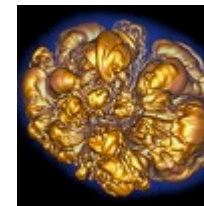
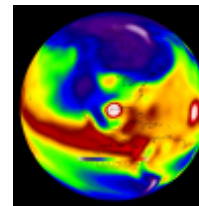
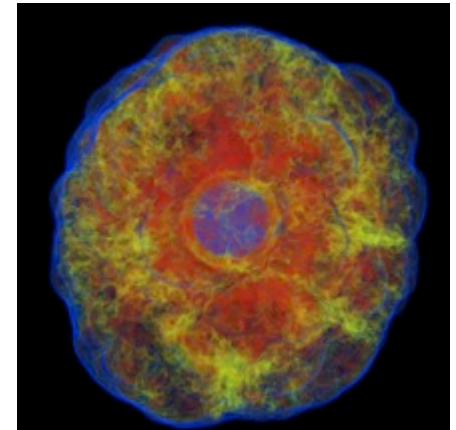
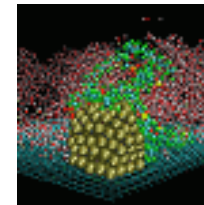
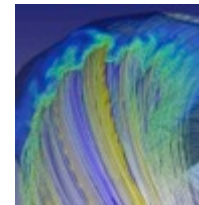
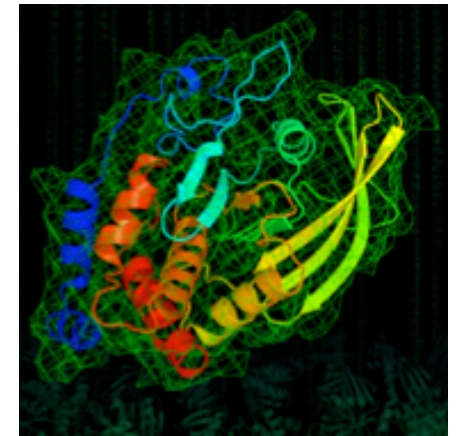
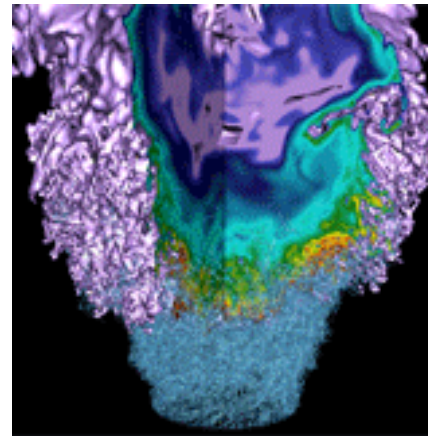


NUG Teleconference December 2013



Richard Gerber
NERSC User Services

December 12, 2013

Connection Info



Connection Info

Topic: NUG Web Conference

Date and Time:

Thursday, Dec. 12, 2013 11:00 am, Pacific Standard Time

Event number: 660 480 294

Event password: edison

<https://nersc-training.webex.com/>

Teleconference information

1-866-740-1260

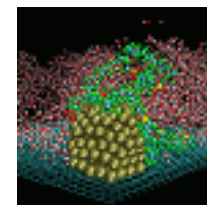
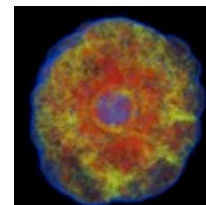
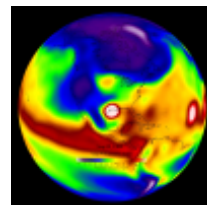
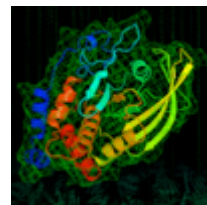
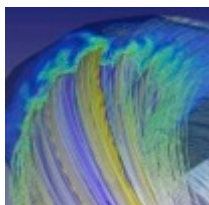
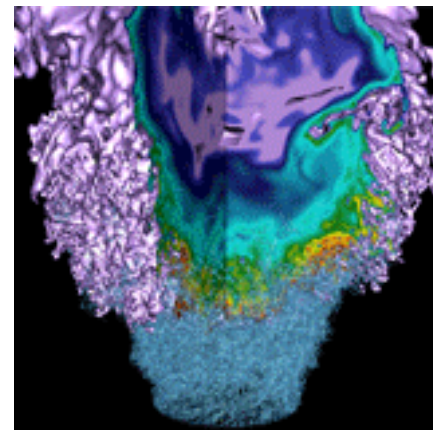
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- **Edison update**
- **Review of upgrades during Dec. 11 maintenance**
- **2014 allocation awards summary**
- **Best practices: Use of \$HOME directories**
- **Recent issues with data transfers to HPSS**
- **Annual user survey is underway**
- **NERSC Achievement Awards nominations requested**
- **NERSC Holiday schedule**
- **Additional items and Q&A**



