Curriculum Vitae - Karl Kent Benedict

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1 Education

July 2004, Ph.D., with Distinction, Anthropology, University of New Mexico. Dissertation Title: *Settlement and Subsistence in the Western Anasazi Core Area: Development and Assessment of a Risk Response Model*

May 1995, M.A., with Distinction, Anthropology, University of New Mexico.

May, 1986, B.A., Anthropology, University of California, Berkeley.

2 Employment/Professional Experience

1. **7/2021-Present**. University of New Mexico, College of University Libraries and Learning Sciences. *Professor*

    a. **6/2021-Present**. Director of Information Technology
    b. **6/2021-Present**. Director of Research Data Services
    c. **6/2021-Present**. Subject Librarian for Geospatial Data and Applications

2. **7/2014-6/2021**. University of New Mexico, College of University Libraries and Learning Sciences. *Associate Professor*

    a. **5/2019-6/2021**. Director of Information Technology
    b. **7/2014-6/2021**. Director of Research Data Services
    c. **7/2014-6/2021**. Subject Librarian for Geography and Environmental Studies

    a. **7/2014-6/2021**. Subject Librarian for Geospatial Data and Applications
    b. **7/2014-5/2019**. Subject Librarian for Earth & Planetary Sciences
    c. **7/2014-5/2019**. Subject Librarian for Computer Science

d. **7/2014-5/2019**. Subject Librarian for Math & Statistics
 e. **7/2014-5/2019**. Faculty Librarian for the Centennial Science and Engineering Library
 f. **7/2014-5/2019**. Graduate Student and Faculty Liaison
 g. **7/2014-4/2016**. Subject Librarian for Life Sciences

1. **4/2008-Present**. University of New Mexico, Department of Geography/Department of Geography and Environmental Studies. *Affiliated Faculty*

2. **7/2004-5/2017**. University of New Mexico, Department of Anthropology. *Adjunct Professor*

3. **3/2014-6/2014**. University of New Mexico, College of University Libraries and Learning Sciences. *Associate Professor - Geospatial and Environmental Data Scientist*. (.25 FTE)

4. **9/2011-3/2014**. University of New Mexico, College of University Libraries and Learning Sciences. *Research Assistant Professor* (.25 FTE)

5. **7/2008-6/2014**. University of New Mexico, Earth Data Analysis Center. *Director* (9/2011-3/2014: .75 FTE)

6. **7/2008-6/2014**. University of New Mexico, Department of Geography. *Research Assistant Professor*

7. **2/2001-6/2008**. University of New Mexico, Earth Data Analysis Center. *Senior Research Scientist, Research Scientist, IT Manager*

8. **9/1999-2/2001**. University of New Mexico, Earth Data Analysis Center. *Project Assistant*

9. **9/1998-2/2001**. National Park Service, Pecos National Historical Park. *Data Analyst*

10. **5/1995-2/2001**. Applied Earthworks, Inc.. *Data Analyst*

11. **6/2000-12/2000**. University of New Mexico, Office of Evaluation. *Project Assistant*

12. **8/1994-12/1997**. University of New Mexico, Department of Anthropology. *Graduate Assistant - Computer Lab Manager*

13. **9/1993-5/1996**. University of New Mexico, Computer Information Resources and Technology (CIRT). *Help Desk Liaison*

14. **4/1994-3/1995**. Ebert and Associates, Inc.. *Data Analyst*

15. **6/1993-1/1994**. Applied Earthworks, Inc.. *Data Manager*

16. **7/1990-6/1993**. INFOTEC Research Inc./Applied Earthworks, Inc. *Data Manager, Archaeological Field Director, Assistant Field Director, Lead Field Technician, Crew Chief, Field Technician*

17. **8/1985-7/1990**. Field Archaeologist - US Forest Service & Contract Archaeology Firms

3 Consulting

1. **7/1997-2/2001**. Karl Benedict Data Processing and Analysis. *Consultant*

4 Scholarship

4.1 Journal Articles - Peer Reviewed

1. Molder, Edmund B., Schenkein, Sarah F., Mcconnell, Abby E., Benedict, Karl K, & Crista L Straub. (2022). "Landsat Data Ecosystem Case Study: Actor Perceptions of the Use and Value of Landsat" *Frontiers in Environmental Science Environmental Informatics and Remote Sensing*. https://doi.org/10.3389/fenvs.2021.805174

2. Gregory, A., Chen, C., Wu, R., Miller, S., Ahmad, S., Anderson, J. W., Barrett, H., **Benedict, K.**, Cadol, D., Dascalu, S. M., Delparte, D., Fenstermaker, L., Godsey, S., Harris, F. C., McNamara, J. P., Tyler, S. W., Savickas, J., Sheneman, L., Stone, M., & Turner, M. A. (2020). "Efficient Model-Data Integration for Flexible Modeling, Parameter Analysis and Visualization, and Data Management." *Frontiers in Water*, 2, 21 pages. https://doi.org/10.3389/frwa.2020.00002 <Link>

3. O'Brien, P., W. H. Young, S., Arlitsch, K., & **Benedict, K.** (2018). "Protecting Privacy on the Web: A Study of Https and Google Analytics Implementation in Academic Library Websites." *Online Information Review*, 42(6), 734–751. https://doi.org/10.1108/OIR-02-2018-0056 <Link>

4. Wheeler, J., & **Benedict, K.** (2015). "Functional Requirements Specification for Archival Asset Management: Identification and Integration of Essential Properties of Services-Oriented Architecture Products." *Journal of Map & Geography Libraries*, 11(2), 155–179. https://doi.org/10.1080/15420353.2015.1035474 <Link>

5. Brand, L. A., Dixon, M. D., Fetz, T., Stromberg, J. C., Stewart, S., Garber, G., Goodrich, D. C., Brookshire, D. S., Broadbent, C. D., & **Benedict, K.** (2013). "Projecting Avian Responses to Landscape Management Along the Middle Rio Grande, New Mexico." *The Southwestern Naturalist*, 58(2), 150–162. https://doi.org/10.1894/0038-4909-58.2.150 <Link>

6. Huang, Q., Yang, C., **Benedict, K.**, Chen, S., Rezgui, A., & Xie, J. (2013). "Utilize Cloud Computing to Support Dust Storm Forecasting." *International Journal of Digital Earth*, 6(4), 338–355. https://doi.org/10.1080/17538947.2012.749949 <Link>

7. Huang, Q., Yang, C., **Benedict, K.**, Rezgui, A., Xie, J., Xia, J., & Chen, S. (2013). "Using Adaptively Coupled Models and High-Performance Computing for Enabling the Computability of Dust Storm Forecasting." *International Journal of Geographical Information Science*, 27(4), 765–784. https://doi.org/10.1080/13658816.2012.715650 <Link>

8. Quinn, T., **Benedict, K.**, & Dickey, J. (2012). "Ligia Grischa: A Successful Swiss Colony on the Dakota Territory Frontier." *Great Plains Quarterly*, Fall 2012, 247–258. <Link>

9. Brookshire, D. S., Goodrich, D., Dixon, M. D., Brand, L. A., **Benedict, K.**, Lansey, K., Thacher, J., Broadbent, C. D., Stewart, S., McIntosh, M., & Kang, D. (2010). "Ecosystem Services and Reallocation Choices: A Framework for Preserving Semi-Arid Regions in the Southwest." *Journal of Contemporary Water Research & Education*, 144(1), 60–74. https://doi.org/10.1111/j.1936-704X.2010.00075.x <Link>

4.2 Proceedings Papers/Juried Panels - Peer Reviewed

1. **Benedict, K.**, Hoebelheinrich, N. 2019. "Data Management Training Clearinghouse." Paper presented as part of a Juried Panel at the ALISE Annual Conference. Knoxville, TN. September 24-26, 2019.

2. Del Rio, N., Villanueva-Rosales, N., Pennington, D., **Benedict, K.**, Stewart, A., Grady, C. J. (2013). "ELSEWeb Meets SADI: Supporting Data-to-Model Integration for Biodiversity Forecasting." Paper presented at Discovery Informatics: AI Takes a Science-Centered View on Big Data. AAAI Technical Report FS-13-01. pp 8-15. <Link>

3. Fritzinger, E., Dascalu, S. M., Ames, D. P., **Benedict, K.**, Gibbs, I., McMahon Jr., M. J., & Harris Jr., F. C. (2012). "The Demeter Framework for Model and Data Interoperability." In R. Seppelt, A. Voinov, S. Lange, & D. Bankamp (Eds.), *2012 International Congress on Environmental Modelling and Software Managing Resources of a Limited Planet, Sixth Biennial Meeting, Leipzig, Germany* (9 pages). International Environmental Modelling and Software Society (iEMSs).<Link>

4. Watson, R., **Benedict, K.**, Watson, T., Menke, K., & Parmenter, R. (2006). "Satellite Imagery and Internet Mapping Services in Support of Science-Based Adaptive management of Grasslands in the Valles Caldera National Preserve." *Papers of the Applied Geography Conferences - 2006*, (29, pp. 206–213). <Link>

5. Budge, Amelia, **Karl Benedict**, William Hudspeth. (2006). "Developing Web-based Mapping Services for Public Health Applications." *The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences.* Volume XXXVI Part 4, 2006. Symposium of ISPRS Commission IV. September 25-30, 2006. Goa, India. <Link>

6. Watson, R. P., Scuderi, L. A., **Benedict, K.**, & Kuntz, T. R. (2004). "Data Fusion for Environmental Assessment: Integrating Modis Imagery and Nexrad Weather Radar." *International Society for Photogrammetry and Remote Sensing, 20th International Congress - Archives*, (B-4, 4 pages). <Link>

7. Watson, R., **Benedict, K.**, & Kuntz, T. (2003). "Monitoring Weather Hazards on Rural Roads using Remote Sensing and GIS." *Papers of the Applied Geography Conferences - 2003*, (26, pp. 266–275). <Link>

8. Kuntz, T., Watson, R., & **Benedict, K.** (2002). "Remote Sensing Applications for Airfield Safety, Security, and Management." *Papers of the Applied Geography Conferences - 2002*, (25, pp. 214-222).

4.3 Book Chapters - Peer Reviewed

1. **Benedict, K.** (2017). "The Geographic Storage, Transformation and Retrieval Engine (GSToRE): A Platform for Active Data Access and Publication as a Complement to Dedicated Long-Term Preservation System." In *Curating research data. Volume two, A handbook of current practice* (Vol. 2, pp. 207–209). Association of College and Research Libraries. <Link>

2. Watson, R. P., **Benedict, K.**, & Watson, T. R. (Kuntz). (2015). "Monitoring Weather Hazards on Rural Roads Using Remote Sensing and GIS." Invited contribution of Watson, Benedict & Kuntz (2003) to G. Tobin & B. Montz (Eds.), *Evolving Approaches to Understanding Natural Hazards* (pp 266-275). Cambridge Scholars Publishing. <Link>

3. **Benedict, K.**, & Orcutt, J. D. (2002). "Settlement." In G. N. Head & J. D. Orcutt (Eds.), *From Folsom to Fogelson: The cultural resources inventory survey of Pecos National Historical Park*. Anthropology Projects, Cultural Resources Management, Intermountain Region, National Park Service, Department of the Interior. <Link>

4. Powell, M., & **Benedict, K.** (2002). "Ceramic Chronology." In G. N. Head & J. D. Orcutt (Eds.), *From Folsom to Fogelson: The cultural resources inventory survey of Pecos National Historical Park*. Anthropology Projects, Cultural Resources Management, Intermountain Region, National Park Service, Department of the Interior. <Link>

5. Huckell, B., Huckell, L., & **Benedict, K.** (2002). "Maize Agriculture and the Rise of Mixed Farming-Foraging Economies in Southeastern Arizona During the Second Millennium B.C." In S. Schlanger (Ed.), *Traditions, transitions, and technologies: Themes in Southwestern archaeology: Proceedings of the 2000 Southwest Symposium*. (pp. 136–159). University Press of Colorado. <Link>

4.4 Book Chapters - Edited

1. **Benedict, K.**, & Wheeler, J. (2022). "Complementary Scales for Learning, The Feedback Loop between Short-Form Technical Workshops and Long-Form Carpentries Workshops." In Bauder, J. (ed.), *Teaching Research Data Management* (pp. 133-151). ALA Editions, Chicago.

