

2016 eXtreme Science and Engineering Discovery Environment (XSEDE) Annual User Satisfaction Survey

Evaluation Report

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Prepared for:

John Towns
XSEDE Principal Investigator

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XSEDE Advisory Board

Prepared by

Julie Wernert
Indiana University

Robert Whitten
University of Tennessee, Knoxville

Table of Contents

A.	Document History	iii
B.	Document Scope	iv
C.	2016 XSEDE Annual User Satisfaction Survey Results	1
C.1	Executive Summary	1
C.2	Data Collection Methodology	2
C.2.1.	Sample Design	2
C.2.2	Questionnaire and Email Message Development	3
C.2.3	Data Collection	4
C.2.4.	Final Dispositions and Response Rates.....	5
C.2.5	Post-Survey Data Processing and Analysis	7
C.2.6	Information Regarding Sources of Survey Error	7
C.3.	Results	8
C.3.1.	Overall Use and Respondent Profiles	8
C.3.2	Experience Level.....	9
C.3.3	Awareness of XSEDE Resources.....	9
C.3.4	Satisfaction with XSEDE Services and Resources.....	10
C.3.5	Training.....	14
C.4	Respondent Demographics	15
D.	Appendices	17
D.1	Final Questionnaire	18
D.2	Email Invitation and Reminder Messages	27
SURVEY INVITATION	29	
REMINDER #1	30	
REMINDER #2	31	
REMINDER #3	32	
REMINDER #4	33	
FINAL REMINDER.....	34	
D.3	Open-Ended Survey Responses – Additional Comments Categorized by Theme	35
Question #13: What unique value did the XSEDE environment provide to you beyond enabling access to a computing resource?.....	36	
Question #14: How could XSEDE be more useful to your research or educational program? (For example, are there new resources or services that would be useful? Are there new features or improvements to existing services that would be useful?)	51	
Question #15: Do you have any other suggestions or comments regarding XSEDE or the value derived from the National Science Foundation’s investment in XSEDE?	68	

A. Document History

Relevant Sections	Version	Date	Changes	Author
Entire Document	0.9	05/25/2016	Base line document for project team review	J. Wernert
Entire Document	0.9.1	06/1/2016	Added additional analysis per comments/requests received during June quarterly meeting	J. Wernert
Section C.1	0.9.1	06/07/2016	Executive summary added	R. Whitten
Entire document	1.0	06/9/2016	Final review/edit/formatting	J. Wernert
Entire document	1.0	2/20/2108	Fix template/formatting	J. Wernert

B. Document Scope

This document summarizes the responses to the 2016 XSEDE Annual User Satisfaction Survey planned in late 2015/early 2016 and conducted with XSEDE users in the February-April, 2016 timeframe. This was the fifth annual survey of XSEDE users. It was designed as a tool to gauge broad, overall satisfaction with XSEDE activities and services—it serves as a basic, high-level “report card.” Other surveys and feedback mechanisms are deployed throughout the year to gather more granular, point-of-service, and resource- and service-specific data.

As with any survey instrument or resulting report, one should exercise caution in inferring too much with regard to specific results, either positive or negative. The authors made every effort to accurately summarize and convey the survey results received so as to not introduce any bias. Readers should pay specific attention to the survey methodology detailed in Section C.2, especially sources of survey error described in Section C.2.6. Moreover, readers should frame their interpretation of responses in the context of the respondent demographics detailed in Section C.4.

Please direct any questions regarding the methods used in the administration of this survey or the summarization of responses provided in this report to Julie Wernert, Indiana University, jwernert@iu.edu, or Robert Whitten, University of Tennessee, Knoxville, rwhitte4@utk.edu.

C. 2016 XSEDE Annual User Satisfaction Survey Results

C.1 Executive Summary

This report provides an analysis and evaluation of the 2016 eXtreme Science and Engineering Discovery Environment (XSEDE) Annual User Satisfaction Survey. Section C.2, describes the data collection methodology of the survey. The sample included 13 types of users in a sample size of 5000 (out of 14,398 users), with 1,007 respondents. The survey consisted of quantitative and qualitative questions designed to determine user satisfaction of XSEDE services and resources.

- The survey was available from February 11, 2016 through April 7, 2016. The overall response rate was 22.2%, down from the project high of 27.4% achieved in 2015.
- Awareness remained near constant when compared with 2015 results, but with most areas trending slightly upward.
- Only one area—Mission—experienced *slightly* lower awareness. Areas scoring less than 3.0 in terms of awareness where the same as is in 2015: TIS, ECSS, Mobile, Visualization Resources, and Science Gateways.
- Data suggests that users are satisfied with XSEDE resources and services ,with all mean satisfaction values significantly greater than 3.0 (on a 5.0 scale) and greater than “4” in most areas. Most areas trended slightly upward or remained the same.
- Overall satisfaction with XSEDE remains high at 4.34 on a 5-point scale. This is on par with 2014’s all-time high of 4.36.
- Training preferences have remained constant over the 2013-2016 period. Data consistently show preference for self-serve and “just-in-time” training options, (i.e., Web documentation and online, self-paced tutorials.)
- Consistent with previous years, demographic analysis shows that a typical user is male, white, and a faculty member at a large, doctoral-granting/research-focused university. Chemistry, physics, and engineering were the primary fields of study for 52% of respondents.
- Section D of this report includes all open-ended question responses. Responses are categorized into themed categories and some comments may appear in multiple categories.

C.2 Data Collection Methodology

C.2.1. Sample Design

The target population for the 2016 XSEDE Annual Satisfaction Survey is currently registered, active XSEDE users with reliable contact information. The population included 13 different types of users from across the United States who are conducting research at institutions in the academic, government, non-profit and for profit sectors. The aim was to produce a sample distribution that represented all thirteen groups of users in proportion to their distribution in the full user population.

XSEDE provided a list of the target population which included a total of 14,398 XSEDE users. The list included name, email address, institution, and sample type. Upon receipt of the population list, it was stored in a secure database created and maintained by the IU Center for Survey Research(CSR). The list was reviewed and corrected for any clerical errors and expunged of duplicate cases.

A panel of prior year participants (2013, 2014, and 2015 surveys) was selected from the sample population as a targeted sample. Of the 14,398 population members, before the random sample was drawn, the full panel of 1,192 prior year participants were targeted for sampling. The panel slightly over-represents faculty (e.g., 28.2% in the panel versus 15.2% in the overall population) and slightly under-represents undergraduate and graduate students (e.g., 3% panel, 15.1% population and 30.5% panel, 43.6% population, respectively). The remainder of the panel sample is similar to the distribution of the population by sample type. Those sample groups which comprised less than 1% of the percentage of population, marked with an asterisk in Table 1, had full census samples included. The remaining 3,501 sample members were selected using proportionate stratified sampling by sample type.

Sample distributions are illustrated in Table 1.

Table 1. Distribution of population and sample counts by sample type for the 2016 XSEDE Annual User Satisfaction Survey

Sample Type	Population	Percentage of Population	Panel Sample	Random Sample	Total Sample	Percentage of Sample
Center, non-research staff*	87	0.60%	23	64	87	1.74%
Center, research staff	356	2.47%	37	89	126	2.52%
Faculty	2193	15.23%	336	548	884	17.68%
Government researcher*	113	0.78%	22	91	113	2.26%
Graduate Student	6278	43.60%	363	1568	1931	38.62%
High school student/faculty*	65	0.45%	6	59	65	1.30%
Industrial researcher*	60	0.42%	14	46	60	1.20%
Non-Profit researcher*	57	0.40%	10	47	57	1.14%
Other/unknown/unaffiliated	178	1.24%	7	45	52	1.04%
Post-Doctoral fellow	1809	12.56%	222	452	674	13.48%
Undergraduate student	2179	15.13%	36	544	580	11.60%
University, non-research staff	185	1.28%	16	46	62	1.24%
University, research staff	838	5.82%	100	209	309	6.18%
Total	14398	100.00%	1192	3808	5000	100.00%

C.2.2 Questionnaire and Email Message Development

Questionnaire development for the 2016 XSEDE Annual Satisfaction Survey was completed in approximately two weeks. The 24-item questionnaire was originally developed in 2013 by the XSEDE project manager, Julie Wernert, with input from XSEDE leadership. For 2016, a new question (containing 15 variables) was added to assess user satisfaction with XSEDE core services.

The questionnaire was programmed using the CSR's ColdFusion-based web survey tool and rigorously tested for web administration using standard best practices in survey research.

After providing respondents with a detailed description of the purpose of the XSEDE survey and specific types of activities related to the survey administration, the first few survey questions asked about the amount of time the respondent has been using XSEDE resources and services and the frequency of use in the past year. The next set of items addressed awareness of and satisfaction with resources and services. Respondents were also asked to provide open-ended feedback and suggestions for improvement. The final section of the survey consisted of questions about the respondent's role and primary research field, institutional characteristics, and individual demographic characteristics, including gender and race.

An email invitation and reminder messages were developed by the XSEDE team with feedback from CSR for the 2013 survey, and were deployed again for the 2016 administration with minimal changes. All messages contained a unique hyperlink to the web instrument, allowing each case number to be tracked in CSR databases. The messages were formatted by CSR for HTML and plain text using Arial Campaign software and tested for errors.

Section D contains the final questionnaire and the text of the email invitation and reminder messages.

C.2.3 Data Collection

The field period for the 2016 XSEDE Annual Satisfaction Survey was February 25, 2016, through April 7, 2016. An email invitation and six reminders were sent to maximize participation.

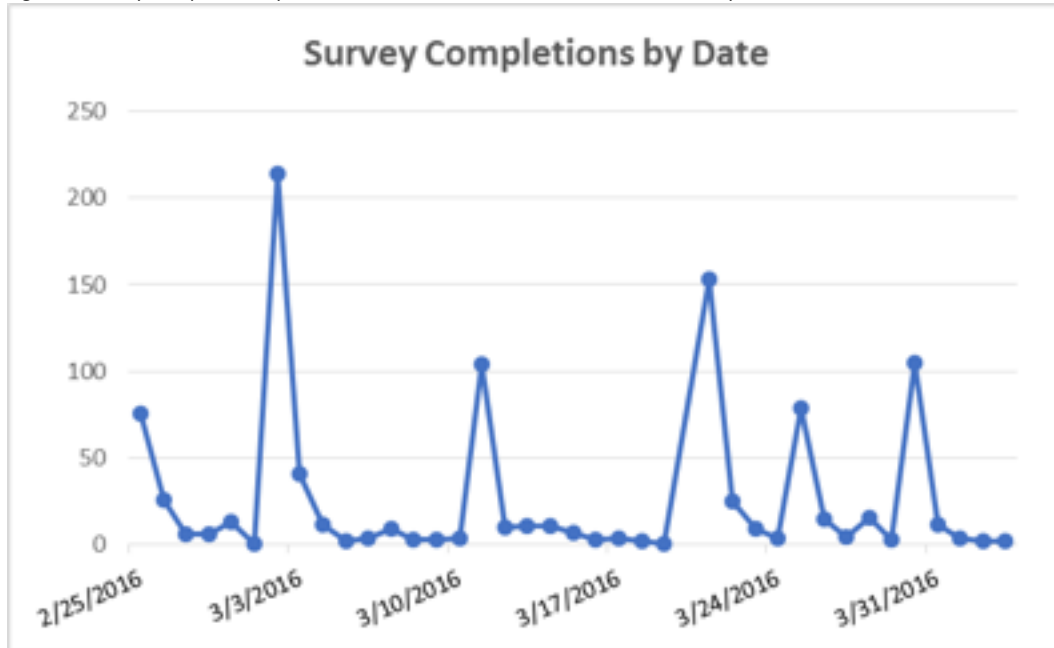
Following the survey invitation, a follow-up message was sent six days later on March 2, 2016, to non-respondents and partials (those who had started the survey but had not yet completed it). The second reminder was sent nine days later on March 11, 2016. The third reminder was sent out 10 days later on March 21, 2016. The fourth reminder was sent four days later on March 25, 2016 and the fifth reminder was sent on March 30, 2016. The dates and total numbers sent for the email messages are detailed below in Table 2.

Table 2. Email Message Schedule and Number of Messages Sent for the 2016 XSEDE Annual Satisfaction Survey

<i>Message</i>	<i>Date sent</i>	<i>Number sent</i>
Invitation	2/25/2016	5,000
Reminder 1	3/02/2016	4,474
Reminder 2	3/11/2016	4,138
Reminder 3	3/21/2016	3,948
Reminder 4	3/25/2016	3,733
Reminder 5	3/30/2016	3,603

The dates on which the surveys were completed closely followed the schedule of emails sent, which is typical for web surveys. Survey responses were submitted steadily over the course of the administration period. The largest one-day increase was the day of the first reminder message when 21% of all survey responses were submitted. By the end of the first full month, 75% of all responses had been received. The average duration for the survey was about 12 minutes. Completion times that seemed unusually long were removed (considered as outliers) since these were likely the result of a respondent keeping the survey open but not actually completing the questionnaire during that time.

Figure 1. Survey Completions by Date for the 2016 XSEDE Annual Satisfaction Survey



C.2.4. Final Dispositions and Response Rates

Final dispositions for all cases were classified according to The American Association for Public Opinion Research. 2015. *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 8th edition*. AAPOR. The codes and definitions that were used for the 2016 XSEDE Annual Satisfaction Survey are listed in Table 3.

Table 3. AAPOR Codes and Disposition Definitions for the 2016 XSEDE Annual Satisfaction Survey

AAPOR Code	Disposition Definition
Interview (I)	Complete: Respondent completed the survey. Coded as 1.1 in data file.
Partial (P)	Partial: Partial or break-off with sufficient information (answered at least four survey items). Coded as 1.2 in data file.
Refusal (R)	Refusal: Sample member selected opt-out button on the survey or replied to the e-mail Invitation or reminder stating that he or she did not want to participate.
Implicit refusal (R)	Implicit Refusal: Respondent consented to the survey but did not answer enough items to be considered a partial for this survey.
Unknown Eligibility, Non-Interview (UH)	Nothing Returned: Respondent did not respond to the survey; unknown if any email messages were read.
Mailing returned/undeliverable (UO)	Mailing Returned: Recruitment message was not received by intended recipient due to email and/or mailing returns.
Not eligible	Not eligible: Sample member responded to recruitment with information indicating they were no longer eligible to participate (no longer at the current institution).

Table 4 itemizes final dispositions and two variants of the AAPOR Response Rates, RR2 and RR6, which represent the lower and, likely, upper bounds of the response rate for the 2016 XSEDE Annual User Satisfaction Survey. The relatively high proportion of mailing returned cases (9%) are assumed to be ineligible for the study in the RR6 calculation. The AAPOR Response Rate 2 and Response Rate 6 are calculated as follows:

$$RR2 = \frac{(I+P)}{(I+P)+(R+NC+O)+(UH+UO)}$$

$$RR6 = \frac{(I+P)}{(I+P)+(R+NC+O)}$$

Table 4. Final Dispositions and Response Rates for the 2016 XSEDE Annual User Satisfaction Survey

Disposition (AAPOR Code in parentheses)	Count	AAPOR Response Rate 2	AAPOR Response Rate 6
Interview (I)	932	20.2%	22.2%
Partial (P)	75		
Refusal (R)	135		
Implicit Refusal (R)	52		
Nothing Returned (UH)	3350		
Mailing returned (UO)	440		
Not Eligible	16		

C.2.5 Post-Survey Data Processing and Analysis

Final data preparation involved exporting the survey data from the SQL server and running specialized queries for data cleaning. Numeric data were checked for inconsistencies, such as illogical values or inappropriate or missing data and then edited for variable labels and values. Missing values were coded as follows: 1) items respondents were presented with but did not answer = 9999; 2) items not included in a respondent's survey path due to skip logic/branching = 9997; and 3) items respondents did not see due to dropping out of the survey = 9997. Cleaning of open-ended items involved the removal of words or phrases that could identify individuals; it also involved minor editing for spelling and punctuation.

In addition to 31 cases in which the respondent consented to proceed in the survey but did not respond to any survey items, 21 cases were identified during post-survey data processing as potential implicit refusals. These cases included either no data or data only for up to three of the first four survey items, but no subsequent data. Since these cases did not provide data considered substantive, they were recoded from partial completions to implicit refusals. The final response rate was lowered from 23.3 percent (before the recodes) to 22.2 percent (after the recodes).

Qualitative analysis was conducted using Excel to categorize and code open-ended responses to three questions:

- What unique value did the XSEDE environment provide to you beyond enabling access to a computing resource? Responses were coded using the following seven themes: 1) Training/Education (including students), 2) Community, Collaboration, Support, 3) Program Capabilities, Facilitating Research, 4) Access to Knowledge Base and Resources, 5) General, and 6) Not applicable.
- How could XSEDE be more useful to your research or educational program? (For example, are there new resources or services that would be useful? Are there new features or improvements to existing services that would be useful?) Responses were coded using the following seven themes: 1) Access to Resources, 2) Expanded/new resources, 3) Improved Functionality, 4) Allocation, 5) Training/Support, 6) General, and 7) Not applicable.
- Do you have any other suggestions or comments regarding XSEDE or the value derived from the National Science Foundation's investment in XSEDE? Responses were coded using the following eight themes: 1) Resources, Access, 2) Allocation, 3) NSF Funding, 4) Support and Services, 5) Contribution to Science/Research, 6) Abilities and Functionality, 7) General, and 8) Not applicable.

Open-ended responses are provided as Section D. All tables and graphs were produced using SPSS and Excel.

C.2.6 Information Regarding Sources of Survey Error

Surveys of this kind are sometimes subject to types of inaccuracies for which precise estimates cannot be calculated. For example, findings may be influenced by events that take place while the survey is in the field. Events occurring since the time the surveys were completed could have changed the opinions reported here. Sometimes questions are inadvertently biased or misleading. The views of people who responded to the survey may not necessarily replicate the views of those who refused to respond to the survey.

C.3. Results

The following analysis is based on data collected from 1,007 active XSEDE users who completed at a minimum the four items of the survey. A summary of survey findings is presented in this report.

C.3.1. Overall Use and Respondent Profiles

General Profile of Respondents for the 2016 XSEDE Annual Satisfaction Survey

- Closely resembling the profile of respondents from 2015, 32% of respondents were faculty, 27% were graduate students, 17% were post-doctoral students, and 9% were university research staff members.
- Of those surveyed who indicated that they had used XSEDE resources, 29% had been using XSEDE resources for less than one year. 23% had been using XSEDE resources for one to two years, and 48% of those surveyed had been using XSEDE resources for three or more years. Overall, the respondent profile represents users who have been using XSEDE resources longer than those in 2015.
- 76% of respondents consider themselves to be moderately to highly experienced XSEDE users.
- 51% of respondents consider XSEDE resources essential for conducting their work.

Of the 1,007 respondents, 596 are represented in two of the thirteen sample groups: faculty users and graduate students. Where appropriate, this report highlights differences between these two groups and the broader population.