- **Edison continues to deliver productive hours**
 - 347 million hours in 2013 (695 million Hopper equivalent)
 - All Edison time augments AY 2013 allocations
- **Still undergoing system evaluation and testing**
 - Higher than desired node failure rate
 - Affects at most a few jobs per day
- **Goal**
 - Most stable, productive system possible for AY 2014

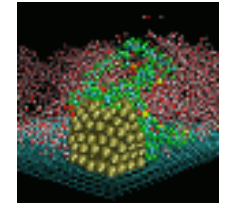
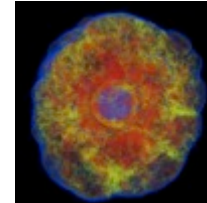
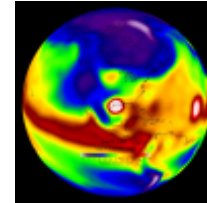
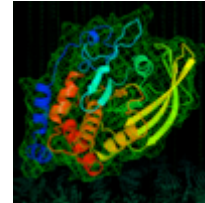
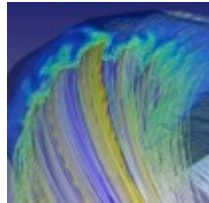
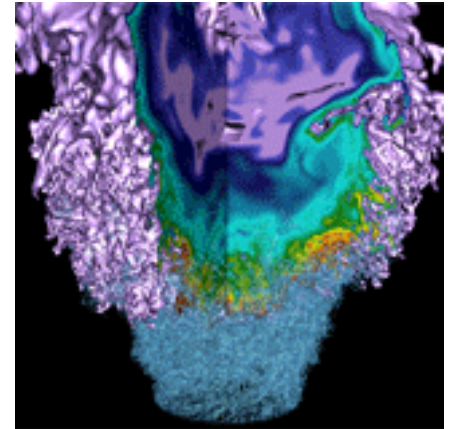
Review of Dec. 11 Maintenance