2. Fundeen, J., Percivall, G., Baros, S., Baumann, P., Becker, P., Behnke, J., **Benedict, K.**, Colaia-como, L., Di, L., Doescher, C., Dominguez, J., Edberg, R., Ferguson, M., Foreman, S., Giaretta, D., Hutchison, V. B., Ip, A., James, N. L., Khalsa, S. J. S., … Young, J. (2020). "Chapter 6: Archiving and Access Systems for Remote Sensing." In *ASPRS Manual of Remote Sensing* (Fourth Edition, pp 451-639). American Society for Photogrammetry and Remote Sensing. <Link>

3. Yang, C, Huang, Q., Xia, J., Yu, M., **Benedict, K.**, & Bambacus, M. (2013). "Cloud-Enabling Dust Storm Forecasting." In C. Yang & Q. Huang (Eds.), *Spatial Cloud Computing* (pp. 161–176). CRC Press. DOI: 10.1201/b16106. <Link>

4. Kempler, S., Leptoukh, G., Kiang, R., Soebiyanto, R., Tong, D., Ceccato, P., Maxwell, S., Rommel, R., Jacquez, G., **Benedict, K.**, Morain, S., Yang, P., Huang, Q., Golden, M., Chen, R., Pinzon, J., Zaitchik, B., Irwin, D., Estes, S., … Huff, A. (2013). "Data Discovery, Access and Retrieval." In S. A. Morain & A. M. Budge (Eds.), *Environmental Tracking for Public Health Surveillance* (pp. 229–291). CRC Press/Balkema. <Link>

5. Watson, R., Ehlers, M., Budge, T., & **Benedict, K.** (2006). "New and Emerging Instruments and Some Emerging Trends for Remote Sensing of Human Settlements." In *Remote Sensing of Human Settlements: Manual of Remote Sensing, Third Edition: Volume 5* (pp. 713–738). American Society for Photogrammetry and Remote Sensing. <Link>

4.5 Digital Scholarship

1. "Data Management Training Clearinghouse (DMTC)." 2020 - in progress. Curated clearinghouse for distributed research data management training materials accessible over the web. Since 2018 I have been the PI for an Institute of Museum and Library Services grant to enhance the DMTC through developing an expanded documentation model for content in the Clearinghouse, assessment tools for the content registered in the Clearinghouse, diversification and expansion of the collection of materials in the Clearinghouse, and increasing Clearinghouse usage through outreach to the Data Librarian community. **Role: Project lead, information architect, developer**. In-progress.https://dmtclearinghouse.esipfed.org/

2. "UNM RDS Content Platform for the Coffee & Code Workshop Series." 2019. Docker-based platform for workshop presentation and participant use for multiple workshops developed as part of the UNM Research Data Services *Coffee & Code* workshop series. **Role: Developer.** https://github.com/unmrds/cc-content-platform

3. "Geographic Storage, Transformation and Retrieval Engine Version 3 (GSToRE)." 2018. Geospatial data management, discovery and access platform and associated Application Programming Interface. Developed by the development team at the Earth Data Analysis Center at the University of New Mexico. **Role: Information Architect, managed development team.** https://web.archive.org/web/20130704202601/http://gstore.unm.edu, https://github.com/edac-epscor/gstore-ansible.

4. "New Mexico EPSCoR Data Portal." 2018. Online data portal (http://data.nmepscor.org/index.html) and associated enhanced data discovery and access services provided by the "Geographic Storage, Transformation and Retrieval Engine Version 3" (described above). Developed by the development team at the Earth Data Analysis Center. **Role: Directed development team.** Internet Archive version

5. "Virtual Watershed Platform (VWP) GSToRE System." 2017. Geospatial and model data management, discovery and access platform and associated Application Programming Interface. Developed by the development team at the Earth Data Analysis Center and other project collaborators as part of the NSF EPSCoR sponsored WC-WAVE project. **Role: Co-lead for overall project cyberinfrastructure development, and information architect.** DOI: http://doi.org/10.5281/zenodo.831213

6. "Native American Water Rights Settlement Project Web Site and Interactive Mapping Application." 2013, 2017. Web site (http://www.nawrs.net), spatial search interface (http://www.nawrs.net/nawrs), and associated document repository for a collection of scanned Native American Water Rights Adjudication documents placed in UNM's LoboVault, and then transitioned to UNM's Digital Repository (https://digitalrepository.unm.edu/nawrs_comm/). **Roles: Developed the initial (2013) Google Maps-based version. Project management and collaborative development for the version released in 2017.** Project GitHub repositories: https://github.com/nawrs

7. "Multi-resolution Nested Dust Forecast System." 2010. Data acquisition, processing, and standards-based publishing system in support of a distributed dust forecast modeling workflow. Developed in partnership with collaborators at George Mason University with funding from NASA (Awards NNX09AN53G and NNX07AD99G). **Role: designed and implemented the data acquisition, processing, and publishing platform**. <Link to associated technical report>

8. "Valles Caldera National Preserve Map Viewer." 2006. Data acquisition, assimilation, processing and online mapping system for delivering near-real-time remote sensing and modeled ground biomass estimates to decision-makers at the Valles Caldera National Preserve. **Role: developed the data processing workflow and contributed to the development of the mapping interface**. Funded by the Valles Caldera National Preserve.

9. "Weather-Related Road Hazards Assessment and Monitoring System." 2003. Data acquisition, assimilation, processing and online mapping system for identifying rural roads in danger of damage from severe weather events in support of risk assessment and road-related decision support with funding from NASA and the US DOT. **Role: developed the data acquisition and processing workflows and the interactive online map interface.**

10. "New Mexico Resource Geographic Information System." 2002. Web application to provide browsing, discovery and download of geospatial data published as part of the New Mexico Resource Geographic Information System Program at the Earth Data Analysis Center at the University of New Mexico. **Role: developer.** https://web.archive.org/web/20020913053314/http://rgis.unm.edu/

11. "Human Nature" Journal Website. 2002. Content discovery and access web application for *Human Nature* to provide access information about the journal and its contents. **Role: developer and host.** https://web.archive.org/web/20021218195723/http://www.archaeoworld.com/journals/humannature/index.cfm

4.6 Published Datasets Related to Peer-Reviewed Publications

1. Patrick O'Brien, & **Karl Benedict**. (2018, July 30). imls-measuring-up/library-privacy: Protecting Patron Privacy on the Web - Research Dataset (Version v1.0). Zenodo. http://doi.org/10.5281/zenodo.1323403

4.7 Popular Articles

1. Benedict, Karl Kent. 2006. EDAC: Interoperability and multi-application (sic). *Invited OGC Column* for *GIM International.* January 2006, 20(1). p. 17

4.8 Sponsored Research - Peer Reviewed

4.8.1 Principal Investigator or Co-Investigator

1. **7/18-6/21** *Development of an Enhanced and Expanded Data Management Training Clearinghouse.* Funding Agency: Institute of Museum and Library Services (Award no. LG-70-18-0092-18). Award Amount: $ 249,630.00. **Role: Project PI.**

2. **07/18-6/20**. *CLIR Latin American Data Fellow.* Funding Agency: Council for Library and Information Resources (Award no. UNM180305). Award Amount: $167,700. **Role: Co-I, Project PI effective 5/10/2019.**

3. **6/13-11/18**. *Energize New Mexico*. Funding Agency: National Science Foundation (Award no. NSF OIA-1301346). Award Amount: $1,658,575 (EDAC's portion of the total project budget of $20,000,000). **Role: Co-I - Cyberinfrastructure Co-Lead.** William Michener (UNM) Project PI.

4. **12/14-11/17**. *Measuring Up: Assessing Accuracy of Reported Use and Impact of Digital Repositories*. Funding Agency: Institute of Museum and Library Services (IMLS - Award no. LG-06-14-0090-14). Award Amount: $31,610 + $99,747 cost share (The University Libraries portion of the total project budget of $500,000). **Role: Advisory Board, Institutional PI effective 1/15.** Kenning Arlitsch (MSU) Project PI.

5. **9/14-2/17**. *CC*IIE Networking Infrastructure: Network Expansion to Support Data Intensive Research and Computation at the University of New Mexico*. Funding Agency: National Science Foundation (Award no. 1440779). Award Amount: $498,620.00. **Role: Co-I.** Steven Perry (UNM) Project PI.

6. **6/15-6/16**. *Assessment in Action - Assessing the Impacts of Research Data Management Training for Graduate Students*. Unfunded but sponsored by the Association of College & Research Libraries. **Role: Project PI.**

7. **8/13-7/16**. *Collaborative Research: The Western Consortium for Watershed Analysis, Visualization, and Exploration (WC-WAVE)*. Funding Agency: National Science Foundation (Award no. NSF OIA-1329470). Award Amount: $833,985 (EDAC's portion of the project budget of $2,000,000, and the Tri-state consortial budget of $6,000,000). **Role: Co-I - Cyberinfrastructure Co-Lead.** William Michener (UNM) Project PI.

8. **9/11-9/14**. *Collaborative Research: CI-Team Diff: The Virtual Learning Commons: STEM Research Communities Learning about Data Management, Geospatial Informatics, and Scientific Visualization*. Funding Agency: National Science Foundation (Award no. NSF OAC-1135530). Award Amount: $133,923 (EDAC's portion: $20,000/year, total collaborative project budget across institutions: $998,264). **Role: Co-I.** Marjorie McConnell (UNM) Project PI.

9. **1/12-12/13**. *Earth, Life and Semantic Web (ELSeWeb): An Earth observation-driven, Semantic Web system for computational modeling of the impact of changing environments on health and disease*. Funding Agency: NASA (NASA ACCESS Grants: NNX12AF49A (UTEP), NNX12AF52A (UNM) and NNX12AF45A (KU)). Award Amount: $204,215 (EDAC's portion of the total project budget of $668,233). **Role: Institutional PI.** Deanna Pennington (UTEP) Project PI.

10. **7/09-1/11**. *Feasibility of Development and Deployment into Public Health Decision Support Systems of a Multi-resolution Nested Dust Forecast System Enabled by Open Standards Based Model and Data Interoperability*. Funding Agency: NASA (Award no. NNX09AN53G). Award Amount: $109,575.55. **Role: Project PI.**

11. **9/08-8/13**. *New Mexico EPSCoR RII3: Climate Change Impacts on New Mexico's Mountain Sources of Water*. Funding Agency: National Science Foundation (Award no. NSF EPSCoR-0814449). Award Amount: $1,578,824 (EDAC's portion of the total project budget of $15,000,000). **Role: Co-I - Cyberinfrastructure Lead.** William Michener (NM EPSCoR State Office) PI.

12. **8/07-12/08**. *Joint Laboratory for Geosciences Interoperability Partnership*. Funding Source: NASA (Award no. NNX07AD99G, with EDAC acting as a Subcontractor to George Mason University)). Award Amount: $40,000 (EDAC's subcontract amount). **Role: Institutional PI.**

13. **4/05-3/09**. *New Mexico EPSCoR RII (NM NEW) Proposal*. Funding Source: National Science Foundation (Award no. NSF EPSCoR-0447691). Award Amount: $259,060 (EDAC's portion of the $7,312,499 total project budget). **Role: Earth Data Analysis Center PI.**

14. **7/03-6/05**. *National Science Foundation, Doctoral Dissertation Improvement Grant*. Funding Agency: National Science Foundation (Award no. 0305103). Award Amount: $4,357. **Role: Co-I, lead investigator.**

4.8.2 Senior Personnel

1. **9/18-8/23**. *New Mexico SMART Grid Center*. Funding Agency: National Science Foundation (Award no. NSF OIA-1757207). Award amount: $16,231,816 ($477,085 component budget). **Role: Senior personnel - Cyberinfrastructure Co-lead.** William Michener (UNM) PI.

2. **9/09-8/12**. *Collaborative Research: Cyberinfrastructure Development for the Western Consortium of Idaho, Nevada, and New Mexico*. Funding Agency: National Science Foundation (Award no. NSF EPSCoR-0918635). Award Amount: $316,161 (EDAC's portion of project budget of $2,000,000 out of a total consortial budget of $6,000,000). **Role: Senior Personnel - Cyberinfrastructure Co-lead.** William Michener (UNM) PI.

3. **2006-2009**. *Project for Internet Networking*. Funding Source: US Department of State (partial) through their *Middle East Partnership Initiative*. **Role: Technical Lead.** Richard Wood PI. Project described in doi:10.1111/dome.12061.

4.9 Other Funding

1. **5/1/16-4/30/17.** *Native American Water Rights Document Preservation and Discovery Enhancement Project*. Funding Agency: Bureau of Reclamation (Award to the American Indian Law Center - Sub-award to the University of New Mexico, College of University Libraries and Learning Sciences). Award Amount: $43,692 (CUL&LS portion of a total project budget of $53,059). **Role: UNM PI.**

2. **6/08-5/11**. *Development of a Flexible Pavement Database for Local Calibration of MEPDG*. Funding Agency: NM Department of Transportation. Award Amount: $31,310 (EDAC's portion of the total project budget of $439,787). **Role: Co-I for EDAC's project component.** Rafi Tarifdar (UNM CE Department) PI.

3. **6/08-9/09**. *Application of Daily MODIS Remote Sensing Imagery to Grassland Fuels Management in Northern New Mexico*. Funding Source: Valles Caldera Trust. Award amount: $33,758. **Role: PI.**

4. **10/06-6/07**. *New Mexico Environment Department, Environmental GIS (eGIS)*. Funding Source: New Mexico Environment Department. Award Amount: $66,166. **Role: PI**.

5. **2000**. *University of New Mexico, Research, Projects and Travel Grant.* $1,000 awarded through a competitive application process in which applicants are ranked by their respective departments.

6. **2000**. *University of New Mexico, Student Research Allocation Committee.* $400 awarded through a competitive application process.

7. **1999**. *University of New Mexico, Regent's Endowed Fellowship.* $2,000 awarded through a competitive application process in which applicants were evaluated based upon a combination of community service, academic achievement, and financial need.

8. **1999**. *Grants in support of travel and research expenses related to dissertation research.* $560 was obtained through a combination of $500 from the UNM Graduate and Professional Student Association Student Research Allocations Committee and $60 from the Department of Anthropology.

9. *Grants in support of travel to the Society for American Archaeology meetings.* 1996. A total of $560 was obtained from the following sources: Anthropology Department, Student Research Allocation Committee (SRAC), Vice-President's Graduate Research Fund, Anthropology Graduate Student Union.

10. *Grant in Support of Graduate Student Computing.* 1994. Proposal coauthored by Robert D. Leonard, and Ariane Oberling. Competitive $10,000 grant from the Office of Graduate Studies, University of New Mexico, for facility improvement (hardware and software) in support of graduate student computing in the Department of Anthropology.

4.10 Presented Papers

4.10.1 Invited Papers/Presentations

1. **Karl Benedict**. 2021. 'Collaborative research is like cooking a meal for your friends: have a plan, the right tools, and some help.' Invited paper presented at the Idaho EPSCoR-GEM3 Virtual Conference. Virtual. December 7, 2021.

