

# 2023 POWER Global Community (GloCo) Summit Summary Report



**About POWER:** The Prediction Of Worldwide Energy Resources (POWER) Project, a NASA Earth Action Program Project, focuses on improving the public and private capability for integrating NASA Earth Observations (EO) and research into renewable energy, sustainable infrastructure, and agroclimatology related decisions. POWER provides NASA's freely available trusted low-latency solar and meteorological datasets, community specific derived data parameters, geospatial web data services, and a variety of analytical tools to its user communities. These datasets have global coverage and span across a long-time series temporally. POWER distributes data in several formats with a large variety of openly available accessibility options, making them Application Ready Data that enable critical energy and agricultural decisions worldwide.



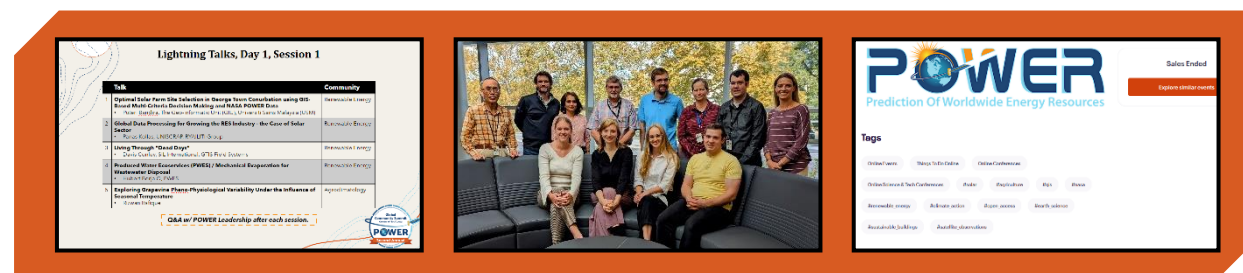
## Executive Summary

The NASA Prediction Of Worldwide Energy Resources (POWER) Project thrives on user feedback. The project maintains regular contact with its current and potential users throughout the year via POWER’s email inbox, presentations at conferences, outreach conducted at NASA Earth Sciences event booths, articles published on project partner websites, and one-on-one interviews with users. Starting in 2022, POWER began conducting a yearly Global Community (GloCo) Summit as an opportunity to update users on exciting developments within the project’s tools and services, as well as interface with and gather feedback from the project’s three communities.

This year, POWER GloCo was hosted virtually in the late afternoon of October 11<sup>th</sup> and the morning of October 12<sup>th</sup>, allowing more global participation opportunities. The POWER GloCo Summit 2023 was also a two-day, free virtual event. This year the agenda was identical on both days, offering participants to choose between attending one or both days. The goals of this event were to inform users of new, enhanced features, gather feedback on services, identify new requests and requirements, and capture more thorough user stories while identifying new user communities and partnership opportunities.

The 2023 GloCo Summit had over 200 registrants from 51 different countries, and, over the two-day event, the Summit was attended by 97 unique attendees. On both days, NASA POWER’s Chief Scientist, Dr. Paul Stackhouse (LaRC), provided an overview presentation of the history of POWER, its current capabilities, and a glimpse into future plans. Nineteen unique lightning talks from POWER’s user community were given over the two days; these presentations detailed how users are applying POWER’s data, tools, and services in support of their missions. To conclude each day, an interactive feedback session was hosted to support direct community engagement and feedback.

The recordings from the event are available here: <https://power.larc.nasa.gov/global-community-summit-2023/>





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### Acronyms

<b>ADC</b>	ArcGIS DAAC Collaboration
<b>AOS</b>	Atmospheric Observation System
<b>API</b>	Application Programming Interface
<b>ASDC</b>	Atmospheric Science Data Center
<b>AWS</b>	Amazon Web Service
<b>CERES</b>	Clouds and the Earth's Radiant Energy System
<b>DAV</b>	Data Access Viewer
<b>DAVe</b>	Data Access Viewer enhanced
<b>EO</b>	Earth Observations
<b>EOSDIS</b>	Earth Observing System Data and Information System
<b>GEWEX</b>	Global Energy and Water Cycle Experiment
<b>GIS</b>	Geographic Information System
<b>GloCo</b>	Global Community
<b>GMAO</b>	Global Modeling and Assimilation Office
<b>LaRC</b>	Langley Research Center
<b>LED</b>	Light-Emitting Diode
<b>MERRA-2</b>	Modern-Era Retrospective analysis for Research and Applications, Version 2
<b>NASA</b>	National Aeronautics and Space Administration
<b>POWER</b>	Prediction Of Worldwide Energy Resources
<b>PV</b>	Photovoltaic
<b>RETScreen®</b>	Renewable Energy Technology Screen
<b>RWDI</b>	Rowan Williams Davies & Irwin Inc
<b>SILT</b>	Solar Insolation Lookup Tool
<b>SRB</b>	Surface Radiation Budget
<b>WCRP</b>	World Climate Research Programme



### **1. Event Description**

In October 2023, the NASA Prediction Of Worldwide Energy Resources (POWER) Project hosted its 2<sup>nd</sup> Annual Global Community (GloCo) Summit on renewable energy, sustainable infrastructure, and agroclimatology. The GloCo Summit's agenda was designed to provide users with a diverse range of sessions, thought-provoking discussions, and feedback opportunities.

