

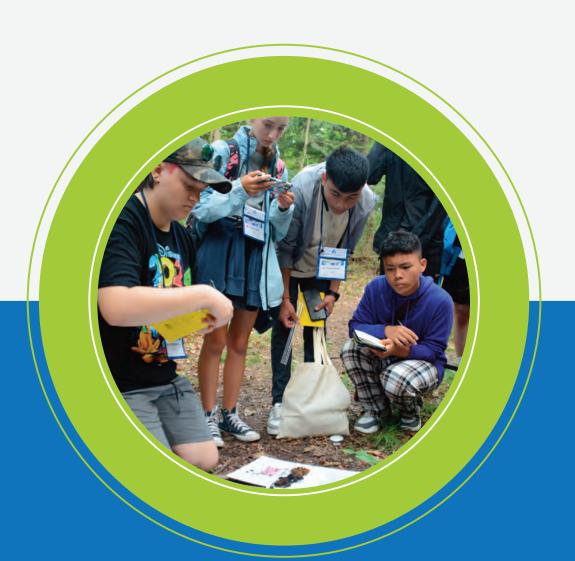


2024

UNITED STATES

# GLOBE

PARTNER YEARBOOK



# **ABOUT THE GLOBE PROGRAM**

#### **GLOBE History**

Announced in 1994 and launched in 1995, the Global Learning and Observations to Benefit the Environment (GLOBE) Program is a science and education program that focuses on advancing Earth systems science through data collection and analysis.

More than 268 million measurements have been contributed to the GLOBE science database, creating useful, standardized, research-quality data that support informal and professional scientific exploration.

After nearly 30 years, thousands of youth, educators, and citizen scientists in 127 countries have participated in the GLOBE Program to learn about their local community in the context of the broader world. GLOBE serves learners of all ages who are enthusiastic about Earth science locally and globally through authentic learning using GLOBE technology, tools, and resources.

With the support of NASA and the federal agencies that sponsor GLOBE, namely the National Oceanic and Atmospheric Administration (NOAA), the National Science Foundation (NSF), and the U.S. Department of State, GLOBE engages everyone in purposeful data collection, building STEM skills and tomorrow's STEM workforce.

For more information, visit www.globe.gov.

#### The GLOBE Vision

A worldwide community of students, educators, scientists and citizens working together to better understand, sustain and improve Earth's environment at local, regional and global scales.

#### The GLOBE Mission

To increase awareness of individuals throughout the world about the global environment, contribute to increased scientific understanding of the Earth and support improved student achievement in science and mathematics.

#### The GLOBE U.S. Coordination Office

The GLOBE U.S. Coordination Office supports a diverse group of 100 experienced and committed GLOBE Partnerships to create a strong, self-sustainable framework for training and responsive support for every GLOBE learner in the country. The office works with the U.S. Partner Forum to contact and provide support for every Partner in the country on a personal basis and through a regional model.

In 2024, the GLOBE U.S. Coordination Office (or "U.S. GLOBE") was supported through a sub-award from the GLOBE Implementation Office. Headquartered at the Leitzel Center at the University of New Hampshire, U.S. GLOBE is managed by Jennifer Bourgeault, U.S. Country Coordinator; Haley Wicklein, U.S. Assistant Country Coordinator; Alicia Carlson, Outreach and Communications Lead; Jodi Haney, Trainer/Mentor Trainer and Partner Sustainability Lead; and Eleanor Jaffee, Outside Evaluator.



#### **GLOBE Partnerships**

U.S. GLOBE Partners facilitate the implementation of the GLOBE Program in their state or service area. Partners support educator professional development, student inquiry, and research on the environment.

Each U.S. GLOBE Partnership must have a formal affiliation with an institution of higher education, a school district, a state department of education or a recognized informal education organization (501(c)(3)) such as STEM learning centers, museums and foundations that can sustain the implementation of GLOBE in their communities.

New and prospective GLOBE Partners must demonstrate the capacity to recruit, train, and mentor educators in their service area. Their efforts must focus on capacity-building, program sustainability, and youth inquiry and research.