Consistent with prior years' results, some 85% those responding report that XSEDE resources are "helpful" to "essential" in conducting their work, and fewer than 9% (remaining considerably lower than the 16% reported when this question was first asked in 2013) indicate XSEDE resources have a "neutral" effect on their outcomes. A small number of respondents, less than 2% (and remaining lower than the 3.5% reporting in 2013), indicate that using XSEDE resources is either "sometimes unhelpful" to "always unhelpful" in completing their work, with additional processes and requirement outweighing the benefits.

On par with the overall population, when considering just faculty and graduate students (the two sample types with the highest percentage of responses), some 50% reported that XSEDE resources were "essential" in conducting their work. An additional one-third of faculty and graduate student respondents reported that XSEDE resources were "helpful," indicating they would have difficulty conducting their work without the use of its resources. Ninety-nine percent of all respondents provided a response to this item.

Respondents remain broadly unaware of resource personnel at their institutions able to assist with their use of XSEDE resources. While users report a modestly-robust increase in their awareness of an XSEDE Campus Champion, with 22.4% reporting they are aware of an XSEDE Campus Champion (up from 18.6% in 2015), only 13.8% (down from 14.9% in 2015) report being aware of an XSEDE staff member. Awareness of local IT support staff available to assist with the use of XSEDE resources experienced a healthy year-to-year rise to 17.4% (from 14.4% in 2015.)

Continuing the trend established in 2013, respondents are more likely to be aware of a colleague at their institution who is able to assist in their use of XSEDE resources than of specific, dedicated support resources. Over 34% of respondents report being aware of colleague who can assist in their use of XSEDE resources. Trending in a positive direction, 35.8% of respondents (down from nearly 40.4% in 2015) indicate they are unaware of personnel at their institution who are able to assist with their use of XSEDE.

C.3.2 Experience Level

Over 48% of all respondents report having used XSEDE resources for more than three years, with an additional 23% reporting one to two years of experience. Over 22% indicate less than one year of experience using XSEDE resources, and less than 6% percent of respondents report that they have yet to use XSEDE resources.

In looking at all respondents, some 24% self-describe their level of experience in using XSEDE resources as “not experienced at all” to “slightly inexperienced,” with 76% describing their experience level as “somewhat experienced” or higher (3 or higher on a five-point scale. As noted, respondents self-describe their level of experience based on a subjective, self-interpreted scale; in the future, we may want to define these experience levels to more consistently and objectively gauge where users are in terms of experience. Of the 596 faculty and graduate student respondents, 76% rated their level of experience using XSEDE resources as “moderately experienced” (3.0 or higher on the scale) or higher.

In the past calendar year, respondents, on average, report using XSEDE computational, data, and/or visualization systems:

- 0 times: 110, 11%
- 1-2 times/month: 177, 18%
- 3-4 times/month: 122, 12%
- 5-8 times/month: 109, 11%
- 9+ times/month: 451, 45%
- NA/no answer: 38, 4%

In the past calendar year, respondents, on average, report using XSEDE online resources (e.g., user portal, website, training materials, etc.):

- 0 times: 103, 10%
- 1-2 times/month: 358, 36%
- 3-4 times/month: 186, 18%
- 5-8 times/month: 109, 11%
- 9+ times/month: 226, 22%
- NA/no answer: 25, 2%

C.3.3 Awareness of XSEDE Resources

Respondents were asked to rate their awareness of 15 XSEDE resource and service areas on a five-point scale, with 1 being “not aware at all” and 5 being “extremely aware.” In 2016, awareness was relatively constant when compared with 2015 results. With one exception, all areas trended slightly higher or remained the same. Awareness of XSEDE’s mission fell slightly to 3.47 from 3.51 (on a 5-point scale.)

Consistent with the previous year’s findings, the XSEDE website (4.22), the XSEDE User Portal (4.08), Computational Resources (4.07), and Help Desk Services (3.65) have the highest levels of awareness among users. As might be expected, newer and evolving services (e.g., Technology Insertion Services and XSEDE Mobile Portal) have lower level levels of awareness, as do specialized services used by smaller subsets of the XSEDE population (e.g., Visualization Services, Science Gateways, and Extended Collaborative Support Services.)

Table 4. Respondents' awareness of XSEDE resources and services

Please rate your awareness of XSEDE resources and services on a scale of 1 to 5, with 1 being completely unaware and 5 being completely aware (1007 Total Cases)





















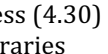
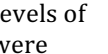
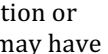
	Mean	Number of Applicable Responses	Distribution (1 = completely unaware, 5 = completely aware)					Number providing no response	Histogram
			1	2	3	4	5		
Mission	3.47	978	7.1%	11.9%	31.3%	26.4%	23.42%	29	
Computational Resources	4.07	975	1.7%	3.0%	20.2%	36.7%	38.36%	32	
Data Storage Services	3.48	970	5.2%	11.6%	33.4%	29.9%	19.90%	37	
Visualization Services	2.86	978	13.4%	24.9%	33.5%	18.9%	9.20%	29	
Science Gateways	2.78	967	16.6%	25.2%	31.4%	17.2%	9.51%	40	
XSEDE User Portal (portal.xsede.org)	4.08	967	1.9%	4.4%	19.2%	32.5%	41.99%	40	
XSEDE Mobile Portal (mobile.xsede.org)	2.45	972	28.9%	24.9%	25.9%	13.2%	7.10%	35	
Data Transfer Services (e.g., Globus Online, GridFTP)	3.14	975	13.1%	17.4%	28.6%	23.8%	17.03%	32	
XSEDE Website (xsede.org)	4.22	979	1.4%	2.9%	17.7%	28.1%	49.95%	28	
Training opportunities	3.72	972	3.5%	7.8%	29.1%	32.8%	26.75%	35	
Knowledge Base	3.16	973	8.1%	19.0%	34.1%	26.4%	12.33%	34	
Education & Outreach	3.14	973	8.6%	20.1%	34.5%	22.1%	14.59%	34	
Support/Consulting Desk Services	3.65	962	4.9%	10.8%	26.7%	30.0%	27.55%	45	
Extended Collaborative Support Services	2.84	973	17.9%	24.6%	27.0%	16.8%	13.77%	34	
Technology Insertion Services	2.23	971	36.9%	26.7%	19.8%	10.1%	6.59%	36	

Similar to the broader population, the combined faculty and graduate students populations indicated the highest levels of awareness for Computational Resources, the XSEDE User Portal (portal.xsede.org), and the XSEDE Website (xsede.org), each achieving in excess of 90% awareness. Among this segment of the population, higher-than-average awareness figures were reported for Mission, Training Opportunities, and Help Desk Services. Consistent with previous years and the broader population, awareness within this combined group was lowest for Technology Insertion Services, the XSEDE Mobile Portal, and Science Gateways.

C.3.4 Satisfaction with XSEDE Services and Resources

The survey inquired about satisfaction with XSEDE services in 22 areas, as well as overall satisfaction with XSEDE. Similar to previous years, mean satisfaction outpaces awareness in all service areas, indicating those who use a particular service are “satisfied” to “very satisfied” with their experience. Satisfaction levels were relatively constant when compared to 2015, with fluctuations in satisfaction, both increases and decreases, no greater or less than .07 points.

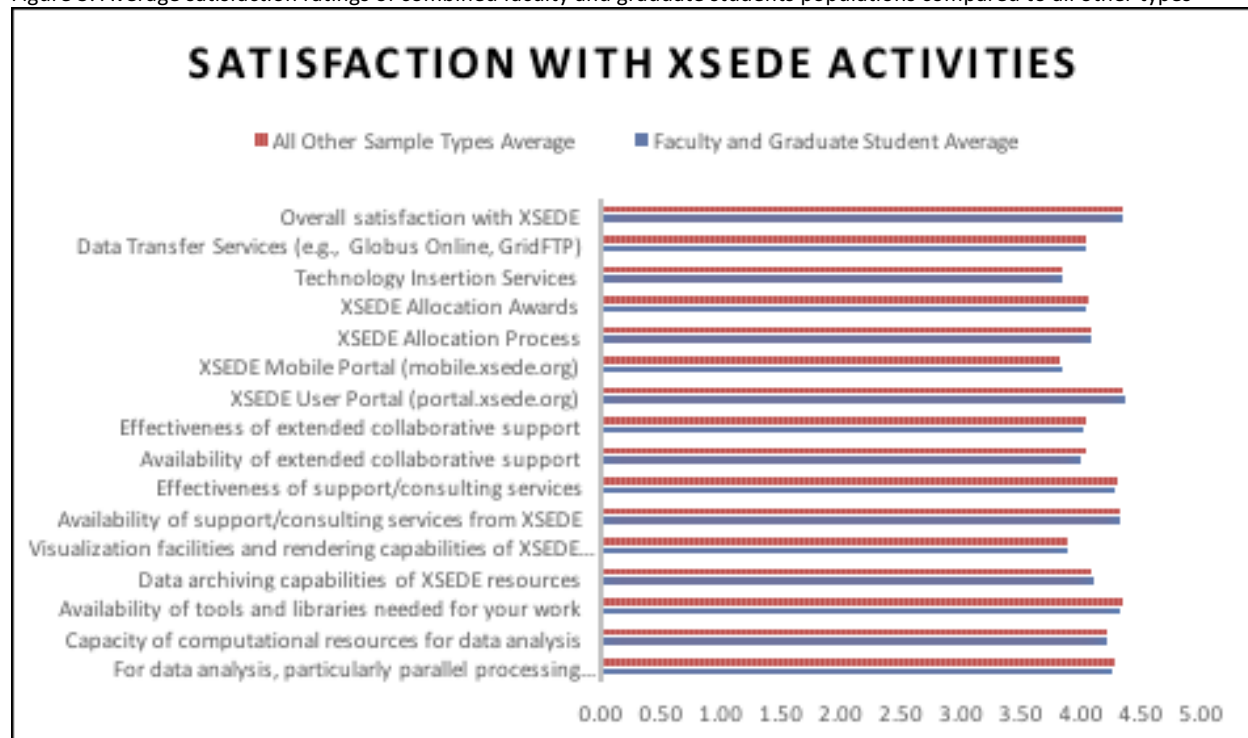
Table 5. Respondents' satisfaction with XSEDE resources and services

Please rate your satisfaction with XSEDE services and activities. If you have no basis for rating your satisfaction, please select (1007 Total Cases)									
	Mean	Number of Applicable Responses	Distribution (1 = very unsatisfied, 5 = very satisfied)					N/A or No response provided	Histogram
			1	2	3	4	5		
Capability of computational resources	4.53	886	0.6%	1.1%	6.2%	28.6%	63.5%	121	
Capability of computational resources	4.28	739	0.4%	1.1%	16.0%	35.0%	47.5%	268	
Capacity of computational resources for simulation	4.33	852	0.7%	2.6%	11.3%	34.0%	51.4%	155	
Capacity of computational resources for data	4.22	730	0.5%	2.3%	17.0%	35.3%	44.8%	277	
Availability of tools and libraries	4.33	883	0.3%	2.8%	7.8%	41.2%	47.8%	124	
Data archiving capabilities of XSEDE resources	4.08	774	0.6%	2.5%	19.4%	43.2%	34.4%	233	
Visualization facilities and rendering capabilities	3.88	577	0.3%	3.1%	32.2%	37.1%	27.2%	430	
Availability of support/consulting	4.32	838	0.2%	1.9%	12.3%	36.6%	48.9%	169	
Response time of support/consulting	4.35	833	0.7%	1.8%	10.1%	36.9%	50.5%	174	
Effectiveness of support/consulting	4.30	820	0.5%	2.8%	12.0%	35.7%	49.0%	187	
Availability of extended collaborative support	4.03	561	0.2%	1.6%	29.4%	32.4%	36.4%	446	
Effectiveness of extended collaborative support	4.02	548	0.2%	1.3%	29.9%	33.2%	35.4%	459	
Availability of training	4.10	764	0.3%	2.9%	20.5%	38.9%	37.4%	243	
Effectiveness of training	4.02	653	0.3%	2.8%	25.1%	37.8%	34.0%	354	
Knowledge Base	4.03	685	0.4%	2.5%	24.1%	39.9%	33.1%	322	
XSEDE Website (xse.de.org)	4.30	882	0.2%	1.8%	11.2%	40.7%	46.0%	125	
XSEDE User Portal (portal.xse.de.org)	4.34	880	0.1%	2.3%	9.9%	39.0%	48.8%	127	
XSEDE Mobile Portal (mobile.xse.de.org)	3.82	490	0.8%	3.3%	36.3%	32.7%	26.9%	517	
XSEDE Allocation Process	4.08	829	1.1%	5.3%	15.7%	40.5%	37.4%	178	
XSEDE Allocation Awards	4.05	808	1.4%	5.9%	17.0%	38.2%	37.5%	199	
Technology Insertion Services	3.84	447	0.7%	2.0%	40.3%	27.1%	30.0%	560	
Data Transfer Services (e.g. Globus Online,	4.04	677	0.3%	4.1%	23.5%	35.3%	36.8%	330	
Overall Satisfaction with XSEDE	4.34	947	4.4%	1.5%	4.3%	34.8%	54.9%	60	

Users note the highest levels of satisfaction with the capability (4.53) and capacity (4.33) of XSEDE computational resources for simulation; the response time (4.35), availability (4.32), and effectiveness (4.30) of support and consulting services; the XSEDE User Portal (4.34); and the availability of tools and libraries (4.33). And, while users report high levels of satisfaction with *all* services, those with slightly lower levels of satisfaction (i.e., XSEDE mobile portal, visualization capabilities, and technology insertion services) were areas in which at least 40% of the total respondents indicated the item as “not applicable” for evaluation or did not provide an answer. Given the smaller sample size and the likelihood that some respondents may have selected “neither satisfied nor dissatisfied” to indicate that they have not used the service, caution should be taken in interpreting these findings.

The average satisfaction ratings of the combined faculty and graduate student populations, in comparison to all other sample types, did not differ more than .03. Average satisfaction ratings are in Figure 3 below.

Figure 3. Average satisfaction ratings of combined faculty and graduate students populations compared to all other types



In support of quantifiable satisfaction data, survey respondents offered valuable qualitative data in the form of hundreds of largely positive, constructive, and, in many cases, specific text comments to open-ended questions. XSEDE was praised for its level of service in many of these comments, notably:

- The ECSS and training services are very valuable. In addition, Globus provides a very nice way to mover files from point A to B.
- XSEDE allows me to introduce my undergraduate students to the speed of a supercomputer. When students can obtain meaningful results or feedback in real time, they tend to stay more engaged in their laboratory and research objectives.
- XSEDE's stability and support has allowed me to test new software and new algorithms on the service very effectively. Support for compilation issues is often excellent.
- As an educator at a research university, it allows me to expose mechanical engineering and materials science graduate students to concepts of centralized computing, remote job, and data management, acquiring remote resource allocations, as well as the more technical aspects of running massively parallel simulations on remote high performance computational platforms.
- XSEDE support staff provided timely and substantial help to my students, allowing them to develop necessary HPC skills.
- XSEDE provides vast amount of world class HPC expertise and support. XSEDE enables not only research but also education at every level.
- XSEDE has built a rich, national community of colleagues who are willing to help each other in a wide variety of ways. The Campus Champions listserv is a great example of this.
- The value of XSEDE system admins is incalculable to enabling my scientific research. They were almost always helpful, and when something was out of their power to help me with, they were prompt in their responses. When working remotely, communication is very important - people just need to know what's going on.

Respondents also provided comments on areas where improvement may be needed, including:

- What our group needs most is access to leadership class computer facilities. With each passing year, XSEDE falls further behind in providing them.
- Everything is so oversubscribed right now that it can be frustratingly slow to get a job to run. When you're debugging and developing, this glacial turnaround time really drags down productivity.
- We need more computing resources. Because resources are so limited, allocated time is far too small to be able to do our research. The DOE is orders of magnitude ahead of the NSF with its NERSC, ORNL, and ALCF facilities.
- The application process is onerous and I often find it difficult to find policy information on xsede.org (the resource guides at the individual computing centers are usually okay).
- Outreach and deployment for XSEDE technologies such as XWFS is a complete debacle and one of the reasons campuses are wary of integrating themselves with XSEDE. Why put out the effort when a resource will disappear in a few months? If the resource, such as XWFS isn't getting utilized DO MORE OUTREACH.
- The data sweeps on Stampede are too frequent and destructive. Calculations in my group can take, with wall-time, about the same amount of time as a complete data sweep of my SCRATCH directory. This is extremely aggravating.

Further, some respondents took the time to provide specific, constructive feedback, including:





- Access to experimental/uncommon hardware platforms - ARM processors, FPGA accelerators, AMD GPUs, etc.
- Could increase industry participation and programs
- More programs for "on-ramping" users from disciplines that traditionally haven't used HPC, e.g. digital humanities, GIS, and the like. This is likely to require gateways of the sort that were demonstrated at XSEDE15.
- More GPU-accelerated resources would be useful to my research lab, and would entice me to use an educational allocation for my class.
- Beyond more capabilities, the only thing I can think of at the moment is that there is not currently a track for smaller machines that are bought more often. Basically, I think that, if there's something missing, it's the ability to have continuous access to cutting edge computational architecture via smaller machines that are at the prototype level, or, at least, are closer to the prototype level than massive throughput systems that can take years to deploy.
- Alternatives to Lustre file writing system for parallel software that is file i/o intensive
- More self-paced tutorials on data analysis and visualization
- ...there is a great need for platforms that can efficiently handle highly nonlinear multivariate multidimensional dynamical systems -- as opposed to highly scalable problems that can use tens of thousands of cores...
- Wish the storage can be carried over to at least 5 or 10 years irrespective of the allocation period.

Section D contains all open-ended text responses.

C.3.5 Training

Training preferences have remained constant over the 2013-2016 period. Respondents were again largely neutral to positive about the training methods they were asked to rate, but showed a clear preference for the ability to self-serve through the use of just-in-time, online resources.

Table 6. Respondents' preferred training methods

Please rate your training preferences on a scale of 1 to 5, with 1 being strongly do not prefer and 5 being strongly prefer (1007 Total Cases)									
	Mean	Number of Applicable Responses	Distribution (1 = Strongly do not prefer, 5 = strongly prefer)					N/A or No response provided	Histogram
			1	2	3	4	5		
XSEDE Web Documentation	4.41	843	0.4%	1.1%	11.3%	31.9%	55.4%	85	
Live, In-Person Tutorials/Workshops	3.43	773	4.7%	12.2%	39.6%	22.6%	21.0%	154	
Live, Online Tutorials/Workshops	3.85	793	2.4%	6.8%	27.1%	30.5%	33.2%	133	
Self-Paced Online Tutorials	4.25	817	0.5%	1.8%	17.0%	33.3%	47.4%	112	

When examining training preferences by population type and/or role, preferences map closely to those of the overall population, with Web documentation and self-paced, online tutorials being the most preferred methods by all types of users. Data does not suggest that any particular field of study or professional role overwhelmingly affects one's preferred method of training delivery.