The POWER GloCo Summit was a two-day, free virtual event with an identical agenda on both days, offering participants to choose between attending one or both days. The virtual event took place October 11<sup>th</sup> from 3:00PM - 5:30PM ET and October 12<sup>th</sup> from 8:00AM - 10:30AM ET. These two distinct time periods were chosen to make the event as accessible as possible for POWER's global community.

At this event, attendees:

- Learned about POWER's latest enhancements to data product offerings and customized applications, as well as the project's roadmap.
- Heard stories and use cases from POWER's user community, showcasing how they are applying POWER's Data Access Viewer (DAV), Application Programming Interface (API), Amazon Web Service (AWS) Open Data Registry, and/or geospatial services in their missions across the globe.
- Engaged with users from the POWER community as well as the POWER Team.
- Helped derive future enhancements from the POWER community during interactive feedback sessions.

The official Global Community Summit website containing videos of the various talks is located at: <https://power.larc.nasa.gov/global-community-summit-2023/>.

*Each of the various sections of the meeting are summarized in this report and the complete agenda for this event can be found in Appendix A.*



## 2. User Lightning Talks

The POWER Project invited its user community to present three-to-five-minute lightning talks at the GloCo Summit. The goal of these sessions was to feature stories and use cases from the POWER community, showcasing how POWER's [Data Access Viewer](#) (DAV), [Application Programming Interface](#) (API), [Amazon Web Services \(AWS\) Open Data Registry](#), and/or [geospatial services](#) were being used across the globe. **19 users of POWER data gave talks during the event, representing the renewable energy, sustainable infrastructure, and agroclimatology communities.**

This session presented a unique opportunity to connect with our community outside of the Project's established partnerships. The users who presented were a great representation of POWER's global user community, with projects taking place from Malaysia to Spain and India to Mexico. Topics of the lightning talks ranged from optimal solar farm site selection, to produced water ecoservices, to precision rice farming, to a photovoltaic planning tool. Below are highlights of select talks. Recordings of all talks are available on [POWER's website for the event](#) and a full list of the talks given can be found in Appendix B.



- Rowan Williams Davies & Irwin Inc. (RWDI) Consultant's goal is to help their clients understand how the built and natural environments interact to minimize their project's impact on the natural world. RWDI their provides engineers, architects, and designers with information to understand how their buildings direct sunlight, probability of the heat island effect, and cause thermal discomfort.
- RWDI has been involved in solar and thermal comfort related work for hundreds of projects across all 7 continents. POWER is used with the suite of their in-house tools in their analyses.



- SIL International is a global nonprofit that works with local communities around the world to develop language solutions in support of literacy, education, and linguistic research for 855 million people across 98 different countries.
- SIL's Solar Insolation Lookup Tool (SILT) predicts power output from a solar panel anywhere in the world in support of powering language translation tools. It uses CERES/MERRA-2 Native Resolution Hourly Data from POWER. They use this data to compare the energy available to energy required to operate as well as determine how many days a system can go without sunlight, known as dead days.



- Urban Solar manufactures solar power systems and LED lighting solutions for transit, transportation, parking lots, pathways, and general illumination applications. Their philosophy is good lightning allows people to feel safe in outdoor spaces.
- Urban Solar uses POWER's API to retrieve minimum solar irradiance and to calculate the power generated by solar arrays. They then use this information to manufacture and place solar power systems and LED lighting solutions.



- Produced Water Ecoservices (PWES) is a Colombia based project that aims to treat and return water to its original value. They use POWER's meteorological data from MERRA-2 in their calculations for the conceptual engineering portion of the design process.
- Due to POWER's data being easily accessible in remote regions, PWES has conducted 5 successful field cases. The group has treated and returned 2 million barrels of water back into the ecosystem in a cost-effective way.

Figure 1: Select User Lightning Talk Summaries





### 3. Feedback Session

A feedback session was convened on both days of the summit. These sessions were moderated to facilitate discussions and allowed users to collaborate and share ideas. A virtual whiteboard platform, Mural, was utilized to facilitate discussion and gather feedback from 2023 GloCo attendees. The Mural board was used to guide focused conversations on POWER data/service/tools/app use and to encourage participants to engage in conversation, share their experiences, brainstorm new ideas, and seek community input. The virtual whiteboard was a preconfigured space with prompts, comment boxes, and open text areas. The same board was used for both days. POWER Project team members were present to provide technical assistance as well as help spur conversation, and capture notes, questions, and feedback.

When promoted with the question “Why did you choose to use POWER?”, users noted that they like that POWER provides consistent, free, on-demand, and globally gridded data. One user also noted that, “Customers immediately trust my calculations when I mention that the data were from a NASA developed tool”. Users also identified roadblocks when using POWER data and tools, such as a user who noted that changing parameter names from year-to-year caused roadblocks.

