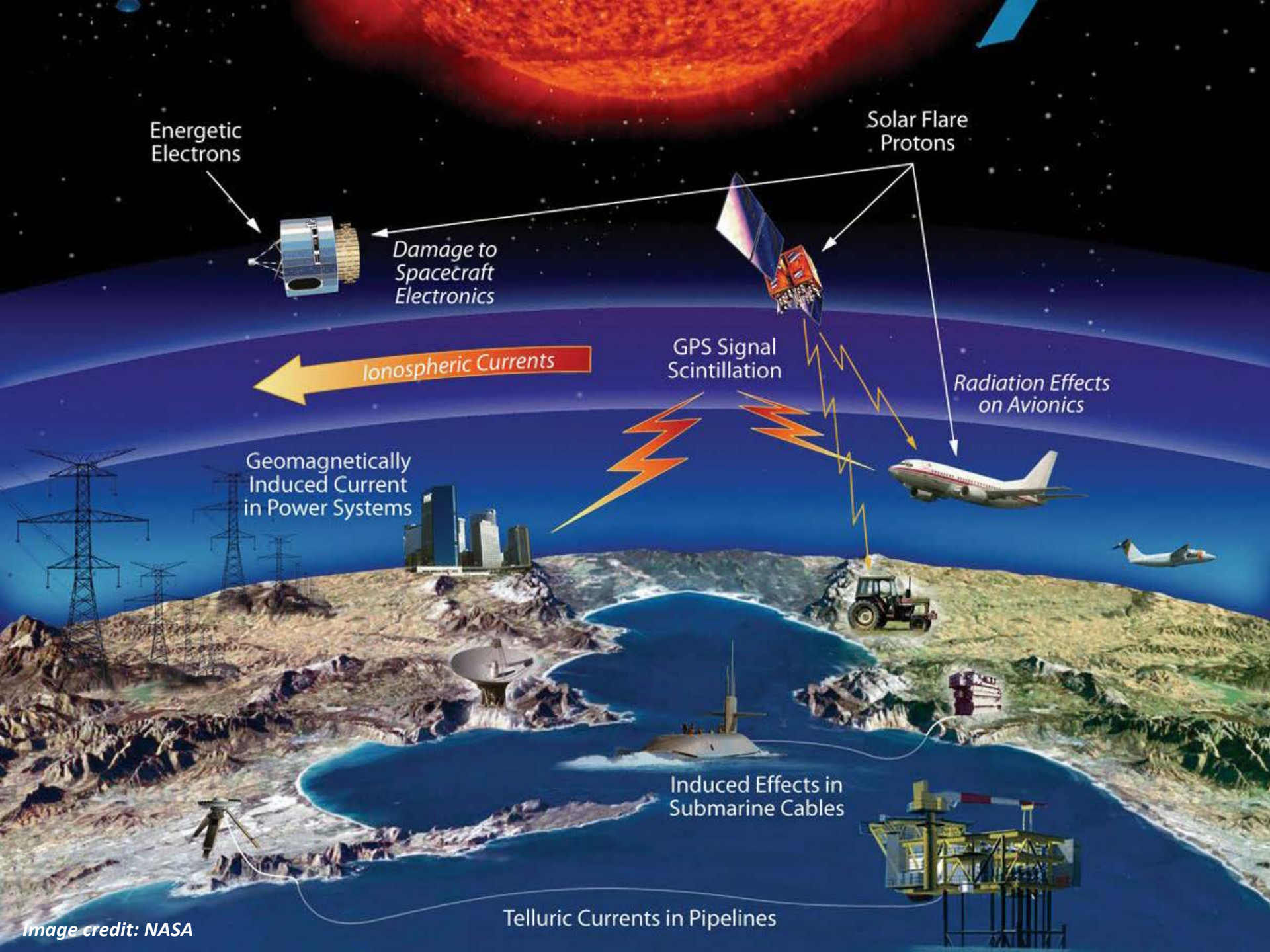
Image credit: NASA's Goddard Space Flight Center





NASA's Solar Dynamics Observatory Satellite takes data of the Sun in visible and ultraviolet light.

