E-Science and Astronomy Faculty: Past, Present, and Future

Lee A. Pedersen

Brown University

LISA VI
Future of Librarianship
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E-Science U.S. Style

"Use of networked computing technologies to enhance collaboration and innovative methods in research"

Association of Research Libraries – 2008 Talking Points for ARL Deans and Directors

Data collected, preserved, and accessed with metadata (standards); distributed and seamlessly interoperable

Past: U.S. Astronomy

1998 Szalay and Bruner

1999 Sloan Digital Sky Survey

2001 NSF award for NVO infrastructure

Past: National Science Foundation

2002 NSF Director Rita Colwell – "data deluge in science"

"Revolutionizing Science and Engineering through Cyperinfrastructure" - Advisory Panel

2006 Office of Cyberinfrastructure - Advisory Committee for Cyberinfrastructure

2006 "Investing in America's Future" – 5yr plan

2007 "Cyberinfrastructure Vision for the 21st Century" (CF21)

Past: Executive Branch Reports

2005 “Long-Lived Digital Data Collections: Enabling Research and Education in the 21st Century” – NSB

2007 “Leadership Under Challenge: Information Technology R&D in a Competitive World” - PCAST

2009 “Harnessing the Power of Digital Data for Science and Society” - Committee on Science of the National Science and Technology Council

Past: Association of Research Libraries

2003 “Opportunities for Research Libraries in the NSF Cyberinfrastructure Program”

2004 “Libraries and Changing Research Practices - ARL/CNI Forum report

2007 Library Support for E-Science

2008 “E-Science Talking Points for ARL Deans and Directors”

Past: Academic Librarians

2007 Anna Gold - Massachusetts Institute of Technology

2006 Purdue University – Distributed Data Curation Center (D2C2)

- 10 questions
- Subject Librarians do data collection development
- Datasets too large

Present – Brown Case Study

Four faculty members in the Physics Department

Fedora-based Brown Digital Repository

Brown administration recommendation for library support of e-science

Present: Interviewee

NAME	DISCIPLINE	RESEARCH	DATA SIZE	DATA COLLECTION TYPE
IAN DELL'ANTONIO	OBSERVATIONAL ASTROPHYSICS (COSMOLOGY)	GROUND & SPACE TELESCOPES; GRAVITATIONAL LENSING	TERABYTES	REFERENCE(NVO)
RICHARD GAITSKELL	ASTROPARTICLE PHYSICS	DARK ENERGY DETECTION	TERABYTES	RESEARCH (COLLABORATORS ONLY)
SAVVAS KOUSHIPPAS	THEORETICAL ASTROPHYSICS	SIMULATIONS	TERABYTES	RESEARCH (COLLABORATORS ONLY)
GREGORY TUCKER	OBSERVATIONAL ASTROPHYSICS (COSMOLOGY)	WMAP BLAST	GIGABYTES	REFERENCE (NVO) RESOURCE (MAPS - CADC)

Present: AWARENESS

REQUIRED TO ATTACH DATA TO PAPERS OR GRANTS	NSF DATA MANAGEMENT PLANNING	DATA LIFE CYCLE	REUSE, REPURPOSE
NO POSSIBLE AJ OR APJ	OBSERVATORY NOT ASTRONOMER	BACKUPS INDEFINITELY	IMAGES JPEGS
NO	NO	BACKUPS; ANALYSIS CODE NOT ECONOMICAL	DARK MATTER CONFIRMATION; GENERALLY NO
NO	NO; DO NOT EXPECT IT	BACKUPS FOREVER	ONLY SELF
NO	NO	FOREVER	MAPPING DATA

Present: Faculty

- Buy into e-science concepts if someone else doing
- Generate deluge of born-digital data
- Keep own backups
- Ambivalent about sharing with non-collaborators
- Aware of who should have access and which data has value to others

Future:

- NSF requirement for grant proposals to have data management plans.
- Middleware to deposit metadata from third-party repositories
- Standards
- Tracking who, when, why, what queries

Future: Me

- Aware and, preferably, at the table for development of policy and process for astronomy data
- Keep connected with the astronomy faculty
- Alert to e-science developments regarding grants and publications
- Develop educational modules

Conclusions

Brown Data Repository and astronomy data

- Not raw or analyzed
- Connect with existing repositories to get metadata

Astronomy librarians will consult, educate, but not collect