

BLUE WATERS

SUSTAINED PETASCALE COMPUTING

12/18/17

Blue Waters User Monthly Teleconference

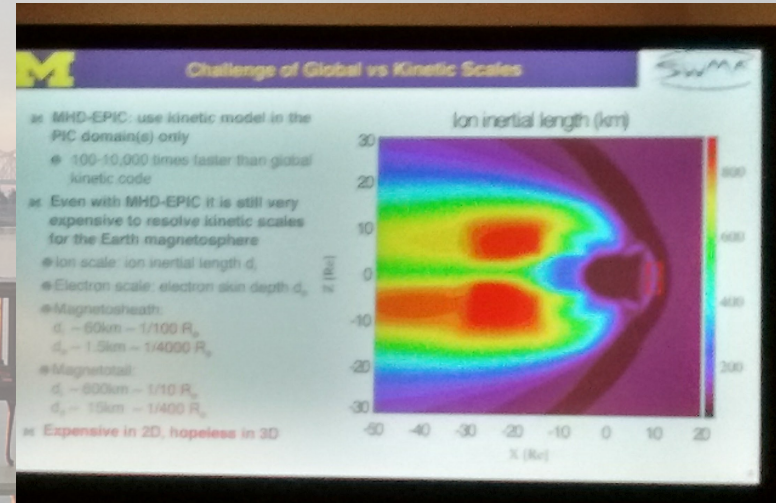


GREAT LAKES CONSORTIUM
FOR PETASCALE COMPUTATION

CRAY®

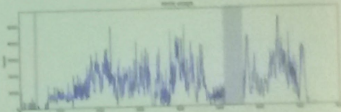
AGU Fall Meeting Highlights

- Next to the ArcticDEM Booth
- PRAC Teams: G. Toth, N. Pogorelov, Yi-Hsin Liu, V. Roytershteyn, Lijun Liu, T. Jordan, B. Miltzer, P. Morin
- Graduate Fellows: A. Jones, J. Méndez, E. Agee, L. Foster
- GLCPC and Illinois (Swarnali Sanyal – Wuebbles) teams well represented.



CyberShake Study 17.3

- 2 velocity models x 438 sites
- Study conducted over 31 days on NCSA Blue Waters and OLCF Titan
- Averaged 1295 nodes, max of 5374
 - Burned 900k node-hrs (21.6M core-hrs)
- 777 TB of data generated
 - 10.7 TB staged to SCEC disks for storage
- Synthesized 285 million two-component seismograms
 - 43 billion intensity measures



Air Quality Prediction And Source Attribution For U.S. Air Quality Management in A Changing World

Swarnali Sanyal and Donald S. Wuebbles

OUTSTANDING STUDENT PAPER AWARDS

I will be at my poster from ____ to ____ hrs

ILLINOIS

Agenda

- Recent Events, Coming Changes to Blue Waters
- Usage, Utilization and other Items
- Upcoming Opportunities
- Request for publications!

Recent Events and Outages

- Nothing to report!

Recent Changes

- Shifter and documentation
- <https://bluewaters.ncsa.illinois.edu/shifter>
- shifter/16.08.3-1.0502.8871-cray_gem

```
$ shifterimg images
```

```
bluewaters docker READY a8b4df3be8 2017-08-24T17:12:55 centos:6.7
```

```
bluewaters docker READY 2fc0dfcb36 2017-08-28T12:05:39 mbelkin/centos7-mpich-ext:3.2
```

```
bluewaters docker READY cbbf067bf4 2017-08-29T10:16:58 opensuse:13.2
```

```
bluewaters docker READY 58597429ab 2017-08-22T20:32:54 ubuntu:latest
```

Upcoming Changes

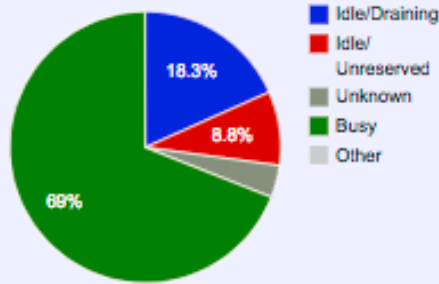
- Planning to make newer compilers default in first quarter of next year.
 - Cray - cce/8.5.8
 - Intel - intel/17.0.4.196 (OpenMP affinity)
 - PGI - pgi/17.5.0
- GNU default won't change due to CUDA 7.5 but newer versions are available.
- Also available
 - FORGE (DDT) 7.0.5.1
 - Resolves issue with CUDA+MPI