2. Erin Robinson, **Karl Benedict**, Michael Daniels. 2019. 'Making Data Matter: Increasing the Use and Value of Earth science Data & Information.' **Invited paper** presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 13, 2019.

3. **Karl Benedict**, and Nancy Hoebelheinrich. 2019. 'Data Management Training Clearinghouse.' **Invited presentation** to the US Geological Society's Community for Data Integration webinar series. September 9, 2019.

4. **Karl Benedict**. 2019. 'Assessing Community Impact: a Sample of ESIP's Activities.' **Invited presentation/case study** at the *There is Value in Earth Observations: Can You Measure It?* workshop. Frascati, Italy. July 1-3, 2019. http://earsc.org/Sebs/wp-content/uploads/2019/07/EOValue-WS_Karl-Benedict_ESIP.pdf

5. **Karl Benedict**. 2018. 'Data Management Needs and Opportunities for Hazard Mitigation Plans.' **Invited presentation** to the U.S. Virgin Islands Hazard Mitigation Planning Workshop. St. Thomas, U.S. Virgin Islands. June 15, 2018. http://karlbenedict.com/presentations/2018-06-USVI_HMP/2018-06_USVI-HazardMitigation_Benedict_skinny.pdf

6. **Karl Benedict**. 2018. 'Building from the Middle Out: Research Data Services at UNM.' **Invited presentation** for the American Geophysical Union Heads and Chairs group. Webinar. February 16, 2018. http://karlbenedict.com/presentations/2018-02-AGU_HeadsAndChairs/2018-02_AGU-HeadsAndChairs.pdf

7. **Karl Benedict**. 2018. 'Opportunities for research data discovery and reuse - lessons learned from 20 years of geospatial data platform evolution.' **Invited presentation** for the University of Florida Data Symposium. Gainesville, FL. March 19, 2018. PDF version: http://karlbenedict.com/presentations/2018-03-UF/2018-03_UF_Benedict.pdf, HTML Presentation version: http://karlbenedict.com/presentations/2018-03-UF/2018-03_UF_Benedict.html

8. **Karl Benedict**. 2015. 'Open Data Resources and Strategies - Efficient Discovery and Use of Global to Local Open Data.' **Invited presentation** at the Bureau of Business & Economic Research's New Mexico Data Users Conference. November 19, 2015. http://karlbenedict.com/presentations/2015-11-BBER/2015-11_Benedict.pdf

9. **Karl Benedict**. 2015. 'The Network as Instrument.' **Invited presentation** at the *Connecting Science, Education and Economic Development* workshop. Northern New Mexico College. Española, NM. November 5, 2015. http://karlbenedict.com/presentations/2015-11-NNMC/2015-11_NetworkAsInstrument.pdf

10. **Karl Benedict**. 2015. 'Open Data: The Why and How of Contributing to and Benefitting from the Open Data Ecosystem.' **Invited paper** presented at the New Mexico Geographic Information Council meeting. Albuquerque, NM. October 30, 2015. http://karlbenedict.com/presentations/2015-10-NMGIC/2015-NMGIC-Benedict.pdf

11. Fred Harris, **Karl Benedict**. 2015. 'Data Management.' **Invited presentation** for GEOS 697 *Interdisciplinary Modeling: Water-Related Issues and Changing Climate* offered in conjunction with the EPSCoR Tri-State meeting. Boise, ID. June 3, 2015.

12. **Karl Benedict**. 2015. 'Model Integration & Visualization Through Rapid Data and Documentation Access and Assimilation.' **Invited presentation** for the *Integrated Environmental Modeling for Estuarine System Management Workshop*. Davis, CA. May 20-21, 2015. http://karlbenedict.com/presentations/2015-05-WC-WAVEDemo/index.html

13. **Karl Benedict**. 2015. 'The Promise and Perils of Big Data in Research.' **Invited Paper** presented at the *Things We Worry About* session within the 2015 UNM Shared Knowledge Conference. Albuquerque, NM. April 23, 2015.

14. **Karl Benedict**. 2015. 'Data@UNM.' **Invited panelist** as part of the 'Data@UNM' session for the 2015 *Data to Knowledge* Conference. Albuquerque, NM. February 20, 2015.

15. **Karl Benedict**. 2014. 'Network Enabled Data Access and Analysis '. **Invited paper** for New Mexico Cyberinfrastructure Day. Albuquerque, NM. April 25, 2014.

16. **Karl Benedict**. 2014. 'Data Management, Discovery and Access Technology for Natural Science and Beyond.' **Invited paper** for New Mexico Cyberinfrastructure Day. Albuquerque, NM. April 25, 2014.

17. **Karl Benedict**. 2013. **Invited Panelist** for 'Connecting Data Stakeholders for a Long-term Vision of Data Stewardship.' Town Hall meeting at the American Geophysical Union Fall Meeting. San Francisco, CA. December 9, 2013.

18. **Karl Benedict**, Soren Scott, William Hudspeth. 2012. 'Data Management for Flexible Access - Implementation and Lessons Learned from work with Multiple User Communities.' **Invited Paper** for the American Geophysical Union Fall Meeting. San Francisco, CA. December 2012.

19. **Karl Benedict**. 2010. 'The development of standards-based geospatial applications at EDAC - perspective from 10 years of evolution.' **Invited paper** presented to the students and faculty of UTEP's CyberShare program. El Paso, TX. March 18, 2010.

20. **Karl Benedict**, Phil Yang, and Qunying Huang. 2010. 'Environmental Model Interoperability Enabled by Open Geospatial Standards - Results of a Feasibility Study.' **Invited paper** presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 13-17, 2010.

21. **Karl Benedict**. 2009. 'Development of a modern Services Oriented Architecture (SOA) based upon REST and OGC Standards - RGIS 2.0.' **Invited colloquium** presented at the University of Nevada, Reno, Computer Science Department. October 9, 2009

22. **Karl Benedict**. 2008. 'Fusion of Geospatial Data Through Open Standards for Visualization and Analysis.' **Invited paper** presented at New Approaches for Computer Applications in the Archaeology and Cultural Heritage of the Levant, Ben-Gurion University of the Negev, Beer-Sheva, Israel, May 14-15, 2008

23. **Karl Benedict**. 2008. 'OGC Time-enabled WMS: an Introduction with Deployment into Google Earth.' **Invited lecture** presented at Denver University. Denver, CO. April 28, 2008.

4.10.2 International

1. **Karl Benedict**. "Cross walk of GEO data sharing and data management principles & FAIR, CARE, TRUST - the data life cycle perspective." Paper presented at GEO Week 2021, Data Working Group Side Event. Virtual. November 23, 2021.

2. **Karl Benedict**, Nancy Hoebelheinrich. 2020. 'Building and International Clearinghouse of Research Data Skill Building Training Resources - A Community Effort.' Poster presented at the 15th International Digital Curation Conference. Dublin, Ireland. February 17-20, 2020. http://karlbenedict.com/presentations/2020-03_IDCC_reduced.pdf

3. **Karl Benedict**, Christopher Lenhardt, Joshua Young. 2017. 'Community Engagement for Developing the Principles and Practices of Agile Data Curation.' Poster presented at the International Digital Curation Conference. Edinburgh, Scotland. February 20-23, 2017. http://www.dcc.ac.uk/webfm_send/2423

4. **Karl Benedict**, Joshua Young, Chris Lenhardt. 2016. 'Agile Data Curation as a Diversity of Practices Grounded in Shared Values and Principles.' Paper presented at SciDataCon. Denver, CO, September 13, 2016. http://karlbenedict.com/presentations/2016-09-SciDataCon/ConceptualOverview.pdf

5. **Karl Benedict**, Joshua Young, W. Christopher Lenhardt, Mark Parsons. 2015. 'Deconstructing the Data Lifecycle BoF.' Paper presented at the Research Data Alliance, Fifth Plenary Meeting. San Diego, CA. March 10, 2015.

6. **Karl Benedict**. 2011. 'Key Interoperability Standards for Earth Science Research and Applications.' Paper presented at the meeting of the International Society for Remote Sensing of the Environment. Sydney, Australia. April 11-15, 2011.

7. **Karl Benedict**, William Hudspeth, Stan Morain, and Amy Budge. 2011. 'Delivery of Relevant Remote Sensing and Model Outputs to Public Health End Users Through International Interoperability Standards.' Paper presented at the meeting of the International Society for Remote Sensing of the Environment. Sydney, Australia. April 11-15, 2011.

8. **Karl Benedict**, Phil Yang, and Qunying Huang. 2010. 'OGC Web Coverage and Web Feature Services (WCS & WFS) for Enabling Nested Environmental Modeling.' Paper presented at the International Congress on Environmental Modelling and Software. Ottawa, Ontario, Canada. July 5, 2010.

9. **Karl Benedict**. 2009. 'Knowledge Sharing and Collaboration - Technical Approaches.' Paper presented at the 5th World Water Forum held in Istanbul, Turkey, March 16-22, 2009.

10. W. Hudspeth, S. Nickovic, D.Yin, B. Chandy, B. Barbaris, A. Budge, T. Budge, S. Baros, **K. Benedict**, C. Bales, C. Catrall, S. Morain, G. Sanchez, W. Sprigg, and K. Thome. 2005. 'PHAiRS – A Public Health Decision Support System: Initial Results.' 31st International Symposium for Remote Sensing of the Environment. St. Petersburg, Russian Federation. May 20-24, 2005.

4.10.3 National

1. Kartik Sheth, Daniel Bednar, **Karl K Benedict**, Joseph Conran, Pierre David Glynn, Yusuke Kuwayama, Carl D Shapiro and Alan Charles Smart. 2021. "Societal Benefits of Earth Observations Repository: Iterative Design and User Input." Paper presented at the American Geophysical Union Fall Meeting. Virtual. December 2021.

2. **Karl Benedict** and Jonathan Wheeler. 2021. "Into the Unknown - the Continued Evolution of Data Science Workshops Into a (Post-COVID?) Hybrid Mode." ePoster presented at the American Geophysical Union Fall Meeting. Virtual. December 15, 2021.

3. Nancy Hoebelheinrich, **Karl Benedict**. 2020. 'Developing, Using & Testing Tools to Assess Learning from Two Perspectives: the Teacher & the Learner.' Paper presented at the Earth Science Information Partners Winter Meeting. North Bethesda, MD. January 8, 2020. http://karlbenedict.com/presentations/2020-10_ESIP/ESIPWtr2020AssessmentFramework_WorkingSession.pdf

4. Nancy Hoebelheinrich, **Karl Benedict**. 2020. 'Data Skills & Competencies Requirements for Data Specialists - Views from the ESIP Community and Beyond.' Paper presented at the Earth Science Information Partners Winter Meeting. North Bethesda, MD. January 7, 2020. http://karlbenedict.com/presentations/2020-10_ESIP/ESIPWtr2020_DatakSkills.pdf

5. **Karl Benedict**. 2020. 'Pangeo as a Platform for Workshops.' Paper presented at the Earth Science Information Partners Winter Meeting. North Bethesda, MD. January 7, 2020. http://karlbenedict.com/presentations/2020-10_ESIP/Pangeo-C&C.pdf

6. **Karl Benedict**, Jonathan Wheeler. 2019. 'If You Build It Will They Come? Lessons From the Development and Use of a Containerized Teaching and Learning Platform.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 13, 2019. http://karlbenedict.com/presentations/2019-12_AGU/2019-12_AGU_3x5Poster_reduced.pdf

7. **Karl Benedict**, Nancy Hoebelheinrich. 2019. 'Data Management Training Clearinghouse.' Presentation in conjunction with the ESA Data Help Desk at the Annual Meeting of the Ecological Society of America. Louisville, KY. August 11-16, 2019. http://karlbenedict.com/presentations/2019-08_ESA/ESA_DMTC_Introduction.pdf

8. **Karl Benedict**. 2019. 'Session Introduction' and 'Kirkpatrick's Four Levels.' Presentations for the Earth Science Information Partners Summer Meeting, 2019. Tacoma, WA, July 16-19 2019. http://karlbenedict.com/presentations/2019-07_ESIP/DMTC-Assessment.pptx

9. **Karl Benedict**, Jonathan Wheeler. 2018. 'The Coffee and Code Workshop Platform, an Integrated System for Analytic Tool Training Workshops and Tool Use.' Poster presented at the American Geophysical Union Fall Meeting. Washington, DC. December 13, 2018. http://karlbenedict.com/presentations/2018-12_AGU/2018-12_AGU_Coffee_and_Code_Poster.pdf

10. **Karl Benedict**, Robert J. Sandusky, Amber E. Budden, Matthew B. Jones. 2018. 'Engaging the DataONE Community in Sustainability Planning and Execution to Enable Future Evolution and Use of the DataONE Cyberinfrastructure.' Poster presented at the American Geophysical Union Fall Meeting. Washington, DC. December 11, 2018. http://karlbenedict.com/presentations/2018-12_AGU/2018-12_AGU_DataONE_Community_Poster.pdf

11. William Michener, **Karl Benedict**, Nancy Maron, Robert J. Sandusky. 2018. 'DataONE: From DataNet Project to Engaged Global Community in the Contemporary Data Landscape.' Project briefing presented at the Coalition for Networked Information Fall Meeting. Washington, DC. December 11, 2018. http://karlbenedict.com/presentations/2018-12_CNI/CNI_Fall_2018_Membership_Briefing_DataONE_v.6-2.pdf

12. Nancy Hoebelheinrich, **Karl Benedict**, Erin Robinson. 2018. 'Governance Transition for the Data Management Training Clearinghouse Expansion Project.' Session/paper presented at the Earth Science Information Partners Summer Meeting. Tucson, AZ. July 18, 2018. http://karlbenedict.com/presentations/2018-07-ESIP/Governance_Transition_for_the_Data_Management_Training_Clearinghouse.pdf

13. Jonathan Wheeler, **Karl Benedict**. 2018. 'Fostering Communities of Practice in Data Management.' Paper presented at the Coalition for Networked Information Spring Meeting. San Diego, CA. April 12, 2018. http://karlbenedict.com/presentations/2018-04-CNI/wheeler_benedict_CNI_18.pdf

14. **Karl Benedict**, W. Christopher Lenhardt, Joshua Wellzie Young, Larissa Chamley Gordon, Steve Hughes, Suresh Kumar, Santhana Vannan, Mark Parsons. 2017. 'Agile Data Curation Case Studies Leading to the Identification and Development of Data Curation Design Patterns.' Poster presented at the American Geophysical Union Fall Meeting. New Orleans, LA. December 13, 2017. http://karlbenedict.com/presentations/2017-12-AGU/2017-12-AGU_AgileDesignPatterns.pdf

15. Kevin Comerford, **Karl Benedict**, Antonio Guillermo Martínez Largo. 2017. 'Building Digital Preservation Infrastructure: Partners, Tools and Services.' Paper presented at the Coalition for Networked Information Spring Meeting. Albuquerque, NM. April 4, 2017.