C.4 Respondent Demographics

In the 2016 annual survey, there were 1007 respondents, although not all answered every question. In compliance with IRB protocol, the survey never contains any compulsory questions, and respondents may skip any item without prompt or penalty. While respondents have always been free to skip any question, at the recommendation of Indiana University's Human Subjects Office, an explicit "Prefer not to disclose" option was added to some demographic questions. As expected, this has resulted in more respondents opting not to disclose and, therefore, some of the demographic numbers have changed more than what might be expected, especially with the larger populations segments (e.g., White and Asian).

- **Gender:**
 - Male: 730, 72.5%
 - Female: 148, 14.7%
 - Non-Cisgender: 1, <.1%
 - Unidentified (Prefer not to disclose/Did not answer): 128, 12.7%
- **Ethnicity**
 - Non-Hispanic: 826, 82%
 - Hispanic: 59, 5.9%
 - Unidentified (Prefer not to disclose/Did not answer): 122, 12.1%
- **Race***
 - White: 527, 52.3%
 - Asian: 310, 30.8%
 - Black or African American: 33, 3.3%
 - American Indian (Native America): 12, 1.2%
 - Native Hawaiian or Pacific Islander: 2, <.2%
 - Unidentified (Prefer not to disclose/Did not answer): 142, 14.1%
- **Size of respondents' academic institutions**
 - Large (greater than 10,000 degree-seeking students): 575, 57.1%
 - Medium (3000-10,000 degree-seeking students): 209, 20.8%
 - Small (less than 3000 degree-seeking students): 87, 8.6%
 - Not applicable: 58, 5.8%
 - Did not answer: 78, 7.7%
- **Characteristics of respondents' academic institutions***
 - Doctorate-granting University: 683, 67.8%
 - Research focused Institution: 455, 45.2%
 - Master's College/University: 241, 23.9%
 - Baccalaureate College/University: 220, 21.8%
 - Teaching focused Institution: 161, 16%
 - Government Lab or Center: 64, 6.4%
 - Minority Serving Institution: 68, 6.8%
 - EPSCoR Institution: 58, 5.8%
 - Non-Profit Organization (non-academic): 27, 2.7%
 - Associate's College (all degrees are at the associate's level): 19, 1.9%
 - Corporate/Industrial Organization: 13, 1.3%
 - Not applicable/Did not answer: 85, 8.4%

- **Respondents' roles within their current organizations**

University faculty or equivalent: 329, 32.7%

Graduate student: 238, 23.6%

Postdoctoral fellow: 163, 16.2%

University/Center research staff or equivalent (non-postdoctoral): 127, 12.6%

Executive leadership: 24, 2.4%

University/Center non-research support staff (or equivalent): 22, 2.2%

Undergraduate student: 9, .09%

Other: 22, 2.2%

Unidentified/Did not answer: 73, 7.2%

- **Respondents' primary fields of study**

Engineering: 213, 21.2%

Physics: 163, 16.2%

Chemistry: 150, 14.9%

Computer and Information Science: 100, 9.9%

Biology: 89, 8.8%

Astronomy: 49, 4.9%

Other: 42, 4.2%

Earth Science: 37, 3.7%

Atmospheric Sciences: 37, 3.7%

Mathematics/Statistics: 25, 2.5%

Medicines, Diseases, Wellness: 10, 1.0%

Psychology: 4, 0.4%

Art and Humanities: 3, 0.3%

Not applicable/Did not answer: 85, 8.4%

* Respondents could select "all that apply"; percentages do not equal 100.

D. Appendices

D.1 Final Questionnaire

XSEDE (Extreme Science and Engineering Discovery Environment) Annual Satisfaction Survey Final Questionnaire

INFORMED CONSENT:

You are invited to participate in the XSEDE Annual Satisfaction Survey. We ask that you read this form and ask any questions you may have before agreeing to take the survey. This survey is funded by the National Science Foundation.

STUDY PURPOSE:

The purpose of this survey is aimed at assessing current levels of satisfaction with the XSEDE cyberinfrastructure environment and its associated resources and services (e.g., training, allocations, support, etc.). Survey information will be used to improve and expand the services provided by XSEDE and to aid in the decision-making process related to resource allocation.

PROCEDURES FOR THE STUDY:

If you agree to be in the study, you will complete an online survey in which you will not be required to provide any identifying information. You will have the option of providing your name and contact information if future contact is desired. Future contact may be in the form of telephone, videoconference, or in-person interviews and/or focus groups, which would be part of potential future studies. You will be asked to disclose your gender, race, and ethnicity for demographic purposes only. The survey will remain confidential, and survey responses will not be associated with any identifying information, even if you choose to disclose your name and contact information for potential future contact.

You will receive via email an initial letter of invitation, followed by up to three reminder messages. After the initial letter of invitation, only those who have not responded will receive subsequent messages. You will have the opportunity to opt out of all future communications upon receipt of the initial letter of invitation.

The survey should not take more than 10 minutes to complete, with an average time for completion in the six- to eight-minute range.

CONFIDENTIALITY:

Efforts will be made to keep any personal information that you might inadvertently disclose confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Your identity will be held in confidence in reports in which the survey results may be published and/or databases in which results may be stored. Tape or video recordings will not be made during the course of this survey.

Organizations that may inspect and/or copy survey records for quality assurance and data analysis include groups such as the study investigator and his/her research associates, the Indiana University Institutional Review Board or its designees, the study sponsor, the National Science Foundation, and (as allowed by law) state or federal agencies, specifically the Office for Human Research Protections (OHRP).

CONTACTS FOR QUESTIONS OR PROBLEMS:

For questions about the study, contact Julie Wernert at 812.856.5517 or jwernert@iu.edu.

For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information, or offer input, contact the IU Human Subjects Office at (812) 856-4242 or by email at irb@iu.edu.

VOLUNTARY NATURE OF STUDY:

Taking part in this study is voluntary. You may choose not to take part or may leave the survey at any time. Leaving the survey will not result in any penalty. Your decision whether or not to participate in this survey will not affect your current or future relations with Indiana University or with the XSEDE program.

IRB Approval Date (Study #1301010398) January 17, 2013

1. On average, how many times per month did you use XSEDE computational, data, and/or visualization systems in the last calendar year?

- 0
- 1-2
- 3-4
- 5-8
- 9 or more
- Not applicable

2. On average, how many times per month did you use XSEDE's online resources (e.g., user portal, website, etc.) in the last calendar year?

- 0
- 1-2
- 3-4
- 5-8
- 9 or more
- Not applicable

3. How long have you used XSEDE (and before that, TeraGrid) resources and/or overseen the use of XSEDE (or TeraGrid) resources by others? (In this case, "resources" is broadly defined to include, but not limited to, training, workshops, online help sources, and consulting, as well as computational, storage, and visualization resources.)

- Never/not yet used
- Less than 6 months
- 6-11 months
- 1-2 years
- 3-5 years
- More than 5 years

4. Please describe your level of experience using XSEDE resources:

- 1 Not at all experienced
- 2
- 3
- 4
- 5 Highly experienced

5. How would you rate the usefulness of XSEDE resources in conducting your work?

- Essential; I would not be able to conduct my work without the use of its resources.
- Helpful; I would have difficulty conducting my work without the use of its resources.
- Neutral; useful but I could conduct my work without its resources.
- Sometimes unhelpful; additional processes and requirements occasionally outweigh benefits. Always unhelpful; additional processes and requirements outweigh benefits.
- Not applicable; I do not currently use XSEDE resources in conducting my work.

6. Are you aware of a person at your institution available to assist with your use of XSEDE? Please select all that apply.

- XSEDE staff member
- XSEDE Campus Champion
- Local IT support person (i.e., an individual not designated as an XSEDE Campus Champion) Colleague (faculty, post-doc, graduate student, etc.) at my institution
- No, I do not know of a resource person at my institution

7. Please rate your awareness of XSEDE resources and services on a scale of 1 to 5, with 1 being “not at all aware” and 5 being “extremely aware”:

- 1 Not at all aware
- 2
- 3 Aware
- 4
- 5 Extremely aware

Mission

Computational Resources

Data Storage Services

Visualization Services

Science Gateways

XSEDE User Portal (portal.xsede.org)

XSEDE Mobile Portal (mobile.xsede.org)

Data Storage Transfer Services (e.g., Globus Online, GridFTP)

XSEDE Website (xsede.org)

Training Opportunities

Knowledge Base

Education & Outreach

Support/Consulting Desk Services

Extended Collaborative Support Services

Technology Insertion Services

8. Please rate your satisfaction with XSEDE activities on a scale of 1 to 5, with 1 being “very dissatisfied” and 5 being “very satisfied.” If you have no basis for rating your satisfaction, please select “Not applicable.”

- 1 Very dissatisfied
- 2 Dissatisfied
- 3 Neither satisfied nor dissatisfied
- 4 Satisfied
- 5 Very satisfied
- 9 Not applicable

Capability (scalability) of XSEDE computational resources for simulation, particularly parallel processing applications

Capability (scalability) of XSEDE computational resources for data analysis, particularly parallel processing applications

Capacity (in terms of high throughput computing) of computational resources for simulation

Capacity (in terms of high throughput computing) of computational resources for data analysis

9. Please rate your satisfaction with XSEDE activities on a scale of 1 to 5, with 1 being “very dissatisfied” and 5 being “very satisfied.” If you have no basis for rating your satisfaction, please select “Not applicable.”

- 1 Very dissatisfied
- 2 Dissatisfied
- 3 Neither satisfied nor dissatisfied
- 4 Satisfied
- 5 Very satisfied
- 9 Not applicable

Availability of tools and libraries needed for your work

Data archiving capabilities of XSEDE resources

Visualization facilities and rendering capabilities of XSEDE resources

Availability of support/consulting services from XSEDE

Response time of support/consulting services

Effectiveness of support/consulting services

Availability of extended collaborative support

Effectiveness of extended collaborative support

Availability of training

Effectiveness of training

XSEDE Knowledge Base

XSEDE website (xsede.org)

XSEDE User Portal (portal.xsede.org)

XSEDE Mobile Portal (mobile.xsede.org)

XSEDE Allocation Process

XSEDE Allocation Awards

Technology Insertion Services

Data Transfer Services (e.g., Globus Online, GridFTP)

10. Please rate your overall satisfaction with XSEDE on a scale of 1 to 5, with 1 being “very dissatisfied” and 5 being “very satisfied.” If you have no basis for rating your satisfaction, please select “Not applicable.”

- 1 Very dissatisfied
- 2 Dissatisfied
- 3 Neither satisfied nor dissatisfied
- 4 Satisfied
- 5 Very satisfied
- 9 Not applicable

11. 9. Please rate your level of satisfaction with the following core services offered to the research community through XSEDE on a scale of 1 to 5, with 1 being “very dissatisfied” and 5 being “very satisfied.” If you do not use a particular service and have no basis for evaluation, please select “not applicable.”

- 1 Very dissatisfied
- 2 Dissatisfied
- 3 Neither satisfied nor dissatisfied
- 4 Satisfied
- 5 Very satisfied
- 9 Not applicable

User-accessible XSEDE central services

Globus File Transfer Service

login.xsede.org [single sign-on (SSO) hub]

MyProxy service

Authentication using InCommon campus credentials with the CILogon service

Two-factor Authentication (2FA) new service

Karnak job prediction service (thru the XSEDE User Portal or at karnak.xsede.org)

User-accessible software and services on SP resources

UNICORE 6/Execution Management Service

Genesis II/Global Federated File System (GFFS)

XSEDE Wide File-System (XWFS)

Globus GRAM 5 (remote execution service)

“xdusage” (command line XSEDE allocation status display)

Globus Toolkit command line client tools

GSISSSH (Grid-enabled SSH integrated with MyProxy authentication)

User software for personal use

Globus Connect Personal (Globus File Transfer endpoint software for personal computers)

User software for campus resource integration

Globus Connect Server (Globus File Transfer endpoint software for campus and departmental resources)

12. 10. Please rate your preference for the following training delivery methods on a scale of 1-5, with 1 being “strongly do not prefer” and 5 being “strongly prefer.” If you have no basis for rating your preference, please select “Not applicable.”

- 1 Strongly do not prefer
- 2 Do not prefer
- 3 Neutral
- 4 Prefer
- 5 Strongly prefer
- 9 Not applicable

XSEDE Web Documentation

Live, In-Person Tutorials/Workshops

Live, Online Tutorials/Workshops

Self-Paced, Online Tutorials

13. What unique value did the XSEDE environment provide to you beyond enabling access to a computing resource?
14. How could XSEDE be more useful to your research or educational program? (For example, are there new resources or services that would be useful? Are there new features or improvements to existing services that would be useful?)
15. Do you have any other suggestions or comments regarding XSEDE or the value derived from the National Science Foundation’s investment in XSEDE?
16. Please best describe your primary role within your current organization:
- Executive leadership (e.g., director, CIO, etc.)
 - University faculty or equivalent
 - University/Center research staff or equivalent (non-postdoctoral)
 - University/Center non-research support staff (or equivalent)
 - Postdoctoral fellow
 - Graduate student
 - Undergraduate student
 - Other, please specify: _____
17. What is your primary research field or field of study (as categorized by the National Science Foundation, National Institutes of Health, and/or the Department of Energy)?

- Astronomy
- Atmospheric Sciences
- Biology
- Chemistry
- Diseases
- Computer and Information Science
- Earth Science
- Engineering
- Health and Wellness
- Humanities
- Mathematics
- Medicine
- Physics
- Psychology
- Sociology
- Other, please specify: _____
- Not applicable

18. Please describe the size of your academic institution:

- Small (less than 3,000 degree seeking students)
- Medium (3,000 – 10,000 degree seeking students)
- Large (greater than 10,000 degree seeking students)
- Not applicable

19. Please describe your institution: Please select all that apply.

- EPSCoR Institution
- Minority-Serving Institution
- Associate's College (all degrees are at the associate's level)
- Baccalaureate College/University
- Master's College/University
- Doctorate-Granting University
- Teaching-Focused Institution
- Research-Focused Institution
- Government Lab or Center
- Non-Profit Organization (non-academic)
- Corporate/Industrial Organization

20. What is your gender?

- Male
- Female
- Transgender
- Other: _____
- Prefer not to disclose

21. What is your ethnicity?

- Hispanic or Latino
- Not Hispanic or Latino
- Prefer not to disclose

22. What is your race? Please select all that apply.

- American Indian
- Alaska Native
- Asian
- Black or African-American
- Native Hawaiian or Other Pacific Islander
- White
- Prefer not to disclose

23. Are you willing to be contacted for a follow-up interview (or focus group participation) to provide XSEDE with additional feedback on your user experience? (PROGRAMMING SKIP: IF 'NO' END SURVEY)

- 1 Yes
- 0 No

24. Please indicate the areas on which you might like to provide feedback. Check all that apply.

- Computational resources
- Visualization resources
- User support
- Online, support resources
- Campus Champions
- Training Resources
- Educational Resources
- Software Resources
- File Transfer, Data Movement
- Allocations
- General feedback on XSEDE
- Other: _____

25. Please provide the following information for a follow-up interview to discuss your feedback with XSEDE. *All survey questions are optional and your answers are confidential. If you choose to provide your name and contact information, it will be used solely for the purpose of contacting you for additional feedback and will not associated with your survey responses.*

- Name:
- Institution:
- Phone number:
- Preferred email address:

CLOSING SURVEY PAGE:

Thank you very much for your responses. For more information about XSEDE, please visit www.xsede.org.

D.2 Email Invitation and Reminder Messages

SURVEY INVITATION

From Name: John Towns
From Email: Center for Survey Research
Subject Line: 2016 XSEDE Annual Satisfaction Survey

Dear {firstname} {lastname}:

XSEDE (Extreme Science and Engineering Discovery Environment) is the most advanced, powerful, and robust collection of integrated, advanced digital resources and services in the world — a single virtual system used by researchers, technologists, and scientists, such as yourself, to interactively share computing resources, data, and expertise.

Your feedback is vital to the evolution of this important resource, and I am writing to ask for your participation in the 2016 XSEDE Satisfaction Survey conducted on behalf of XSEDE by Indiana University.

The annual survey aims to assess users' current levels of satisfaction with the XSEDE computational environment and its associated services and activities (e.g., training, allocations, conferences, user support, etc.). Your feedback will be used to improve and expand services to the XSEDE user community and to aid in the decision-making processes related to resource allocation.

The survey can be accessed here:

<https://survey.indiana.edu/xsede16/{loginID}/{contact}>

The Indiana University Center for Survey Research administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data you provide or included in any reports. Please be assured that should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Sincerely,

-John

John Towns
Principal Investigator and Project Director, XSEDE
Director, Collaborative Cyberinfrastructure Programs
National Center for Supercomputing Applications
University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).

If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: websurv.indiana.edu/xsede16
- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: {popid}

REMINDER #1

From Name: John Towns
From email: Center for Survey Research
Subject Line: REMINDER: 2016 XSEDE Annual Satisfaction Survey

Dear {firstname} {lastname}:

Last week, I wrote asking for your feedback on the XSEDE computational environment and its associated services and activities. Your feedback is vital to the evolution of this important resource, and I am writing again in the hope that you will take a few moments yet today to complete the survey.

The survey can be accessed here:

<https://survey.indiana.edu/xsede16/{loginID}/{contact}>

The Indiana University Center for Survey Research administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data you provide or included in any reports. Please be assured that should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Thank you for your support and consideration.

Sincerely,

-John

John Towns
Principal Investigator and Project Director, XSEDE
Director, Collaborative Cyberinfrastructure Programs
National Center for Supercomputing Applications
University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).

If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: websurv.indiana.edu/xsede16
- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: {popid}

REMINDER #2

From Name: John Towns
From email: Center for Survey Research
Subject Line: REMINDER: 2016 XSEDE Annual Satisfaction Survey

Dear {firstname} {lastname}:

Earlier this month, I wrote asking for your feedback on the XSEDE computational environment and its associated services and activities. Your feedback helps us to improve and expand services to the XSEDE user community and guides us in the decision-making processes related to resource allocations.

I am writing again to ask that you take ten minutes out of what I know is already a very busy day to give us your feedback. Your time is greatly valued, and your insights are of great interest to XSEDE leadership.

The survey can be accessed here:

<https://survey.indiana.edu/xsede16/{loginID}/{contact}>

The Indiana University Center for Survey Research administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data you provide or included in any reports. Please be assured that should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Again, thank you for your support and consideration.

Sincerely,

-John

John Towns
Principal Investigator and Project Director, XSEDE
Director, Collaborative Cyberinfrastructure Programs
National Center for Supercomputing Applications
University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).

If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: websurv.indiana.edu/xsede16
- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: {popid}

REMINDER #3

From Name: John Towns
From email: Center for Survey Research
Subject Line: XSEDE Needs Your Feedback: 2016 XSEDE Annual Satisfaction Survey

Dear {firstname} {lastname}:

I am writing again to ask for your participation in the 2016 XSEDE Satisfaction Survey. I cannot emphasize enough how important your voice is in helping us to improve and expand services to the XSEDE user community.

Please take this opportunity to contribute to the future evolution of this important scientific resource and complete your survey today. I assure you that the survey is very brief and will take less than ten minutes of your time.