Usage, Utilization and other Items

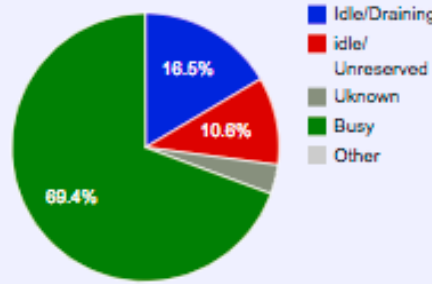
- Overall Utilization last 30 days



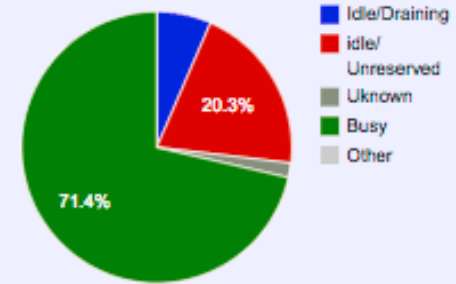
XE Utilization for this Period



Full System Utilization for this Period



XK Utilization for this Period



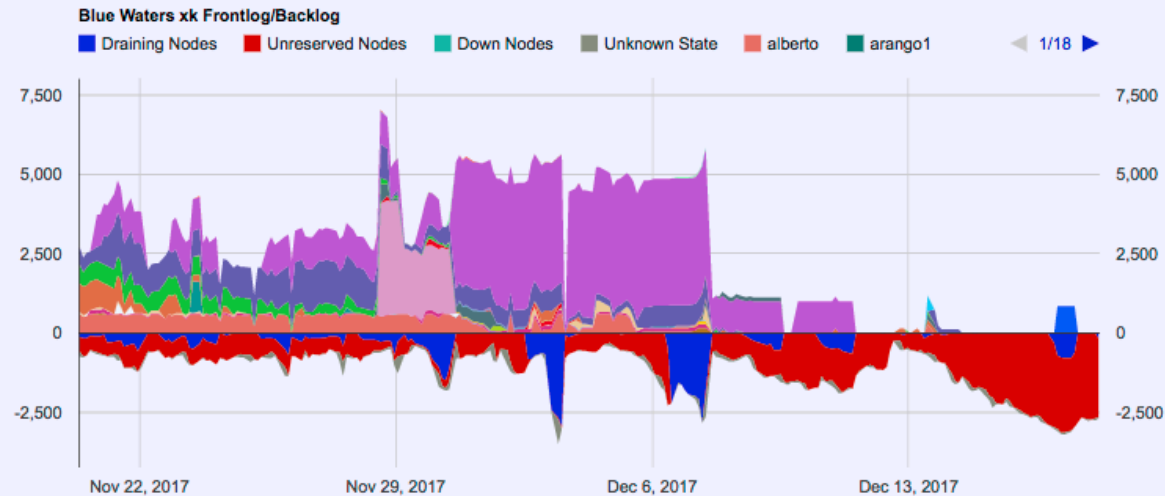
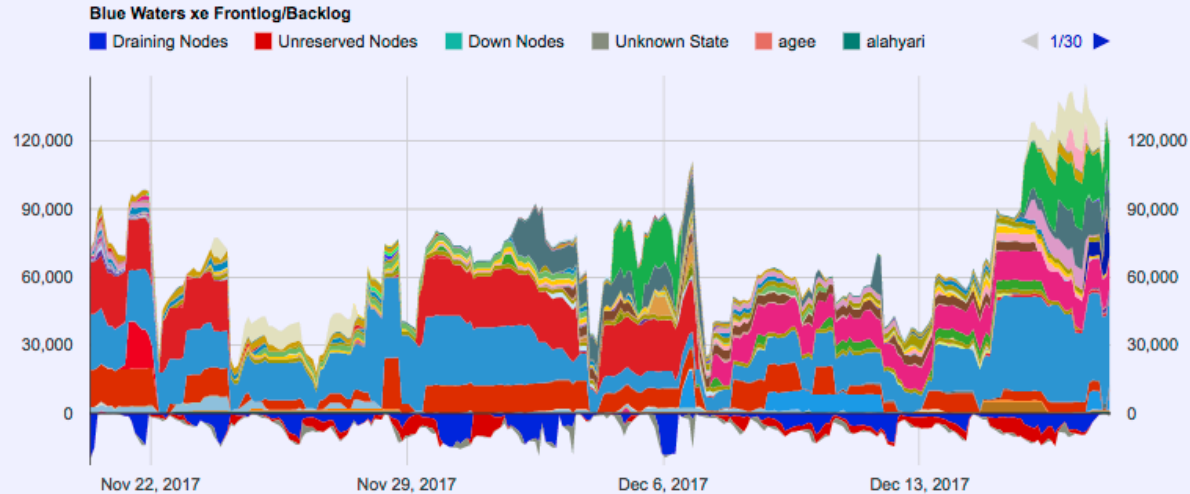
0 22. Nov 26. Nov 30. Nov 4. Dec 8. Dec 12. Dec 16. Dec

