



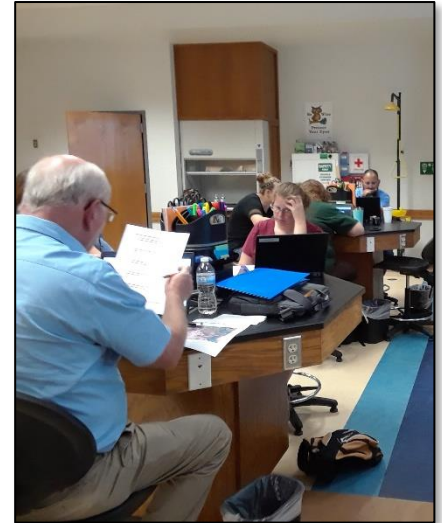
TEXASVIEW 2018 - 2019



TEXASVIEW HISTORY AND SUCCESSES

TexasView (TXView) has been active across a broad spectrum of activities during the previous grant period. **Development of materials for and participation in training of educators** has been a continuing effort. Since 2013, PI Dodge has been developing “**Watching over Texas from Space**” activities. Texas-centric resources that engage students in a scaffolded set of image interpretation activities introduce concepts including scale, geographic coordinates, multispectral imaging, change monitoring, and applications including agriculture, forestry, coastal studies, and natural hazards such as wildfire, flooding, and hurricanes. These resources have been used in seven full-day teacher training workshops and four 1-hour overview workshops at seven different Educational Service Centers in Texas for over 200 teachers. They were also used in a 1-day teacher-training workshop following the Pecora Symposium in 2017, and in a 1-hour intro workshop for AP Environmental Science teachers in 2019.

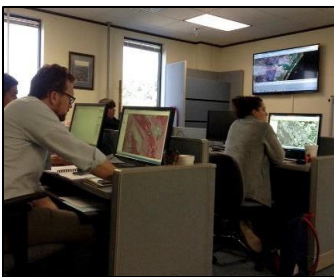
TexasView PI Dodge has also worked for the last four years on Earth Observation Day (EODay) resources, in a strategic partnership with NASA, USGS, and other StateViews. EODay is a national event and has become associated with **Earth Science Week** sponsored by the American Geosciences Institute. The AV-branded teaching resources are distributed to > 15,000 K-12 Earth Science teachers each year, and distributed in TXView teacher-training workshops as well.



San Angelo Secondary Science teachers study landforms and landform change using Landsat imagery over State Parks.



Normalized Burn Ratio just after the Bastrop Fire, 2011.



Introduction to Image Processing workshop 2016.

Efforts to promote research and remote sensing experience at the university undergraduate and graduate level have focused on mini-grants to individual students and faculty mentors at consortium partner institutions. Mini-grants have supported 17 faculty-mentored research projects during the past three years. These mini-grants are now a sustainable consortium-supporting activity for TexasView. During 2016 through 2018 the research opportunities were extended to seven consortium member institutions in multiple disciplines including geosciences, geography, and engineering.

Development of materials for and participation in training of professionals has been a sustained effort for TexasView. Co-PI Teresa Howard has offered the “**Introduction to Image Processing Workshop**” annually at the Texas GIS Forum as a four-hour, hands-on seminar to introduce GIS professionals to remote sensing software and methodologies. Attendees include Nation- and State-level professionals and professionals from industry and academia. A total update this year has transitioned to ArcGIS Pro and introduced QGIS and USGS Landlook into the workshop activities. The workshop is scheduled for two days at the GIS Forum in October of 2019, following a hiatus year in 2018.

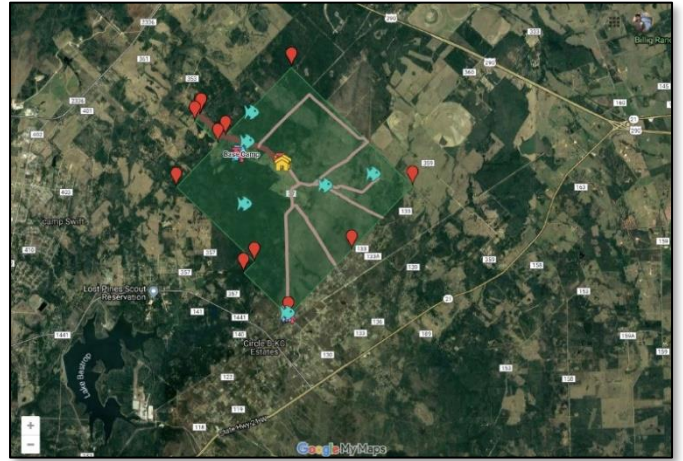
TexasView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state. AmericaView is funded by USGS grant agreement G18AP00077.



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TEXASVIEW 2018 - 2019 ACTIVITIES

TXView has identified the need to increase the number of undergraduate students who use remote sensing in an applied, project-oriented fashion. This first of two High-Impact Activities (HIAs) addresses grant **objective 3: Promote research and remote sensing experience at the university undergraduate and graduate level to increase numbers and visibility of graduating students with employment skills in remote sensing.** Three member institutions participated this year; six students utilized satellite and airborne imagery and field observations in diverse projects. The Bastrop Fire investigation (right) yielded field-verified maps of areas with fast, medium, and slow regrowth, useful for guiding remediation efforts. The student also developed “**USGS Landlook Exercises**” designed to introduce students to the Landlook Interface that allows rapid online viewing and access to USGS and Sentinel-2 images. This activity was also supported by a NASA STEM Enhancement in Earth Science (SEES) grant and SEES interns used the exercises in a summer workshop. This activity also will be used in Howard’s “**Introduction to Image Processing Workshop**” in October 2019 at the Texas GIS Forum.



Boundaries of the Griffith League Scout Ranch, site of the Bastrop Fire field investigation. Student’s testimonial states that “two of the aspects of my TexasView grant project that I enjoyed the most were using GIS to visualize fire data and learning how field investigations work.” Currently a student in the Aerospace Engineering program at UT Austin, he also states that following this project he “will be redirecting my graduate studies towards Data Science or Data Analytics, with the hope that I can one day assist with implementing machine learning in the remote sensing domain.”

Efforts to expand the dissemination of the “**Watching over Texas from Space**” activities have continued in cooperation with Texas Educational Resource Center network. This second HIA addresses **grant objective 4: Develop materials for and conduct or participate in appropriate educational and training organizations, curricula, programs, workshops, meeting seminars, as well as technology transfer and outreach activities.**

Two workshops served eleven and nine Middle- and High-School teachers in Midland and San Angelo, respectively. 100% plan to implement the activities, including new game formats, in their classrooms. The post-workshop assessment also indicated that 100% of the teachers agreed that the workshop met state content standards and promoted hands-on learning. Comments from teachers include

- “I greatly appreciate being introduced to such a variety of resources for studying landforms and earth change. I will use them in my class and suggest them for learners interested in deeper study.”
- “I greatly enjoyed the activities. They are quick and easy for the classroom. The Power Points were very well detailed. It should be easy to use them in the classroom.”
- “It was wonderful and the resources are so well organized. I really feel like I can go back on my own and navigate through them with ease.”



New game formats for the “**Which is Which**” landform identification and “**How is Texas Changing**” before-and-after matching activities were shared with the public at an Earth Day Outreach event sponsored by Keep Midland Beautiful non-profit (left). These game activities were also used with students during the Pecora 21 Symposium Educational Outreach Activity in Baltimore, where 97 Middle School students and 8 teachers rotated through multiple hands-on activities.

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