The survey can be accessed here:
<https://survey.indiana.edu/xsede16/{loginID}/{contact}>

The Indiana University Center for Survey Research administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data you provide or included in any reports. Please be assured that should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

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Your time and insights are very much appreciated.

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Reference ID: {popid}

REMINDER #4

From Name: John Towns
From email: Center for Survey Research
Subject Line: XSEDE Survey Closing Soon!

Dear {firstname} {lastname}:

As the 2016 XSEDE Annual Satisfaction Survey is about to conclude, I want to again ask for your participation. If at all possible, please take just a few minutes to provide your feedback. Your insights are of great interest and value to XSEDE leadership.

The survey can be accessed here:

<https://survey.indiana.edu/xsede16/{loginID}/{contact}>

The Indiana University Center for Survey Research administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data you provide or included in any reports. Please be assured that should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Your time and insights are very much appreciated.

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If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: {popid}

FINAL REMINDER

From Name: John Towns
From email: Center for Survey Research
Subject Line: XSEDE: Your feedback is critical this year

Before our survey concludes on April 4th, I want to write one last time to ask for your participation. I cannot emphasize enough how important your voice is in helping us to improve and expand services to the XSEDE user community.

Please take this opportunity to contribute to the future evolution of this important scientific resource and complete your survey today. I assure you that the survey is very brief and will take less than ten minutes of your time.

The survey can be accessed here:

<https://survey.indiana.edu/xsede16/{loginID}/{contact}>

The Indiana University Center for Survey Research administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data you provide or included in any reports. Please be assured that should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

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Reference ID: {popid}

D.3 Open-Ended Survey Responses – Additional Comments Categorized by Theme

Question #13: What unique value did the XSEDE environment provide to you beyond enabling access to a computing resource?

XSEDE provided good training on how to use HPC systems and optimizing the code.
training in computer science, specifically in HPC
training is very important.
The ECSS and training services are very valuable. In addition, Globus provides a very nice way to mover files from point A to B.
Knowledge about supercomputing systems
I have not used the XSEDE computational resources, but I have used the training. That has been somewhat useful (I only use basic tools).
The number of different training opportunities and tutorials is fantastic! There are so many workshops that I would like to go to, unfortunately, the timing has not worked out and I have not been able to attend.
consultation and training
The trainings were very useful.
STAMPEDE and by extension XSEDE was very well documented and allowed me to learn to use the cluster with relative ease, given extensive prior knowledge of Linux.
Working and training on the most modern computational technologies.
Training
training
Overall, it's a unique and comprehensive resource for learning and practicing high performance computing.
documentation and online usage statistics
Training in parallel and HPC topics, including environments and software.
It's very nice to have a central location for information about computing, as well as workshops on how to use this stuff.
Website/ Online tutorials
Webinar training sessions
oppportunity to learn about high performance computing
Besides the workshop and training opportunities, we are recommending it to our researchers for their need which cannot be met by our local Cluster.
The XSEDE environment provides many training opportunities and workshops to my students, and enable them a better skill for computational chemistry studies.
Xeon Phi Workshop
Resourceful software and libraries collection. Easy to use by users.
XSEDE allows me to introduce my undergraduate students to the speed of a supercomputer. When students can obtain meaningful results or feedback in real time, they tend to stay more engaged in their laboratory and research objectives.
I also appreciate all the training XSEDE provided.
Learning from tutorials and the possibility of choosing the most appropriate machines for the problem at hands.
As an educator at a research university, it allows me to expose mechanical engineering and materials science graduate students to concepts of centralized computing, remote job, and

data management, acquiring remote resource allocations, as well as the more technical aspects of running massively parallel simulations on remote high performance computational platforms.
Training, online self-paced training, workshops, outreach events. Collaboration with offering courses.
Training and education
The training courses and ECSS
Documentation is often well written, clear, and useful.
The trainings I attended were very helpful.
learning opportunities for student and postdoctoral associates
Training.
A lot of unique information on codes, batch programming, helpful examples, immediate email support - this is all unique and important.
extended learning experience
XSEDE provided tools for me to perform training admin tasks and user allocation support.
The learning environment
training, collaboration, encouragement.
HPC training services, especially online workshops.
Supercomputing training to my students. Batch queuing experience.
It's a platform for learning and state-of-the-art research activities.
Significant educational component in terms of involving students in HPC
XSEDE support staff provided timely and substantial help to my students, allowing them to develop necessary HPC skills.
ECSS support and training
Fast support, and basic parallelization training online.
A few pieces of very helpful advice for my students from Stampede staff
The XSEDE environment offers many opportunities to collaborate with other educators and users of HPC. It also serves as a great knowledge hub and provider of training resources.
XSEDE provides vast amount of world class HPC expertise and support. XSEDE enables not only research but also education at every level.
Attentive customer service. Interest in fostering user knowledge. Efficient operation.
XSEDE provided the right type of machine which was unavailable at other institutions and flexible scaling of using those resources. When it came down to crunch time and I really needed to run a lot they were willing to give me priority on an entire rack to finish what I needed to do. I have also made repeated use of the training seminars to learn things like MPI and OpenMP, and those have been quite valuable.
I use XSEDE for both research and educational reasons. My research is dependent upon the unique capabilities of XSEDE, particularly Stampede, for parallel computing research. And I would not be able to teach HPC effectively without access to system resources for my class.
The XSEDE environment was very helpful as a tool to carry out scientific computing beyond what was available to me at the time. I was also able to train a summer intern using XSEDE resources.

We have access to some computational resources, but XSEDE allowed our students to use an environment more typical of what they're experience will be if they go on to graduate school.

Theme 2: Community, Collaboration, Support

XSEDE gives a strong community for complex technology and research.
XSEDE has built a rich, national community of colleagues who are willing to help each other in a wide variety of ways. The Campus Champions listserv is a great example of this.
great help and guidance from help desk. information it provides about trends in computational research and tools.
I am a campus champion and the access to other champions is invaluable.
Fast support, and basic parallelization training online.
A few pieces of very helpful advice for my students from Stampede staff
They provided excellent technical support who got back to me in a short amount of time.
I was able to make connections with potential collaborators
I learnt a lot from the support team.
1. Excellent team of support staff - very knowledgeable, prompt to respond and patient. 2. XSEDE is a fail-proof, reliable resource. 3. Keeps the promise of providing high end computational power.
A helpful guide (I forgot his name) when I begin to use XSEDE.
nice technical help, efficiency, and speed in the computing resources.
A community of scientists in whom I can rely.
community
The ability to connect to other researchers who work in similar or adjacent fields, or otherwise are able to provide insight into my work from an outside point of view.
It is very user-friendly with a great support staff. The resources needed for our studies are readily available.
Very easy to collaborate with a person at a different university since XSEDE is not tied to university credentials
access to technical staff to compile my code (VASP) and maintain the system; our campus does not have this support.
It provides knowledge sharing, networking and collaboration. It spans across the US and bring diverse talent and expertise to same table. XSEDE community (people who share ideas and help each other's problems) is the best resource that I have found in recent years. It is a treasure and need to be preserved for next generation.
The support of ECSS team.
Availability to share the same environment with remote collaboration partners
consulting for technical problems
Very responsive help.
research collaborations
The networking with scientists to solve challenging computational problems via ECSS.
The value of XSEDE system admins is incalculable to enabling my scientific research. They were almost always helpful, and when something was out of their power to help me with, they were prompt in their responses. When working remotely, communication is very important - people just need to know what's going on.
I just want to stress what I said. The XSEDE environment is VERY useful in my group, the support is really incredible, and I do not see the research quality of my group without the support of XSEDE.
Encouragement; someone, however casually, thought my research worthy of support.
connecting with colleagues
I have always appreciated that XSEDE responds quickly to any tickets raised.
Support sometimes
It provided parallel computation support needed to collected data. The expertise provided by Xsede staff was critical in functionality of software.
I would say the expertise of the XSEDE staff was a unique value to me. We were working without local expertise and the team at XSEDE was very helpful to us when we ran into issues.
Support for getting software to function correctly. Exposure to new queue submission methods.
single point of contact for allocations and support

Thanks very much for your continuous support.
People are always very helpful and friendly.
XSEDE consultant(s) (i.e., David O'Neal) has helped us over the years to get our software to run on various XSEDE platforms as they become available. More importantly, based on his advice and assistance, the software has been tested and optimized on several difficult applications and its performance has improved on all platforms.
Access to XSEDE help tie together the few Linux users we have here at the office. Some of us prefer Linux for our computational workstations and once we started using XSEDE we began sharing our knowledge of Linux and numerical analysis more frequently with each other.
Their technical service was very prompt.
The technical support has often been very helpful and timely, thank you.
Our research team received timely and useful support, from minor consulting tickets to studies of performance on new hardware.
Great support
The people -- passionate, talented, committed.
Excellent customer support from PSC.
Meeting of faculty and students to learn and execute a new project and new opportunities in health care / cancer data analyses
The support staff were particularly friendly and helpful to me, a non-expert in computational methods, and seemed to go out of their way to help me prepare for allocation requests. The allocation process is very good, with different levels of allocation available to people with different needs and experience.
Allowing my colleague/ (former student) to be able to login.
I believe that it's unique that I could so quickly receive a start-up allocation. This single unique point is completely outstanding and impressed my home institution immensely.
Matlab Mentors Group for Campus Champions
user support is exemplary. remote access to multiple resources support for science gateway
I have made considerable use of the help desk. I monitor my allocation usage at the XSEDE portal. But mainly, the reason I apply for allocations is that Comet is a splendid machine.
XSEDE's stability and support has allowed me to test new software and new algorithms on the service very effectively. Support for compilation issues is often excellent.
Campus champions and the regional campus champions provide the biggest value by creating a community of computational research facilitators.
Well supported reliable access.
The diverse spectrum of experts and community that provide help with many cyberinfrastructure issues are extremely valuable.
Great support services
Connection to a community of HPC/HTC professionals and peers for knowledge sharing, best practices, etc. This is extremely important and useful.
The XSEDE environment offers many opportunities to collaborate with other educators and users of HPC. It also serves as a great knowledge hub and provider of training resources.
-Collaborations with XSEDE and TACC staff for pushing the limits of KNC scaling -Interactions with researchers and fellow users at the XSEDE conference
Information on different interesting projects scientists are doing using XSEDE resources.
ECSS support to help scale our workflow to Pegasus workflows
Great technical support
ECSS support.
access to expertise thru camps champions listserv

Provide a comprehensive list of support, services and resources located in one clearing house Generous assistance to small campuses by experts Friendly staff Offers a community of learners
It is a friendly and helpful service
the campus champion mailing list has been a gem. Kay Hunter, a great resource by herself.
XSEDE provided access to experts in new technologies.
Interaction and dialogue with people with different expertise.
Community. Inspiration.
Professional Networking
Great community
knowledge sharing with other institutions
Knowledge acquisition and sharing community.
XSEDE provides vast amount of world class HPC expertise and support. XSEDE enables not only research but also education at every level.
Community engagement. Able to direct other people to resources for self-learning.
Talking to other people and getting help with problems. XSEDE enabled me, over the 4 years I have been a champion, to help a few other people get research done that they could not get done. One student researcher in another department got a job in part based on computing skills he learned while using XSEDE resources to support his research. That is the kind of thing that makes XSEDE valuable.
The rapid support for any issues and the future possibilities of future ECSS support.
Networking
It's the community of champions and likeminded scientists are indispensable.
Attentive customer service. Interest in fostering user knowledge. Efficient operation.
Connecting me to others in the community
tech support via e-mail
I'm a bit unique in that the only interaction I've had with XSEDE has been through the Globus service at two sites (NCSA and SDSC). However, I view the support of the Globus platform on XSEDE as critical and strategic - this allows scientists to do things they would otherwise not be able to do. Keep it up!
Training, online self-paced training, workshops, outreach events. Collaboration with offering courses.
A lot of unique information on codes, batch programming, helpful examples, immediate email support - this is all unique and important.
training, collaboration, encouragement.
Some of the XSEDE resources were essential for us to complete our research programs. In particular, STAMPEDE is a very useful machine. TACC has done an excellent job of integrating computational, visualization and pre-processing facilities to create an end-to-end system for the user. There are not enough cycles available to meet the need. Therefore, there needs to be more machines line STAMPEDE. Also, there needs to be a better file server for this machine.
We interacted a great deal with very knowledgeable engineers at XSEDE who were invaluable to our advancements (specifically, Anirban Jana at PSC and Si Liu at TACC). Through these interactions, we learned of capabilities within the XSEDE system of which we otherwise would not have been aware.

<p>It has allowed me to move research/code between supercomputers with only minor difficulties.</p>
<p>Overall I have been quite please. If appropriate, I would like to give special recognition to Mahidhar Tatineni. I have called upon this system administrator on several occasions over the past two years and he has been very help and promptly addressed problems that I have encountered.</p>
<p>Enabled access to a computing resource *with* a consistent and expert support staff.</p>
<p>It took us a while to get going, primarily because the Unix system was new to my lab. We have been programming in Matab and R for decades, but the transition to the XSEDE environment was like learning a new language (which in fact it was). We do now appreciate the power and speed, but more guidance early on would have great, particularly with examples.</p>
<p>Very high computing power Great user support Well maintained hardware and software</p>

Theme 3: Program Capabilities, Facilitating Research

Fast simulations and support for our project.
XSEDE allowed me to transition from a wet lab researcher to a computational researcher with ease.
integration across multiple XD resources and OSG
great turn-around time for running jobs in the development queue. enabled me to develop new supercomputer code quickly.
Integration of modules, compilers, and libraries made compiling my code very efficient.
It is allowing me to test a 190-year-old theory that could not have been tested earlier because the exhaustive combinatorial enumeration would require petabytes of storage and years of computation before I had XSEDE access. It also allows me to more effectively teach my high-performance computing class because my class actually runs on the machines and gains the kind of real-world experience they need.
I can run simulation studies much faster than ever.
Fairness and efficiency
I wish, I could use abaqus on more nodes, like 2-3 nodes.
The ability to allow my students to run LAMMPS to perform their simulation work.
Computer capacity for high resolution simulations. Data visualization.
Speed.
The ability to easily (with the exception of staging on Ranch) to easily move my data between resources.
Without XSEDE resources my research is not possible because my research is heavily computationally oriented. Therefore, XSEDE is crucial for the continuation of my research program.
My Ph.D. student used XSEDE for solving wave scattering problems for billions of small impedance particles. His work was based on my theory, but XSEDE provided necessary parallel computing facilities. This was very valuable: nobody, to my knowledge, solved earlier the scattering problem with so many small particles.
Specific software needed
Bandwidth to Gordon through Globus Online was astoundingly fast! That was an immense help for us. In contrast, what took only a couple hours (to transfer 5.5TB of data) on Gordon took more than 10x times longer for Wrangler. ...And Wrangler is a newer, significantly faster machine (for our data analysis/post-processing tools, at least).
Sorry, that was a back-handed compliment.
This resource was used as part of a graduate level class, and enabled me to further develop my modeling and simulation skills.
High capacity to perform HPC
An easy and very convenient way to scale the number of processors needed for performing different kinds of tests via the development queue. This noticeably improves the efficiency and timing of my software development workflow.
getting to know various optimization options for my code
A very good computational level at Stampede
All the cores on the cluster are the same speed which makes using parallel code easier (less uneven core optimization)
The help of ECSS personnel with my project has been immensely useful. I am in the humanities and could not have gotten my project underway without their assistance.
The Globus data transfer capability is a wonderful tool.
Installing commercial software for which I've got a license
With diverse architectures of XSEDE, one can gain a valuable insight in setting and running applications with ease on other similar platforms.

XSEDE provided the right type of machine which was unavailable at other institutions and flexible scaling of using those resources. When it came down to crunch time and I really needed to run a lot they were willing to give me priority on an entire rack to finish what I needed to do. I have also made repeated use of the training seminars to learn things like MPI and OpenMP, and those have been quite valuable.
free resources to do research
The most important aspect XSEDE has helped me is to scale up my molecular dynamics system such that the length scales probed matches the experimental length scales. This has greatly helped me in convincing my experimental collaborators of my results as well as in predictions for my future work.
Parallel Computing with OpenMP Training
Without XSEDE it is impossible for me to run my simulations as they need too much time on ordinary computers and nearly impossible. It saved my times and I had a big progress in my work.
Speed up numerical simulations on the commercial software Abaqus, enables to use more elements and more complicated simulations
I very much value the consistency with which TG/XSEDE provided resources over the years. That so much simplifies the question of resources for research questions which last longer than a 2 or 3-year project...
Parallel computation
XSEDE has provided my lab with the opportunity to explore a new area of research. A Master's degree project was completed using the resources and an undergraduate student presented her work at ABRCMS last year.
I am able to handle large system simulations with comparatively high speed
A system for data archiving, file transfer, and visualization (though I have not yet been able to use the visualization resources).
It enabled me to perform simulations that I otherwise would not have been able to.
The XSEDE extend my mind to a broader area in the research.
Some of the XSEDE resources were essential for us to complete our research programs. In particular, STAMPEDE is a very useful machine. TACC has done an excellent job of integrating computational, visualization and pre-processing facilities to create an end-to-end system for the user. There are not enough cycles available to meet the need. Therefore, there needs to be more machines line STAMPEDE. Also, there needs to be a better file server for this machine.
We interacted a great deal with very knowledgeable engineers at XSEDE who were invaluable to our advancements (specifically, Anirban Jana at PSC and Si Liu at TACC). Through these interactions, we learned of capabilities within the XSEDE system of which we otherwise would not have been aware.
The Xsede resources allow us to greatly shorten the time required for our computational work and facilitate the progress of our research project.
XSEDE enabled me to obtain fundamental insights into nanoscale behavior of multiple materials and estimate their macroscopic properties using physics-based simulation tools. Such discoveries aid in development of new technologies and/or improved fidelity of larger scale models - which is essential for engineers etc.
I was able to distribute very large, repetitive tasks, such as modelling daily solar radiation at an annual scale (365 days) to XSEDE; in the best case I was able to process an entire year at once, a 364x decrease in processing time over a single core job, and an 11x speed up over my dual-core Xeon Workstation. This saved days to weeks in computer time and allowed for testing and optimization.
the website and monitoring of node statuses
The XSEDE environment also provided a way for me to become more proficient at parallel processing.
It has allowed me to move research/code between supercomputers with only minor difficulties.
Overall I have been quite please. If appropriate, I would like to give special recognition to Mahidhar Tatineni. I have called upon this system administrator on several occasions over the past two years and he has been very help and promptly addressed problems that I have encountered.