For future improvements to the POWER Project, users had several suggestions. They asked for data relating to river discharge/velocity, modelled photovoltaic cell output, typical meteorological year, and solar irradiance specific to user-specified tilt angles. Other suggestions included an improved data dictionary, additional geographical classifications, and the creation of demos showcasing POWER’s data, tools, and services. Additionally, users also noted that they would like to see more integration capabilities with the programming languages “R” and “Python”. The POWER team took note of all the requests and suggestions for improvement and are working to address and/or implement them where applicable.

See Appendix C for the full report.



Figure 2: Instructions that Accompanied the User Feedback Mural Board



### 4. Event Participation Statistics

Starting in August of 2023, the POWER team publicized this event through various NASA communication channels including POWER’s email lists, Atmospheric Science Data Center’s (ASDC) website, Langley Research Center’s (LaRC) website, LaRC Science Directorate’s website, Applied Sciences’ website, Earth Observing System Data and Information System’s (EOSDIS) Slack instant messaging platform, NASA GIS Community of Practice’s email list, NASA ArcGIS DAAC Collaboration’s (ADC) group, Atmospheric Observation System (AOS) Twitter/X and Facebook, and Earthdata’s website, Twitter/X, and Facebook. The team also worked with collaborators to publicize the event through various Booz Allen Hamilton, Inc. platforms. Additionally, [the 2023 Global Community Summit event webpage](#) was hosted on POWER’s website.

Below is a summary of the statistics gathered, related to event registrants and participants.

- **Users Registered: 219**
  - Of the approximate 200 users who registered to attend the summit, all but 30 registered for both days of the summit. (As a reminder, the agenda was the same on both days, but the lightning talks were from different users each day.)
  - Registrants reported were from fifty-one countries across the globe, with the most from the United States with 62 registrants, India with 20 registrants, and Canada with 14 registrants.
  - The representation of registrants from different user communities is shown in Figure 4. Roughly 12% of registrants selected that they represented the Agroclimatology Community and 31% selected Renewable Energy. Ninety-seven users (over 42%) selected that they identified with more than one community; this overlap showcases the cross-cutting nature of work done across these communities. Besides the main user communities, there were 15 registrants who selected “Other” as their community.
  - Users were asked if they were a user of POWER data, and, if so, how frequently. Almost half of the users who registered (42%) noted that they had not yet used POWER data. The next most selected answer was “occasionally”, with 34% of users choosing that option.
- **Total Unique Event Attendees: 97**
  - 87 plus the POWER Team and keynote speakers
- **Day 1:** 56 unique attendees/individuals
  - Average Attendance Duration = 99 minutes
- **Day 2:** 68 unique attendees/individuals
  - Average Attendance Duration = 96 minutes



Figure 3: Map of the Locations of Users who Registered for the Event

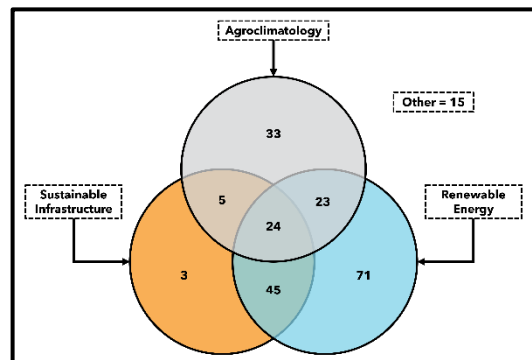


Figure 4: Communities Selected by Users in the Registration Form

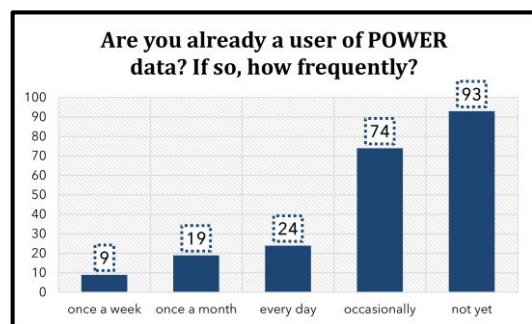


Figure 5: Response to a Question Asked in the Registrant Form





## 5. Post-Event Feedback

To improve on future Global Summit, the POWER team collected feedback from the summit registrants via email after the event. A summary of the responses can be found below. Details of all feedback collected can be found in Appendix D.

- Of the 14 respondents that attended the event and responded to the survey:

- 95.9% rated the overall value of the content presented at the summit to be “very valuable”, with 7.1% finding the content “somewhat valuable”.
- 92.9% selected that they would “absolutely” or “very likely” attend a future POWER GloCo Summit.
- The sessions they found most valuable were the “About POWER & Project Updates Presentation”, as well as the “POWER User Lightning Talks”.