Elizabeth Bautista

NERSC Operations Technology Group Lead

2014 Allocations Summary



Francesca Verdier
NERSC Allocations Manager

NERSC Allocation Programs

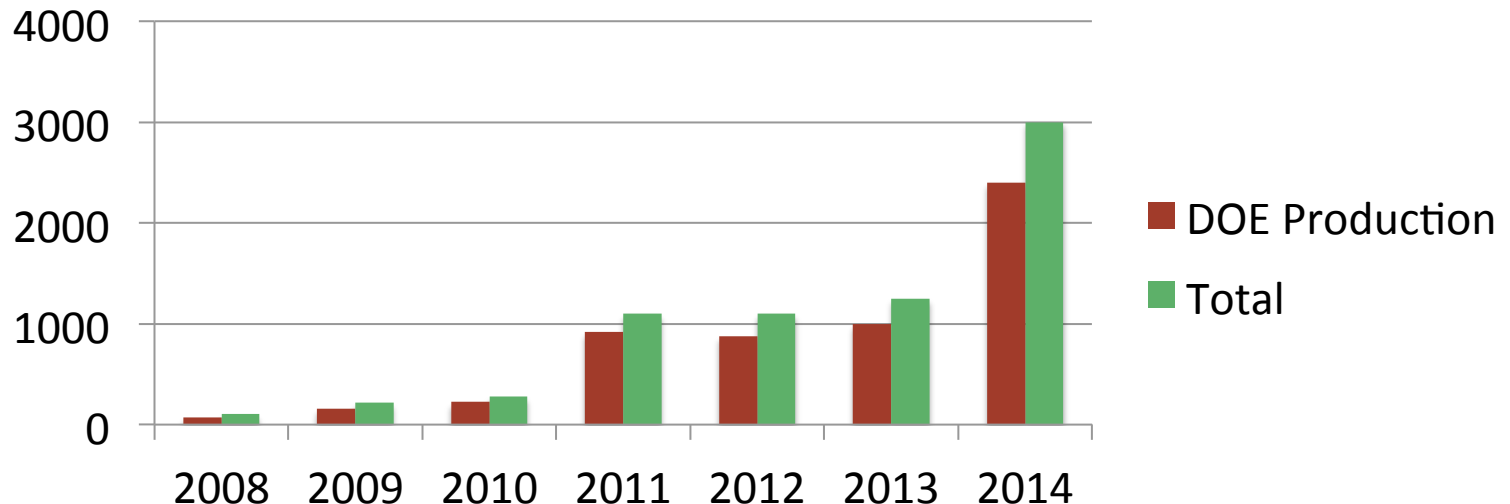


Allocation Type	% of DOE Allocation	Description
"DOE Production"	80% 2.4 B	Allocated by DOE Program managers in the six offices of science. Applicants need to be DOE funded or show their work fits in the DOE mission.
ALCC	10% 300 M	ASCR Leadership Computing Challenge – a DOE program run by ASCR to promote areas of interest to DOE.
Director's Reserve, NISE	10% 300 M	In 2014 NERSC will use 100 M to be competed via the NERSC Initiative for Scientific Exploration program. The rest will be director discretionary.
Education, Startup	N/A	Small awards made by NERSC from "overhead time".
Data Pilot, Dedicated	N/A	For hardware purchased with other funds.

MPP Allocations 2007 – 2012 (millions of XT4-based hours)



	2008	2009	2010	2011	2012	2013	2014
DOE Production	73.1	160.5	224	922	880	1,000	2,400
INCITE	10.4	20	-	-	-	-	-
DOE reserve / ALCC	10.4	20	28	88.5	110	125	300
NERSC reserve / NISE	10.4	20	28	88.5	110	125	300
Totals	104.4	220.5	280	1,099	1,100	1,250	3,000

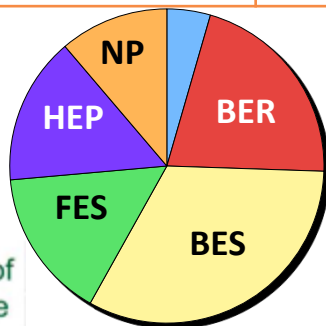


2014 MPP Requests (M hours)



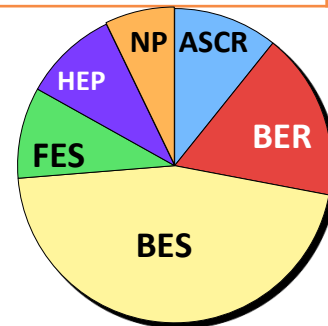
Office	Requested	Num	Office Allocation	Req/Alloc
ASCR	121.3	62	122	1.0
BER	576.2	103	480	1.2
BES	906.9	272	672	1.3
FES	419.2	55	403	1.0
HEP	411.2	57	356	1.2
NP	318.4	44	274	1.2
SBIR	5.0	6	33	0.2
DOE reserve			60	
Totals	2,713.5	592	2,400	1.1