For me testing in an environment with the large # of cores was a huge plus. Downside for me was restrictions on ports via my government agency which limited my ability to perform work during my normal hours. This port issue was a restriction on my end however, not XSEDE. I was pleased with the system and sure which I had been able to do more.
experience and result in very short period of time
Enabled access to a computing resource *with* a consistent and expert support staff.
It provides indispensable role for our research on laser-material interaction process
It is convenient for research.
Forced us to prioritize which simulation we would do, since the allocation was inadequate to do more than one simulation.
XSEDEs has shown itself to be a good tool to provide useful synergetic communication with other scientific and computational science researchers in the area and to provide access to the latest multicore software environments and tools.
I could not have conducted research as there are no computing facilities in my university.
Easy to prepare allocation request and sample requests for study.
XSEDE's failure to expand its high-performance computing facilities makes it less useful for my research with each passing year. If XSEDE is not going to provide leadership class computer facilities significantly greater than those available on university campuses, then it will quickly become obsolete.
The K80 GPUs on Comet were very useful in developing and testing fast GPU codes on the best GPU hardware.
It took us a while to get going, primarily because the Unix system was new to my lab. We have been programming in Matlab and R for decades, but the transition to the XSEDE environment was like learning a new language (which in fact it was). We do now appreciate the power and speed, but more guidance early on would have great, particularly with examples.
Web/paraview-based visualization service at TACC/Maverick allowed us to understand our simulation data better in a straightforward, relatively simple interface.
XSEDE provided very smooth-running resources, without the need to maintain hardware or perform systems administration. As a result, the productivity of my group was enhanced greatly. The expiration date associated with the resources also facilitated efficient use and data production. I am very satisfied with XSEDE and frequently recommend it to other scientists.
XSEDE is very valuable for the storage it provides as well as for the capability of transferring large files using Globus.
I can run some tools which handle database management system like sql
allowed me to take on high risk projects
Large scale parallel computing is extremely for my work. Such a large scale computational resource is very expensive if not through XSEDE award. I appreciate XSEDE. XSEDE rocks.
Services to optimize code...
The most important value that XSEDE provides is a consistent, uniform experience. Knowing what to expect makes my work much easier, and more scalable. It also helps that the size of the system is enormous, and I never want for either computer power or technical assistance. My research would not be possible in its current form without XSEDE.
it's fast, but too little allocation time
The XSEDE environment is an exemplary environment that provides best practices for enabling computational research. Exposure to and discussion of the XSEDE resources is indispensable in my role providing local resources and support at our university campus.
It is pretty simple, without XSEDE I could have not been able to do the research we do not have the impact we have had.
Cores
I use it mostly for high performance computing
Globus is good.

The XSEDE can help people in our group to deal with large crystal structures, e.g. the crystal structure which contain 300-350 atoms. And XSEDE also largely improve the precision of our calculation.
Xsede provides a nice research committee for HPC research and applications.
XSEDE provided a key added computational capacity for our research. Without the available resources, our efforts would have to be scaled back to "in principle" models that do not address the features that we need to do a good experimental validation. That is, without XSEDE resources, the detail of our models would have to be coarse enough that we would have limited ability to verify that the physical processes within the models are well-characterized. With XSEDE resources, we can run models that are refined enough that the differences between predictions and experiment are not due to the coarseness of the meshes we use. This enables us to test whether the physical processes in the models are correct.
XSEDE has provided an excellent environment to expand the user base for our Science Gateway. With this success, a module for a MOOC will utilize the Science Gateway to educate a wider audience to medical imaging research.
The XSEDE environment has been indispensable for the implementation of the Neuroscience Gateway (NSG) www.nsgportal.org , which has enabled many computational neuroscientists to engage in research that exceeded the capabilities of the computational resources that were available to them at their home institutions. This is catalyzing new advances in computational research.
Please note that my evaluations of XSEDE reflect my role in the NSG project as scientific advisor and liaison to the neuroscience community, to help insure that NSG is useful for computational neuroscience research. Credit for constructing NSG belongs to my collaborators at UCSD--Amit Majumdar, Subha Sivagnanam, and Kenneth Yoshimoto. It is they who have the expertise in HPC and CI development that was required to create and extend the NSG.
ECSS and tickets help us a lot!
XSEDE provides fast, updated supercomputers which are really needed for my computational laboratory to obtain results. XSEDE contribution is thus crucial for us to finish our investigations timely. Put it otherwise, without XSEDE we could not publish most of our papers!
It's not just a compute resource, it's the central nervous system of my entire research career. Its compute resources at a scale that doesn't make sense to do any other way.
Compared to our on-campus cluster computers, XSEDE provides more informative documentations, fairer scheduling policy, more data storage, more computational capacity, more informative training, more useful tools, mobile app, and user portal.
XSEDE democratizes science and reduces the need to be at a university with large computers. it's an extremely valuable resource and my work would not be possible without it.
It enabled a very timely solution to a problem of testing theory by experiment that would not have been otherwise possible. Promising results have been achieved after 4 years of continued work that will now continue with the latest, new data from a much better space mission, Planck, which will replace and extend the findings from WMAP.
Providing safe and stable storage of data that allows me to share easily with my lab
The ability to process thousands of data files in parallel is invaluable for doing our data analysis in a timely fashion.
Parallel job start fast. I like the schedule that prefer to parallel job.
I was able to many more processors and co-processors (MICs) for my work than I could have at my home institution.
Consistent, fast, accessible systems.
Very high computing power Great user support Well maintained hardware and software
Flexibility and reliability.
The scale of xsede computational power allows a through-put we cannot achieve with our own local resources, and that allows one to make decisions and reach scientific conclusions much more rapidly. It accelerates research dramatically.

I use XSEDE for both research and educational reasons. My research is dependent upon the unique capabilities of XSEDE, particularly Stampede, for parallel computing research. And I would not be able to teach HPC effectively without access to system resources for my class.
The ability to quickly test and realize new ideas in a scalable environment -- my university does not have a large cluster, so if I want to try something out, I rely on XSEDE. XSEDE delivers!
Fairness and efficiency
Without it, we couldn't do our work, since the local resources are insufficient.
Cost effective resources for NSF projects.
XSEDE's computational resources and archival data storage facilities are "vital" and "critical" to our research. Without them, I would not be able to do the research I am currently doing.
XSEDE makes it very easy to transfer data between different centers and to manage collaborative projects. The process of adding users to an allocation so that they can gain access to various systems is very simple and makes it very easy to work on collaborations that span multiple institutions.
It enabled me to do research for medicine in a unique way opening up new possibilities.
XSEDE provides storage for files used as a community resource.
The ECSS and training services are very valuable. In addition, Globus provides a very nice way to mover files from point A to B.
nice technical help, efficiency, and speed in the computing resources.
I just want to stress what I said. The XSEDE environment is VERY useful in my group, the support is really incredible, and I do not see the research quality of my group without the support of XSEDE.
I'm a bit unique in that the only interaction I've had with XSEDE has been through the Globus service at two sites (NCSA and SDSC). However, I view the support of the Globus platform on XSEDE as critical and strategic - this allows scientists to do things they would otherwise not be able to do. Keep it up!

Theme 4: Access to Knowledge Base and Resources

That's pretty much its value... :)
basic knowledge for computing resources
Access to programs (VASP, Gaussian) and the ability to run them in parallel
The large amount of resources available.
fantastic computing resources which are available 24/7 , but unfortunately, we could not continue using it anymore as we are not US citizen
Exposure to other computing clusters. At Clemson, the only one readily available is the Palmetto cluster.
The XSEDE environment was very helpful as a tool to carry out scientific computing beyond what was available to me at the time. I was also able to train a summer intern using XSEDE resources.
A single point of access (in a well-managed way) to information and documentation to HPC system,
The knowledge base on all topics related to HPC and HTC.
I use stampede (for computing) and ranch (for data storage) at TACC and directly log into those machines. For data transfer I usually use the web interface for Globus.
It's not just a computing resource, it provides so much really high-speed resource, which benefits my work a lot. Just one complain though, if there could be any notification before the files on /scratch are removed, that would be perfect. Say users can have like 72 hours to transfer their files before they are removed. That would put a lot of the users in a much better position. My own experience is that, some of the files were removed without me knowing it, which caused me a lot of trouble to rerun the simulations.
Access to a fast computing cluster
Introduced me to the world of high performance computing.
It is fantastic to have a resource that allows me to use computationally expensive scientific software, without requiring me to maintain hardware at my local small college.
For me, it is the access for me and my group.
A computing resource is the most important aspect of XSEDE to me.
a coherent access to a variety of machines with different architectures and capabilities, allowing for ready testing and portability verification between machine types.
enabled access to a faster computing resource
We mainly use computing resources (nodes and disk storage).
It is extremely useful to have access to multiple high end resources to conduct, enable, and explore different heterogeneous architectures from a single allocations mechanism for distributed resources.
Really, I only use it for the computing resources, however I will say it has been a great tool and I used Trestles (when it existed) during my P-chem lab classes. I am hoping to use Bridges for this purpose in the future once it is up and running.
Access to parallel supercomputing
We have access to some computational resources, but XSEDE allowed our students to use an environment more typical of what they're experience will be if they go on to graduate school.
Without this resource, we would not have access to high performance computing. We also like the pre-loaded computational chemistry software. For us, more of this is better. We appreciate being able to count on it for our class.
Knowledge
open a window for me know about the high-performance computation applied into difference area.
A large number of nodes with super-fast computing speed are available by XSEDE. This is essential for my work. Without such resource, I cannot work.
Experience with new hardware, OS, and queuing system.
Access to a new methodology for humanities research.
Free access to large parallel computing resource to explore novel ideas.
The availability of specialized licensed software to a broad user community

Availability of varieties of computing resources
XSEDE environment has also helped me to learn a great deal of things about HPC, and specific systems. IT is invaluable to my work.
The value of learning the many different ways to get something done.
Just having it as a resource has helped our new faculty hiring process more transparent: I make it clear to every candidate about what we can and can't do from in-house. I also let them know what we can successfully rely on XSEDE resources when their needs cannot be satisfied with what we have in-house.
Only way to keep our university groups competitive with larger national lab based collaborations.
Kept me updated with trends in high performance computing
We at university cannot afford to have infrastructure to support the variety of computing resources and services as XSEDE provides. It is good to have XSEDE as an option for users whose computing requirements outgrow the available resources at campus level.
Access to supercomputing nodes
Getting experience with the supercomputing environment
The XSEDE environment has given us access to a number of software tools that we have begun to use in our research. This has made us organize our coding much better.
computing resources is what I only use it for.
Though I am just starting with XSEDE, my interest is in the possibilities of a science gateway for what I am using XSEDE for.
Understanding what computer architectures are available today.
Not much - that was all I was really interested in, but I realize I may be missing many things that might benefit me!
XSEDE provides access to more advanced / newer hardware than is available elsewhere.
Access to interesting visualization projects and the interesting science behind them.
Access to tape storage is very important, especially given the data management requirements of NSF proposals now.
Provided access to Nvidia GPU's for parallel computing
Computational resources are absolutely essential to our work. Without the XSEDE program we could not do what we do.
1. Excellent team of support staff - very knowledgeable, prompt to respond and patient. 2. XSEDE is a fail-proof, reliable resource. 3. Keeps the promise of providing high end computational power.
It is very user-friendly with a great support staff. The resources needed for our studies are readily available.
user support is exemplary. remote access to multiple resources support for science gateway

Theme 5: General

Amazing resource. I am a new user, so I am still trying to learn about all the capabilities.
None. Our local 64-core server turned out to be more capable of running our analyses.
Job advertisements in HPC/CFD area provided by emails
It was actually pretty fun to use! :)
always working.
I'm not sure what this might be referring to
I greatly appreciate the service offered by the XSEDE. Thank you very much.
great job!
Not much actually in our case. We just need compute power for parallel jobs.
I don't understand the question.
High accountability
excellent computational facility
Well-organized proposal and allocation process
Ease of user management (and other functions) through XSEDE portal
I was fortunate enough to win a Campus Champion Fellowship Award. I learned so much!!!
low cost
high quality
Very modest overhead associated with managing research
good
also provides portal for uploading proposals
Please stop sending so much e-mail. It is virtually spam.
Thanks!
It's not just a computing resource, it provides so much really high-speed resource, which benefits my work a lot. Just one complain though, if there could be any notification before the files on /scratch are removed, that would be perfect. Say users can have like 72 hours to transfer their files before they are removed. That would put a lot of the users in a much better position. My own experience is that, some of the files were removed without me knowing it, which caused me a lot of trouble to rerun the simulations.

Question #14: How could XSEDE be more useful to your research or educational program? (For example, are there new resources or services that would be useful? Are there new features or improvements to existing services that would be useful?)

Theme 1: Access to Resources

The ability to do more parameter search without worry of using too many resources.
GridFTP is not available at my institution due to lack of necessary certificates and getting a certificate was a dead end going through the regular channels.
Dedicated node so I don't have to wait 2 days for something to run.
Let students use small amounts of resources for free. Many times I want to run a job that's too big for my laptop, but I don't want to use my Advisor's time because my job is unrelated.
So far, the available software is very good. For computational chemistry Gaussian, NWChem, GAMESS, QChem, QEspresso, and Molcas should be more than enough to handle the majority of problems. A part of the kinetics community uses Molpro, but it might be more of a convenience than necessity (Molcas has CASPT2 calculations).
The computing facility is the most valuable part for my research.
provision of VMs to users
Software and accessibility to useful sites should be made available to users
Have MATLAB available.
Availability of machine learning based statistical analysis programs such as R and scikit-learn.
I would love to use more SUs as the awarded SUs are mostly not enough for our research.
At this time, I do not have major suggestions but I do tell people as often as I can about the resources XSEDE has to offer. It is surprising how many people in the biomedical field have no idea about the HPC resources available through XSEDE. I hope in the future to have opportunities to apply for future use of this resource.
It would be much better if the resources weren't oversubscribed.
Jetstream looks very appealing - most of my software is made to run on local workstation platforms; having larger resource which can do interactive VM based work, and lowers the entry point for technical understanding opens up HP to my technicians and students.
It seems that the vast majority of XSEDE resources are focused on massively parallel jobs, which isn't what I need. The distributed computing resources are closer to what I need, but are only available for a short period of time, which really doesn't help much either. I want to run a large number of serial (or embarrassingly parallel) Monte Carlo jobs but there don't seem to be any resources available for those kinds of tasks.
I use NAMD and GROMACS almost exclusively - some computers (like lonestar) are optimized and powerful for that software but it is difficult to get time on them.
Persistence of resources such that I can have colleagues use the site in order to gain grant funding. It depends on this sort of adoption in the field.
What our group needs most is access to leadership class computer facilities. With each passing year, XSEDE falls further behind in providing them.
I am interested in the fastest machine I can find.
-Access to experimental/uncommon hardware platforms - ARM processors, FPGA accelerators, AMD GPUs, etc.
Parallel python resources Bioinformatics libraries
We should learn more about local processing using XSEDE resources. Right now, we download the results and work with them locally.

I wanted to use Tecplot at the San Diego Supercomputer Center and it was not available to me. I use it a lot on all of my local machines and it seems to be the best software for me to make movies of my earthquake simulations. Running it remotely and then downloading the movie files would be a lot more efficient than downloading all the files that are generated remotely by my simulations and then making the movies on my local machines.

Please continue to update your computational resources often so that the computational researchers have access to state-of-the-art facilities needed for their work. Also please distribute fairly the CPU to the applicants.

Could increase industry participation and programs

Theme 2: Expanded/New resources

More resources
More programs for "on-ramping" users from disciplines that traditionally haven't used HPC, e.g. digital humanities, GIS, and the like. This is likely to require gateways of the sort that were demonstrated at XSEDE16.
1. Would like to have a debug/test queue, which is not limited to 15 or 16 cores. 2. It is also helpful to have a list of available modules online (xsede/psc website) and best practices to use them.
Adding more new resources is always nice.
More GPU-accelerated resources would be useful to my research lab, and would entice me to use an educational allocation for my class.
I wish there was more coverage of commercial platforms, such as Hadoop.
Simply have more resources. Everything is so oversubscribed right now that it can be frustratingly slow to get a job to run. When you're debugging and developing, this glacial turnaround time really drags down productivity.
easy to apply, if it can include several updated image processing software will be good.
implementation of cryoEM programs such as relion / sparx / EMAN
comet seems the most useful resource more GPUs on comet
more SUs
Need more resources. this will specifically help small institutes
Keep on increasing computational power.
Need more available SUs.
New large supercomputers, so that allocations can be larger
(regarding TACC): a faster and more reliable data archiving system (Ranch often had problems)
More, faster machines are always at the top of the list, but you know that already. Beyond more capabilities, the only thing I can think of at the moment is that there is not currently a track for smaller machines that are bought more often. Basically, I think that, if there's something missing, it's the ability to have continuous access to cutting edge computational architecture via smaller machines that are at the prototype level, or, at least, are closer to the prototype level than massive throughput systems that can take years to deploy. The budget needed for such a program would be relatively tiny compared to the high capacity machines currently deployed.
More GPU
Expanding capacity (SUs available to researchers).
There are simply not enough resources - and the emphasis on "innovation" on the resources means that as one unique resource retires, the replacement is not usually a replacement. this is not so much an XSEDE issue as rather an issue with how NSF provisions resources.
- Alternatives to Lustre file writing system for parallel software that is file i/o intensive - More self-paced tutorials on data analysis and visualization
Faster cores in supercomputers for molecular dynamics simulations (NAMD), including perhaps incorporating Anton2 (DEShaw research) machines.
As I indicated before, there is a great need for platforms that can efficiently handle highly nonlinear multivariate multidimensional dynamical systems -- as opposed to highly scalable problems that can use tens of thousands of cores. STAMPEDE is such a platform. IN particular, the STAMPEDE design provides a model for end-to-end usage that is often not available on platforms that emphasize massive core counts. XSEDE should provide more platforms and cycles for these great needs in the scientific an engineering communities.
comet could have more features like visualization nodes

It would be helpful if a wider array of software was readily available, if visualization tools were easier to use, and if more of the training was free; this may not be realistic but ...
For multiprocessors jobs running in short time.
larger computational wall time
Increase the computational resources by two orders of magnitude. Colleagues with access to DoD and DoE computers are performing simulations that are literally over 100 times the size that I can run on Stampede.
I could always use more GPUs.
More GPU nodes on Stampede or another computer.
More GPU nodes on XSEDE systems would be very beneficial for our group.
More, faster computers (obviously).
A modification of the "one proposal per PI" rule to be more flexible, it's very awkward to write a proposal based on two completely different research projects.
Plugins/services to produce cluster status in a form (xml, json) I can use in my own web pages.
More resources
It will be better if more SUs can be granted.
I think, XSEDE is the best for my research. I would like to have more software like Fluent, etc. to be available.
The addition of more GPU based clusters...
A program called DDSCAT would be useful to us - optical modeling using the discrete dipole approximation.
More cores
More advanced/recent hardware for multi-GPU computing (per node) is highly desirable.
More resources overall for biomolecular MD simulations.
Additional computational chemistry software package (e.g., Turbomole) would be useful. Packages to visualize computational chemistry results (e.g., Gaussview) would be useful.
Mayavi module for 3D scientific data visualization and plotting in Python
Data storage facilities. Large amounts of data are generated but no storage available for archiving
Expanding available resources would be nice (oversubscribed).
More medium -scale clusters for running many 100-1000 core jobs
My research is broad, and therefore my computational requirements are widely varying. My recent research focus has involved a great need for computations which do not parallelize, even on a multicore CPU. Therefore my need has been for small numbers of fast cores with very long runtimes, say extending to six month timeframes. XSEDE resources are not well suited for this sort of computation, as far as I am aware. Thus I have not been motivated to invest a lot of effort in keeping up with the latest developments.
That being said, it would be helpful to have more contact with campus champions, who could make it easier to match my computational needs with current XSEDE capabilities.
Update Nvidia GPU's from K20 to K80 models
more computational resources - demand exceeds supply
We need more computing resources. Because resources are so limited, allocated time is far too small to be able to do our research. The DOE is orders of magnitude ahead of the NSF with its NERSC, ORNL, and ALCF facilities.