- View a list of <u>current U.S. GLOBE Partners</u>
- Learn more about how to <u>Become a GLOBE Partner</u>

## New U.S. GLOBE Partnerships

The GLOBE U.S. Coordination Office welcomed one new GLOBE Partnership in 2024: PA Virtual Charter School in King of Prussia, Pennsylvania. We look forward to working with them to expand GLOBE's reach in the United States!

GLOBE is sponsored by the U.S. National Aeronautics and Space Administration (NASA) and supported by the National Science Foundation (NSF), National Oceanic and Atmospheric Administration (NOAA) and the United States Department of State.



The material contained in this document is based upon work supported by a National Aeronautics and Space Administration (NASA) grant or cooperative agreement. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of NASA.



The GLOBE U.S. Coordination Office is based at the Leitzel Center at the University of New Hampshire.





# **U.S. GLOBE NEWS HIGHLIGHTS**

The following highlights were posted on the <u>U.S. GLOBE news page</u> in 2024. The full stories are available from the linked titles. The complete list for 2024 can be found in the Appendix on page 64.

<u>U.S. Partners Share Solar Eclipse Activities:</u> The GLOBE U.S. Coordination Office asked GLOBE Partners to share their experiences during the April 8 total solar eclipse. Four Partners responded with their activities leading up to the eclipse, including interviews and presentations, and well as their experiences leading programs on the day of the eclipse.

A "Sunspotter" projection device provides a view of a solar eclipse by projecting an image of the sun onto a flat white sheet of paper.



GLOBE and Dr. John Francis Invite Educators and Students to Take a Planetwalk: Dr. John Francis, a friend of GLOBE, is on a 6,000 mile journey to walk across the continent of Africa, from Cape Town to Cairo. Dr. Francis is a well-known environmental educator who stopped riding in motorized vehicles and stopped speaking for 17 years after witnessing an oil spill in the San Francisco Bay, California, USA. While the GLOBE community can't all join Dr. Francis in Africa, they are finding ways to join him in solidarity in their own communities.

Dr. John Francis walks with a stick along a beach in South Africa, the ocean behind him.



# U.S. GLOBE NEWS HIGHLIGHTS continued

<u>2024 GLOBE Annual Meeting Highlights: U.S. Partners:</u> The 2024 GLOBE Annual Meeting was held July 15-18 at the State University of New York at Fredonia and hosted by long-time U.S. GLOBE Partner Mike Jabot. The meeting was organized and facilitated by the outgoing GLOBE Implementation Office (GIO) at the University Corporation for Atmospheric Research (UCAR). More than 200 attendees from 31 countries gathered on the SUNY Fredonia campus throughout the week and joined in the field trip to Niagara Falls on the third day. Several U.S. GLOBE Partners received travel funding support from the GLOBE U.S. Coordination Office through UCAR/GLOBE Implementation Office Grant and Cooperative Agreement No. NNX17AD75A. They provided reports of their experiences and take-aways.



2024 GLOBE Annual Meeting participants gathered outside on the SUNY Fredonia campus, with more than 150 people in the photo.





# 2024 U.S. GLOBE ACTIVITIES

U.S. GLOBE Office activities in 2024 supported Partners, educators, and students. The major activities included:

- U.S. Student Research Symposia
- North American Regional Meeting
- Mini-grants
- Watercoolers
- North American Phenology Campaign

#### STUDENT RESEARCH SYMPOSIA

U.S. GLOBE coordinates annual regional Student Research Symposia (SRS) for educator and student teams, supported with funding from NASA (grant 80NSSC18K0135) and Youth Learning as Citizen Environmental Scientists (YLACES).

In April and May 2024, middle and high school students from around the United States came together at five regional SRS to share the results of research they conducted in their local communities. They used GLOBE protocols and data in their research and prepared posters to share their results with peers and STEM professionals.

In total, 430 people (educators, STEM professionals, students and others) attended the 2024 SRS, including 264 students who presented 95 projects.

Aside from their presentations, students participated in a variety of science activities. Many practiced GLOBE protocols, listened to scientists talk about their research and careers, explored the local environment, and learned about programs of study at the hosting locations.

More information about each regional SRS can be found in later sections or through this 2024 SRS summary.