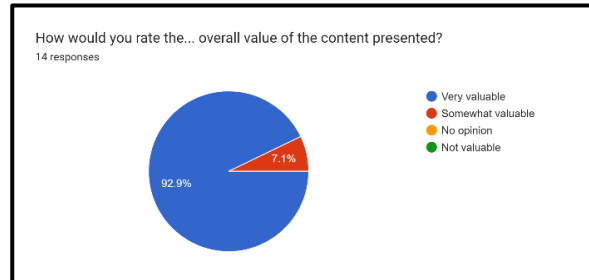


Figure 6: Example of Questions Asked to Users 1

- The sessions they found most valuable were the “About POWER & Project Updates Presentation”, as well as the “POWER User Lightning Talks”.
  - Most of the users (71.4%) noted that they would be interested in giving a POWER User Lightning Talk in the future. 71.4% of users were interested in being contacted by the POWER Team to develop an impact story about their work.

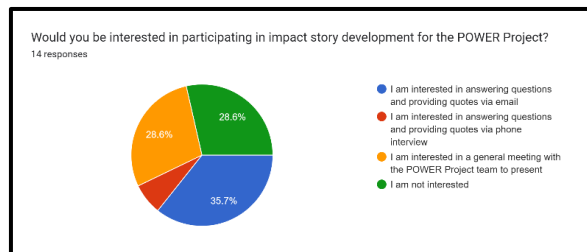


Figure 7: Example of Questions Asked to Users 2

- 85.7% of users thought the event was “just right” in terms of the summit duration.
- For those who were not able to attend the event, they noted that “inconvenient time” and “unplanned activity came up” as the top two reasons they were not able to attend.

See Appendix D for the full feedback report.



### 6. Key Takeaways

The 2023 POWER GloCo Summit was the POWER Project's second virtual event. It provided an invaluable opportunity to interact with POWER's end-users and stakeholder communities. The key takeaways from the GloCo are:

- The virtual summit provided an opportunity to hear directly from several users of POWER data and services from across the globe. Future annual virtual meetings will benefit POWER's communities, who expressed keenness to participate in future.
- The lightening talks provided the POWER team the ability to highlight the success stories from different user communities in the form of articles, PowerPoint slides, and summaries in produced materials. The stories allow POWER to share how NASA data has been used for real-world projects.
- Nearly three quarters of users who responded to the feedback survey noted that they were interested in being contacted by the POWER Team to develop an impact story about their work. POWER is working to contact these users to develop more thorough user stories to be used in future presentations and leadership briefs.

SO far, through contacting users who responded to the GloCo Feedback Survey, POWER has been able to develop over 5 new user impact stories, highlighting users that are building their own tools using POWER data for community decisions and impact at the local, national, and global level.

The GloCo provided POWER with an opportunity to expand its network to new users and markets, which will continue to grow the project and promote open-science.

### 7. Acknowledgements

The Prediction of Worldwide Energy Resources (POWER) Project is funded through the NASA Applied Sciences Program within the Earth Science Division of the Science Mission Directorate. The POWER team could not have completed this task without both technical and scientific inputs from the following Earth Science Division teams: The World Climate Research Programme (WCRP) Global Energy and Water Cycle Experiment's (GEWEX) Surface Radiation Budget (NASA/GEWEX SRB) and the Clouds and the Earth's Radiant Energy System (CERES) projects at NASA LaRC and the Global Modeling and Assimilation Office (GMAO) at the NASA Goddard Space Flight Center. The data obtained through the POWER (Prediction of Worldwide Energy Resources) web services was made possible with collaboration from the NASA LaRC Sciences Data Center (ASDC).



Appendix A: POWER GloCo Agenda

Day 1 Agenda

Time (ET)	Item
3:00 PM-3:05 PM	Getting Started
3:05 PM-3:35 PM	POWER Project Highlights by Paul Stackhouse, Jr., Ph.D.
3:35 PM-3:40 PM	Break
3:40 PM-4:15 PM	Community Showcase (Lightning Talks #1) 5 talks @ 5 minutes each w/ 5 minutes Q&A at the end
4:15 PM-4:50 PM	Community Showcase (Lightning Talks #2) 5 talks @ 5 minutes each w/ 5 minutes Q&A at the end
4:50 PM-5:00 PM	Question & Answer Session
5:00 PM-5:30 PM	Feedback Exercise

Day 2 Agenda

Time (ET)	Item
8:00 AM-8:05 AM	Getting Started
8:05 AM-8:35 AM	POWER Project Highlights by Paul Stackhouse, Jr., Ph.D.
8:35 AM-8:40 AM	Break
8:40 AM-9:15 AM	Community Showcase (Lightning Talks #1) 5 talks @ 5 minutes each w/ 5 minutes Q&A at the end
9:15 AM-9:50 AM	Community Showcase (Lightning Talks #2) 5 talks @ 5 minutes each w/ 5 minutes Q&A at the end
9:50 AM-10:00 AM	Question & Answer Session
10:00 AM-10:30 AM	Feedback Exercise