Theme 3: Improved Functionality

Greater opportunistic capacity via OSG or other mechanisms.
The queue wait times were a bit long. That was a bottleneck to my work.
The application process is onerous and I often find it difficult to find policy information on xsede.org (the resource guides at the individual computing centers are usually okay).
Backup of archived data.
It would be really helpful if there were some way to more easily set up complex databases that require calls from multiple languages like FORTRAN and Python. Especially when the data to be stored is huge.
When running my code on the GPUs, because I could only 50 jobs at a time (sometimes I had 1000+ jobs to eventually run), I was frustrated by having to do a lot of queueing by hand.
comet is an amazing system and I would prefer it to any system I have used for high throughput computing. However, the limit of ~1700 jobs would never be enough to process all of our survey data. If there was possibility for special allocations for large data set processing, I would consider comet the top choice
<ol style="list-style-type: none"> 1. Wish the storage can be carried over to at least 5 or 10 years irrespective of the allocation period. 2. Wish the visualization and data transfer tutorials were more comprehensive.
The computations were not fast due to the extended waiting time: other uses of parallel computing were using the same sets of computers.
Debug queues on all machines
I think improving the memory for each node may be helpful to my need.
cut the turnaround time
keep the System stable to use. Sometime some nodes will lag the whole simulations.
GUI version of the file system.
I am using Stampede, and for my applications the memory per node has revealed often problematic.
Long-term data storage has been a severe problem ever since the retirement of Kraken. The Ranch facility at TACC does not have adequate file transfer and retrieval capability. It can take 24 hours to retrieve a production job restart data; on Kraken it was more like 6 hours.
It would be useful to remove the time wall at Stampede
<ol style="list-style-type: none"> 1. The data archive server and service could be improved in terms of user-friendliness and most importantly, reliability. 2. The depth and range of key library and compiler support (such as mpi and Fortran etc.) could be further improved.
Sometimes is difficult to get new software implemented.
There had been the GenesisII tools that I had tried to use, they would be cool, but at that time they had not been really functional yet for practical application.
Find an easier way to add libraries. For example it was really hard to add boost: python library for me
Better remote visualization support for analysis of data on xsede resources near the point of production
By sorting out licensing issues effectively, e.g. for Matlab on different computational resources.
When I attempted to use it the GLOBUS system did not actually work, and this significantly delayed the analysis of my data.
Possibility of longer wall times on some queues
Sometimes some of my jobs are exactly the same but one of them takes much longer than the other one which causes me losing some CPU hours because it makes it difficult to estimate reasonable time for simulations. Also, I think an interface software for visualizing purposes can be really useful.
visualizations and storage needs to be more user friendly
Better software request/installation on HPC resources (especially comet).

<p>I just recently ran into a problem (which I think should be solvable) in that in working with undergraduates on research it is typically best to keep it simple. Way back when I was a grad student and before xsede, I thought, that we had only a single login/password and got get access to all of the supercomputing accounts with that. I have just been awarded an allocation at UT supercomputers and now have to have (as well as my students) multiple logins. Could this be simplified to so that the xsede website login was pushed to ALL xsede resources? Finally, and I have recommended this in the past but possibly an undergraduate only institutional allocation grant application that would be somewhere in between the startup and research allocations. As for many smaller institutions the line between research/teaching is very, very blurry, many of the labs that advanced students are doing in my courses are generating results that I will use in research.</p>
<p>Keeping it available with low overhead in terms of proposal writing would be helpful. There is not a lot of time in our schedule to give detailed requests. Also continuing to improve file transfer to local workstations and laptops is helpful.</p>
<p>Improve the capacity and performance.</p>
<p>More powerful computational resources, and more reasonable policy for queue.</p>
<p>XSEDE is very useful for my research work. I hope XSEDE will increase more nodes with even faster speed and larger memory, which will make more extended research aspects.</p>
<p>XSEDE needs more CPU capacity.</p> <p>the XSEDE community (Campus Champions, Training, Education, elists, etc) are an absolutely key asset and one of the most tremendous parts of the program.</p> <p>Outreach and deployment for XSEDE technologies such as XWFS is a complete debacle and one of the reasons campuses are wary of integrating themselves with XSEDE. Why put out the effort when a resource will disappear in a few months? If the resource, such as XWFS isn't getting utilized DO MORE OUTREACH.</p>
<p>Allow Interpreted language users (e.g. Matlab) to run the IDE for the language on the login nodes of the XSEDE cluster.</p>
<p>I found that the online training didn't always work - there were connectivity problems (or else the course was postponed but notice of that wasn't shared adequately).</p>
<p>A common software stack across all resources would simplify their use.</p>
<p>Lustre file system problems corrected.</p>
<p>Maybe file transfer options could be improved. I had some problems using this Java applet for access to gordon etc. scp command works, but not for all machines.</p>
<p>Jobs on queue often take a long time to initiate, it would be better if this could be faster. But I understand this might be hard since there are a lot of people using the machines from XSEDE</p>
<p>Open - ended accounts for educators and researchers at PUIs.</p>
<p>The data sweeps on Stampede are too frequent and destructive. Calculations in my group can take, with wall-time, about the same amount of time as a complete data sweep of my SCRATCH directory. This is extremely aggravating.</p>
<p>It's hard to get throughput on large jobs. Why is it preferred for machines to be idle instead of allowing runs without priority (opportunistic back-filling)?</p>
<p>I would improve in XSEDE the possibility for data analysis and visualization in highly parallel mode.</p>
<p>would be useful if some software, such as OPENFOAM, was upgraded to new versions more quickly. in some cases, such as OPENFOAM, each new version fixes bugs and adds features. would be useful if people who need more hours than a small cluster but not very large number of hours could get the hours with less proposal paperwork, e.g., 1-2-page proposal. basically, there is no point in having people write long justifications when the requests are not really big. the length of the proposal should be roughly proposal to the number of supercomputer hours requested.</p>
<p>Better tape storage for TACC resources. More resources in general -- at the time of applying for my last allocation Stampede was the only viable machine and not one that I was particularly eager to use.</p>

<p>It is already great, but if I have to say...</p> <ol style="list-style-type: none"> 1. More stable system. 2. It is difficult for me to use the home directory of one computer (e.g., Gordon@SDSC) synced with another computer (e.g., Comet@SDSC) because their environments (libraries and modules) are actually different, which requires me to compile my source codes separately and have two sets of executable files. 3. I wish I could use a file system like \$WORK@TACC on other computers to store large input files.
<p>Improvements were already made last year by replacing the older Trestles machine at SDSC by Comet, which is much faster and will allow more to be done with a given allocation. Continued improvements in the number of IDL licenses available at SDSC so as to provide greater throughputs of simultaneous jobs would be of great help as well,</p>
<p>Easier file upload/downloading capabilities would be helpful. Faster installation of new software and increased availability of training for novice users. I wanted to recommend some recent webinars to graduate students but they were already full but the time I clicked through the email.</p>
<p>Remove the firewalls. Unify the batch systems.</p>
<p>Longer run times!</p>
<p>Ranch staging still needs improvement. Show staging queue, email user when staging is finished, etc.</p>
<p>Data transfer, even with gridftp is a bottle neck; it would be nice if this could be improved (or suggestions be made how to improve it on my university's end).</p>
<p>Maintaining some queues for jobs longer than 48 hours, even if highly limited (e.g. no more than N nodes at a time), would be very helpful. Some things just don't fit in 48 hours!</p>
<p>It would really be important to have the resource use reported by the portal reflect the *actual* resource use. It could not be more off in my case, for example. Also, the portal is very slow. It would be good if its performance could be improved (and bloated ruby/php/whatever code be streamlined).</p>
<p>Also, I am very worried about what comes after Stampede -- NSF must make a renewed investment into the national computing / XSEDE infrastructure!</p>
<p>Better and larger archival storage facilities; more comprehensive library subroutines; less wait time for jobs to be picked up; online training videos on mpi, open mp, etc. which can be accessed at any time by novice users.</p>

Theme 4: Allocation

Be more generous about granting allocation hours. Make more of the workshops accessible online.
My biggest gripe is about the XRAC process. In particular, it's too single PI focused, and does support organizations badly. This limits the reach of XSEDE. There are two specific examples: 1) campus organizations ought to be able to apply for allocations for their users. This is equivalent to multi-domain science gateways. It's absurd that XRAC allows anonymous communities via gateways that include people from all over the world, but does not support a campus IT organization in the US. This is absurd given the NSF's focus on supporting science at Universities and colleges. 2) some of us play dual roles as PI for our own research, and as representative of a community. XRAC makes this impossible. It effectively forces me to blur this line between my research and the research of the community that I support. I'm tempted to go as far as XRAC forcing me to lie to get my science done via XSEDE because I cannot have separate allocations for my own research from the research of the community I support.
It would be very useful if the NSF could invest in more computational resources for the community. This is not directly an XSEDE issue but it does bear on the overall allocation process and satisfaction of users.
When requesting an allocation on "as soon as possible" basis it would be nice to be notified when the allocation has been made and it's start time as opposed to having to manually regularly check if it's been made.
Research allocation submission any time (with acceptance any time).
easier approval of application.
Stop funding these "big data" clusters (bridges, wrangler). We get it. Data is important. FUND MORE SYSTEM THAT PROVIDE CAPACITY. WE NEED MORE STAMPEDES AND FEWER WRANGLERS, COMETS, BLUE WATERS, other bad systems.
The only problem with XSEDE is that allocations are small and that every year I have to submit an allocation renewal proposal. It would be much better if renewal proposals were required every three years instead, and if larger allocations were possible. As a result of smaller XSEDE allocations in recent years my production has been reduced, because the problems I have been tackling require all the more resources whereas the awarded allocations tend to shrink.
Expanding allocation resources and file storage
Longer allocation times.
XSEDE allocation proposals are written by research groups that is group of students and postdocs guided under the guidance of a PI. Most PIs discuss ideas, then "review" what was written, provide "comments" and then wait for another "revision". Yet, names of the actual writers (students and postdocs) are not even mentioned in the proposal. For a person who is trying to pursue a career in academia it could be a drawback: one can mention in the CV that he or she was part of the proposal writing team, but the name is not on the document -- no way to prove it. This is where XSEDE could help young researcher: add a requirement to put a full list of authors on the proposals.
proposal review process should be fairer.
Be more easily/openly accessible without the need to write a complete proposal. A 1-2-page letter/notice of intent [without figures] should suffice.

<p>The simple answer is more allocated computer time. It is useful to get one requests or close to it instead of the yearly cuts. I would prefer XSEDE spend its money on getting enough hardware so we can get our funded NSF research done on NSF supercomputers. Extra goodies like outreach and whatnot is of course laudable but not at the cost of the basic mission. The managers of XSEDE have told me funding is always tight and that I need to argue with their overlords to get them more funds for more computers; but then again, maybe they should also tell their bosses we can't provide cake when there little bread. It is more effective going in two directions instead of asking us to ask for more funding for computers while the XSEDE managers instead try to make it all "shiny" with bells and whistles.</p>
<p>I still think there needs to be more lead time given prior to beginning an allocation: last year I applied April 1 and didn't hear until just before my old allocation expired on June 30 that I had a new allocation.</p> <p>Also, I believe there needs to be a method for PUIs to compete that is more like the startup allocation process: not the long lead time and wait time of regular allocations, but something with a rolling approval schedule for up to 50K SUs. These could also last for up to two years, in recognition that much of the work that goes on at PUIs (primarily undergraduate universities) happens slowly due to heavy teaching loads and lots of time for undergraduates to learn new systems.</p>
<p>Longer than 6 month extensions</p>
<p>More allocation without too much effort through the application process</p>
<p>The project I am working on is computationally expensive and needs much more than what I am awarded from XSEDE. With my allocation I can just run a code 5-6 times. I am not sure I can benefit from XSEDE having this amount of allocation.</p>
<p>We were not assigned any time on Gordon or Comet because they were too full. We would really like access to these resources (or similar).</p>
<p>More flexible proposal season if someone burn out their CPU times.</p>
<p>XSEDE allocation awards are grossly insufficient.</p>
<p>Once my initial startup allocation was used up, I found the application process too burdensome in order to justify continued use. For those of us with pretty standard bioinformatics needs, it would be helpful to have a streamlined application process.</p>
<p>I'm probably in a minority situation out of all XSEDE users, but I'd prefer a simpler and more frequent award application procedure for small grants. Basically, I would just need a startup grant's worth of SUs every year. I would be thrilled if I could essentially just write a simple one- or two-page request each year for < 100,000 SUs. This is more than enough for the smaller projects I work on with my undergraduate students. It is very high impact for them, but very low impact on XSEDE's resources.</p>
<p>It would be helpful to get larger allocations</p>
<p>make the resource allocation process more transparent. Like if my job is in the queue, when is it likely to be processed? How much time will it probably take until its processing starts? Get an estimate for the waiting time.</p>
<p>Scale the system up so we have bigger allocations. That would allow us to tackle more challenging problems. Also data analysis usually takes an extensive amount of time. I don't like to spend time moving data to other machines so that I have the peace of mind to do my analysis and not lose data as I probably would on XSEDE systems (think of automatic data removal). I would love to use a system and not move data around. Preferably doing visualization and data analysis on the same system used for computation.</p>
<p>Increase the minimum allocation limit.</p>

I did not find the examples of successful allocation requests to be helpful to me while preparing my own allocation requests. In particular, since I am not trained in computational methods nor am I particularly conversant with the language of the field, it has been difficult for me to know what kinds of benchmark, scaling, and performance data are important to the reviewers. I have had allocation requests turned down because I have not provided the information that the reviewers want, but I am also unable to find a template or guide that tells me what is needed. The examples of successful allocation requests in my field (biophysics and biochemistry) did not seem to me to have anything more than I put into my request, but the reviewers thought otherwise.
Shorter times between allocation proposal submission and award.
Multi-year allocations for researchers like me that are working on algorithm development rather than a specific computational task. Our work is necessarily slow in pace and modest in computational needs relative to other tasks that are better defined.
A more frequent review of allocation requests or monthly quota accounts for labs with sporadic, long-term need for computing resources.
Applying for an allocation could be more strait forward and less prohibitive in terms of involvement of the application process.
If XSEDE could associate a dollar value with the resources, I would find that helpful for properly acknowledging its valuable contribution to research. The administration at my institution is interested in the monetary value of resources garnered.
more awards
stop trying to give allocations to everyone that applies and then cutting everyone's allocations by more than half, and instead only give fully-funded allocations to the most scientifically urgent and well-planned applications
Getting more hours would be helpful. Making coprocessor usage more user friendly would be nice too. More proprietary software availability in modules would be nice too (like parallel matlab, simmetrix, EFIT, etc). Faster idev queues.
Most importantly, please log changes in HPC resources somewhere! When the default compiler is changed, it really needs to be logged somewhere clearly, and tracked. Otherwise what happens is codes spontaneously stop working, and users have to reverse engineer what has happened. It wastes a lot of time.
The machine I was allocated time on is not sufficient for my purposes. I could use time on bigger machines to get more out of my simulation model. Updating the existing machines and adding new machines will certainly help with the user load on bigger systems like Stampede.
more allocation time as startup
Allocations to use for students in class for training
automatic renewal of Campus Champion allocations.
-greater flexibility in choosing among different platforms -streamlined proposal processing. at present, proposal standards seem higher and more time consuming than necessary considering that practically all allocations support existing government-funded projects and hence already underwent thorough scientific evaluations -enhanced access to training and use of gnu facilities
I would encourage Xsede to consider a larger allocation for those productive users and groups.
Educational resource allocation for small colleges, where students are most under-represented.
12-month allocations are too short if they are supporting 3-5 year research grants. It becomes a burden to prepare a full application every year to get XSEDE computing allocation to support e.g. a multi-year NSF grant.
I think the startup allocation process is good but needs to be longer than one year. Sometimes the XSEDE learning curve for new people is many months. As campus champion I see this often.
The priority is to increase allocation for mainstream applications
On their allocation applications maybe PI's should be required to identify a grad student or other associate for actual project collaboration communication.

I get my allocation through the Campus Champion program. XSEDE and Stampede would be more useful if I could submit more than one job at a time. Now I have to submit a job and wait for it to complete before I can submit the next job.

The allocation process needs to be more transparent. Reviews and Decisions are taken by staff members not faculty. This biases against new research and for standard applications. I see this as a major weak point.

XSEDE would be even more helpful to my research activity if more attention was reserved also to application that scale to just a few hundreds of cores

It would be nice to inquire about the group members of PIs and establish or support a process where XSEDE allocations can be awarded to those members who are planning to become independent.