## 2024 NORTH AMERICAN REGIONAL MEETING

The 2024 North American Regional Meeting (NARM) was held virtually over three days, October 15–17, for three hours each day. Amy Chen, the GLOBE program officer at NASA, and Rebecca Lewis and Becky Boger from the new GLOBE Implementation Office opened the meeting with welcomes, highlights, and updates on GLOBE activities.

Ninety-eight people registered for the free meeting. Over the three days, 90 of those people attended, making it the most well-attended virtual NARM in the GLOBE Program's history. Forty-eight people attended all three days.

The first day consisted of concurrent workshops to build skills. The second day featured GLOBE Partners sharing their work and accomplishments through lightning talks. The third day focused on professional learning around grant writing and communications. Read a summary of the 2024 NARM.

# 2024 U.S. GLOBE ACTIVITIES continued

#### **U.S. GLOBE PARTNER MINI-GRANTS**

Beginning in July 2023, the GLOBE U.S. Coordination Office began soliciting proposals from U.S. GLOBE Partners through a mini-grant program. Two mini-grants were awarded in 2024, including:

- Project-Based Learning templates to support student research using GLOBE, NASA, and NOAA data.
- A week-long summer camp for high school students to collect measurements using GLOBE protocols in hydrology, surface temperature, trees, and land cover and work on mini projects.

A summary of all mini-grants can be found on the GLOBE Mini-Grants Awards Padlet.

#### **U.S. GLOBE WATERCOOLERS**

The U.S. GLOBE Watercoolers are virtual learning, discussion, and networking opportunities for GLOBE educators and Partners that model the idea that informal gatherings around water coolers at work can lead to valuable exchanges of information and new collaborations. In 2024, U.S. GLOBE community members presented at 13 Watercoolers with 76 unique attendees. Presentations covered a wide range of topics including NASA Worldview, the Dirty Soil citizen science project, a GLOBE atmosphere group for West Virginia educators, and connecting state standards to GLOBE.

Recordings of Watercoolers can be viewed on the <u>U.S. GLOBE Watercoolers YouTube playlist</u>.

#### NORTH AMERICAN PHENOLOGY CAMPAIGN

In collaboration with GLOBE Canada, the GLOBE U.S. Coordination Office encourages educators, students, and citizen scientists to make leaf green-down and green-up observations through the North American Phenology Campaign. The campaign is based largely on the successful European GLOBE Phenology Campaign.

In spring 2024, observers measured leaf budburst and green-up and entered 1,746 measurements into the GLOBE database. In fall 2024, observers measured leaf green-down using the GLOBE Color Guide and GLOBE Observer app and entered 1,695 measurements into the GLOBE database.





# U.S. GLOBE PARTNERSHIP ACTIVITIES: BY THE NUMBERS

U.S. GLOBE Partners reach a wide audience through their events and activities. This year, we asked them to report the numbers, including:

- Youth reached
- Youth-centered events
- Educators reached
- Educator-centered events

The graphic shows the cumulative reports of the 29 Partnerships that reported on at least one of the categories. We had some high numbers of engagement this year, due in part to the 2024 total solar eclipse.

There were a few superstar reporters! Most notably:

- Wayne RESA (Mich.) reported reaching 75,000 youth (they provided solar eclipse glasses to many schools in Detroit).
- Los Angeles Public Library (Calif.) reported reaching 3,480 youth and 980 educators.
- South Dakota Discovery Center reported reaching 800 educators.

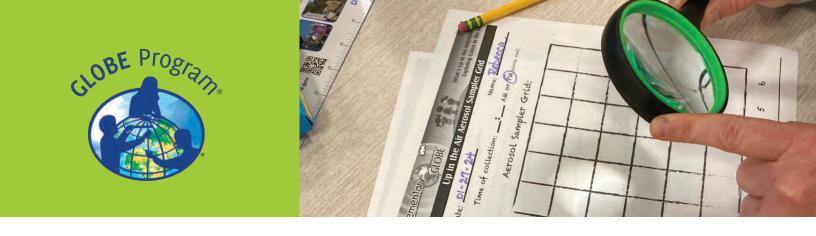
# U.S. GLOBE BY THE NUMBERS (2024)