## **Appendix B: Lightning Talks, Speaker List**

### **Day 1, Session 1:**

1. ["Optimal Solar Farm Site Selection in George Town Conurbation using GIS-Based Multi-Criteria Decision Making and NASA POWER Data"](#) (*Renewable Energy*)
  - by Puteri Bandira, The Geo-Informatic Unit (GIU), Universiti Sains Malaysia (USM)
2. ["Global Data Processing for Growing the RES Industry - the Case of Solar Sector"](#) (*Renewable Energy*)
  - by Panas Kollas, UNISCRAP, RYAILITI Group
3. ["Living Through "Dead Days" "](#) (*Renewable Energy*)
  - by Davis Conley, SIL International, GTIS Field Systems
4. ["Produced Water Ecoservices \(PWES\) / Mechanical Evaporation for Wastewater Disposal"](#) (*Renewable Energy*)
  - by Hubert Borja Q, PWES
5. ["Exploring Grapevine Pheno-Physiological Variability Under the Influence of Seasonal Temperature"](#) (*Agroclimatology*)
  - by Rizwan Rafique
6. [Question & Answer Session](#), led by Dr. Paul Stackhouse

### **Day 1, Session 2:**

1. ["High-Fidelity Urban Scale Solar Analyses"](#) (*Sustainable Infrastructure*)
  - by Ryan Danks
2. ["Using POWER to Inform Solar + Storage Sizing"](#) (*Sustainable Infrastructure*)
  - by Argonne National Laboratory
3. ["Using NASA POWER Data in R to Model Solar PV Output Globally"](#) (*Renewable Energy*)
  - by Abed Ayyad
4. [Question & Answer Session](#), led by Dr. Paul Stackhouse

### **Day 2, Session 3:**

1. ["SusEnergy - Photovoltaic Planning Tool"](#) (*Renewable Energy*)
  - by Sven Schwertner, SusEnergy
2. ["Solar Instant Feasibility Tool"](#) (*Renewable Energy*)
  - by Ashton Vandemark, Terrasmart, SIFT
3. ["Powering Better Bus Stops using POWER Data"](#) (*Sustainable Infrastructure*)
  - by Eric Bracke, Urban Solar
4. ["Improving sustainability with Satellite Insights"](#) (*Agroclimatology*)
  - by Sebastian Priolo, WOZA Labs
5. ["Solar Photovoltaic Microgrid System"](#) (*Renewable Energy*)
  - by Dr. Saravanan Vasudevan, Arunai Engineering College
6. [Question & Answer Session](#), led by Dr. Paul Stackhouse



**Day 2, Session 3:**

1. ["Assessing Energy Budget Disruptions and the Implications for Hydrology, Climate, and Engineering Practices in the Nzoia River Basin Using MERRA-2 and CERES Satellite Instruments"](#) (*Agroclimatology*)
  - By Stephen Mureithi Kivuti
2. ["Urban Watershed Dynamics and Flood: Case of the Menoua Watershed in the Town of Dschang, West Region of Cameroon"](#) (*Agroclimatology*)
  - by Sendze Noel, University of Buea
3. ["Data Science and Public Health: Case Study of a Sanitary and Environmental Emergency Region \(RESA\) in Mexico"](#) (*Health*)
  - by Arturo Sanchez-Porras, Universidad Iberoamericana Puebla, Instituto de Investigaciones en Medio Ambiente Xabier Gorostiaga SJ
4. ["POWER Data in G-Satellite"](#) (*Agroclimatology*)
  - by Carlos Cabrera, Masters Student, University of Jaén
5. [Question & Answer Session](#), led by Dr. Paul Stackhouse



### Appendix C: Feedback Session Report-out

A feedback session was convened on both days of the summit. A virtual whiteboard platform, Mural, was utilized to facilitate discussion and gather feedback from 2023 GloCo attendees. The same board was used for both days. Inputs and feedback received from the participants at each breakout session are presented below. A summary of the inputs obtained in the breakout sessions, can be found in Section 5 of the report.

#### **Current Capabilities/Use**

- Q1: Why did you choose to use POWER?
  - Globally Gridded (1 thumbs up)
  - Allows us to be consistent and accurate (Ryan Danks) (2 thumbs up)
  - Customers immediately trust my calculations when I mention that the data were from a NASA developed tool (4 thumbs up)
  - Consistent/global data (2 thumbs up)
  - Free Available on demand Global (3 thumbs up)
- Q2: How is POWER data used in your current workflows? (Data/parameters, data services/formats, and analytic capabilities)
  - DAVE Time Series Charts (2 thumbs up)
  - Downloading through the API (1 thumbs up)
  - API JSON format (2 thumbs up)
- Q3: What are the main roadblocks to using POWER within your community?
  - I'm noticing the parameters names I use change almost every year. When I correct my API calls to use the newer names, I notice the values are different. - a recent example - I had Insol\_Min\_07\_PCT and now the value is INSOL\_CONSEC\_07\_MIN\_PCT (Josh) (4 thumbs up)
  - When querying multiple parameters, a failed request does not identify which parameter failed (1 thumbs up)

