

# “CARPE DIEM!” - Collaborative Atmosphere for Research Practicum in the Environment: Direct Interactions, Education, and Modalities!

Paul J. Croft and Chris Duvall

## CESE Mission:

The Center for Earth System Education (CESE) mission at Kean University is to encourage, support, and promote earth system education at all levels. The earth system, comprised of both natural and human components, constitutes our world and determines the nature of our interactions & impacts on it as well as its impacts upon us every day.

## Impacts...

- ✓ Middle and High School students in NJ
- ✓ Research and related activities with KU
- ✓ Earth System Science & Science Activities
- ✓ Teacher training & workshops
- ✓ Annual commitment
- ✓ Tours, field trips, speakers, similar
- ✓ Professional Growth

Outreach for STEM research and related activities for middle and high school students (& teachers)



Middle/High Teachers

Middle/High Students

Data Collaborative & Public Safety

Undergraduate Students KU

Scientists KU & Elsewhere

Graduate Students KU

Assessment & Evaluation

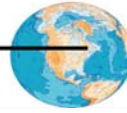
Study Region & Physiography

## Science Standards

- Content and Core Curriculum
- Testing versus practicum & skills
- Problem finding/solving & applications

**Acknowledgements** – Department of Geology & Meteorology; Faculty & Staff, Students; Kean University Meteorology Program; Center for Earth Science Education (KU); Epsilon Corps Program (KU); Institute for Urban Ecosystem Studies (KU); College of Natural, Applied, and Health Sciences (KU); Kean University Foundation; and the Office of Research & Sponsored Programs.

**G & M** Department of Geology and Meteorology  
Kean University



Astronomy - Geology - Meteorology - Hydrology

All Sciences, Science Standards, Deliverables

Getting Involved – KU

Observe  
Diagnose  
Predict  
Apply

## Research Topics & Process

- NJ & Regional area of focus
- Timely and “Do-able” in year
- Urban Ecosystem emphasis
- Propose – Review – Revise
- Accept/Reject Plans
- Identify Resources
- Collect Data, Analyze
- Interpretation & Questions
- Need for further investigation
- Examination of literature
- Presentation to peers
- Written paper/products

## Middle School...

- 
- Issue/Topic Identification
- Hypothesis Making
- Data Collection
- Comparisons/Contrasts
- Problem Finding/Solving
- Operational Methods
- Results & Interpretation
- Presentation

## High School...

- 
- Identify issues/problems
- Literature Review
- Plan of work & Hypotheses
- Methods/Procedures
- Data Collection/QC
- Analysis (spatial, temporal)
- Conclusions/Bibliography
- Presentation