16. **Karl Benedict**, Jonathan Wheeler. 2017. 'Leveraging IR Collections as Distributed Service Layers.' Paper presented at the Coalition for Networked Information Spring Meeting. Albuquerque, NM. April 4, 2017.

17. **Karl Benedict**, W. Christopher Lenhardt, Joshua Young. 2016. 'Distilling Design Patterns From Agile Curation Case Studies.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 12-16, 2016. http://karlbenedict.com/presentations/2016-12-AGU/2016-12_AGUPoster.pdf

18. Patrick O'Brien, Kenning Arlitsch, Jeff Mixter, Susan Borda, **Karl Benedict**, Jonathan Wheeler, Sue Baughman, Gary Roebuck, Leila Sterman, Scott Young. 2016. 'Improving the Reported Use and Impact of Your Institutional Repository (IR).' Presentation to the Digital Library Federation Forum. Milwaukee, Wisconsin. November 8, 2016.

19. **Karl Benedict**, Chris Lenhardt, Joshua Young. 2016. 'Agile Data Curation - Conceptual Foundation.' Paper presented at the Federation of Earth Science Information Partners Summer Meeting. Durham, NC. July 22, 2016. http://karlbenedict.com/presentations/2016-07_ESIP/ConceptualOverview.pdf

20. Elmira Kalhor, Katie Zemlick, Janie Chermak, **Karl Benedict**. 2016. 'Data Management and New Mexico's Water-Energy Nexus.' Paper presented at the American Water Resources Association 2016 Summer Specialty Conference. Sacramento, CA. July 11-13, 2016.

21. **Karl Benedict**, Jonathan Wheeler. 2016. 'Assessment of the Impact of Research Data Services: Building a Foundation for Ongoing Assessment.' Poster presented at the American Library Association Annual Conference. Orlando, FL. June 25, 2016. http://karlbenedict.com/presentations/2016-06_ALA/2016-06-AIA_Poster.pdf

22. **Karl Benedict**, Mark Servilla, Kristin Vanderbilt, Jonathan Wheeler. 2015. 'Linking data repositories - an illustration of agile data curation principles through robust documentation and multiple application programming interfaces.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 14, 2015. http://karlbenedict.com/presentations/2015-12-AGU/AGU2015-Benedict_poster_linked.pdf

23. Lindsay Powers, **Karl Benedict**, Mairi Best, Sue Fyfe, Clifford Jacobs, William Michener, Jay Pearlman. 2015. 'Staying in the Light: Evaluating Sustainability Models for Brokering Software.' Oral paper presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 18, 2015.

24. Joshua Young, **Karl Benedict**, and W. Christopher Lenhardt. 2015. 'Agile Data Curation: A conceptual framework and approach for practitioner data management.' Oral paper presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 15, 2015.

25. Joshua Young, W. Christopher Lenhardt, Mark Parsons, **Karl Benedict**. 2014. 'Taking Another Look at the Data Management Life Cycle: Deconstruction, Agile, and Community.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 19, 2014.

26. Nicholas Del Rio, Deana D. Pennington, **Karl Benedict**, Natalia Villanueva-Rosales, William B. Hudspeth, Soren Scott, Aimee M. Stewart, Cj Grady. 2013. 'Leveraging Industry-Standard Metadata to Populate a Semantic Registry Suitable for the Model Web.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 13, 2013.

27. **Karl Benedict**, Soren Scott. 2013. 'Pragmatic Metadata Management for Integration into Multiple Spatial Data Infrastructure Systems and Platforms.' Oral presentation at the American Geophysical Union Fall Meeting. San Francisco, CA. December 11, 2013.

28. Manzhu Yu, **Karl Benedict**, Qunying Huang, Zhipeng Gui, Jizhe Xia, Songqing Chen. 2013. 'Validating Dust Storm Model Using Satellite Aerosol Retrievals and Ground-based Observations.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 11, 2013.

29. Erin Robinson, Carol B. Meyer, **Karl Benedict**. 2013. 'ESIP Federation: A Case Study on Enabling Collaboration Infrastructure to Support Earth Science Informatics Communities.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 10, 2013.

30. Nicholas Del Rio, Natalia Villanueva-Rosales, Deana Pennington, **Karl Benedict**, Aimee Stewart, C. J. Grady. 2013. 'ELSEWeb Meets SADI: Supporting Data-to-Model Integration for Biodiversity Forecasting.' Paper presented at the Association for the Advancement of Artificial Intelligence Fall Symposium. Arlington, VA. November 15-17, 2013.

31. **Karl Benedict**. 2013. 'Cloud Computing and Big Data.' Paper presented at the Summer Meeting of the Federation of Earth Science Information Partners. Chapel Hill, NC. July, 2013.

32. **Karl Benedict**, Soren Scott. 2013. 'Integrating a DataONE Member Node into the GSTORE API.' Poster presented at the DataONE Users Group meeting. Chapel Hill, NC. July, 2013

33. **Karl Benedict**, Soren Scott. 2013. 'GSTORE: Geographic Storage, Transformation and Retrieval Engine.' Presentation as part of the Member Node Showcase of the DataONE Users Group Meeting. Chapel Hill, NC. July, 2013.

34. **Karl Benedict**, Mike Camponovo, Soren Scott, and Su Zhang. 2013. 'The Development of Data Management and Services Architecture in Support of a Geospatial Clearinghouse and Research Data Portal.' Paper presented at the Federation of Earth Science Information Partners Winter Meeting. Washington, DC. January, 2013.

35. **Karl Benedict**, Deana Pennington. 2012. 'Necessary but not Sufficient - Closing the Gap Between Data Access and Use by a Broad User Community' Poster presentation at the American Geophysical Union Fall Meeting. San Francisco, CA. December 2012.

36. Nicholas Del Rio, Deana D. Pennington, Paulo Pinheiro da Silva, Karl K. Benedict. 2012. 'Streamlining Data Access Services and Data Analysis Services Integration' Poster presentation at the American Geophysical Union Fall Meeting. San Francisco, CA. December 2012.

37. William Hudspeth, Karl K. Benedict, Soren Scott. 2012. 'Generation of Multiple Metadata Formats from a Geospatial Data Repository.' Poster presentation at the American Geophysical Union Fall Meeting. San Francisco, CA. December 2012.

38. **Karl Benedict**. 2012. 'Interoperability … Now What?' Presentation at the Federation of Earth Science Information Partners Summer Meeting. Madison, Wisconsin. July, 2012. https://vimeo.com/47612641

39. Lijuan Jia, Mark C. Stone, and **Karl Benedict**. (2012). 'Improved Dust Forecasts Through Running Soil Moisture Model in San Juan River Basin.' World Water & Environmental Resources Congress, ASCE. Albuquerque, NM. May 2012.

40. **Karl Benedict**. 2012. 'Architecture Model for OGC Service Integration.' Paper presented at the Federation of Earth Science Information Partners Winter Meeting. Washington, DC. January, 2012.

41. Lijuan Jia, Mark C. Stone, and **Karl Benedict**. (2011). 'Enhanced Dust Production Forecasts Using Soil Moisture Models in the Four Corners Areas.' American Water Resources Association Annual Meeting, Albuquerque, NM. November 7-10, 2011.

42. **Karl Benedict**; Gregory Gollberg; Luke Sheneman; Sergiu Dascalu. 2011. 'Coordinated Earth Science Data Replication Enabled Through ISO Metadata, Version Control, and Web Services.' Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 5-9, 2011.

43. Qunying Huang, Phil (Chaowei) Yang, **Karl Benedict**. 2011. 'Utilizing High Performance Computing and Loosely-Coupled Nested Models to Enable the Computability of Dust Storm Forecasting.' Paper presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 5-9, 2011.

44. William B. Hudspeth, **Karl Benedict**, Laura Gleasner, Renzo Sanchez-Silva. 2011. 'New Mexico EPSCoR – Challenges of Integrating Diverse Water- Related Climate Data Into an Interoperable Geospatial Infrastructure.' Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 5-9, 2011.

45. Steven Kempler, **Karl Benedict**, Pietro Ceccato, Meredith Golden, Susan Maxwell, Stanley Morain, Radina Soebiyanto, Daniel Tong. 2011. 'The Increasing Use of Remote Sensing Data in Studying the Climatological Impacts on Public Health.' Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 5-9, 2011.

46. Jigarkumar Patel, Sergiu Dascalu, Frederick C. Harris, **Karl Benedict**, Gregory Gollberg, Luke Sheneman. 2011. 'Web-based Toolkit for Dynamic Generation of Data Processors.' Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 5-9, 2011.

47. David C. Goodrich, David Brookshire, Craig Broadbent, Mark D. Dixon, L. A. Brand, Jennifer Thacher, **Karl Benedict**, Kevin E. Lansey, Juliet C. Stromberg, Steven Stewart, Molly McIntosh. 2011. 'Coupled hydrological, ecological, decision and economic models for monetary valuation of riparian ecosystem services.' Paper presented at the American Geophysical Union Fall Meeting, San Francisco, CA. December 5-9, 2011.

48. Steven Kempler, Pietro Ceccato, Susan Maxwell, **Karl Benedict**, Meredith Golden. 2011. 'Advanced NASA Data Acquisition, Information Exploration, Discovery, Access and Retrieval Services for Studying Public Health.' Paper presented at the meeting of *WG VIII/2: Advances in Geospatial Technologies for Health of the International Society for Photogrammetry and Remote Sensing*. Santa Fe, NM. September 12, 2011. <Link>

49. **Karl Benedict**. 2010. 'Delivery of Air Quality Model Data into New Mexico's Environmental Public Health Tracking System: A Services Oriented Architecture for Rapid Information Delivery.'

Paper presented at the Annual Meeting of the American Thoracic Society. New Orleans, LA. May 19, 2010.

50. **Karl Benedict**. 2010. 'RGIS 2.0 - An Interoperable, Open Source SOA for Geospatial Information Delivery.' Poster and demonstration presented at the Federation of Earth Science Information Partners Winter Meeting. Washington, DC. January 5, 2010.

51. **Karl Benedict**. 2009. 'The Development of an Interoperable Open Source Geographic Information Technology Stack for Ingest, Management, and Delivery of Earth Observation and Geospatial Products.' Paper presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 18, 2009.

52. **Karl Benedict**. 2009. 'RGIS 2.0.' Paper presented at the ASPRS/MAPPS Conference, San Antonio, TX. November 17, 2009.

53. **Karl Benedict**. 2009. 'Development of a persistent Federation demonstration resource for promoting Federation member products and services.' Paper presented at the Federation of Earth Science Information Partners, 2009 Summer Meeting held in Santa Barbara, CA, July 7-10 2009

54. **Karl Benedict**. 2009. 'RESTful Requests for Dynamic OGC Services.' Paper presented at the Federation of Earth Science Information Partners, 2009 Summer Meeting held in Santa Barbara, CA, July 7-10 2009

55. **Karl Benedict**. 2009. 'Pan-Am SDS-WAS Centre Data & Information Architecture.' Paper presented at the Federation of Earth Science Information Partners, 2009 Summer Meeting held in Santa Barbara, CA, July 7-10 2009

56. **Karl Benedict**. 2009. 'Service Adoption Experience of the PHAiRS Project.' Paper presented at the ESIP Federation Winter Meeting, Washington, DC. January 6-8, 2009.

57. **Karl Benedict**. 2009. 'General-Purpose KML Generation Via XSLT for Presentation of OGC WMS Layers.' Poster presented at the ESIP Federation Winter Meeting, Washington, DC. January 6-8, 2009.

58. **Karl Benedict**. 2008. 'The Infusion of Dust Model Outputs into Public Health Decision Making - an Examination of Differential Adoption of SOAP and Open Geospatial Consortium Service Products into Public Health Decision Support Systems.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 15-19, 2008.

59. **Karl Benedict**. 2008. 'Interoperable Earth Observation Services and Their Use in a Variety of Decision Support Contexts.' Workshop presented at the EPA OEI Environmental Information Symposium. Phoenix, AZ. December 10-12, 2008.

60. **Karl Benedict**. 2008. 'Delivery of Time-Enabled WMS via KML.' Paper presented at the NASA Earth Science Data Systems Working Group (ESDSWG) Annual Meeting. Philadelphia, PA. October 21, 2008.

61. **Karl Benedict**. 2008. 'Public Health Applications in Remote Sensing.' Poster presented at the ESIP Federation Summer Meeting, Durham, NH, July 16, 2008.