● BlueWaters Trend Line: $(-0.37x + 74.13)$, R-Squared=0.060781

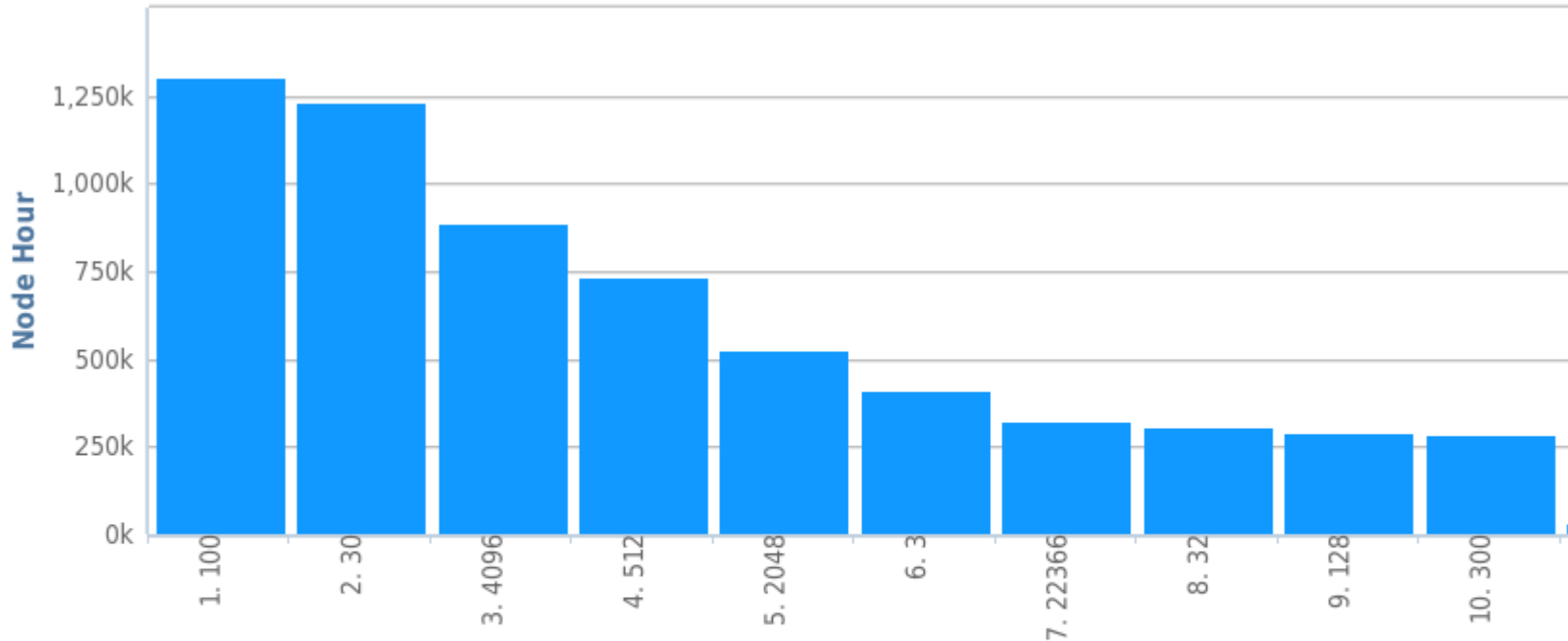
2017-11-20 to 2017-12-16 Src: HPCDB. Powered by XDMoD/Highcharts

Backlog

- Last 30 days.
- Vertical axis in units of **nodes**. Colors are different users. Red below the x-axis indicates unreserved nodes. Blue below the x-axis indicates draining.
- Added utilization pie charts showing XE and XK utilization by node state.