Percent of
hours
requested



ASCR
BER
BES
FES
HEP
NP

Percent of
projects

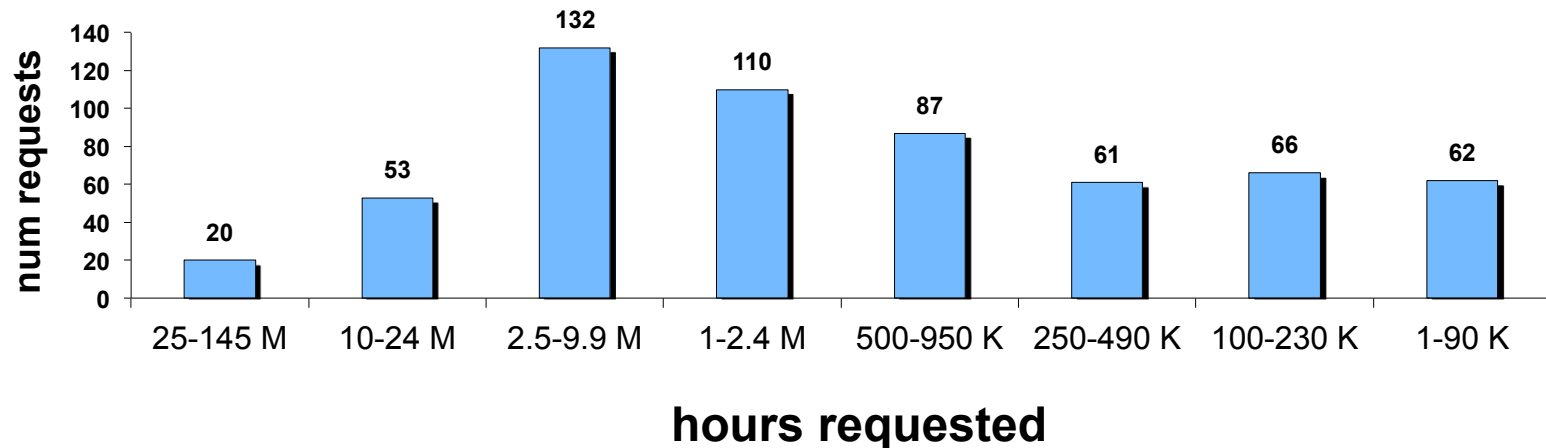


2014 MPP Awards



Office/ Program	Requested (M hours)	Awarded (M hours)	Reserve (M hours)	Req/ Award	Num Requests	Num Awards
ASCR	121.3	91.4	30.6	1.3	62	62
BER biosciences	145.9	56.3	43.8	2.6	38	22
BER climate	430.3	290.6	89.4	1.5	65	65
BES chemistry	416.6	249.0	40.0	1.7	130	129
BES geosciences	63.4	45.3	3.7	1.4	13	13
BES materials	391.7	245.0	44.0	1.6	125	123
BES user facilities	35.2	35.2	9.8	1.0	4	4
Fusion	419.2	361.0	42.0	1.2	55	55
HEP	411.2	325.1	30.9	1.3	57	57
NP	318.4	257.5	16.5	1.2	44	44
SBIR	5.0	5.0	28.0	1.0	6	6

2014 MPP DOE Production Request Distribution (592 requests total)



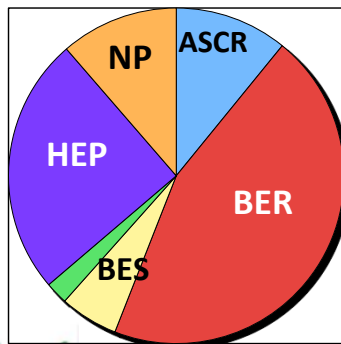
- **Largest requests and awards:**
 - 144.9 M hours (BER climate) – awarded 75 M hours (largest award)
 - 93.5 M hours (NP QCD) – awarded 55 M hours (3rd largest award)
 - 74.2 M hours (HEP QCD) – awarded 65 M hours (2nd largest award)
 - 65.0 M hours (Fusion) – awarded 55 M hours (3rd largest award)
- **10 projects requested 25% of total requests**
- **37 projects requested 50% of total**
- **100 projects requested 75% of total**