62. **Karl Benedict**. 2008. 'The PHAiRS Project - SOA for the delivery of regionalized dust forecast data to public health professionals.' Paper presented at the ESIP Federation Summer Meeting, Durham, NH, July 15, 2008.

63. **Karl Benedict**. 2008. 'OGC Time-enabled WMS: an Introduction with Deployment into Google Earth.' Paper presented to the NASA DSWG Standards Process Working Group, meeting at the Summer ESIP Federation meeting, Durham, NH, July 15, 2008.

64. **Karl Benedict**. 2008. 'The Development of Standards-Based Services Oriented Architectures at EDAC, Lessons Learned From Three Application Contexts.' Paper presented at the AGU General Assembly, Ft. Lauderdale, FL. May 29, 2008.

65. **Karl Benedict**. 2008. 'The ESIP Federation's Long Experience In the Development and Deployment of Web Services.' With contributions by: Jerry Pan, Suresh Kumar, Giri Palanisamy, Bruce Wilson, Tyler Stevens, Ken Keiser, and Sara Graves. Poster presented at the NOAA Climate Prediction Climate Science Workshop. Chapel Hill, NC, March 4-6, 2008

66. William Hudspeth, **Karl Benedict**. 2008. 'Integration of Multiple OGC Standards for Delivery of Earth Science Information - Presentation of Time-Enabled WMS through KML as Implemented by the PHAiRS Project.' Poster presented at the American Geophysical Union Fall Meeting. San Francisco, CA. December 15-19, 2008.

67. **Karl Benedict**. 2007. 'New Mexico Cyberinfrastructure Assessment.' Presentation at the NSF EPSCoR Cyberinfrastructure Workshop. Lexington, KY, October 15, 2007.

68. **Karl Benedict**. 2007. ''Slippy' Multi-Server WMS Client'. Workshop presented at the Summer 2007 Earth Science Information Partnership (ESIP) Federation Meeting. University of Wisconsin, Madison, WI. July 17, 2007.

69. **Karl Benedict**. 2007. 'Development of a 'Slippy-map' interface for OGC WMS services'. Presentation at the Winter 2007 Earth Science Information Partnership (ESIP) Federation Meeting. Portland, OR. January 3, 2007.

70. **Karl Benedict**, and William Hudspeth. 2006. 'Technology Products of the PHAiRS REASoN Project – Year 2 Web Services and Demonstration Interfaces Development.' Paper presented at the NASA Earth Science Technology Conference. College Park, MD. June 27-30, 2005.

71. **Karl Benedict**, and William Hudspeth. 2005. 'Technology Products of the PHAiRS REASoN Project – Year 1.' Paper presented at the NASA Earth Science Technology Conference. College Park, MD. June 27-30, 2005

72. **Karl Benedict**. 2005. 'The Open Geospatial Consortium Web Map, Web Feature and Web Coverage Service Standards - an Overview.' Workshop presented at the Federation of Earth Science Information Partners Summer Meeting. San Diego, CA., June 2005.

73. Richard Watson, Louis A. Scuderi, Theresa R. Kuntz, and **Karl Benedict**. 2004. 'Assessing Vegetation Response to Local Rainfall Events Using NEXRAD Weather Radar and MODIS Imagery.' *Proceedings of the ASPRS 2004 Annual Conference*, Denver, CO, May 2004

74. **Karl Benedict**, and Jeff Cavner. 2003. 'WMS Implementation with Minnesota MapServer.' Workshop presented at the Winter 2003 meeting of the Federation of Earth Information Partners. Pasadena, CA. January 6-9, 2003.

75. **Karl Benedict**. 2002. 'Context, Goals, and Results of EDAC's WMS Installation: Adding Web Map Services to an Existing Clearinghouse.' Paper presented at the XXII FIG International Conference/ACSM-ASPRS 2002 Conference and Technology Exhibition 2002. Washington, DC. April 19-26, 2002.

76. Richard P. Watson, T. R. Kuntz, **Karl Benedict**. 2002. 'Remote Sensing Applications for Airfield Safety, Security, and Management.' Paper presented at the Applied Geography Conference, Binghamton, NY. October 2002.

77. **Karl Benedict**. 2000. 'Confronting Chronometric Uncertainty: Use of Chronometric Data in a Probabilistic Framework.' Paper presented at the 65th Annual Meeting of the Society for American Archaeology (SAA). Philadelphia, PA. April 5-9, 2000.

78. **Karl Benedict**, and Melissa Powell. 1999. 'The Chronology of Pecos: An Application of Probabilistic Ceramic Dating.' Poster presented at the 64th Annual Meeting of the Society for American Archaeology (SAA). Chicago, IL. March 24-28, 1999.

79. Ariane Oberling Pinson, and **Karl Benedict**. 1999. 'Regression, Sample Size & the Shannon-Weaver Index: Rethinking the Assumptions Using Monte-Carlo Simulations.' Poster presented at the 64th Annual Meeting of the Society for American Archaeology (SAA). Chicago, IL. March 24-28, 1999.

80. **Karl Benedict**. 1997. 'Bedrock Milling in the Domenigoni Valley: A Morphological and Distributional Analysis.' Paper presented at the 62nd Annual Meeting of the Society for American Archaeology (SAA). Nashville, TN. April 2-6, 1997.

81. **Karl Benedict**. 1996. 'Outline of a Probabilistic Approach to the Interpretation of Radiocarbon Dates.' Poster presented at the 61st Annual Meeting of the Society for American Archaeology (SAA). New Orleans, LA. April 10-14, 1996.

82. Jill Onken, and **Karl Benedict**. 1996. 'The Application of Multiple Dating Methods in the Domenigoni Valley, an Evaluation and Discussion.' Paper presented at the 61st Annual Meeting of the Society for American Archaeology (SAA). New Orleans, LA. April 10-14, 1996.

83. Louis Scuderi, Richard Watson, and **Karl Benedict**. 1996. 'The Development and Application of a GIS-Based Prehistoric Resource Distribution Model in Archaeological Research.' Workshop presented at the Third International Conference/Workshop on Integrating GIS and Environmental Modeling. Santa Fe, NM. January 21-25, 1996.

4.10.4 Local/Regional

1. **Karl Benedict**, Tim Castillo, Kevin Comerford, and Mary Wise. 2018. 'Virtual Reality Technologies@UNM.' Presentation for UNM Tech Days. Albuquerque, NM. June 7, 2018. http://karlbenedict.com/presentations/2018-06-TechDays/FINAL_UNM_TECH_DAYS.pdf

2. Jonathan Wheeler, **Karl Benedict**. 2018. 'Coffee & Code To Go.' Presentation for UNM Tech Days. Albuquerque, NM. June 8, 2018. https://github.com/unmrds/cc-tech-days/blob/master/Coffee_and_Code_2_Go.ipynb

3. **Karl Benedict**. 2013. 'Introduction/Refresher for the Resource Geographic Information System.' Oral presentation at the annual Bureau of Business and Economic Research (BBER) Data Users Conference. Albuquerque, NM. November 14, 2013.

4. **Karl Benedict**. 2012. 'Scientific Data Preservation.' Presentation at New Mexico Cyberinfrastructure Day. Albuquerque, NM. September, 2012

5. **Karl Benedict**. 2012. 'New Mexico Resources for Data Sharing and Collaboration.' Paper presented at the fourth annual EPSCoR Tri-State Consortium Meeting. Sun Valley, ID. April 3-6, 2012.

6. **Karl Benedict**, and Soren Scott. 2012. 'Visualization of Observational Data in Google Earth.' Paper/Demonstration presented at the fourth annual EPSCoR Tri-State meeing. Sun Valley, ID. April 3-6, 2012.

7. **Karl Benedict**. 2011. 'Advanced Cloud Computing for Geospatial Applications' Paper presented at the meeting of the New Mexico Geographic Information Council. Albuquerque, NM. May 13, 2011.

8. **Karl Benedict**. 2010. 'Introduction and Overview of CI Sessions.' Paper presented at the Tri-State Annual Western Consortium Meeting. Incline Village, CA. April 6, 2010.

9. **Karl Benedict**. 2010. 'NM EPSCoR Track 1 Cyberinfrastructure Accomplishments.' Paper presented at the Tri-State Annual Western Consortium Meeting. Incline Village, CA. April 6, 2010.

10. **Karl Benedict**. 2010. 'Model and Data Interoperability.' Paper presented at the Tri-State Annual Western Consortium Meeting. Incline Village, CA. April 6, 2010.

11. Amanda White, and **Karl Benedict**. 2010. 'New Mexico's Instrumentation System and Proposed Ingest Workflow into the EPSCoR Data Portal.' Paper presented at the Tri-State Annual Western Consortium Meeting. Incline Village, CA. April 6, 2010.

12. **Karl Benedict**. 2009. 'RGIS 2.0.' Paper presented at the New Mexico Geographic Information Council (NMGIC). Albuquerque, NM. November 13, 2009.

13. **Karl Benedict**, Kurt Menke, Bill Hudspeth, and Jeff Cavner. 2005. 'EDAC's Web-based Geospatial Applications and the Open Source Technologies Behind Them.' Paper presented at the Fall 2005 Meeting of the New Mexico Geographic Information Council (NMGIC). Albuquerque, NM. September 30, 2005

14. **Karl Benedict**, Richard Watson, Noreen Breeding, Richard Friedman. 2001. 'Rural Trafficability Enhancement: An Application of Remote Sensing and Geographic Information Technologies.' Paper presented at the 2001 meeting of the ESRI Southwest Users Group. 2001, Tucson, AZ. October 22-25.

15. Bruce B. Huckell, Lisa W. Huckell, and **Karl Benedict**. 2000. 'Maize Agriculture and the Rise of Mixed Farming-Foraging Economies in Southeastern Arizona During the Second Millennium B.C.' Paper presented at the 'Southwest Symposium 2000, At the Millennium: Change and Challenge in the Greater Southwest.' Santa Fe, NM. January 14-15, 2000.

4.11 Workshops

4.11.1 Invited

1. **Karl Benedict**, Plato Smith II. 2015. "Data Management for Collaboration, Access and Interoperability - CLIR Workshop on Research Data Principles & Services." **Invited Workshop** Presentation for the CLIR Postdoctoral Symposium. Bryn Mawr, PA. July 28, 2015.

2. **Karl Benedict**. 2014. 'The Google Maps API and OpenLayers Javascript Framework: a NMGIC Workshop.' **Invited workshop** for the New Mexico Geographic Information Council Spring Meeting. Albuquerque, NM. May 1, 2014.

4.11.2 International

1. **Karl Benedict**, Nancy Hoebelheinrich. 2019. "Research Data Management for Today, Tomorrow, and Beyond: an Introduction to Core Principles, Practices, and Required Skills." Workshop presented at the PECORA 21 / ISRSE 38 Conference. Baltimore, MD. October 6, 2019. http://karlbenedict.com/presentations/2019-10_ISRSE/DataManagementPrimer.pdf

2. **Karl Benedict**. 2009. 'Online Mapping.' Paper presented at the Workshop on Knowledge Technology, held in Gaziantep, Turkey, March 13-15, 2009.

3. **Karl Benedict**. 2009. 'Modeling Concepts.' Paper presented at the Workshop on Knowledge Technology, held in Gaziantep, Turkey, March 13-15, 2009.

4. **Karl Benedict**. 2009. 'Website Development.' Paper presented at the Workshop on Knowledge Technology, held in Gaziantep, Turkey, March 13-15, 2009.

5. **Karl Benedict**. 2008. 'Plone Introduction.' Two-day workshop presented at the Web Access for Civil Society Initiatives (WACSI) Project Workshop. Amman, Jordan. August 11-14, 2008.

6. **Karl Benedict**. 2007. 'Implementing the GEOSS Architecture with Open Standards.' Presentation as part of the *The User and the GEOSS Architecture XIII*, workshop at the 32nd International Symposium on Remote Sensing of Environment, San Jose, Costa Rica. June 25-29, 2007.

4.11.3 National

1. **Karl Benedict** and Nancy Hoebelheinrich. 2022. "Research Data Skills Building Community Support in the ESIP Data Management Training Clearinghouse." Workshop presented at the 2022 RDAP Association Summit. March 14, 2022.

2. **Karl Benedict** and Nancy Hoebelheinrich. 2021. "Exploring a Newly Enhanced Port in the Data Teaching and Learning Storm: the Data Management Training Clearinghouse." Workshop presented at Learn@DLF. November 10, 2021.

3. **Karl Benedict** and Nancy Hoebelheinrich. 2021. "You are Invited! A VIP Preview of the Newly Enhanced ESIP-hosted Data Management Training Clearinghouse." Workshop presented at the 2021 Earth Science Information Partners Winter Meeting. Virtual. January 27, 2021.

4. Ward Fleri, and **Karl Benedict**. 2020. "Project Planning and Management Workshop." Three-part workshop at the Earth Science Information Partners Virtual Summer Meeting. July 15, 21, 22, 2020. https://sched.co/cIvX

5. **Karl Benedict**, Nancy Hoebelheinrich. 2020. "Moving the ESIP Data Management Training Clearinghouse to a Training & Education Gateway for Research Data Skills Instructors and Learners," Workshop presented at the RDAP Summit 2020. Santa Fe, NM. March 13, 2020.

6. **Karl Benedict**, Nancy Hoebelheinrich, Sophie Hou. 2019. "Data Management Training Clearinghouse." Workshop presented at the Research Data Access & Preservation Association 2019 Summit. Miami, FL. May 17, 2019.