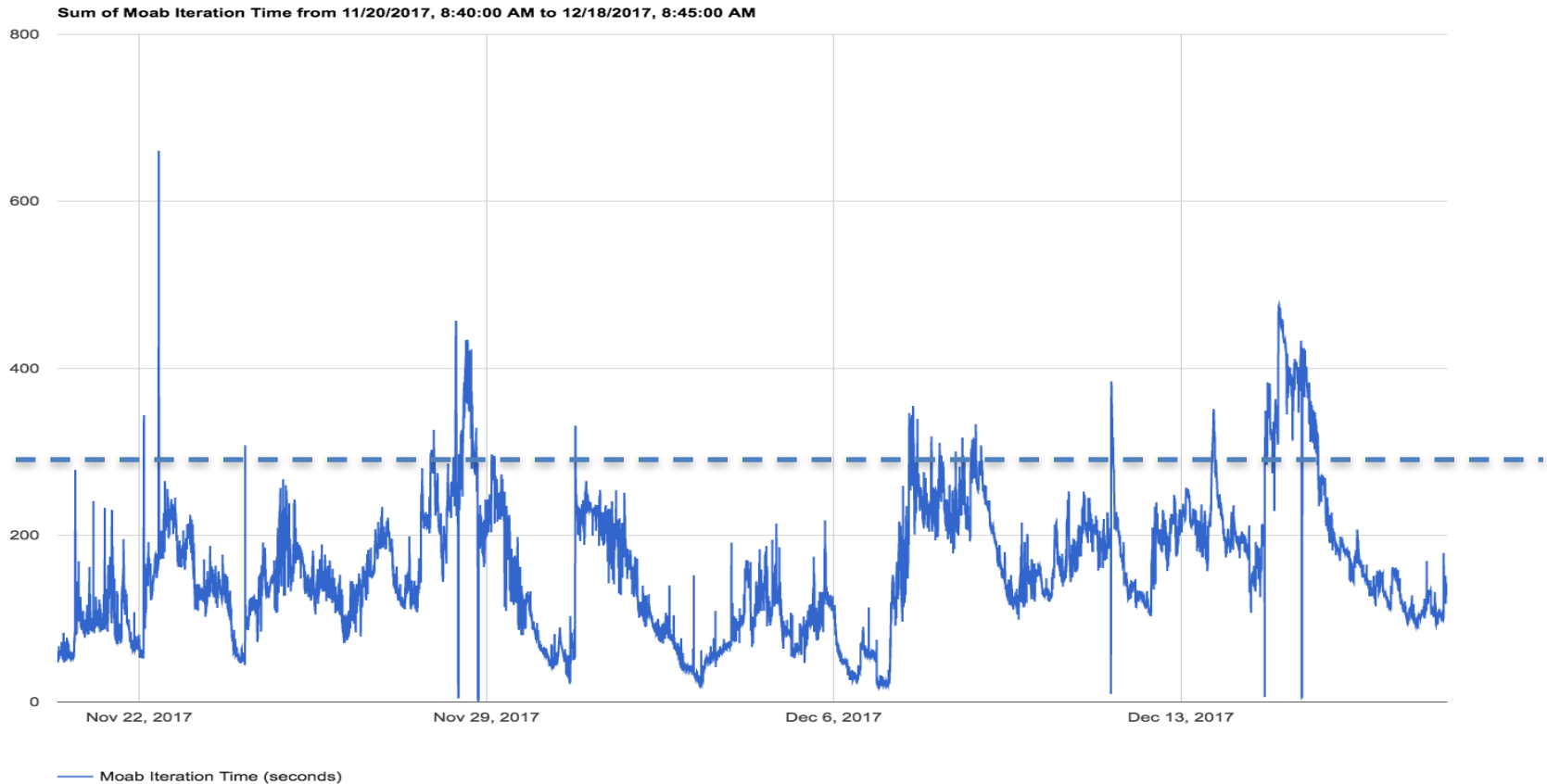


Workload Details



- Data combines XE and XK jobs.
- Last 30 days.

Job scheduler iteration time



- Working to keep iteration time < 300 seconds.


Blue Waters Weekly Webinar Series

- For more information about the webinar series, including registration, abstracts, speakers, as well as links to Youtube recordings, please visit the [Blue Waters webinar series webpage](#).
- We welcome suggestions for topics that will benefit the petascale community. Send your suggestions to bw-eot@ncsa.illinois.edu.

XSEDE Training Events

- January 9 – OpenMP
- February 7-8 – Big Data
- Series will run from 11AM-5PM Eastern Time each day.
- NCSA hosting local site for Illinois partners.

Request for Science Successes

- We need to be current on products that result from time on Blue Waters such as:
 - Publications, Preprints (e.g. [arXiv.org](https://arxiv.org) ), Presentations.
 - Very interested in data product sharing.
- Appreciate updates sooner than annual reports.
 - Send to gbauer@illinois.edu
- NSF PRAC teams send information to PoCs.
- See the [Share Results](#) section of the portal as well.
- **Be sure to include [proper acknowledgment](#)**
 - Blue Waters - National Science Foundation (ACI 1238993)
 - NSF PRAC – OCI award number