2014 HPSS Requests (M SRUs)



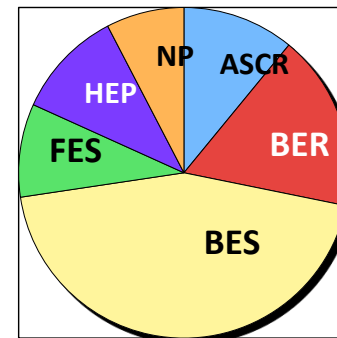
Office	SRUs requested	SRUs awarded	# projects
ASCR	36.6	44.5	65
BER	152.0	162.8	107
BES	17.1	19.0	272
FES	7.3	8.1	55
HEP	81.7	81.7	64
NP	38.3	42.4	49
SBIR	0.2	0.2	6
Totals	333.0	358.6	618

Percent of SRUs requested



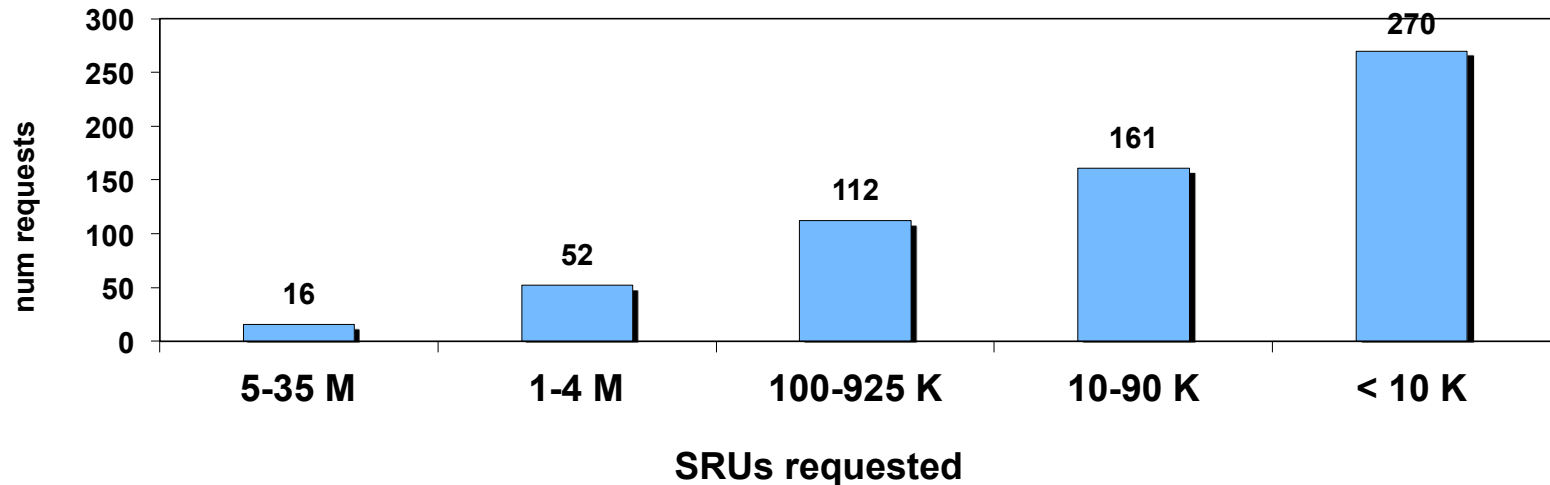
- ASCR
- BER
- BES
- FES
- HEP
- NP

Percent of Projects



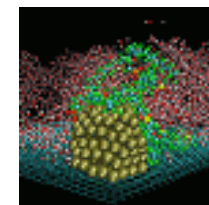
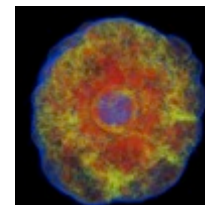
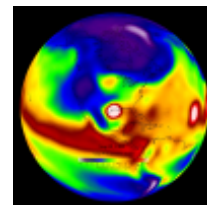
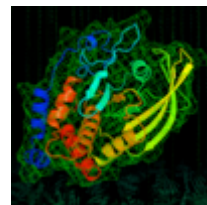
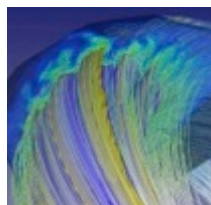
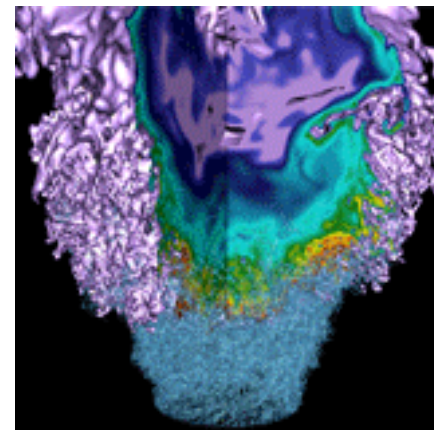
2014 HPSS Request Distribution

(611 requests total)



- **Largest HPSS requests:**
 - 35 M SRUs (BER Biology) – awarded 35 M
 - 27.2 M SRUs (BER Climate) – awarded 27.2 M
 - 19.2 M SRUs (NP Theory) – awarded 19.2 M
 - 15 M SRUs (ASCR Math) – awarded 20 M
 - 12 M SRUs (HEP Astro) – awarded 12 M
- **3 projects requested 24% of the total amount requested**
- **12 projects requested 50% of total**
- **37 projects requested 75% of total**

Best Practices: Use of Home Directories



David Turner
NERSC User Services

Sluggish Performance: Causes