7. **Karl Benedict**, Ward Fleri. 2018. "Research Project Management Principles & Tools (Juggling 101)." Workshop presented at the Earth Science Information Partners Summer Meeting. Tucson, AZ. July 17, 2018. Presentation: https://github.com/unmrds/cc-taskjuggler/blob/master/ESIP2018-PM-Workshop_reduced.pdf; GitHub repository with all workshop materials: https://github.com/unmrds/cc-taskjuggler

8. **Karl Benedict**. 2012. 'Primer on Data Management: Components of a Data Management Plan.' Data management planning workshop presentation based upon original materials developed by Robert Cook, Oak Ridge National Laboratory. American Geophysical Union Fall Meeting. San Francisco, CA. December, 2012.

9. **Karl Benedict**. 2010. 'Interoperability 101: OGC Standards.' Workshop presented at the Federation of Earth Science Information Partners Summer Meeting. Knoxville, TN. July 20, 2010.

10. **Karl Benedict**. 2006. 'Implementation of OGC Web Services with MapServer.' Workshop presented at the Summer 2006 Earth Science Information Partnership (ESIP) Federation Meeting. Lamont-Doherty Earth Observatory, Palisades, NY.July 17, 2006.

11. **Karl Benedict**. 2005. 'The Open Geospatial Consortium Web Map, Web Feature, and Web Coverage Service Standards – An Overview.' Workshop presented at the Federation of Earth Science Information Partners (ESIP Federation) Summer 2005 Meeting. San Diego, CA. June 14-16, 2005.

4.11.4 Local/Regional

1. **Karl Benedict**. 2014. 'Data Management Primer.' A workshop presented in conjunction with a 'Responsible Conduct of Research' training session held at New Mexico Tech. Socorro, NM. April 4, 2014.

2. **Karl Benedict**. 2009. 'Service Oriented Architectures for the Exchange of Science Information.' Workshop presented at the NSF EPSCoR UROP Kickoff, held at NM Tech, in Socorro, NM, June 5, 2009.

3. **Karl Benedict**. 2005. 'GRASS GIS – An Overview of Capabilities.' Workshop presented at the Fall 2005 Meeting of the New Mexico Geographic Information Council (NMGIC). Albuquerque, NM. September 29, 2005

4.12 Federal Advisory Committee Advice Letters/Technical Reports/Manuscripts/White Papers

1. **Karl Benedict**, Deana D. Pennington. 2014. 'Final Report: Earth, Life and Semantic Web (ELSeWeb): An Earth observation-driven, Semantic Web system for computational modeling of the impact of changing climate on ecosystems and human/environmental health systems.' Manuscript submitted to NASA under Grant/Cooperative Agreement ACCESS-110018 NNX12AF52A.

2. Del Rio, Nicholas, Natalia Villanueva-Rosales, Deana Pennington, **Karl Benedict**, Aimee Stewart, C. J. Grady. 2013. 'ELSEWeb Meets SADI: Supporting Data-to-Model Integration for Biodiversity Forecasting.' Paper presented at the Association for the Advancement of Artificial Intelligence Fall Symposium. Arlington, VA. November 15-17, 2013. http://www.aaai.org/ocs/index.php/FSS/FSS13/paper/viewFile/7631/7488

3. National Advisory Council for Environmental Policy and Technology (NACEPT). 2011. "Fourth NACEPT Advice Letter on EPA Workforce Planning: Strategies to Attract and Retain Superior Executive Leadership Talent." Advice letter prepared by NACEPT for Lisa P. Jackson, Administrator of the United States Environmental Protection Agency. February 15, 2012. <Link>

4. **Karl Benedict**. 2012. "NACEPT Vulnerable Populations Recommendations - Cross-Cutting Information Technology Capabilities/Architecture. Summary for Integration into Full Letter." Contributed content to "NACEPT Advice Letter on Technologies for Environmental Justice Communities and Other Vulnerable Populations" prepared by NACEPT for Lisa P. Jackson, Administrator of the United States Environmental Protection Agency. February 15, 2012. <Link>

5. National Advisory Council for Environmental Policy and Technology (NACEPT). 2011. "Third NACEPT Advice Letter on EPA Workforce Planning: Ensuring Diversity." Advice letter prepared by NACEPT for Lisa P. Jackson, Administrator of the United States Environmental Protection Agency. December 22, 2011. <Link>

6. National Advisory Council for Environmental Policy and Technology (NACEPT). 2011. "NACEPT's Second Advice Letter on EPA Workforce Planning: One EPA and Obtaining and Retaining Scientific and Technical Expertise." Advice letter prepared by NACEPT for Lisa P. Jackson, Administrator of the United States Environmental Protection Agency. July 11, 2011. <Link>

7. National Advisory Council for Environmental Policy and Technology (NACEPT). 2011. "NACEPT's First Advice Letter on EPA Workforce Planning: Scientific and Technical Competencies to Meet Tomorrow's Challenges." Advice letter prepared by NACEPT for Lisa P. Jackson, Administrator of the United States Environmental Protection Agency. January 31, 2011. <Link>

8. **Karl Benedict**, Yang, P., Huang, Q. 2010. 'Project Final Report & Feasibility Report.' Manuscript submitted to NASA under Grant/Cooperative Agreement Number: NNX09AN53G on 11/30/2010. Project title: Feasibility of Development and Deployment into Public Health Decision Support systems of a Multi-resolution Nested Dust Forecast System Enabled by Open Standards Based Model and Data Interoperability. <Link>

9. Yang, Phil (Chaowei), **Karl Benedict**, William A. Sprigg. 2008. 'Leverage Model Interoperability and High Performance Computing to Improve Public Health Application (Final Report.).' Report submitted to NASA 10/15/2008 in partial fulfillment of NASA Grant: NNX07AD99G. <Link>

10. **Karl Benedict**. 2005. 'The Open Geospatial Consortium Web Map, Web Feature and Web Coverage Service Standards - an Overview.' Service overview document produced in support of a workshop presented at the Summer 2005 Federation of Earth Science Information Partners meeting in San Diego, CA. <Link>

11. Office of Evaluation, University of New Mexico Department of Family and Community Medicine. 2000. 'Child Occupant Protection Program Evaluation. Knowledge, Attitudes, and Practices Study.' Data collection, analysis, and report funded by: New Mexico Department of Health, Bureau of Injury Prevention, Emergency Medical Services, and New Mexico Traffic Safety Bureau. Manuscript on file at the Office of Evaluation, Department of Family and Community Medicine, University of New Mexico, Albuquerque, NM.

12. Ebert, James I., Eileen Camilli, Eric Ingbar, Roger Warner, **Karl Benedict**. 1994. 'National Science Foundation Phase I Final Report.' Project Title: A Study of the Feasibility of Developing Generally Applicable Methods and Techniques for the Conversion of Existing State Cultural Resources Databases to Geographic Information Systems. Manuscript submitted to the National Science Foundation, reporting the results of analysis conducted under award number III-9360278. James I. Ebert, Principle Investigator. On file at Ebert and Associates, Inc., 3700 Rio Grande Blvd. NW, Suite 3, Albuquerque, NM.

13. Robinson, Mark, Melinda Romano, Richard Cerrito, Adella Schroth, John Torres, Jill Onken, David Weatherby, **Karl Benedict**, Scott Williams, Dennis McDougal, Susan Goldberg. 1993. 'Metropolitan Water District, Domenigoni Valley Reservoir Project, Prehistoric Testing and Evaluation Report.' Edited by: Lynne Ertle, Susan Goldberg, Kerry Lehto, Melinda Romano. Numbers: 1,3,4,6. Submitted to Metropolitan Water District of Southern California, P.O. Box 54153, Los Angeles, CA, by INFOTEC Research Inc.

14. **Karl Benedict** and Barbara Balen. 1991. 'Cultural Resource Inventory Report 05-16-296, Camp 17 Helicopter Fire Salvage Sale.' U.S. Forest Service Report. Report on file at the Stanislaus National Forest, Supervisors Office, 19777 Greenley Road, Sonora, CA.

15. **Karl Benedict** and John Maher. 1991. 'Archaeological Reconnaissance Report Addendum 05-03-331-53, 1990 Salvage Addendum to the South Fork of the American River Watershed Archaeological Reconnaissance Report 05-03-331.' U.S. Forest Service Report. Report on file at the Eldorado National Forest, Supervisors Office, 100 Forni Road, Placerville, CA.

16. Lebow, Clayton G., Melinda C. Romano, Christian Miss, **Karl Benedict**, Lou Ann Speulda, Scott A. Williams, Susan K. Goldberg, Gordon A. Lothson, Richard M. Pettigrew, Randall F. Schalk, Jon M. Silvermoon, and Judith A. Willig. 1991. 'Archaeological Testing and Evaluation report, 1990-1991 Field Season and Historic Properties Treatment Plan, PGT-PG&E Pipeline Expansion Project, Idaho, Washington, Oregon, and California,' Volume II.C: Descriptive Reports and Data Compendia, Prehistoric Sites, Oregon Appendices. Edited by: Susan K. Goldberg, Randall F. Schalk, Richard M. Pettigrew, and Michael J. Moratto. Submitted to: Pacific Gas Transmission Company, San Francisco, CA.

17. **Karl Benedict** and John Maher. 1990. '1989 Salvage, Iron, Meyers, Sleek Insect Salvage Sales, Archaeological Reconnaissance Report Addendum 05-03-336-33. Addendum to Archaeological Reconnaissance Report 05-03-336, North Fork of the Cosumnes Watershed Archaeological Reconnaissance Report.' U.S. Forest Service Report. Report on file at the Eldorado National Forest, Supervisors Office, 100 Forni Road, Placerville, CA.

18. **Karl Benedict**. 1989. 'Addendum Form, Cultural Resource Inventory Report, CRIR 05-16-267: Matsen Fire Salvage Sale.' U.S. Forest Service Report. Report on file at the Stanislaus National Forest, Supervisors Office, 19777 Greenley Road, Sonora, CA.

19. **Karl Benedict**. 1989. 'Cultural Resource Inventory Report #295, Stanislaus Helicopter Fire Salvage, Cultural Resource Inventory Report 05-16-295.' U.S. Forest Service Report. Report on file at the Stanislaus National Forest, Supervisors Office, 19777 Greenley Road, Sonora, CA.

5 Instruction

5.1 Credit Courses

1. *Introduction to Spatial Data Management* (OILS 515 [Also offered as GEOG 522 starting in Fall 2017], University of New Mexico; Organization, Information and Learning Sciences): Spring 2014, Spring 2015 (provided as independent study for three students), Fall 2016, Fall 2017, Fall 2019.

2. *Spatial Data Management in Environmental Sciences* (INFO 533 [1-week intensive course co-taught with Will Shuart], University of New Mexico, University Library): June 2011, 2012, 2013, 2014.

3. *Internet Mapping* (Geography 485L/585L, University of New Mexico, Department of Geography): Fall 2009 (lecture/lab); Spring 2011 (lecture/lab); Spring 2012 (online); Spring 2013 (online); Spring 2014 (hybrid); Spring 2016 (hybrid); Spring 2017 (hybrid); Spring 2018 (hybrid).

4. *Directed Readings/Independent Study/Problems*. Directed Readings (1 OILS student - analytic methods) Summer 2015, Independent Study (3 Geography students - spatial data management) Fall 2015, Problems (1 OILS student - analytic methods) Spring 2016, Problems (1 OILS student - analytic methods) Spring 2019, Independent Study (1 OILS student - analytic methods) Spring 2020, Independent Study (1 Geography student - spatial data management) Fall 2021.

5. *Women, Water and Work* (Civil Engineering 492 [Cross-listed with American Studies, Earth & Planetary Sciences and History] - contributed two class sessions relating to spatial data management and analysis): Spring 2012.

6. *Open Source Geographic Information Technologies* (Geography 499, University of New Mexico, Geography Department): Spring 2006.

7. *Quantitative Methods in Anthropology* (Anthropology 372/572, University of New Mexico, Department of Anthropology): Fall 2005, TA Fall 1997.

8. *World Prehistory* (Anthropology 120, University of New Mexico, Department of Anthropology): Spring 1998.