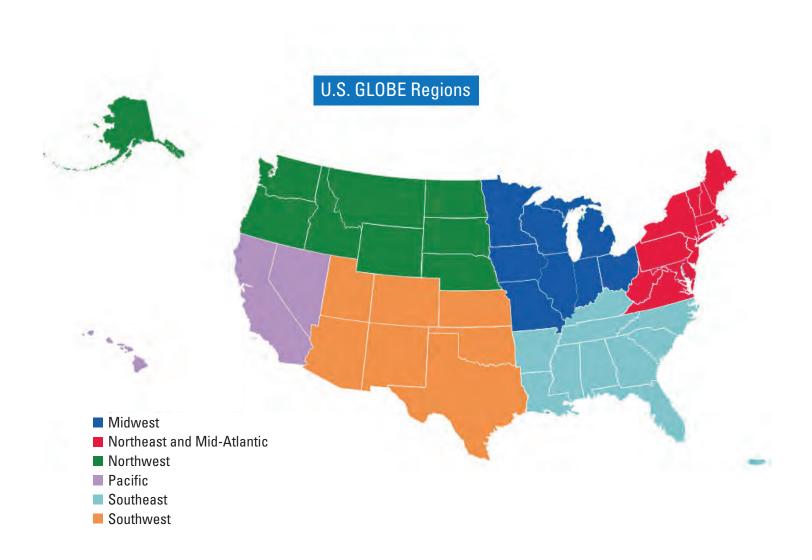






# **U.S. GLOBE REGIONS**

The U.S. is divided into six GLOBE regions. Each region has one representative on the U.S. Partner Forum, who works closely to guide the future of GLOBE in the United States.



A map showing six regions of the United States, indicated by color. Dark blue: Midwest; Red: Northeast and Mid-Atlantic; Green: Northwest; Purple: Pacific; Light blue: Southeast; Orange: Southwest.

# **U.S. GLOBE REGIONS** continued

#### **MIDWEST REGION**

Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, Wisconsin

#### **NORTHEAST AND MID-ATLANTIC REGION**

Delaware, District of Columbia, Connecticut, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia

#### **NORTHWEST REGION**

Alaska, Idaho, Montana, Nebraska, North Dakota, Oregon, South Dakota, Washington, Wyoming

#### **PACIFIC REGION**

California, Nevada, Hawaii

#### **SOUTHEAST REGION**

Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Puerto Rico Territory

#### **SOUTHWEST REGION**

Arizona, Colorado, Kansas, New Mexico, Oklahoma, Texas, Utah



# **SRS SUMMARY**

In 2024 students from the U.S. GLOBE Northwest Region attended the Pacific and Northwest Student Research Symposium (SRS), held at the NASA Jet Propulsion Lab in Pasadena, California, from May 10-11. Students presented 22 research projects to each other and STEM professionals. Read a summary of the 2024 GLOBE Northwest SRS.

Here are some examples of student projects from the Northwest SRS.

- Dissolved Oxygen and Fish and Wildlife Habitat in Gravel Pit Ponds, Aniak Junior Senior High School (AK)
- Are Higher Temperatures Causing Fires on the Flathead Reservation?, Ronan Middle School (MT)
- How does the water erosion of the Mendenhall River bank affect the biomass in relation to carbon sequestration?, Thunder Mountain High School, Sealaska Heritage Institute (AK)

Northwest Partnerships that supported student and educator teams attending the SRS include the University of Alaska Fairbanks.

# **GLOBE NEWS HIGHLIGHTS**

In May, GLOBE Partner Anne Lewis of the South Dakota Discovery Center hosted an in-person North American Regional Meeting (NARM) workshop at Badlands National Park. The 12 participants used GLOBE hydrosphere protocols. Read a summary of the NARM at Badlands National Park.



# **OTHER GLOBE NEWS**

- <u>Students Add to GLOBE Data While Learning About Ocean Science and Sailing from Japan to Palau!</u> (University of Alaska Fairbanks)
- GLOBE Observer Connect: Collecting GLOBE Data at Sea (29 August 2024) (University of Alaska Fairbanks)
- YLACES Awards a YES Medal to GLOBE's Dr. Elena Sparrow (University of Alaska Fairbanks)

# **PARTNERSHIPS**

Read about the activities and accomplishments of the following Northwest Region GLOBE Partnerships in this section.