- **Interactive commands sometimes very slow**
 - cd, ls, vi, df, etc.
 - Usually in \$HOME
 - but many interactive commands read configurations and write histories in \$HOME, regardless of where they run
- **Two common causes**
 - Batch jobs running in \$HOME
 - or running in scratch or project, but reading/writing in \$HOME
 - Multiple file transfer clients running in \$HOME
 - typically interactive
 - e.g., eight copies of hsi reading from HPSS
- **Both exacerbated when close to quota limit**

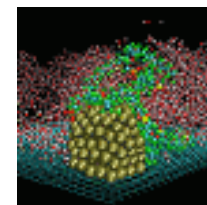
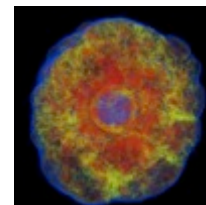
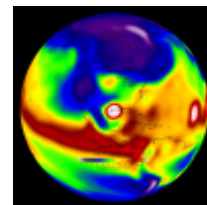
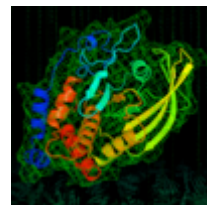
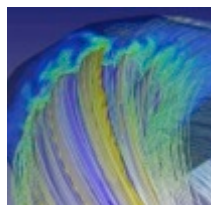
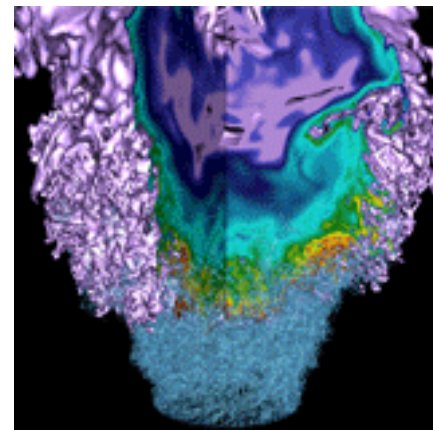
Sluggish Performance: Solutions



- **Do not run batch jobs in \$HOME**
 - Run in \$SCRATCH (or variant), or /project
 - Don't perform heavy I/O to/from \$HOME
 - Simple "Hello, world" batch jobs OK in \$HOME
- **Limit number of data transfer clients accessing \$HOME**
 - No more than two simultaneous clients
- **NERSC is reviewing NGF quota issues**
 - Likely modifications to quota policies sometime after new Allocation Year begins (Tuesday, January 14, 2014)