#### **Desired Future Enhancements**

- Q4: What are your future needs in terms of data, capabilities, or services data/parameters, data services/formats, and analytic capabilities?
  - Improve Data Dictionary (SIL) (1 thumbs up)
  - Add solar irradiance on a surface with a specific tilt angle (2 thumbs up)
  - 15 minute TMY (Nichols Sanderson) (1 thumbs up)
  - Data for a river discharge and velocity (Sendze Noel Lashenyang)
  - Add the solar irradiance for equator facing tilted surface at a specific angle? Currently we can only see Horizontal, Vertical, Latitude, LAT+15 and LAT-15. What if I need it for a different tilt angle? (Mostafa Mohamed) (2 thumbs up)
  - Geographical classifications, eg the Koeppen-Geiger classification.
  - Since you mentioned ML: ML models for understanding how meteorological models might change.
  - Can we publish more demos for various data services? (1 thumbs up)
  - PVGIS is a similar EU tool which models PV output. Will POWER ever do something similar? (1 thumbs up)
  - Allow more than 20 parameters to be queried with a single request. Indicate which parameters return multiple parameters worth of data thus exceeding the 20 limit even though only 18 parameters have been asked for. E.g. SI\_EF\_MAX\_TILTED\_SURFACE





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- Q5: What tools and/or technology do you foresee needing to integrate with? (e.g.: TensorFlow for ML, interactive validation like the PRUVE tool)
  - More capabilities with R
  - Using both R and Python: R is a lot, lot faster (*1 thumbs up*)

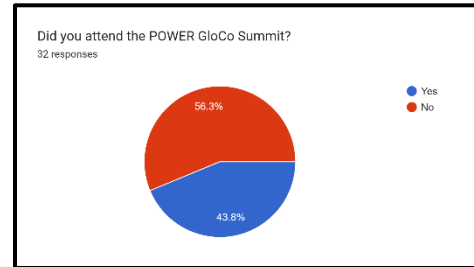
### Community Impact

- Q6: Have you been able to use POWER data for informing policy or decision-making? If so, what was the impact? (e.g., "We been using POWER data/tools and we've saved X amount of energy.")
  - *no responses*
- Q7: Have you created any value-added data or tools that utilize POWER data/services? If so, how are the users of your tool employing POWER data in their work?
  - I developed an excel sheet to download and calculate the data from NASA (*1 thumbs up*)
  - My Solar Insolation Lookup Tool allows for any panel orientation (*1 thumbs up*)



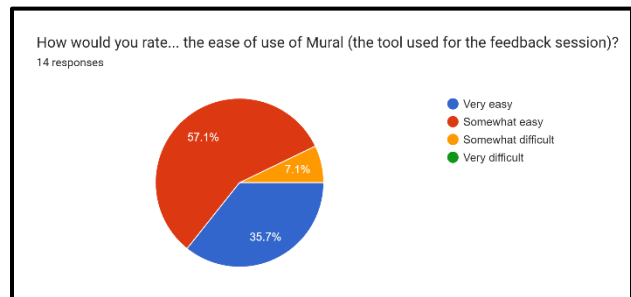
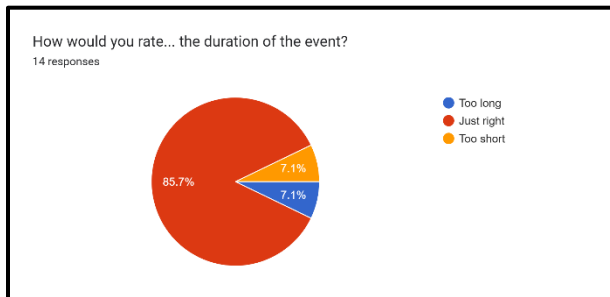
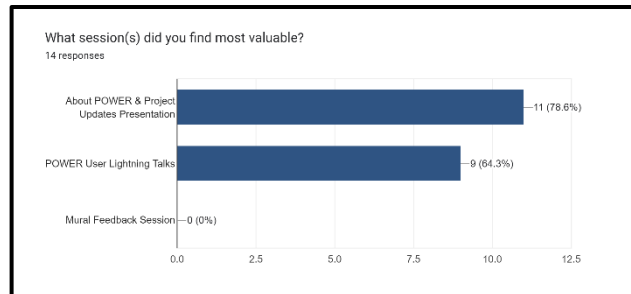
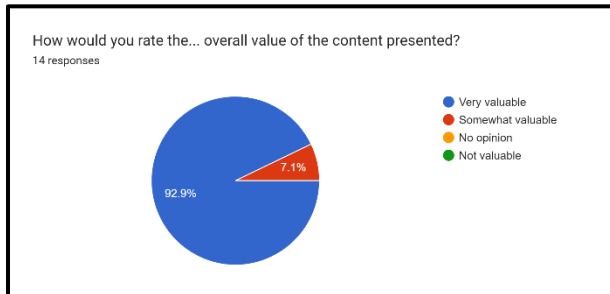
### Appendix D: Post-Summit Feedback from POWER’s Community of Users

After the GloCo summit, a survey was circulated to POWER’s user community to receive feedback on the attendee’s experience, expectations regarding such future events and to collect feedback on data, web services and other needs from non-attendee users. We received 32 responses, which are shared below.