- University of Alaska Fairbanks, Alaska
- South Dakota Discovery Center, South Dakota

Other Northwest Region Partnerships are listed in the Appendix.

# **ALASKA**



# UNIVERSITY OF ALASKA FAIRBANKS

## **University Of Alaska Fairbanks Partnership Page (GLOBE)**

GLOBE Partner since 1996

#### **Partnership Co-Coordinators:**

Elena Bautista Sparrow, ebsparrow@alaska.edu (907-474-7699) Katie Villano Spellman, klspellman@alaska.edu (907-474-1554)

#### **Team Members:**

Training Point of Contact: Christina Buffington, eesousa@alaska.edu Co-Training Point of Contact: Tori Brannan, tlbrannan@alaska.edu Emily Sousa, eesousa@alaska.edu Cheryl Williams, cherylann99645@gmail.com

**About the Partnership:** The University of Alaska Fairbanks (UAF) Partnership engages in climate education focusing on issues important to local communities. UAF supports Alaska schools, teams, and projects by providing professional development, GLOBE supplies and equipment, and travel support. The Partnership connects students with scientists and Indigenous knowledge holders, matching expertise with the subject matter focus of student projects.

#### 2024 Highlights:

- UAF engaged 480 informal and formal educators and community members in professional development workshops. Approximately 1,500 youth were engaged in climate learning using Arctic and Earth SIGNs (STEM Integrating GLOBE and NASA) and GLOBE activities.
- UAF and GLOBE Grandma helped educators and students participate in GLOBE's North American Fall Phenology Campaign and Year of Climate and Carbon Campaign.
- Co-hosted the Fresh Eyes on Ice Student Research Symposium (SRS) in Fairbanks in April and supported four student teams at the GLOBE Pacific and Northwest Regional SRS in May.
- UAF's Buffington and Williams joined the Ocean Policy Research Institute of Sasakawa Peace Foundation on a cruise from Japan to Palau using GLOBE protocols (see the news story on Northwest Region pages).
- Katie Spellman was an invited keynote speaker at the 2024 GLOBE Annual Meeting.

**Areas of Expertise:** In-service professional development, Programming for students, Elementary GLOBE, Pre-service educators, GLOBE in undergraduate classrooms, Education research, Science research, Citizen science, Informal science, Other: braiding multiple knowledge systems

**Cooperating Organizations:** Association of Interior Native Educators; NASA Science Activation Science Mission Directorate; NASA Citizen Science; NASA Langley Office of STEM Engagement; National Weather Service; Sealaska Heritage Institute; U.S. Fish and Wildlife Service; Fairbanks Soil and Water Conservation; Key organizations at UAF.

**Funding:** Arctic and Earth SIGNs NASA Cooperative Agreement; Bonanza Creek LTER Project; Winterberry Project NSF Award; Fresh Eyes on Ice NSF Award and NASA Cooperative Agreement

**Publications:** See the complete list of publications and presentations on the University of Alaska Fairbanks Publications and Presentations page.

#### **News Stories:**

- Gulkana study brings Girls On Ice to international stage (Alaska Native News)
- December, January BLaST Scientist of the Month (UAF student)

**Student Research Support:** Arctic and Earth SIGNs and Fresh Eyes on Ice projects support students in entering their research in the GLOBE International Virtual Science Symposium and SRS.

**Audiences:** Pre-school students, Elementary school students, Middle school students, High school students, Undergraduate students, Graduate students-service educators, PreK-12 educators, Life-long learners



# **SOUTH DAKOTA**

# SOUTH DAKOTA DISCOVERY CENTER

#### South Dakota Discovery Center GLOBE Partnership page

**GLOBE Partner since 2015** 

#### **Partnership Coordinator:**

Anne Lewis annelewis@sd-discovery.org

**About the Partnership:** The South Dakota Discovery Center integrates GLOBE into its professional development program, enriching the program's significance and relevance. GLOBE equips K-12 educators with hands-on, place-based learning and research opportunities about water, watersheds, and Earth systems so students can explore the world in exciting ways. The South Dakota Discovery Center also leverages GLOBE in its work braiding STEM with Indigenous ways of knowing and uses GLOBE as part of a long-range water quality study in Badlands National Park.