Theme 5: Training/Support

<p>I'm currently specifying my second university campus level shared centralized cluster. I wish XSEDE gave more guidance in terms of building said clusters. I will likely use ROCKS, Dell, Infiniband, 10Gbps Ethernet and DDN storage. The part of building the cluster is relatively easy, compared to figuring out what to do with the cluster once it has been built. There should be cookbooks, documentation, standard plans for building a cluster. There should likewise be cookbooks, standard plans for understanding the data science or informatics behind the typical cluster software. Each time I get close to working with researchers, it's almost like I need to understand their domain in order to be helpful. There must be some common informatics that all ACI-REFs should understand and where they can develop skill.</p>
<p>Online training sessions will be useful for those who can't travel to UT Austin.</p>
<p>There should be more services to assist researchers adapt their homegrown codes to work on newer and more complicated architectures (GPUs, new compilers, MICs, etc)</p> <p>Many research codes are not written by professional programmers but by grad students and postdocs who do not have time or the specialized skill sets to rewrite software to work on complex heterogeneous computers. We should not create a computing environment that requires a PhD in comp sci. in order to develop or edit scientific codes.</p> <p>It would benefit the scientific community at large if these researchers had access to sufficient computing resources with simpler architecture (e.g. just CPUs with ample memory) or assistance from XSEDE technicians in adapting their code to work on new machines.</p>
<p>The major help that I could use is help selling XSEDE to our University Administration.</p>
<p>Video courses such as MIT OpenCourseWare in the sense that it remains a library of consultations and training videos</p>
<p>I could use some in-person tutorials to show me how I can use it.</p>
<p>I like the online tutorials.</p>
<p>Two main comments: (1) I would have liked more useful descriptions of the system capabilities when requesting resources in my proposal. I chose two systems (Stampede and SuprMIC) with the specific intention of using OpenACC, which was not available on either of those. (2) I would like documentation on use of Xeon Phi offloading that is suitable for entry-level users who have experience with OpenMP. The information in existing XSEDE docs is very scattered and discontinuous. Links to outside resources were NOT helpful.</p>
<p>I am at an undergraduate institution and getting help from XSEDE to get started with my allocation was very difficult. It seems as if the support staff are ready to provide the information but they really don't care about the outcome. I gave up to contact the support staff and I am very dissatisfied. Sorry for the negative comment, thanks</p>
<p>Better keeping users informed when procedures change (e.g. when software versions are updated and details of job scripts need to be adapted.)</p>
<p>The staff are already very helpful.</p>
<p>A list of common issues faced by users and their solutions must be available on Xsede site (maybe in the FAQ section).</p>
<p>Make the "niche" for each cluster for apparent. I had a hard time deciding, and still am a little unsure of which XSEDE cluster was the best fit for my work. This is hard thing for the XSEDE helpdesk to decide because it is tough to convey every relevant aspect of my work through the helpdesk.</p>
<p>Maybe the cluster guides should have a section describing the ideal applications for the given cluster.</p>
<p>I honestly tend to overlook the opportunities and workshops offered by XSEDE. Perhaps, I'm thinking I have more important work to do, but I will actually start to read them now. I feel that XSEDE is offering great resources I'm missing out on.</p>

There is not enough information on getting started using the XSEDE resources available. There is a lot of information available through the forums, but I found that a lot of the information was not helpful for someone just getting started. It delayed my starting work on my project because of the issues I had with getting a calculation started and running successfully.
I prefer online class, education of usage or resources.
More user friendly interfaces would be good in helping new users become familiar with the XSEDE environment or HPC in general, or more specifically for those who are unfamiliar with HPC/unaware of how HPC could help their research.
<p>1. Much more thorough online documentation. Many times, I found myself trying to replicate instructions found on XSEDE's online documentation that was written for an old machine (e.g., TACC's Corral) and translate it for a new machine (e.g., Wrangler). In general, I found the documentation scattered and spotty.</p> <p>2. Data throughput on the data analysis machines is impractically designed. While I have only used Gordon and Wrangler, my experience is mixed on both. Gordon had the absolute largest bandwidth transferring our large testing dataset (5.5TB) to the machine (via Globus Online). The entire transfer on Gordon took only a couple hours. In contrast, Wrangler took more than 20 hours with Globus Online. Strangely, the internal throughput of the two machines is oppositely tipped, with Wrangler being much faster than Gordon, which is not surprising since Wrangler is much newer technology. However, the "fast" part of both machines are the SSD's, which have limited storage and therefore require "stage-in" steps before the data can be used "speedily" for analysis or post-processing. On Wrangler, the best transfer rate to the SSD's during stage-in was about 200 MB/s using rsync. (Attempts to use iRODS had about the same throughput, which resulted in me giving up on iRODS.) I suppose a parallel job could be created to stage-in the data more quickly, but it seems to me that such a tool should be provided by the XSEDE machine staff so that users don't have to write their own to do such a common task. Alternatively, I suppose that I could have used Globus Online...? I don't know. The documentation is very unclear with the best practices for staging data on the SSDs. ...See my first comment above.</p>
It would be great if some of the webcast/live trainings were available as videos after the fact. I often have meetings and other appointments that keep me from being able to virtually attend these.
To continue collaborating with us even after completing our studies
It would be very useful if XSEDE can make more (all) training sessions available in the format of webcast sessions for remote participants, as opposed to in-person workshops.
Greater continuity of resources and training, clearer instructions on options for extending and augmenting allocations, and one benchmarking platforms and software.
Definitely more online workshops, online tutorials, or online courses on either software on XSEDE or different programming languages. Maybe a forum where people who use XSEDE can communicate with each other. For instance, say I have a problem running my simulations with AMBER software on Stampede, if there is a forum where there are other people who are also using AMBER on Stampede, it would help a lot. I could ask them my questions, especially when the problem resides in the script.
Online tutorials for setting up scripts to run on the various computing resources... such as Stampede. The page for Stampede is not adequate enough or basic enough for me to follow.
More trainings should be available via webcast
More availability of online training would be helpful.
Many tutorials require either personal presence at the site or H.323 to host it. This is very inconvenient since finding a room with H.323 during a semester is often impossible. This requirement seems to be artificial and completely unnecessary. There is really no good reason to insist on H.323 for those tutorials (for example, PSC workshops in MPI, OpenMP, OpenACC, Hadoop) and a webcast should be an option. I had to skip hosting many such workshops because I could not reserve the room.
I always have trouble using the file transfer and storage services (SSH client etc). If there is a tutorial focusing on how to use them, it would be very helpful.
Provide more personnel support and more help with basic coding for humanities researchers.

Having the documentation up to date. I had a lot of issues using hybrid openMP+MPI due to the fact that the documentation on XSEDE was no up to date
The training sessions seem to be announced late and are often only in-person. I tried to enroll in one that was opened up as a web cast because of demand but then it was also full. It would have been useful training.
Explain to new users how charges on the account are accumulated.
Through this survey I learned of the mobile xse.de.org platform, which will be helpful to me in the immediate future. I also think the breakdown of usage sent to each PI/ campus champion is very useful.
I am now aware about the possibility of using a very large number of cores, at least for short time. This is important to test how our developments scale. I am really happy with the educational program; my students have benefit a lot.
When I started out on XSEDE it took me some time to get adjusted to the SLURM queuing systems. The in-house computational resource at my institute uses NBS. I am not sure if XSEDE has updated the documentation on using SLURM systems, but it would be of great benefit especially to new users.
More GPU support. CUDA 7.5 would be great.
I would love to use XSEDE resources to deliver computational quantum chemistry in a junior-senior level physical chemistry class.
There seems to be two levels of training provided by XSEDE, for the very beginners and for very advanced users. It would be very useful to have training on MPI, machine learning, data analytics for moderate users who already use the XSEDE computational resources (so already a reasonable knowledge base of coding) but don't know (and practically speaking, don't have a need to know) the inter-workings of advanced software (e.g., MPI).
More responsible in support, sometimes it will be helpful to talk to someone directly instead of being ignored and pushed back and forth without solving the problem.
Monthly emails reminding me to clear my scratch directory.
helpful training for new students on how to use Unix
XSEDE workshop for Researchers can make them aware of its existence
Increase in number of Webinars for XSEDE training sessions.
Allowing Campus Champions in non-academic (industrial) setting.
Providing more training in "on-line" version

<p>I have no doubt that the XSEDE computational resources are very powerful. Unfortunately, I found the XSEDE help support (not sure if they are called staff, or champions, or what) to (most of the time) be rather unhelpful when I emailed them for help. This was at the San Diego Supercomputer Center. I always tried to make my questions as succinct as possible by asking specific questions to make the helpers' job as easy as possible. Unfortunately, often weeks would go by without response, which is completely unacceptable. When a new XSEDE scientist (such as myself), or any scientist for that matter, is learning about the system, it is imperative that the helpers respond in a timely fashion, otherwise the scientist is literally at a standstill with his or her research. Aren't these people paid to answer these kinds of questions? Frustrated, I then asked about tutorials/workshops, or office hours when we could physically be present to talk to the helpers directly, and I was told that the office hours had been discontinued, which was another disappointment. I'm surprised that XSEDE doesn't understand that powerful computational resources are only as useful as the users' understanding of these tools.</p> <p>While I finally managed to "finish" my project, I was forced to build the code rather inelegantly, which was largely a consequence of the help staff not responding in a timely manner resulting in kludges and workarounds to dodge problems that I did not know how to solve. The code was so slow I realized that I could run a slight modification of my old version of the code on my own laptop and get results faster than on the supercomputer Gordon. My goal was to implement this change on Gordon, but the change would require using a new software package (SuperLU, rather than ScaLAPACK), which would require that I request more help from the XSEDE helpers to learn how to use the new software. Having already experienced the slow response of the XSEDE helpers, I decided that the best use of my time would be to abandon the project rather than requesting help, continuing to use my laptop to obtain results (which did not have enough memory to scale to more difficult problems). If it weren't for the lacking help support I received, I would have loved to use XSEDE resources in the future. Unfortunately, I'm not convinced that this is a realistic possibility.</p>
<p>Provide more webinars. There have been several workshops offered in person with limited slots. Offering more webcast sessions would be very helpful.</p>
<p>Even more focus on training and support for users transitioning from desktop to supercomputer.</p>
<p>If the videos can be made available after all training events, that will be very helpful.</p>
<p>Extend the training and educational programs for scientists of all stages new to supercomputing. XSEDE has a really basic online tutorial about how to use the command line. Much more of this level of training would be greatly helpful. For example, training on using Git would be excellent at the level of the book by Umali.</p> <p>Perhaps XSEDE could put together a document on one's path to learn how to supercompute given a particular stage: young and no experience through late career and a bit of experience. You might want to follow the example of NED level5. All the books and resources are available to become an extra-galactic astrophysicist.</p>
<p>I would like some workshop on scalability. I have not yet used more than 4 nodes so far on Stampede. I know how to use the software, but the tricks of the trade.</p>
<p>I'd be interested in more training, support services, and resources for advanced visualization.</p>
<p>Online courses and materials that can be used to establish parallel computing tracks at undergraduate programs.</p> <p>Plus training for professors</p>
<p>I'd personally find it nice to have some video or stream of someone using the service to show new students. Specific tutorials are very useful when you know what you're looking for, and beginning tutorials are good when you know very little, but at the just-past-beginner level learning by example helps introduce users to new things to look for.</p>
<p>Improve campus bridging Have better standards across the sites in terms of software modules. Every resource provide is doing its own thing. There should be more coordination on how to do things across sites.</p>
<p>I would prefer more bioinformatics module loaded there</p>

Some help in compiling and testing free software at specific sites. I feel the cite keepers are reluctant to step out of their comfort zones
offer more training, especially virtual or online
I think it would be nice to build an XSEDE Education Program similar to that of the old SC Education Program.
Provide some knowledge about how to manage the cluster.
More effective help with visualization. I had my grad student seek help with visualization, but the support never really accomplished the goals, so I have decided to seek visualization support through DOE computing facilities
I would be useful that XSEDE provide more opportunities to participant in open courses.
Please link the training admin tool with the announcements tool. When I finishing creating a training session it would be great if the new post app would open pre-filled and ready to go.
All in-person training sessions should be recorded and available for viewing whenever researcher is available.
Documentation for using resources was difficult to use.
more live training (online or in person)
The help desk is very competent. However, I think that it might benefit from more staffing, so that response time could be shortened?
Access to web seminars for students has been spotty. Ranch is terrible. The hpss at Kraken was a good solution, more stable, and faster. It would be great if future systems could hold on to that stability and speed.
I was never able to run my project because I was unable to learn how to access the system, transfer files etc. I believe this is due 1.) to poor training and 2.) to a lack of time on my part to truly spend trying to learn the systems. With a high teaching load, and other university responsibilities I was not able to devote the time necessary to learning how to use Xsede and thus was completely unsuccessful in my work. Better training modules, and step by step instructions for using the system would be helpful.
I'm working on that myself. Educational modules that we could adopt in various CS (and perhaps other courses). In my research, an area dealing with machine learning algorithms and supercomputing.
Better examples and tutorials for other scientific uses. I often feel like our collaboration is re-inventing the wheel for common tasks, where some centralized examples would be a great guide. Some examples might be: Data organization and file system structure, database access for multiple simultaneous jobs, handling errors and run failures (also debugging).
I am not very familiar with the visualization resources. The online information is confusing. Some online training, webinars, and tutorials would help.
I wish that online training classes weren't limited to so few people. I haven't had much luck signing up for them.
Support for some of the technology was out of date.
I work in a nonprofit medical research institute without a professional software background. Ease of access, applying for computing proposals, training material and how to obtain expert training can be still made better. I am happy to discuss these in more detail if contacted.
Visualization help.

Theme 6: General

It is OK now
I am using the XSEDE computers to run my simulations without which I cannot do research.
I think XSEDE is great already!
Don't know anything about XSEDE
excellent already
not sure, relatively new user
It's great! I'm waiting to learn to use Bridges.
I cannot think of anything off the top of my head! I am very pleased with XSEDE resources.
I primarily use OpenFOAM and related resources. I was very satisfied.
already very good.
We just started using Xsede at the beginning of this year, thus, we are still in the process of getting familiar with the available resources.
At this time I have no suggestions. I am an "end user" of a computer software package, not a programmer or modeler.
Other than the port issue I can't think of anything. Again I see the port issue something on my end.
I have not made full use of what XSEDE has to offer in terms of support for code efficiency improvement. I plan to do so in the future.
Both the new resources and the XSEDE are useful for the research.
it is good for current version
I am satisfied
Answered in the previous question.
Nothing really. Everything is quite good.
Things are good as they stand
I do not have too much experience on that, so it is hard to say.
ok
It did exactly what I needed with little hassle.
XSEDE is already extremely useful
I am working in CFD. Most of my time is to deal with coding and running in computer. XSEDE has given me a strong support to carry out my research. I am appreciated your facilities.
I'm very satisfied with the very professional XSEDE organization. Don't cut existing services.
Our needs are currently met with xsede.
I haven't fully explored XSEDE. I was a TeraGrid user for many years but have not used the systems under XSEDE very much at all.
I am happy with the current settings and services provided by XSEDE.
I just started with Jetstream and I am very interested in this approach for me. It's more in line with the type of computing I need to do.
Currently, I have no immediate useful suggestions to this question. I am just getting started on JetStream, and think that this type of resource could have some interesting possibilities for new science gateways, esp. the ability to bring up medium size clusters as needed.
I think it's going as well as one can expect.

Question #15: Do you have any other suggestions or comments regarding XSEDE or the value derived from the National Science Foundation's investment in XSEDE?

Theme 1: Resources, Access

Please get license to Docking programs like GLIDE and GOLD
I would be happy to be able to use XSEDE again, I had to finance my HPC needs by using my research grant to build small cluster and machines with GPU for my courses and researches. But, it is usually not enough when it comes to the needs of more powerful cluster and GPUs.
It's clearly important and being utilized, but for the computational needs of the scientific community to be met, we need more high performance computing resources. We simply do not have enough to accommodate everyone who is currently using them, much less to enable work by researchers who would stand to benefit from access to high performance computing.
more SUs for HBCU startups
XSEDE is a very critical component of today's NWP-based research, hence the need to make these resources more easily accessible (less competitive), especially to students and postdocs.
It is an absolutely essential resource for the research community, one that I hope continues to grow
Perhaps it would be better to have fewer, but more powerful machines.
The goals are to solve more complex multi-science strongly non-linear and closely interacting equations with each of those a confidence interval. The only way forward is more computation force.
After my current xsede allocation is used up, I'll switch most of my computing usage to NASA's high-end computing (pleiades) largely because the performance and availability are comparable to xsede resources (specifically stampede) and the application process for computing time (as an astrophysicist with NASA funding) is much easier. However, XSEDE resource have served me very well for many years.
XSEDE is a really valuable program. I hope that it continues to provide supercomputer services for many years to come!
I am a graduate student and a NSF graduate research fellow. I am defending my Ph.D. next month and XSEDE gave me a great opportunity to gain some experience in using HPC methods to characterize ligands for a protein that was being studied in the lab. Although that project hit a road block (not due to XSEDE), I know the experience I gained will help me in the future as I move to postdoc and eventually into a faculty position. The XSEDE computing resources and especially the training resources are such a unique and wonderful resource for scientists from all disciplines.
This is an outstanding resource and we are very grateful that we can have access to it. I do hope that you can provide more computing SUs, as it is rather frustrating to have a good proposal being cut by > 50%. On the other hand I understand that there are limited resources. Perhaps in cases where full allocation is recommended, but not enough resources are available, the allocation could become a multi-year allocation, so we don't have to submit every year the project that we couldn't do during the previous period because of the cuts.
Related to this, it would be good to clarify policies with respect to allocations in multiple machines. My group can run NAMD in any of the XSEDE supercomputers, so we requested a fixed number of total SUs (measured according to Stampede performance values) pointing out both the ideal distribution over Stampede/Comet (with proper conversion) and indicating that our allocation could be distributed in a flexible way across machines in which NAMD had been successfully compiled. I thought this was a good way to help the allocation committee in distributing SUs, depending on how much each machine was oversubscribed. However, one of our reviewers complained about this and indicated that we should indicate where each simulation would run. This seems impractical and inefficient, but it would be good to know what accommodates XSEDE the best.
XSEDE provides a critical bridge between personal and leadership-class resources, lowering the barrier to using HPC for a wider audience.
It's terrific resource, I'd like to see more supercomputers in the system

Smaller supercomputing resources would be more cost effective and useful to the wider scientific community. There is no reason for more than one supercomputer to be on the top 500 list, because the fraction of research performs that utilizes the entire supercomputer on any given cluster is negligible.
I would like to see a greater diversity of computational resources available. It seems like most of the computers are offering the same thing.
If XSEDE is not going to provide state of the art facilities, then it is hard justifying its continued existence.
more cpu cores more outreach more campus integration more community
Make a bigger effort to accommodate interpreted language users on XSEDE resources.
I think the value of XSEDE can be increased by better engaging other regional providers or projects like ACI-Ref. Additionally, XSEDE should drive best practices by service providers.
provide more computing resources
More computational resource. Thanks!
More disk space
Yes, the storage for developer is still small, for example, less than 5GB on computing nodes. My suggestion is at least 50GB, and the threshold may higher than 100GB.
XSEDE has certainly made access to resources easier than having to deal with individual SP's directly. The responsiveness of the help desk has always, in my experience, been impressive. This enables me to know that I can always move forward to get work done and not become frustrated with delays. ECSS has been helpful in the past and I expect to benefit from their services in future.
It is a great resource, unique in terms fair and democratic distribution among the HPC community.
The most difficult thing about XSEDE is variability of the computing resources. For instance, the file systems on Stampede tend to be very unstable for large IO, and modules on Comet contain some executables that do not work. The XSEDE help desk is quick to respond to questions about these issues, but it seems like there is little they can do to help, since they're related to the configuration of the individual machines. Also, while XSEDE documentation is overall pretty good, the documentation for different individual machines is frequently incomplete or incorrect.
If you had a computer that was guaranteed to have 1 node (or any arbitrary unit) guaranteed to be available for any user upon login until logout you would save NSF a ton of money: wait times and guaranteed execution times are the #1 reason why people keep buying a rack and putting it somewhere.

