



ArkansasView

Remote Sensing Activities

2013 - 2014



Providing Online Education in Remote Sensing and Geospatial Applications

Design of New Online Course for Stackable Certificate

Many Arkansas students are unable to attend a university in person to obtain remote sensing-related training for the job market. With a proposal and leadership from ArkansasView and faculty from the Center for Advanced Spatial Technologies (CAST), the University of Arkansas Global Campus (<http://globalcampus.uark.edu/>) launched the University of Arkansas' first ever undergraduate certificate (<http://online.uark.edu/programs/certificate-proficiency-geospatial-technologies.php>) in August 2014.



Website for online undergraduate certificate titled "Certificate of Proficiency in Geospatial Technologies" launched (with co-leadership from ArkansasView) by University of Arkansas Global Campus in August 2014.

Building upon the certificate's introductory remote sensing content, ArkansasView developed a proposal and design for an online course titled "Geodata Sources and Access" that highlights Landsat and other remote sensing data sources. Pending approvals from University of Arkansas Global Campus and the Arkansas Department of Higher Education, this 2-5 credit course will be part of new second and third "stackable" certificates beyond the "Certificate of Proficiency in Geospatial Technologies" and provide skills for remote sensing applications in energy, government, and business.

To prepare for course delivery, ArkansasView leveraged the skills of two graduate students (PhD and Masters) who researched existing online remote sensing tutorials, remote sensing data warehouses, and data access procedures. The five sections of the course include 1) introduction and motivation, 2) geodata, metadata, and provenance specifications, 3) government and non-government geodata sources, 4) commercial geodata sources, and 5) directions in geodata access and interoperability. Major laboratory highlights include the use of the USGS Global Visualization Viewer (GloVis) and other Federal remote sensing gateways.

Benefits to Arkansans

According to the Department of Labor's Employment and Training Administration (ETA), while overall the geospatial technology (including remote sensing) market is growing very rapidly, there is a real deficit of skills and training, and there are misconceptions about what skills are required. Many students in Arkansas benefit from online stackable certificates because they cannot relocate to a major university campus. There has been a steady stream of applicants to the first "proficiency" certificate. As ArkansasView continues to develop remote sensing materials for the additional certificates, Arkansans and others will increasingly have online access to this valuable training through their flagship university.



ArkansasView-supported graduate students demonstrate remote sensing-assisted silviculture workflows using the NSF-funded RazorVue collaborative display at the Center for Advanced Spatial Technologies (CAST) at University of Arkansas; ArkansasView's 2013-2014 course design allows many aspects of this same remote sensing learning environment to be transferred to online delivery.

ArkansasView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state.

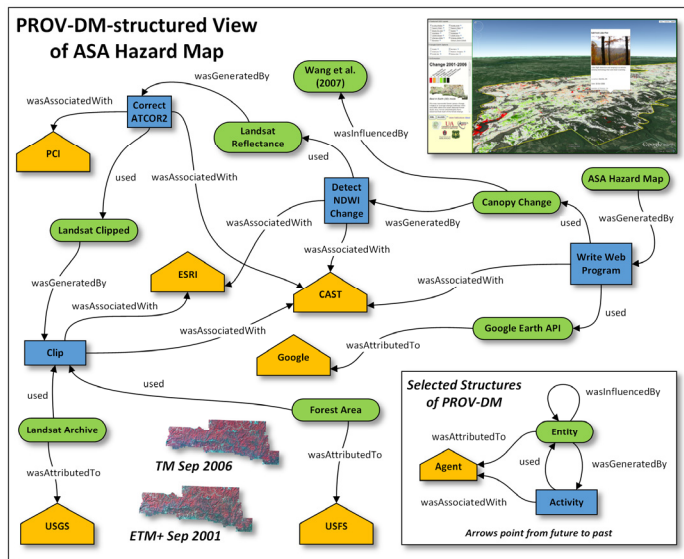


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Other ArkansasView Activities

In 2013-2014, ArkansasView presentations (e.g., at the 2014 AAG Annual Meeting in Tampa, Florida) focused on the emerging field of *geospatial provenance*. Provenance will allow remote sensing methods to be captured, analyzed, curated, and easily replicated. On this topic, ArkansasView PI Dr. Tullis was the lead author of the following book chapter, scheduled to be published in September 2015:

Tullis, J.A., J.D. Cothren, D.P. Lanter, X. Shi, W.F. Limp, R.F. Linck, S.G. Young and T. Alsumaiti, 2015, "Geoprocessing, Workflows, and Provenance", in *Remote Sensing Handbook* (P. Thenkabail, editor), Vol. 1, Boca Raton, FL: CRC Press, in press.



Selected provenance of ASA Hazard Map co-developed by ArkansasView and structured according to W3C's PROV Data Model; arrows (relationships) point from future to past, allowing reconstruction of remote sensing methods.

In 2014, ArkansasView began discussions with Communities Unlimited (www.communitiesu.org), a nonprofit, serving communities in Arkansas and six neighboring states. An important part of this organization's work addresses persistently poor rural communities' access to basic water infrastructure. ArkansasView provided geospatial support and participated in a workshop to develop a Communities Unlimited geospatial internship beginning in January 2015.

COMMUNITIES
... Unlimited

Along with the work on *Remote Sensing Handbook*, ArkansasView published the following refereed journal articles led by graduate students who were mentored with AmericaView support:

1. Young, S.G., J.A. Tullis and J.D. Cothren, 2013, "A Remote Sensing and GIS-assisted Landscape Epidemiology Approach to West Nile Virus", *Applied Geography* 45:241-249.
2. Jones, J.S., J.A. Tullis, L.J. Haavik, J.M. Guldin and F.M. Stephen, 2014, "Monitoring Oak-hickory Forest Change During an Unprecedented Red Oak Borer Outbreak in the Ozark Mountains: 1990-2006", *Journal of Applied Remote Sensing* 8(1):1-13.

ArkansasView Vision and Goals

ArkansasView Vision: Build educational partnerships in Arkansas to increase the skilled geospatial and remote sensing workforce, and to train students in effective remote sensing-assisted problem solving.

ArkansasView Long-Term Goals:

1. Develop partnerships with faculty, staff, students, and employees in university, state agency, and nonprofit organizations to build remote sensing and geospatial capacity in Arkansas.
2. Improve Arkansans' access to remote sensing and geospatial training both on university campuses as well as through online delivery.
3. Facilitate student interaction, including through paid internships, with organizations developing remote sensing and geospatial workflows that help improve quality of life.
4. Strengthen research at University of Arkansas (Fayetteville) and other campuses within the University of Arkansas System through a robust exchange of remote sensing and geospatial data and workflows.

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