5.2 Non-credit Instruction

1. *Introduction to GIS* (80 hour intensive course, taught at the University of Malta, sponsored by the World Laboratory, Lausanne Switzerland): Sept. 2003, Oct. 2004

2. *Library Instruction* - single session classes and workshops including: first year Library Introduction, Biology and Chemistry research databases and strategies, research data management (e.g. for the ADVANCE@UNM Program), data management planning, and Geographic Information Systems

3. Coffee & Code Workshop Series (with Jonathan Wheeler)

   a. Command Line Basics https://github.com/unmrds/cc-command-line
   b. Basics of Programming with Python https://github.com/unmrds/cc-python
   c. Distributed Version Control with Git, GitHub, and GitLab (introduction and advanced) https://github.com/unmrds/cc-version-control
   d. Write Once Use Everywhere with Markdown and Pandoc https://github.com/unmrds/cc-pandoc
   e. Database Basics (introduction and advanced) https://github.com/unmrds/cc-database-basics, https://github.com/unmrds/cc-database-2
   f. Introduction to Jupyter Notebooks https://github.com/unmrds/cc-jupyter
   g. Introduction to Containerization with Docker https://github.com/unmrds/cc-containers
   h. Natural Language Processing with Python https://github.com/unmrds/cc-nlp
   i. Introduction to R and RStudio https://github.com/unmrds/cc-R-RStudio
   j. Cartography with Illustrator https://github.com/unmrds/cc-cartography_w_illustrator
   k. R Data Cleaning https://github.com/unmrds/R-data-cleaning
   l. Reproducibility and Communication using R, Jupyter Notebooks, and Markdown https://github.com/unmrds/cc-reproducibility-communication
   m. Project Management with Task Juggler https://github.com/unmrds/cc-taskjuggler
   n. Introduction to Digital Literacy and Design with Spark

4. Carpentries (Certified Instructor - 2/2019, highlighted topics were led as an instructor; Certified Instructor Trainer 4/2022)

   a. NM STEMAP Carpentries (June-July 2021, instructor - virtual) - **"Building Programs with Python"**, **"Plotting and Programming in Python"**, "Version Control with Git," **"The Unix Shell"**
   b. Library Carpentry (June 2021 - instructor - virtual) - "Tidy Data," **"OpenRefine"**, **"Jargon Busting, A Computational Approach, Introduction to Working with Data"**, "The Unix Shell"
   c. Software Carpentry (April 2021 - instructor - virtual) - "Automating Tasks with the Unix Shell," **"Version Control with Git"**, "Building Programs with Python"
   d. Data Carpentry (October 2020 - instructor - virtual) - **"Introduction to Python"**
   e. Data Carpentry (July 2020 - helper - virtual) - "Data Organization in Spreadsheets," "Version Control with Git," "Introduction to Python"
   f. Software Carpentry (June 2020 - instructor - virtual) - **"Programming in Python"**, "Version Control with Git"

g. Data Carpentry (March 2020 - instructor) - "Data Organization in Spreadsheets for Ecologists," "Data Management with SQL for Ecologists," **"Data Analysis and Visualization in R for Ecologists"**)

h. Data Carpentry (November 2019 - organizer, instructor) - **"Data Organization and Cleaning in Microsoft Excel and OpenRefine"**, "Data Analysis and Visualization using R," "Data Management in Databases with Structured Query Language (SQL)"

i. Software Carpentry (May 2019 - helper) - "The Unix Shell," "Version Control with Git," "Programming with Python"

j. Software Carpentry (May 2019 - instructor) - **"The Unix Shell"**, **"Version Control with Git"**, **"Programming with Python"**

k. Software Carpentry (May 2015 - organizer) - "The Unix Shell," "Version Control with Git," "Programming with Python"

5.3 Invited Lectures

1. *Social Responsibility & Research Data: a Framework and some Concepts.* Invited lecture for OILS 500, BIOL 402/502. 2015, 2019, 2020, 2021, 2022. University of New Mexico. URL: http://karlbenedict.com/presentations/2015-10_OILS500_Benedict/2015-10_OILS500_Benedict.html

5.4 Doctoral and Masters Committee Membership

1. Manuel Jimenez, Ph.D., Organization, Information & Learning Sciences, University of New Mexico. Committee Member. In process - started in 2019.

2. Sean Thomas O'Neill, MS, Geography. University of New Mexico. Committee Member. Completed 5/2019.

3. Robert Paul Giebitz, Ph.D., Organization, Information & Learning Sciences, University of New Mexico. Committee Member. Completed 12/2018. Dissertation Title: "Learning Statistics Through Guided Block Play A Pre-Curriculum in Statistical Literacy"

4. Linda Barril, Ph.D, Organization, Information & Learning Sciences, University of New Mexico. Committee Member. Completed 12/2016. Dissertation Title: "The Influence of Student Characteristics and Culture on the Preferred Ways of Learning of Online College Students"

5. Lijuan Jia, Ph.D, Civil Engineering, University of New Mexico. Committee Member. Completed 2014. Dissertation Title: "Toward Improved Evaluation Of Large Scale Hydrologic Models: Estimation And Quantification Of Parameter Uncertainty"

6. Eric Cox, MS, Geography. University of New Mexico. Completed 5/2013. Thesis Title "The Effect of Airport Delays on the Evolution of the U.S. Air Travel Network."

7. Kelly Monteleone, Ph.D., Anthropology. University of New Mexico. Completed 5/2013. Dissertation Title "Lost Worlds: Locating submerged archaeological sites in southeast Alaska"

8. Stephen Brown, MA, Civil Engineering, University of New Mexico. Committee Member. Completed 5/2012. Thesis Title: "Data Access and Visualization Benefits from Implementation of a Hydrologic Information System"

9. Lisa Arnold, MA, Geography. University of New Mexico. Committee Member. Completed 5/2009. Thesis Title: "Positional Accuracy of the Wide Area Augmentation System"

6 Service

6.1 UNM - College of University Libraries and Learning Sciences

1. **2021-Present**. College *Merit Committee*

2. **2016-Present**. College *Assessment Committee*

3. **2020-2022**. Faculty *Curriculum Committee*

4. **2014-2020, 2021-2022**. Faculty *Promotion & Tenure Committee* (Chair, 2015-2019)

5. **2018-2020**. Faculty *Sabbatical Committee* (Chair, 2019-2020)

6. **2019**. *Staff Search Committee* for Operations Manager for the Centennial Science and Engineering Library

7. **2018**. *Faculty Search Committee* for the Director of the UNM University Press

8. **2017**. *Faculty Search Committee* (Chair) for the Data Curation Librarian position

9. **2017-2018**. Faculty *Past Presiding Officer*

10. **2016-2017**. *Strategic Planning Steering Committee*

11. **2016-2017**. Faculty *Presiding Officer*

12. **2015-2016**. Faculty *Presiding Officer Elect*

13. **2015-2016**. *Faculty Search Committee* (Chair) for the Research Support Librarian for the Life Sciences position

14. **2014-2015**. *Faculty Search Committee* for three faculty positions: Research Support Librarians for Engineering, Physical Sciences and Life Sciences

15. **2014-2015**. Faculty *Committee on Committees*

6.2 UNM - College of Arts & Sciences

1. **2018-2019**. *Faculty Search Committee Member*, UNM Geography and Environmental Studies Department

2. **2010**. *Committee Member* (as a representative of UNM's College of Arts and Sciences) of UNM's Enterprise Email Steering Committee

6.3 University

1. **2021-Present**. *NSF Museum Research Traineeship Program Advisory Board* member.

2. **2021-Present**. *Steering Group Member, Co-Chair*, Institutional Collaboration Working Group.

3. **2020-Present**. *Committee Member*, UNM Faculty Senate Research Policy Committee (Vice-Chair, 2020-2021; Chair 2021-2022)

4. **2019-Present**. *Committee Member*, UNM Information Technology Academic Technology Advisory Committee

5. **2018-Present**. *Committee Member*, UNM Information Technology Research Technology Advisory Committee (Co-Chair, 2020-2022; *Research Data Management Working Group* Chair, 2018-Present; *Strategic Planning Working Group* member, 2020-2021; *Research Strategic Planning Steering Committee*, 2021-Present)

6. **2016-Present**. *Committee Member*, UNM Faculty Senate Graduate and Professional Committee

7. **2016-Present**. *Internal Advisory Committee*, UNM Center for Advanced Research Computing

8. **2020-2021**. *Working Group Member*, National Council of University Research Administrators (NCURA) Report Recommendations, Process Working Group/Communications Working Group.

9. **2017-2022**. *Committee Member*, UNM Faculty Senate University Press Committee

10. **2017-2019**. *Working Group Member*, Faculty Annual Accomplishment Reporting Tool Working Group.

11. **2016-2017**. *Committee Member*, UNM Tenure and Promotion Working Group for Community Engaged Scholarship

12. **2016-2017**. *Committee Member*, UNM Research Strategic Planning Committee

13. **2011-2017**. *Leadership Team Member*, University of New Mexico Research Storage Consortium (Chair, 2016-2017)

14. **2013-2016**. *Planning Committee*, Cyberinfrastructure Day/Data to Knowledge Conference

15. **2015**. *Contributor* to the UNM's Draft Data Center and Server Room Standard

16. **1998-2000, 2011-2013**. *Committee Member*, University of New Mexico Faculty Senate Computer/Information Technology Use Committee

17. **2001-2004**. *Committee Member*, University of New Mexico Student Health Center Advisory Committee

18. **1999-2004**. *Committee Member*, University of New Mexico Student Health Insurance Committee

19. **2000-2001**. *Committee Member*, University of New Mexico Strategic Planning Task Force

20. **2000**. *Committee Member*, University of New Mexico Acceptable Computer Use Policy drafting committee

21. **1999**. *Committee Member*, University of New Mexico Free Expression Policy Drafting Committee

22. **1998-2000**. *Chair*, Graduate and Professional Student Association Council

23. **1999**. *Committee Member*, University of New Mexico Graduate Enrollment Task Force

24. **1997-1998**. *Chair*, Special Projects Committee, Graduate and Professional Student Association

25. **1996-1998**. *Representative*, Graduate and Professional Student Association

26. **1996-1998**. *President*, Anthropology Graduate Student Union

27. **1996-1997**. *Committee Member*, Special Projects Committee, Graduate and Professional Student Association

28. **1995-1996**. *Vice President*, Anthropology Graduate Student Union

6.4 Professional

6.4.1 International

1. **2019-Present**. Earth Science Information Partners Alternate Program Committee representative to the Group on Earth Observations (GEO).

2. **2019-Present**. Earth Science Information Partners representative to the GEO *Data Sharing and Data Management Principles Working Group*.

3. **2019-Present**. Earth Science Information Partners representative to the GEO *GEOSS Infrastructure Development Task Team*.

6.4.2 National

1. **2020-Present**. Member of the *Earth Science Information Partners Meeting Committee*.

2. **2014-Present**. *External Advisory Board Member* (Chair, 2014-2019), US Virgin Islands *NSF Established Program to Stimulate Competitive Research* Track 1 Project

3. **2016-2019**. member of the *Greater Western Library Alliance Task Force on Research Data Management*

4. **2015-2018**. *Technical Advisory Committee* (Chair), Digital Preservation Network

5. **2011-2014**. *Member of the Data Management and Communications (DMAC) Steering Committee* of the Interagency Ocean Observation Committee (IOOC)

6. **2010-2012**. Appointed by the EPA Administrator as a *Member of the National Advisory Council for Environmental Policy and Technology* for the US Environmental Protection Agency (EPA - FY11 Activity, FY12 Activity)

6.4.3 Local/Regional

1. **2021**. Member of the *New Mexico State University Library Dean Search Advisory Committee*

6.5 Elected Positions

6.5.1 National

1. **2017-Present**. *Co-Chair* of the DataONE Users Group, DataONE Community Board.

2. **2016-2018, 2020-2021**. *Nomination Committee* of the Federation of Earth Science Information Partners. (Chair, 2020-2021)

3. **2019-2020**. *Board Member*, Earth Science Information Partners (ESIP). (Chair, 2019-2020)

4. **2012-2014, 2019-2020**. *President*, Earth Science Information Partners (ESIP)/ESIP Federation.

5. **2010-2017**. *Board Member*, Foundation for Earth Science Board of Directors (Chair, 2012-2014; President, 2014-2017)

6. **2011-2012**. *Vice President*, Federation of Earth Science Information Partners (ESIP Federation).

7. **2010-2011**. *Type III Representative*, Federation of Earth Science Information Partners (ESIP Federation).

8. **2002-2010**. *Committee Member*, Federation of Earth Science Information Partners (ESIP) Information Technology and Interoperability Committee. (Chair, 2004-2010)

6.5.2 Local/Regional

1. **2008-2017**. *Working Group Chair*, Tri-State NSF EPSCoR Cyberinfrastructure Working Group

2. **2000**. *Western Regional Fundraising Coordinator* & *Western Regional Coordinator*, National Association of Graduate and Professional Students

6.6 Proposal Review Panels

1. **2014, 2016, 2018, 2020, 2021**. NASA Earth Science Applications: Health and Air Quality Review Panel

2. **2017, 2019, 2021**. NASA Advanced Information Systems Technology Review Panel

3. **2018**. UNM Native Environmental Health Equity Research Center Pilot Project Grants Program

4. **2017**. IMLS National Leadership Grants for Libraries

5. **2017**. NASA Earth Science Technology Office Review Panel

6. **2017**. NSF EarthCube Proposal Reviewer

7. **2014**. NM EPSCoR Diversity Innovation Working Group Review Panel

8. **2013**. NSF EPSCoR Reverse Site Visit Panel

9. **2012**. NSF Big Data Review Panel

10. **2012**. NASA SERVIR Applied Sciences

6.7 Journal Peer Review

1. **2022**. *Social Science Computer Review*

2. **2021**. *Remote Sensing*

3. **2016, 2017, 2018, 2019, 2020, 2021**. *ISPRS International Journal of Geo-Information*

4. **2020**. *Religions*

5. **2019**. *Data*

6. **2019**. *Sustainability*

7. **2017, 2018**. *Computers & Geosciences*

8. **2007, 2008, 2010, 2011, 2016, 2017**. *International Journal of Geographical Information Science*

9. **2017**. *Sensors*

10. **2016**. *Big Data Research*

11. **2015**. *Earth Science Informatics*

12. **2013, 2015**. *Computers, Environment and Urban Systems*

6.8 External Reviewer

1. **2021**. *EarchCube Office External Review*, National Science Foundation

2. **2021**. *Promotion and Tenure Review*, University of Colorado Boulder

3. **2021**. *Promotion and Tenure Review*, University of Idaho

4. **2021**. *Promotion and Tenure Review*. University of Nebraska, Lincoln

5. **2020**. *Promotion and Tenure Review*, UNM Health Sciences Center

6. **2020**. *Promotion and Tenure Review*, Texas A&M University

7. **2019**. *Promotion and Tenure Review*, CUNY-CSI

6.9 Data Help Desk

1. **2020**. *EGU Data Help Desk*. Staffed the virtual data help desk in conjunction with the European Geosciences Union Meeting. May 11-15, 2020. Online.

2. **2019**. *AGU Data Help Desk*. Staffed a data help desk in conjunction with the American Geophysical Union Fall Meeting. San Francisco, CA. December 9-13, 2019.