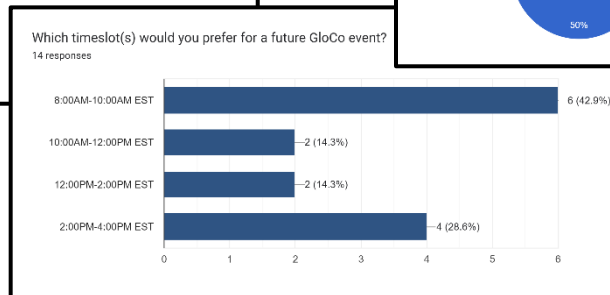
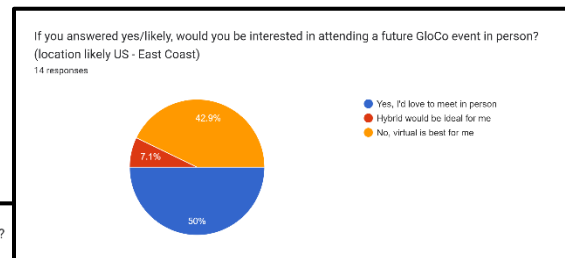
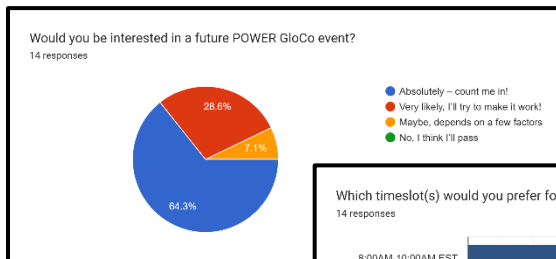


#### GloCo Registrants, Did Attend

Of the 14 summit attendees who responded to the post-summit survey, most found the content presented at the summit to be very valuable. POWER’s presentation and the POWER User Lightning Talks were seen as the most valuable. The two-half day event was rated just right by most participants. The Mural tool used for the breakout sessions, was rated as very easy and somewhat easy to use by most survey responders.

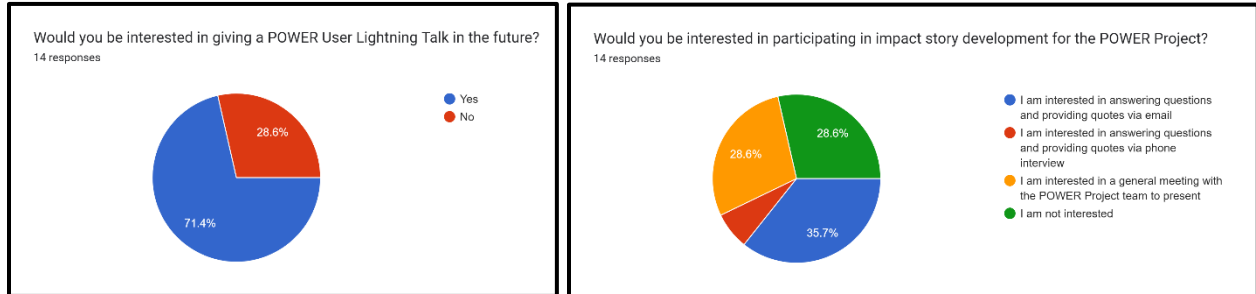


Over 92.9% of survey participants are absolutely or very likely to attend a future POWER GloCo event. Half of users who attended the event and filled out the questionnaire noted that they would prefer an in-person GloCo event and 42.9% noted that they would like the event to stay virtual.





Nearly three quarters of users who responded to the survey noted that they would be interested in giving a lightning talk during future POWER GloCo events. 71.4% of users were interested in being contacted by the POWER Team to develop an impact story about their work. The survey then gathered the emails of those who were interested in being contact. The responses have been omitted from this summary report to protect the users' contact information.

