

# NSF Campus Cyberinfrastructure PI and Cybersecurity Innovation for Cyberinfrastructure PI Workshop

September 23 – 25, 2019 | Minneapolis, MN

NSF Program: Campus Cyberinfrastructure
Program Area: CC-NIE Award Number: 1827153
PI: Juan Montes, CIO
co-PIs: Michael Benedetto, CISO and Deputy CIO
Rebecca Oppenheimer, Curator, Astrophysics
Project Title: High Performance Research Data Infrastructure at the American Museum of Natural History



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### **Quad Chart for:**

CC\* NIE: High Performance Research Data Infrastructure at the American Museum of Natural History (Award 1827153)

### **Challenges Project Seeks to Address:**

- Provide the capability for researchers to transfer large scientific datasets at high speed between AMNH, remote instrumentation, collaborators, and computational centers.
- Open high speed access for AMNH scientists to research and education resources on the Internet2 and beyond.
- Expand engagement between AMNH IT, faculty, and researchers.



### Scientific Impact:

- Enables high speed data transfers between AMNH researchers and collaborators nationally and worldwide for benefit of various research projects.
- Enables streaming data connections from remote instrumentation to enable timely response to observed scientific data.
- Enhances scientific research and education activities across the AMNH.

### Metadata Tag:

- Museums
- Data Transfer Nodes
- Science DMZ
- Science Engagement
- GLOBUS
- Ready for Transition to Practice
- Contact: <u>nsf-ci@amnh.org</u>

### **Deliverables:**

- Installation of dedicated network to support a high performance, low latency research network and Science DMZ at AMNH.
- Deployment of IPv6 on the Science DMZ.
- Installation of FIONA DTNs.
- Connection to NYSERNet and the Internet2 at 10Gbps.
- Monitoring via PerfSONAR
- Deployment of Globus for file transfer.
- Federate with InCommon.



## NSF Campus Cyberinfrastructure PI and Cybersecurity Innovation for Cyberinfrastructure PI Workshop

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NSF Program:	Campus Cyberinfrastructure	
Program Area:	CC-COMPUTE	Award Number: 1925590
PI:	Juan Montes, CIO	
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	Cheryl Hayashi, Director, Sackler Institute of Comparative Genomics	
Project Title:	High Performance Campus Computing for Institutional Research at	
	the American Museum	of Natural History



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### **Quad Chart for:**

CC\* Compute: High Performance Campus Computing for Institutional Research at the American Museum of Natural History (Award 1925590)

### **Challenges Project Seeks to Address :**

- Provide AMNH researchers with access to expanded local computational resources required for their work in astrophysics, genomics, biology, and associated disciplines.
- Expand researcher access to available computational resources at other institutions and in the cloud.

### **Deliverables:**

- Increase computational capacity through the addition of new local HPC resources.
- Expand the computational capabilities of AMNH researchers and provide resources to the broader research community by connecting AMNH with the Open Science Grid.
- Migrate existing AMNH clusters to the Museum's Science DMZ.
- Increased adoption of open source HPC/HTC tools and methodologies for sustainability and interoperability.
- Provide "cloud bursting" capabilities to AWS and other cloud providers.



### Scientific Impact :

- Increased local HPC/HTC resources will decrease runtime for complex computations.
- Execute complex proof of concept computational runs allowing code to be tested on a small scale before applying or using time on larger/ external systems.
- Open Science Grid access will greatly expand amount of computing available to AMNH researchers while allowing AMNH resources to be used by the wider R&E community.
- Alignment with open source standards and tools enables easier integrations and collaboration with wider R&E community.

#### Metadata tag:

- <Museums>
- <High Performance Computing>
- Science Engagement>
- Open Science Grid>
- Cloud Computing>
- Contact: <u>nsf-ci@amnh.org</u>