**2024 Highlights:** The South Dakota Discovery Center hosted a GLOBE in-person North American Regional Meeting (NARM) workshop May 21-23 in Badlands National Park (see the news story on Northwest Region pages). This was not your usual NARM as the entire experience was an immersive field experience.

The twelve participants used GLOBE hydrology protocols to contribute to an ongoing research study of Sage Creek, explored aquatic macroinvertebrates using MacroBlitz – a GLOBE adjacent project to support the freshwater macroinvertebrate protocol – and developed a richer understanding of Indigenous Ways of Knowing through presentations with an Indigenous elder, Lakota star stories planetarium presentation and group discussion.

The NARM was held mostly outdoors except for the final discussion session. Participants camped at a primitive campground (no electricity or running water). Meals were provided by an experienced outfitter. Buffalo (*Bison bison*) were a constant presence.

Areas of Expertise: In-service professional development, Informal science, Elementary GLOBE

**Funding:** South Dakota Space Grant Consortium; South Dakota Department of Agriculture and Natural Resources with pass through funding from US EPA Region 8.

**Audiences:** Undergraduate students, Pre-service educators, Life-long learners





# **U.S. GLOBE 2024 NEWS ROUND-UP**

These articles were posted on the <u>U.S. GLOBE news page</u> in 2024. The full stories are available from the linked titles.

#### **JANUARY TO MARCH**

- Caydence P. Finds SEES Internship "Incredibly Rewarding"
- 14 October 2023 Annular Eclipse Round-up
- January 2024 Updates to U.S. Partner Forum
- New Jersey GLOBE Partnership Takes the First Steps with Dr. John Francis, Planetwalker: "From South Jersey to South Africa"
- Recapping the Pacific In-Person North American Regional Meeting

#### **APRIL TO JUNE**

- Wildlife Biologist Ready to Answer Phenology Questions
- Students Present GLOBE Research at INFINITY Science Center
- "Satellites and Remote Sensing" NARM Summary
- U.S. Partners Share Solar Eclipse Activities
- U.S. GLOBE Students Contribute 50 Projects to IVSS
- Camp Counselors Gather for GLOBE Goes to Camp Conference
- Defiance, Ohio, Hosts In-Person NARM
- GLOBE Students Present Research at Jet Propulsion Laboratory
- Northeast/Mid-Atlantic Students Showcase Environmental Research at Berks Nature
- Boston University AguaROVER Design project
- Midwest Students Present Research at Toledo Zoo and Aguarium
- All Saints' Episcopal School Hosts Southwest Students' Research
- Students Share Research at U.S. GLOBE Student Research Symposia
- New Hampshire Students Help Create the Earth Around Us Water Tent
- Going Global in West Virginia with GLOBE



# U.S. GLOBE 2024 NEWS ROUND-UP continued

#### **JULY TO SEPTEMBER**

- GLOBE and STEELS Standards in Pennsylvania
- The Re-Establishment of GLOBE in Alabama
- 2024 GLOBE Annual Meeting Highlights: U.S. Partners
- GLOBE's North American Regional Meeting at Badlands National Park
- Summer Camp Focused on Sustainability and Sustainable Development Goals with GLOBE
- N is for Nube: Top 5 Must-Have English-Spanish Resources About Clouds
- N is for Nube: Los 5 mejores recursos en inglés y español sobre las nubes
- North Carolina Educators Study Climate and the Earth as a System Using GLOBE
- GLOBE is Adopted at Two National Estuarine Research Reserves in California
- A Love Letter to the GLOBE Website: Using GLOBE's Digital Tools for Student Engagement
- GLOBE and Dr. John Francis Invite Educators and Students to Take a Planetwalk

#### **OCTOBER TO DECEMBER**

- Student Field Days at Earth Heart Farms Fall 2024!
- If You Build It (to Be Fun and Engaging), They Will Come (to NARM)
- GLOBE Expands Its Reach in Massachusetts
- U.S. GLOBE Office Shares GLOBE at North American Association for Environmental Education Conference





# 2024 CURRENT U.S. GLOBE PARTNERSHIPS

#### **Alabama**

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#### Stone Child College

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