

## Vision

To advance research in geologic sciences, natural resources, and geologic hazards and to disseminate this knowledge through active engagement across Kentucky.

## Mission

The Kentucky Geological Survey (KGS) was established by the Kentucky General Assembly as a research center within the University of Kentucky. Our mission is to support the prosperity and resiliency of the Commonwealth, the vitality of its flagship land-grant university, and the welfare of its people. We accomplish this mission by conducting research in the geologic sciences, natural resources (energy, minerals, and water), and geologic hazards. We provide unbiased data and information to elected officials, decision makers, and the public and actively engage with stakeholders across Kentucky.

## Core Values

The Kentucky Geological Survey is guided by core values that align with both the Commonwealth of Kentucky and the University of Kentucky:

- **Excellence in research and engagement**
- **Institutional and professional credibility**
- **Open and transparent communication**
- **Caring for the KGS community**
- **Collaboration and cooperation**
- **Personal responsibility and accountability**



## Executive Summary

### Strategic Direction: Principles and Objectives

The Kentucky Geological Survey (KGS) was established by the Kentucky General Assembly in 1854 to provide vital geological and mineral resource information to the Commonwealth. KGS became a research center within the University of Kentucky (UK) in 1948. KGS is guided by an advisory board of 12 members appointed by the governor. A new survey commences with the appointment of each new state geologist and director. The current survey is the 14th, led by Dr. Michael McGlue, who was appointed in August 2024. The 14th KGS serves the Commonwealth by conducting cutting-edge research in the geologic sciences, natural resources (energy, minerals, and water), and geologic hazards and by disseminating information through active engagement with stakeholders to build resilience across the Commonwealth. The following are five principles and key objectives for the 14th Survey.

#### 1. Principle 1: Invest in the People of KGS

The 14th KGS will promote a strong sense of community and commitment to our people, as the diverse scientists and support staff that make up KGS are essential to our success.

##### Key Objectives:

- Develop annual internal scientific training and leadership mentoring programs; we will nurture and invest in the development of top-notch geologists and the next state geologist
- Create well-resourced, responsive teams, guided by experienced researchers, that are positioned to do the best for Kentucky
- Refine and codify the geologist job series criteria to clarify career pathways and opportunities for our geoscientists
- Optimize work location and field practice guidelines to ensure fairness and safety
- Advance a culture that encourages and rewards networking and collaboration within KGS
- Encourage excellence through a KGS Fellows initiative, lab programs, and mini-sabbaticals when possible

#### 2. Principle 2: Put Kentucky First

The 14th KGS will ground its scientific mission in research that supports building resilience for Kentucky; this research may stretch across borders so long as it clearly advances solutions for the Commonwealth.

##### Key Objectives:

- Build a transparent, accountable, and accessible KGS for our Kentucky stakeholders through authentic personal relationships and our web/media presence
- Promote new research in natural resources, given their importance to Kentucky's economy, workforce, and culture
- Lead the region in emerging energy (e.g., geological hydrogen) and water availability research
- Pursue innovative natural hazards (e.g., floods, landslides, earthquakes, and karst/sinkholes), geohealth (e.g., radon, pollution, natural products, and radioactive exposure), and engineering geology research programs

- Expand the census of geologists and research labs supporting field monitoring, both at the Lexington KGS facilities and at the KGS Western Kentucky Office in Henderson

### 3. Principle 3: Achieve Discovery and Impact with Convergence

The 14th KGS will pursue convergence; geologists will work collaboratively with each other, engineers, social scientists, life scientists, and health professionals to solve relevant problems.

#### Key Objectives:

- Pivot from traditional disciplinary silos internally; teams will share ideas, members, tools, and networks, with attendant mutual accountability, and effort will be balanced by outcomes as the baseline expectation
- Advance a culture of innovation that encourages and rewards impactful scholarship and grantmaking that emphasizes convergence
- Build facilities that promote collaboration and open new avenues for research, including geochronology, advanced computing, and field monitoring networks
- Expand the census of KGS faculty affiliates to include nongeologists in disciplines that promote convergence

### 4. Principle 4: Harness Large Datasets for Science-Based Solutions

The 14th KGS will create an information management ecosystem amenable to the collection, analysis, and interpretation of large datasets and responsibly harness the power of artificial intelligence (AI), deep learning, machine learning, and their progeny to make research more efficient and impactful.

#### Key Objectives:

- Create an information management division responsible for big data curation and management, web services, and cybersecurity that is grounded in integrity and accountable to KGS
- Build a geoinformatics/AI research program to complete surficial geological mapping statewide and advance geohazards assessment and mitigation
- Acquire new core scanning and imaging tools for the Earth Analysis Research Library to develop big data from new and legacy well and soil datasets
- Launch/expand hillslope stability, groundwater, and flood monitoring programs as long-term experiments and serve this data to the public in real time
- Encourage and promote opportunities for additional education for KGS staff to achieve greater literacy in AI, big data, etc.



## 5. Principle 5: Commit to Excellence in Engagement

The 14th KGS will emphasize stakeholder relations and networking within Kentucky as a core mission of all staff.

### Key Objectives:

- Create an engagement division responsible for education, media, and operation of the KGS archive/library that is mutually accountable throughout KGS
- Build long-term trust relationships with key stakeholders in Kentucky to promote KGS, KGS capabilities, and the value of geological sciences
- Provide annual training and professional development opportunities to geologists and geology students across the state
- Lead education stakeholders in efforts to address pipeline issues and barriers to the geologic sciences, particularly at the K–12 level
- Strengthen relationships and expand collaborations with cognate disciplines and research centers at UK
- Build a natural history museum to promote special collections and the geological heritage of Kentucky