Theme 2: Allocation

Most machines are oversubscribed and time allocations are too small. We need more computing resources nationally. NSF should invest in this
Provide bonuses (incentives) to the allocations of PI's whose postdocs and students apply for their own XSEDE allocations. Incentives can be absolute (for example, 25,000 SUs) or relative (up to a few %).
XSEDE is an extremely valuable resource. We depend on it. It is relatively underfunded since every year allocations are cut. There is great value derived from it, but not enough investment. It is very tiring to get back my NSF grant reviews where I asked for local computer costs on the grant that were poo-pooed by referees saying "why provide you money for local computers when you can/should use NSF ones" whereas in reality one can't actually get the compute time to do the work proposed!
I personally think XSEDE provides value to broader community. It is properly managed system. but it is frustrating to see some of its technologies retiring so soon before users realized its value. It would be useful to allocate more resources for outreach and better communication and training.
The research allocation procedure could be made more simplified and convenient.
The allocation application process continues to improve, but it is hard to do with someone holding your hand through it. It seems to assume you know how to apply already, but it isn't intuitive at all.
Please do not reduce the XSEDE funding levels. If anything, enhance these. Include an emphasis on the solution of complex problems that, by their nature, cannot use massive numbers of cores (tens or hundreds of thousands) and tend to be restricted to few thousands of cores in order to maintain efficiency.
It would be interesting to have information about the percent of total XSEDE allocation for various types of institutes (e.g., top research universities verses tier II universities).
I am very grateful to XSEDE for providing me with a trial allocation. Because of timing constraints with data generation, my XSEDE allocation expired before I was able to use it, and then once I had my data I gained access to an on-campus cluster. I am not sure if it is possible to renew my allocation, but I would be interested in following up on this as my computational needs increase.
There should be a separate allocation policies for young investigator (e.g. tenure track faculty) and also Institution with less/no computational facilities.
It would be helpful to develop a more flexible allocation process. It is difficult to determine a year ahead of time what our computational needs will be.
The allocation process is tricky to navigate. I have had proposals rejected twice due to criteria that are not listed on the XSEDE website, though the proposal is otherwise scientifically sound. Because proposals are accepted only 4 times per year, this has severely delayed my work, and for no very good reason.
It would be good to have an essential guide on how to get started in using the allocation. Information are somehow spread throughout the website.
Some of these questions were difficult to answer because my group's usage of XSEDE is still in the build-up stage; we hope to expand our allocations in the future.
I would like to see XSEDE allow graduate students to submit their own research proposals if they directly support their dissertation research.
more awards
I understand that allocating resources is a major challenge, but a chief frustration is working with the allocation award process. First, we spend quite a bit of time thinking about and writing our proposal -- which takes away from time for actual research. Second, estimating a year's computation time in advance is pretty speculative. Third, the award can vary greatly from what we ask, from year to year. We try to guess what we need to do to get larger allocations, but it's difficult. For example, although it might not be valid at all, I admit there's some speculation among our group that if we ask for (e.g.,) 3 times more than we need, then we might get what we need.
more allocation time

1. XSWDE proposal approval for NSF approved and funded computational projects should be automatic and not have to go through additional hoops, which involve referees who may not be familiar with the nature of the research
2. Long-term projects requiring more than one XSEDE proposal cycle should not require extensive new XSEDE proposals or be downgraded because such proposals describe research and computations that appear similar to earlier proposals submitted by the same group.
3. **MOST IMPORTANT:** Multi-year proposals should be re-instituted, as they once existed under the previous national computer center program. Such proposals should run the same length of time as the supporting NSF or NASA proposal, i.e. approved 3-year NSF proposals should have XSEDE support for 3-years without the yearly anxiety of jumping through new hoops every year to learn if one can fulfill the approved and funded research.

allow unlimited grant renewals with no or very limited justification.

Theme 3: NSF Funding

XSEDE represents an excellent use of our tax dollars.
Highly valuable. I hope that NSF keeps on funding you.
NSF should support XSEDE so researchers over States can access to this resource more conveniently.
This is a great program that, in the long run, saves NSF money by reducing the need for redundant hardware purchases (and time investment) by PI's.
Keep increasing the investment. This is essential to the community.
XSEDE is a well-managed system that provides professional support and state-of-the-art computer power to support big data science. I hope that the continued support from NSF would keep up the standards of XSEDE and the compute power keeps growing.
It's been a very good investment by the NSF in both creating a national resource, but also in developing a network to encourage/enable research.
I would say XSEDE is definitely worth every penny from the NSF. It helped me and my colleagues a lot on our work. Thank you.
It's pretty cool. I hope it is maintained and not just shut down at some point as NSF likes to do to things that are working. They need to keep this going because it's infrastructure. What would happen if my <most_used_interstate_highway> shutdown in a couple years due to lack of funding? Could the country (or our economy) operate like that? I see this service as being like that for "doing science" today.
NSF should continue to invest in this resource!
NSF should support XSEDE more on the expansion of computing resources.
I am happy that XSEDE funded by NSF exists. Although it is mainly for academic institutions an additional focus on industry engagement and in particular support for small businesses would be very beneficial in terms of additional value that can be derived.
XSEDE and resources provided by NSF are of paramount importance for science investigation and to maintain the competitiveness of U.S. in today's world.
Great Service and worth the investment!
It is a very important investment, and NSF should continue to support at the highest level.
My sense is that ops/support budgets (human labor) are lagging behind hardware budgets -- especially given the scope, variety, and complexity of the HW resources, and the variety of the software the research community needs. Help NSF appreciate this more fully!
No. I think it is a great system and I hope NSF keeps investing on it, scaling up the main computational services, and providing new smaller experimental computational services for users with specialized needs.
Invest more in the hardware.
The success of NSF's investment in XSEDE is evident in the high-quality research being performed, the availability it provides to users who would not otherwise be able to participate in HPC research, and the community it is growing.
I think XSEDE is a great resource and, if anything, NSF should invest more money into XSEDE so that we can perform our simulations more efficiently.
Thank you for making XSEDE possible, it is a worthwhile investment.
XSEDE is a valuable resource and the NSF investment in XSEDE is fruitful for researchers throughout the country.
Please don't take my review as a sign that I see little to no value in XSEDE. Quite the opposite: I am very much supportive of the mission of NSF under the XSEDE program and plan to use it more in the next two years. This is an extremely valuable resource which I hope to get more involved with quite soon.
This investment is extremely important and shared resources make sense from a budgetary standpoint.
Fund more computing resources
I feel that the value of the service XSEDE provides is far greater than the \$\$ spent. Having computing infrastructure ready to go with built in support and backup allows me to focus on my research.

XSEDE is hands down the most useful program NSF has ever invested in. I don't think there any other NSF program that can compete with XSEDE resources in terms of return on investment.
Continue funding this resource
I think XSEDE was one of the most valuable e worth investment made by the NSF and continued support from the federal agency should be one of the main budget priorities
Good value for the investment.
Clear statements from NSF on long-term plans are needed to allow people to plan.

Theme 4: Support and Services

<p>Since my last XSEDE campus champion experience where I did not do too much, I have matriculated to a different institution where they need even more help with computation based research. I have a great deal to learn about XSEDE, OSG etc in order to best help my institution. I wish there was a path or checklist sort of deal which insures that a person understands the basics and the finer points of XSEDE resources. There may be an understanding metric tool, yet I don't know of such a tool.</p>
<p>More online any-time access training and knowledge base</p>
<p>XSEDE is a unique project and its value to the community is clear. Unfortunately, there are still many people who are either unaware of the program or are misinformed concerning whether they can or cannot get access. This should be addressed.</p>
<p>Globus Personal installation and support docs are inadequate. The Globus web-based system is also flawed in numerous ways: no auto file refresh, no ability to sort list by file type, incredibly difficult to disable email notifications on file transfers (which are incredibly annoying to begin with!).</p>
<p>As someone with HPC experience I managed to get myself up to speed with your systems from the online documentation fine but needed to explain things more clearly to my non-HPC colleagues. - The online machine specific user guides could be simplified (multiple login options, what is idev, what's a scheduler, what's my first step, etc)</p>
<p>The support staff need to make sure that we get the help we need as we try to get started using XSEDE resources.</p>
<p>There should be better information for specific software and the steps that need to be taken before calculations can be started. For example, the fact that access to Gaussian09 needs to be specifically requested should be relayed to researchers if their proposal includes the usage of said software.</p>
<p>This should have gone before, but there is no back button on this survey, so please add support for newer versions of python. Either the newest python 2, or ideally python 3, given its development in the last year.</p> <p>To address this question properly, I think XSEDE is a large enough resource that it makes the development of computational science a much more worthwhile investment, since I think in a lot of fields the computational bottleneck has shifted away from processing speed toward (and to a lesser degree data transfer) and more towards inefficient algorithms for today's hardware. I think that XSEDE is one of the resources responsible for this shift, and as such is a huge motivator for the development of modern computational science.</p>
<p>Some online tutorials last time I checked appeared to be very old and outdated.</p>
<p>XSEDE is essential for folks like me who have inadequate local support for research. Without it I wouldn't be able to do the work I do.</p>
<p>I think it's important that XSEDE has reached out to scholars in the humanities to help them with their work.</p>
<p>The resources are administered very well, and I have enjoyed working on them all. The only suggestion I have is to use social media more as a tool to market the great contributions XSEDE is already making to science. I am a twitter follower of XSEDE, and maybe things like behind the scenes looks at the resources, or live tweeting what is going on during downtime to improve the machine environments could be very interesting if made appropriately accessible to the public.</p>
<p>Please raise the 50,000 SUs for startup allocation to 200,000 SUs</p>
<p>Perhaps reduce application cycles, such as very 4 or 6 months?</p>
<p>I am grateful for the support of the help desk, although at times it seems that my cases have been dropped or could have been handled better. Specific examples: tickets closed out before problem is solved; multiple responses from multiple help desk personnel, leading to confusion about the resolution of the problem.</p>
<p>Great computing power is only as great as the users' knowledge of how to use it. Please provide better help for answering technical questions on how to use the software. (See previous answer.)</p>

<p>In general, you are doing a great job, but it's an enormous task because there are so many people that need to learn so much.</p> <p>Being a new comer to supercomputing and an experience academic, I am more than willing to help the NSF/XSEDE staff design education and support systems:</p> <p>dna@reed.edu</p>
<p>Ever since attending a workshop led by John Pople, I have been trying to find the enthalpy of formation of the largest molecules I can, which means that I need a very powerful machine.</p>
<p>For me the opportunity to be involved with xsede program has provide me the opportunity to re-train and expand my teaching and REU scope, and I have been able to take these new skills to my students.</p>
<p>Didn't need much help, as we were doing very basic computational tests.</p>
<p>Assist small campuses with resources/training/funding to maintain experimental Beowulf clusters.</p>
<p>Online documentation is excellent</p>
<p>Help small college's instructors and students with conference travel opportunities.</p>
<p>Would like to see case studies for using the available resources.</p>
<p>Keep a long term view. Track publications and projects supported by XSEDE to have input on funding of software generation (especially open source, community supported software) and maintenance by the academic community.</p>
<p>Perhaps your emails could contain a link to a page which details how to connect with my campus champions? (Or make it more obvious if I have missed it?)</p>
<p>The previous year notwithstanding, XSEDE has been and continues to be a wonderful resource for computational research in the United States.</p>
<p>If possible, would you please specify if there are any experts at XSEDE who are skilled at the analysis of data from the latest Planck satellite that for several years monitored the microwave radiation of the entire celestial sky? The U.S. database for these data is now at the California Institute of Technology located in Pasadena, CA.</p>
<p>Make it easier to cite XSEDE by including a BibTek file for bibliographic information.</p>
<p>Outreach and Education are great and training people is the best use of funds.</p>

Theme 5: Contribution to Science/Research

It is a great resource for my research, otherwise I would not be able to do it properly
Please continue to offer this, it is invaluable to researchers.
If I did not have this XSEDE allocation, my research project would not be able to be completed in a reasonable timeline. Also, the customer support is very efficient, fast and have always resolved my problems. They even worked together with Globus when I was not sure which end the problem was on. They did this in a very timely manner, especially since they realized that I momentarily could not transfer files. They kept me involved in all communications between XSEDE and Globus. It was a very positive experience.
Xsede is invaluable. Those of us at institutions that have no HPC clusters would be unable to perform computational tasks that require large memory blocks or massively parallel processing. Our students would not get this experience, and our students tend to include a greater proportion of groups underrepresented in science.
I have been very happy with the XSEDE services and would not have been able to make progress in my research without it. thank you!
Thank you. My research would be impossible without XSEDE (specifically open science grid) resources.
Great service, I am happy that it is available, otherwise I would not be able to do the simulations for my research
The documentation on a high level is good (but it all assumes that you are a computer expert), the documentation for absolute beginners is extremely poor. It took me way too long to figure out how to handle all the diverse parts of XSEDE (data transfer to and from, logging in, submitting jobs).
The XSEDE program is critically important in my field (Astronomy), and in my opinion the NSF should continue to fund and expand this valuable program.
Keep up the great work! This is an indispensable resource that makes intense computational research possible and accessible.
We are very satisfied, our R&D work benefits from XSEDE.
XSEDE (or more generally nationally funded supercomputing resources) used for public allocations is essential for the education of future scientists at smaller institutions! We do not have the funds required (or more importantly the pull with the administration) to start and maintain proper clusters for high computational cost calculations in the physical/biological sciences, so thank you (you probably don't get that enough) and please make sure these resources are always available to not just the top tier institutions (which commonly have their own anyways but it is still useful for them too, I remember my graduate and postdoc days!) Cheers, Andrew
The small computational research projects I do (in conjunction with my "wet" lab experiments) would not be possible without XSEDE. Having a computational resource that I can use, but am not responsible for maintaining, etc., is extremely helpful and makes hard work easier.
Xsede is just an excellent way to support science.
Yes, the students appreciate the opportunity to work on a state-of-the-art machine. One of our students is now pursuing a Ph.D. in computational chemistry, in part because of the experience with XSEDE resources.
Thank you, XSEDE has been absolutely critical for my research program!
Without SUs from XSEDE, my group would have produced half as many papers in the last five years.
XSEDE was a very valuable resource for my work. However, due to the 3-month or so turnaround time between submitting a proposal and awarding of SU's, I eventually sought out a cluster on my own campus for which access was immediate.
It is absolutely essential for researchers from small universities like mine.
I am extremely grateful for this resource. It has enabled my team to pursue developments in parallel algorithms that would have been difficult or impossible otherwise. Please retain this excellent program!
This is a very valuable investment because it makes it easy for people to get experience with these very powerful machines to answer fundamental questions in science.
XSEDE was extremely useful for my work, although I did not use more than the startup allocation. I found that applying for an allocation beyond the startup allocation was very difficult and time consuming.

<p>The investment in xsede has enabled 2000+ publications. http://www.phylo.org/index.php/portal/enabled_publications</p> <p>This is huge acceleration in Biology. I forgot to mention that ECS added value in a previous field. Without ECS, the resource we created would not exist.</p>
<p>Continued support of computational resources at the major supercomputer centers is essential for STEM research to remain competitive at an international level.</p>
<p>XSEDE is a critical resource, and provides us with the ability to focus on our computer science advances rather than maintaining computing hardware and its operating system.</p>
<p>Xsede is a key enabling technology to obtain optimal physics output from our NSF and DOE funded program in experimental nuclear physics.</p>
<p>XSEDE is very useful for my research, as well as for the undergraduate students that I mentor in research and instruct in the classroom.</p>
<p>XSEDE is a great example of an enabling, collaborative, open resource that facilitates transformative science. Whenever I go to a conference, I see "XSEDE" in the acknowledgements slide of many of my colleagues.</p>
<p>XSEDE resources are essential for our Science. Without the resources made available to the community our science and our collaborations would be adversely affected.</p>
<p>XSEDE is absolutely essential, I could not run my medium-sized research group without it and compete with the biggest labs in the field. XSEDE enables us to bring our own ideas and approaches to the field.</p>
<p>XSEDE is absolute essential to computational research in the US. If no renewed investment in XSEDE is made, the US will fall behind other nations (China, European Union) in our ability to do groundbreaking computational research.</p>
<p>It's very simple: XSEDE is a critical resource for many scientists in the physical sciences and beyond. It's hard to overstate XSEDE's importance to that community.</p>

Theme 6: Abilities and Functionality

<p>XSEDE needs to push more towards integration of campus infrastructures. Comet is going into the right direction with its VC interface, but we need more of this. Especially, we need to adapt the XRAC to the reality of collaborative science across institutional boundaries. The single PI philosophy that XRAC is still largely stuck in is way outdated.</p>
<p>Many of the computational resources provided by XSEDE are not very stable for large jobs with large IO. On Stampede and Comet, we find that on average about 5-10% of jobs will die due to random node or filesystem failures. Upon restart, the jobs will run with no errors.</p>
<p>I think that XSEDE is quite useful. I do not know how XSEDE chooses the priorities in solving the computational problems. I think that novel computational methods should have first priorities.</p>
<p>ticket system is responding with messages that give users the impression it is not working Jetstream only provides GUI interface via iPlant which eliminates the use of Jetstream for programmatic access as we are used to from other systems. However Jetstream has internally openstack installed so the question is why not expose openstack. Thus we target chameleon and cloudlab and not Jetstream as well as AWS and Azure</p>
<p>keep HPC stable</p>
<p>Increasing the job limit per user.</p>
<p>Great service - allows to run comprehensive computational projects</p>
<p>Ranch storage system has problems with performance. Sometimes, getting one file (~1GB) from offline to online storage, where it is available for downloading, takes 1-2 days. During this time, the transfer is stalled even if I do staging. So, updating this facility could be very helpful.</p>
<p>Please put more attention to improve your services and computing effectiveness for big data analysis.</p>
<p>Currently, I am using some libraries that are not optimized for working with co-processors. Since, I mainly use the Stampede super-computer, which is known to have 80% of its processing capacity through co-processors, I suggest a higher level of collaboration with developers of libraries for a more efficient implementation of the current resources.</p>
<p>Spend tons on hardware and not much on making software work better.</p>
<p>xsede.org is super slow. I think this gives a bad impression since this is an organization focused on computing.</p>
<p>This year, there was a transition from Blacklight to Bridges and we had Greenfield temporarily that was not very convenient.</p>
<p>Please continue to improve the data transfer performance to XSEDE resources from locations outside of XSEDE (national labs, Europe, etc). Data sources are everywhere - it is critical that the performance of the XSEDE data ingest/export capabilities continue to match the ever-increasing scale of scientific data.</p>

Theme 7: General

It's awesome.
No command
You guys are great! Keep up!
It is fantastic!!
Overall, great program.
Not right now. XSEDE staff has been doing exceptional work.
Everything is perfect except for the long and boring and awful survey.
Please continue this program!
all good so far
Keep up the good work!
excellent
Keep it up.
I think you are doing a good job, I just need to make the effort to make more use of the resources.
I am very satisfied with this resource.
Thank you! :)
Keep up the good work!
Great job overall, thank you.
This survey was very long.
It is very good for me.
I think XSEDE deserves an A rating overall.
Keep doing what you're doing. It works...
Keep up the great work
Thank you for your investment and hard work.
Thank you for providing such valuable resources!
Great
Keep up the good work.
Keep doing what you're doing!
The survey is too long, the area to click the radio buttons to small, and a progress bar / page number is desirable.
Keep doing so!
No, thanks for asking. This is indeed a service that is important to the community.
Keep up the great job!
Keep up the excellent work, it's always a pleasure to compute with you.
Thank you for supporting my projects.
I think this is a great resource, I wish I could have been a better participant.
It's great! We'd be lost without it.
Nothing particular.
Please improve your unsubscribe process. I would very much like to not receive these emails as I no longer use XSEDE and have already changed my notification settings.
Continue the good work, reduce the bean counting.
XSEDE should be continued!
I was not aware of 2FA, and I still cannot find it under my Account?