Image credit: NASA's Goddard Space Flight Center



Energetic Electrons

Solar Flare Protons

Damage to Spacecraft Electronics

Ionospheric Currents

GPS Signal Scintillation

Radiation Effects on Avionics

Geomagnetically Induced Current in Power Systems

Induced Effects in Submarine Cables

Telluric Currents in Pipelines

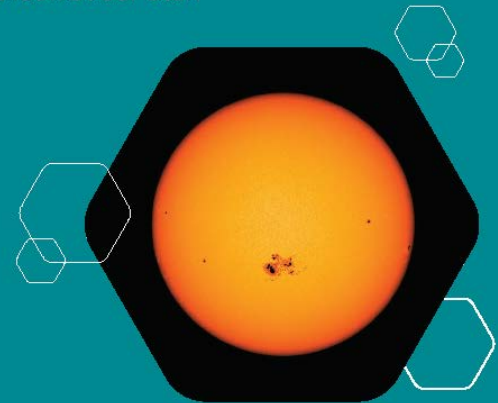
Observe the Sun



EXPLORING THE SOLAR SYSTEM

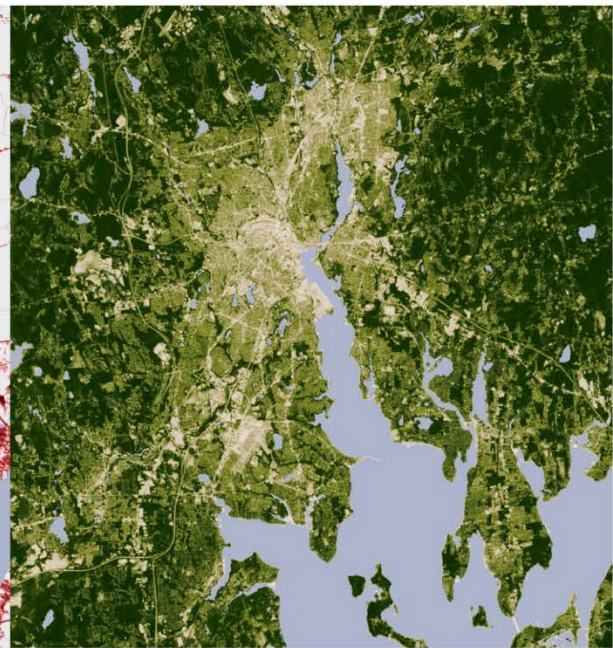
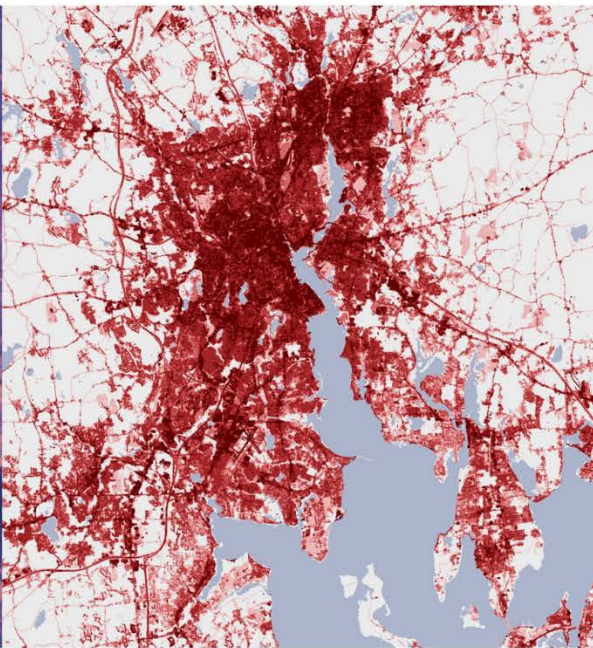
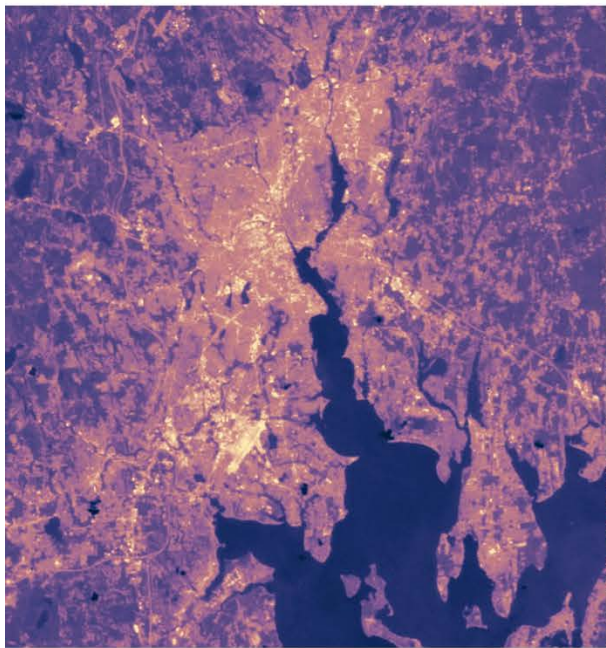
Observe the Sun


Use a solar scope to safely take a look at our star!



Sunlight interacting with buildings in Providence, RI







Photosynthesis uses energy from the Sun. Concrete absorbs the Sun's energy then transfers heat to air and people.



White roofs reflect most of the sunlight. Black roofs absorb most of the sunlight.

Temperature Mapping



EXPLORING EARTH

Temperature Mapping

Which materials stay hotter longer?



Questions?

Our Next Workshop



**The Science Behind the 2019
Explore Science: Earth & Space
Toolkit - Exploring the Universe**

Dr. Katherine Kornei

**Tuesday, March 12, 2019:
2pm-3pm Eastern /
11am-12pm Pacific**

Toolkits shipping soon!



Get Involved

Learn more and access the
NISE Network's online digital resources
nisenet.org

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Thank You