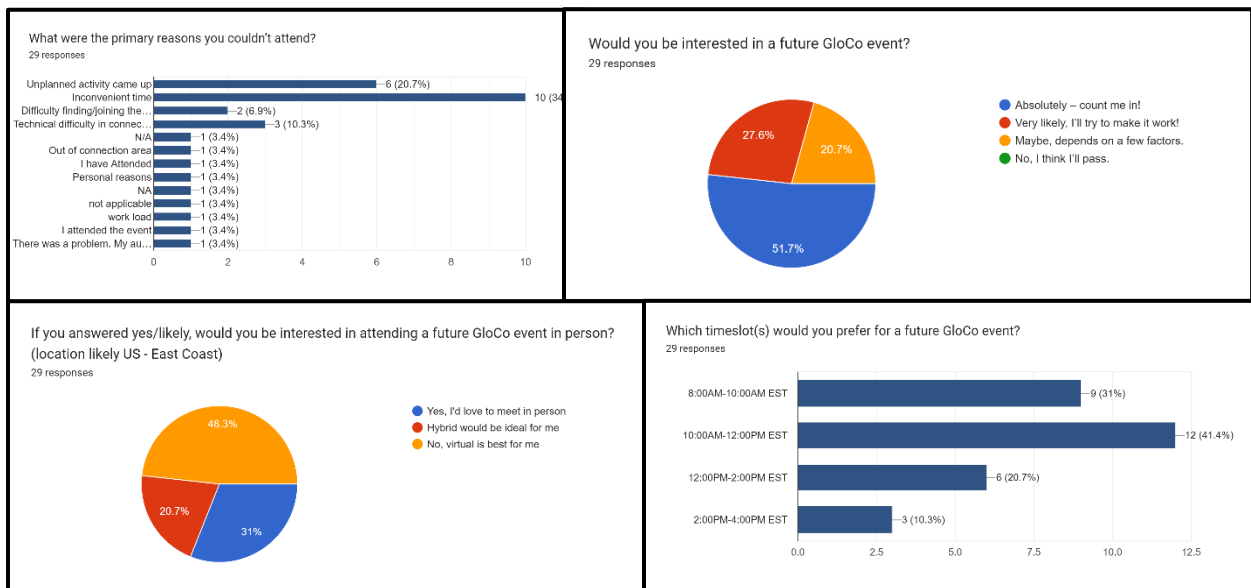


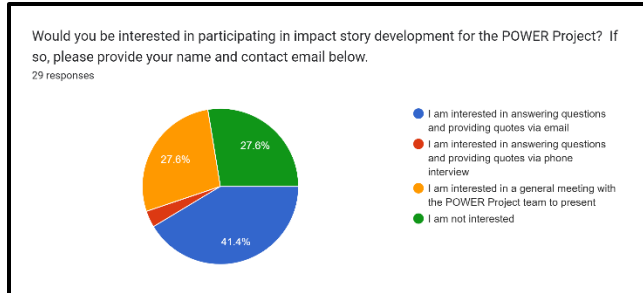
The last question in the survey was “**Any suggestions for improvement for the event?**”. Below are the responses that were given:

1. nothing
2. No,
3. Thank You
4. Thank You
5. No
6. Que se realicen en Castellano

### GloCo Registrants, Did Not Attend

The summit had received 219 registrations and 97 of them attended. For those who were not able to attend the event, we sought feedback through our post-summit survey. They noted that “inconvenient time” and “unplanned activity came up” as the top two reasons they were not able to attend. Most users noted that they were interested in attending a future POWER GloCo event and almost half of responders noted they would prefer a virtual event.





72.4% of users were interested in being contacted by the POWER Team to develop an impact story about their work. The survey then gathered the emails of those who were interested in being contact. The responses have been omitted from this summary report to protect the users' contact information.

### What POWER capabilities/parameters are used in your current workflows?

- No,
- Solar system
- None
- Solar power
- Climate and Hydrology data
- Data Access Viewer
- We use energy variables, temperature variable, power,
- Radiation
- energy, sunshine hours, wind, air temperature, etc
- An Error has Occurred!
- Request Failed! Please try again if the issue persists please email the POWER Team. Error: Request failed with status code 422 mostly i couldnt because i cant download the data
- Rain rate, Relative Humidity, air temperature, wind speed, wind direction, surface pressure
- Not yet started using but explored a bit about the POWER parameters.
- Solar Fluxes and related, and parameters for solar cooking
- Still familiarising with what there already is, eg.<https://power.larc.nasa.gov/beta/data-access-viewer/> mainly basic temp, water, wind, solar. This is also epic!  
<https://power.larc.nasa.gov/docs/gallery/metrics-visualizations/>
- Global and diffuse horizontal radiation and ambient temperature.
- Irradiance and Irradiation
- Wind Data
- solar radiations and related atmospheric parameters
- PS, lon, lat, U10M, V10M



### What are your future needs in terms of data capabilities, services, and parameters?

- No,
- Confidential
- Hydrogen generation and storage.
- Solar power
- Keeping as it is is perfect at this time
- Educational Collaboration
- Solar radiation data,
- Wind Speed
- EPW files ready to use for building simulation and also future climatic models downscaled with the regional models
- frequency and use based on emerging sustainable projects
- If spatial and temporal data sets are made available, then it will be of great use.
- Maximum and minimum irradiance on the earth with every weather conditions
- Clarity, Simplicity, Openness, Availability of Contact. It would be good to access dataset choices and availabilities from an em spectrum slider tool, rather like a color picker.
- Wind speed, Temperature, nubosity
- For academic and research applications
- Currently, I'm working on these parameters, while scientist could need more information about weather/rain conditions and add more parameters in the current list of parameters. Also, organize seminars/events/training sessions to train young scientist in this field.

### Any suggestions for improvements?

- No,
- Yes.. please send a proper joining information
- Thank You
- Ninguna
- the data downloading is not possible, visualization is not clear I mean there is not any index
- I think that you should give more information about how the parameters are measured.
- Keep up the good work, this is an excellent initiative. With DAVE it would be nice to have re-sizable divs when you open the visualize data layer rather than just open and close. Also some very simple intro tutorials that let you grasp just what basic things can be done and so that familiarization to the full toolkit is easier. Your material should be getting taught in schools at near to primary level.
- When data from the beginning of the year is requested, data from some of the last days of December are obtained.
- In the page of PWAV it maybe be cool to specify a link to provide more details about the precision of the Data
- We are users of the Wind Data since 2017 but ever since the new beta version has launched we have no clue on navigating it's complicated UI and has therefore gone back to the old version. We have written about this couple of times but in the absence of any resolution we are sticking with the old version and hope you retain that classic version.
- None for now.
- Great setup