HPSS Data Transfer Best Practices

(Recent Issues with Transfers to HPSS)



Lisa Gerhardt

NERSC User Services

Group Small Files Together



- **Best file size between 1 GB – 100s of GB**
- **Group smaller files together with ‘htar’ (or ‘tar’ before storing in HPSS)**
- **Small files sent to HPSS with
hsi <list_of_many_small_files> will end up scattered all
over the system**
 - Long retrieval times
 - Storage seems deceptively quick

- **Please stage large files to the global scratch file system using the Data Transfer Nodes, then transfer to HPSS**
 - `/global/scratch2/sd/<your_user_name>/`
- **Globus Online will resume interrupted transfers, but this feature doesn't work with HPSS**
 - Instead whole transfer must begin again
 - Avoid this by writing files first to Data Transfer Nodes, then moving the files to HPSS

Annual User Survey



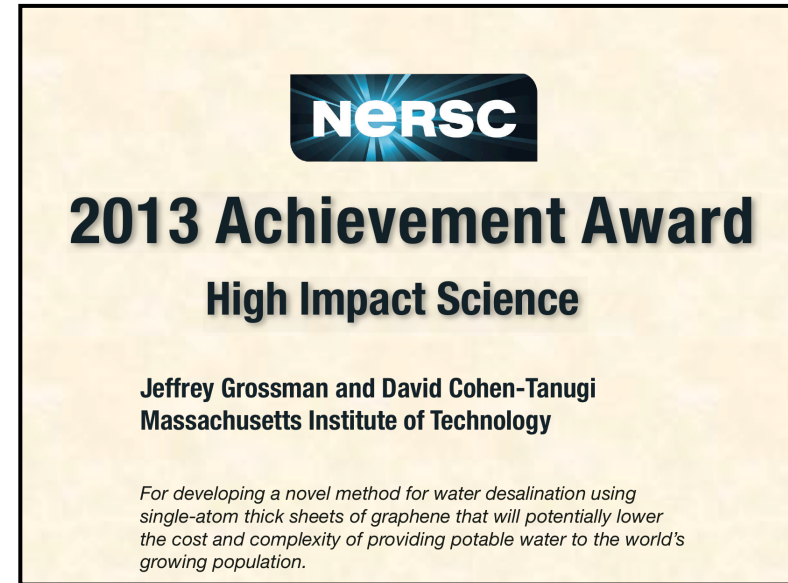
- **2013 Survey is open through Jan. 13**
- **We need your input!**
 - Very important to NERSC
 - Helps us improve our systems and services
 - Results reported to DOE; we need a high response rate
 - We very much listen and address issues raised



NERSC Achievement Awards



- **These are prestigious awards**
 - For work significantly performed at NERSC
- **Nominations needed by early next week**
- <http://www.nersc.gov/science/nersc-hpc-achievement-awards/call-for-nominations-for-2014-award/>
- **Announced at NUG 2014 in February**



- **NERSC/NUGEX selection committee**
- **NERSC Award for High-Impact Scientific Achievement**
- **NERSC Award for Innovative Use of HPC**
- **Open and Early Career (grad student & postdoc)**

NERSC Holiday Schedule



- **NERSC systems and services will be available during the holidays**
 - But if you need anything special during this period, ask for it now
- **NERSC Computer Operations staff will be available 24x7**
 - 800-66-NERSC, menu option 1
 - Password changes (self-service at <https://nim.nersc.gov>)
 - System status (www.nersc.gov status pages!)
- **NERSC Consulting and Account Support**
 - Available Dec. 23, 27, 30 – 8-5 PST
 - Please use email or <https://help.nersc.gov/>
 - Holidays: Dec. 24,25,26,31 and Jan. 1

Other Issues or Questions?



- **NUG Teleconference**

- Next scheduled: Thu. Jan. 9, 2014
- Allocation year rollover on Jan. 14, 2014
- Send suggested topics and comments to ragerber@lbl.gov



National Energy Research Scientific Computing Center