3. **2019**. *ESA Data Help Desk*. Helped organize and staff a data help desk in conjunction with the Annual Meeting of the Ecological Society of America. Louisville, KY. August 11-16, 2019.

4. **2018**. *ESA Data Help Desk*. Helped organize and staff a data help desk in conjunction with the Annual Meeting of the Ecological Society of America. New Orleans, LA. August 5-9, 2018.

7 Symposia/Meeting Sessions Organized

7.0.1 International

1. *Downscaling GEO: Delivering impact at national and local levels*. Key Side Event panel session co-organizer for the GEO Week 2019 Ministerial Summit. Canberra, Australia. November 4-9, 2019. https://www.earthobservations.org/geoweek19.php?t=programme

2. *Research Data Management for Today, Tomorrow, and Beyond: an Introduction to Core Principles, Practices, and Required Skills*. Workshop co-organizer at the PECORA 21 / ISRSE 38 Conference. Baltimore, MD. October 6, 2019. https://www.asprs.org/Pecora21-Isrse38.html

3. *Planning meeting for Agile Data Curation Interest Group and Associated Working Group(s)*. Session co-organizer at the Research Data Alliance, Eighth Plenary Meeting. Denver, CO. September 15, 2016.

4. *Agile Research Data Curation: Conceptual model, perspectives, and exemplars*. Session co-convener at SciDataCon held in Denver, CO. September 11-13.

5. *BoF on Agile Curation - Part 2*. Session co-organizer at the Research Data Alliance, Sixth Plenary Meeting. Paris, France. September 23, 2015.

6. *Deconstructing the Data Life Cycle - P5 BOF session*. Session co-organizer at the Research Data Alliance, Fifth Plenary Meeting. San Diego, CA. March 10, 2015.

7. *Workshop on Knowledge Technology*. Coordinated technical content for this workshop. Gaziantep, Turkey. March 13-15, 2009.

7.0.2 National

1. *DataONE Community Meeting.* Co-organizer of the three-day virtual community meeting for the DataONE program. August 11-13, 2020. <https://www.dataone.org/meetings/2020/>

2. *Project Planning and Management Workshop.* Co-organizer of a three-part workshop at the Earth Science Information Partners Virtual Summer Meeting. July 15, 21, 22, 2020. https://sched.co/cIvX

3. *ESIP Public-Private Partnership Cluster.* Co-organizer of a breakout session at the Earth Science Information Partners Virtual Summer Meeting. July 14, 2020. https://sched.co/cIvX

4. *Developing, Using and Testing Tools to Assess Learning Resources from two Perspectives: the Teacher and the Learner.* Co-organizer of a breakout session at the Earth Science Information Partners Winter Meeting. North Bethesda, MD. January 8, 2020. https://sched.co/Xrhf

5. *Data Skills & Competencies Requirements for Data Stewards: Views from the ESIP Community and Beyond.* Co-organizer of a breakout session at the Earth Science Information Partners Winter Meeting. North Bethesda, MD. January 7, 2020. https://sched.co/VaXo

6. *Public-Private Partnerships for Earth Observations.* Co-organizer of a breakout session at the Earth Science Information Partners Winter Meeting. North Bethesda, MD. January 7, 2020. https://sched.co/XrhE

7. *Public-Private Partnerships Panel.* Co-organizer of a plenary panel at the Earth Science Information Partners Winter Meeting. North Bethesda, MD. January 7, 2020. https://sched.co/VaXN

8. *Curricula Models and Resources Along the Data Continuum: Lessons Learned in the Development and Delivery of Research Data Management and Data Science Education.* Juried Panel co-organizer at the ALISE Annual Conference. Knoxville, TN. September 24-26, 2019. https://ali.memberclicks.net/assets/documents/conf_2019/ALISE%202019%20Program%20Book.pdf

9. *Data Management Training Clearinghouse.* Workshop co-organizer at the Research Data Access & Preservation Association 2019 Summit. Miami, FL. May 17, 2019. https://rdapassociation.org/wp-content/uploads/2019/05/2019RDAPSummitFullProgram-2.pdf

10. *Assessment Frameworks and Dimensions for Educational & Training Resources.* Session co-organizer for the Earth Science Information Partners Summer Meeting 2019. Tacoma, WA. July 16-19. https://sched.co/PtPh

11. *DataONE 2019 Community Meeting.* Co-organizer, and Co-Chair for the meeting. Tacoma, WA. July 15, 2019.

12. *IN020: Data for Our Changing Earth: Impacts of Open Access to Quality Geospatial Data from Trusted Sources.* Session co-convener at the American Geophysical Union Fall Meeting, 2018. Washington, DC, December 10-14, 2018. https://agu.confex.com/agu/fm18/meetingapp.cgi/Session/60499

13. *Data Management Training Working Group Business Meeting & IMLS Project Launch.* Co-convener of session at the Earth Science Information Partners Summer Meeting, 2018. Tucson, AZ. July 18, 2018. https://sched.co/EyqP

14. *Governance Transition for the Data Management Training Clearinghouse Expansion Project.* Session co-convener at the Earth Science Information Partners Summer Meeting, 2018. Tucson, AZ. July 17, 2018. https://sched.co/Eypd

15. *DataONE Users Group Meeting, 2018.* Co-organized the annual meeting of the DataONE Users Group. Tucson, AZ. July 16, 2018.

16. *Research Project Management Principles and Tools; AKA Juggling 101, Parts 1 & 2.* Session co-convener at the Earth Science Information Partners Summer Meeting, 2018. Tucson, AZ. July 17-20, 2018. Part 1 - https://tinyurl.com/y9uu9wgl / Part 2 - https://tinyurl.com/y92h24xh

17. *The Institutional Research Data Lifecycle - a Researcher's Gauge of Frustration?.* Session co-convener at the Federation of Earth Science Information Partners Summer Meeting, 2017. Bloomington, IN. July 22-25, 2017. https://2017esipsummermeeting.sched.com/event/As6w/the-institutional-research-data-lifecycle-a-researchers-gauge-of-frustration

18. *Agile Data Curation in the Wild - What's Your Story?.* Session co-convener at the Federation of Earth Science Information Partners Summer Meeting, 2016. Durham, NC. July 19-22. http://commons.esipfed.org/node/9112

19. *Agile Curation, Data Access and Infrastructure, and Data Layers: Maximizing the Value of Research Data III.* Session co-convener at the American Geophysical Union Fall Meeting, 2015. San Francisco, CA. December 14-18, 2015.

20. *Agile Curation, Data Access and Infrastructure, and Data Layers: Maximizing the Value of Research Data I Posters.* Session co-convener at the American Geophysical Union Fall Meeting, 2015. San Francisco, CA. December 14-18, 2015.

21. *Data Lifecycle Interoperability - Broadening our Perspective on What it Means to be Interoperable.* Session organizer for the Summer ESIP Federation Meeting, 2014. Copper Mountain, CO. July 8-10, 2014. http://commons.esipfed.org/node/2408

22. *Linked Open Data, Provenance, Metadata and Standards-based Services - Strategies for Discovery, Fusion and Use.* Session co-organizer at the Summer ESIP Federation Meeting, 2014. Copper Mountain, CO. July 8-10, 2014. http://commons.esipfed.org/node/2407

23. *IN014. Emerging Technologies in Earth and Space Science Informatics (ESSI).* Session co-convener (oral and poster) at the American Geophysical Union Fall Meeting, 2013. San Francisco, CA. December 9-13, 2013.

24. *ED41A. Distributing Science Data for Reuse Posters.* Sesson co-convener at the American Geophysical Union Fall Meeting, 2012. San Francisco, CA. December 3-7, 2012.

25. *Federation of Earth Science Information Partners, 2011 Summer Meeting.* Served as local coordinator for the meeting. Santa Fe, NM. July 12-15, 2011.

26. *IN21. Interoperable Earth Science Data Networks.* Session co-convener for the American Geophysical Union Fall Meeting, 2011. San Francisco, CA. December 5-9, 2011.

27. *Federation of Earth Science Information Partners, 2010 Winter Meeting.* Coordinated one afternoon session dedicated to Environmental Decision Making. Washington, DC. January 5-7, 2010.

28. *IN10. Open Source Remote Sensing for Environmental Mapping and Analysis.* Session co-convener for the American Geophysical Union Fall Meeting, 2010. San Francisco, CA. December 13-17, 2010.

29. *IN19. Information Technology Infusion Success Strategies.* Session co-convener at the American Geophysical Union Fall Meeting, 2010. San Francisco, CA. December 13-17, 2010.

30. *Federation of Earth Science Information Partners, 2009 Summer Meeting.* Chair of the Technology Track Planning Committee, coordinating technical workshops held at the meeting. Santa Barbara, CA. July 7-10 2009.

31. *Federation of Earth Science Information Partners, 2009 Winter Meeting.* Chair of the Technology Track Planning Committee, coordinating technical workshops held at the meeting. Washington, DC. January 6-8, 2009.

32. *IN13: Information Technology Infusion - Successful Strategies.* Session co-convener at the American Geophysical Union Fall Meeting, 2008. San Francisco, CA. December 15-19, 2008.

33. *Federation of Earth Science Information Partners, 2008 Summer Meeting.* Chair of the Technology Track Planning Committee, coordinating technical workshops held at the meeting. Durham, NH. July 15-18 2008.

34. *Federation of Earth Science Information Partners, 2008 Winter Meeting.* Chair of the Technology Track Planning Committee, coordinating technical breakouts that took place over the course of the meeting. Washington, DC. January 9-10, 2008.

35. *Federation of Earth Science Information Partners, 2007 Summer Meeting.* Chair of the Technology Track Planning Committee, coordinating the technical workshops held at the meeting. Madison, WI. July 17-20, 2007.

36. *Federation of Earth Science Information Partners, 2007 Winter Meeting.* Chair of the Technology Track Planning Committee, coordinating technical breakouts that took place over the course of the meeting. Portland, OR. January 3-5, 2007.

37. *Federation of Earth Science Information Partners, 2006 Summer Meeting.* Chair of the Technology Track Planning Committee, coordinating the technical workshops held at the meeting. Palisades, NY. July 18-21, 2006.

38. *Federation of Earth Science Information Partners, 2006 Winter Meeting.* Chair of the Technology Track Planning Committee, coordinating three technically focused parallel tracks over the course of the meeting. Washington, DC. January 3-6, 2006.

39. *Federation of Earth Science Information Partners, 2005 Winter Meeting.* Chair of the Technology Track Planning Committee, coordinating four technically focused parallel tracks over the course of the meeting and editing and coauthoring the resultant technical report. Washington, DC. January 3-6, 2005.

7.0.3 Local/Regional

1. *Tri-State NSF EPSCoR Cyberinfrastructure Working Group Meeting.* Developed agenda, and facilitated the CI Working group meeting held in conjunction with the NSF EPSCoR Tri-State Meeting. Boise, ID. March 30 - April 1, 2009.

2. *Western Regional Conference of the National Association of Graduate and Professional Students.* Chair of the Planning Committee, coordinating program development, registration activities, and conference logistics. Albuquerque, NM. April 14-16, 2000.

3. *1998 Anthropology Graduate Symposium.* Chair of the Planning Committee, coordinating planning efforts of all other organizing committees, including grant writing, program development, advertising and logistics. Albuquerque, NM. March 6-7, 1998.

4. *1997 Anthropology Department Symposium.* Chair of the Planning Committee, coordinating planning efforts of all other organizing committees, including grants, program development, advertising, and logistics. Albuquerque, NM. April 25-26, 1997.

8 Technical Skills

8.1 Programming Languages

- Python
- Perl
- BASH shell
- Jupyter/IPython notebooks
- R/Rstudio
- Markdown for document development and processing

8.2 Web Development

- HTML 4, 5
- CSS
- Javascript
- AJAX web application development models
- REST web services development
- SOAP services implementation
- Google Maps API
- OpenLayers Javascript Framework

8.3 Statistical & Mathematical Analysis/Modeling

- SPSS
- SAS
- Mathematica

8.4 Database Management

- PostgreSQL/PostGIS
- SQLite/SpatiaLite
- Filemaker Pro
- SQL Server
- MySQL
- Microsoft Access
- dBase
- Citation management databases: Endnote, Papers, Zotero
- Google Fusion Tables

8.5 Geographic Information Technologies

- ArcGIS
- Quantum GIS/QGIS
- MapServer
- GeoServer
- GRASS GIS
- ArcIMS
- GPS
- Mapping: Transit, Compass & Tape/pacing
- Interoperability Standards: OGC WMS, WFS, WCS & CSW
- Metadata Standards: FGDC CSDGM, ISO 19115 (and related standards), Dublin Core, DataCite

8.6 Information Technology

- Information management architectures
- Services-oriented architectures
- Cloud computing
- Docker Container Development and Hosting
- Version Control with Git and hosted repositories in GitHub and GitLab
- Basic principles of computer network design
- Windows, Linux and Mac OS X
- Core productivity applications: MS Office, Apple iWork applications, Google Drive

8.7 Other Technical Skills

- Human osteological analysis
- Lithic (stone tool and debitage) analysis
- Historic preservation law
- Archaeological survey and excavation methods

9 Professional Associations

International Association for Social Science Information Services & Technology (2016-present, http://www.iassistdata.org/)

American Library Association / Association of College and Research Libraries (2015-present, http://www.ala.org//http://www.ala.org/acrl/)

American Association of Geographers (2010-present, http://www.aag.org/)

American Geophysical Union (2008-present, http://sites.agu.org/)

New Mexico Geographic Information Council (~2001-2018, http://nmgic.com/)

Society for American Archaeology (~1995-2017, http://saa.org/)

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