MEETING OVERVIEW

AGENDA

• What is CU GeoData?
• Our Collaborators
• Meet the Sub-Teams!
• Wrapping Up
CU GeoData is a student-run project team at Cornell which designs, builds, and deploys instrumentation capable of recording a large variety of atmospheric, geologic, and hydrologic data.
Faculty Collaborators

Prof. Wysocki
Dr. Derry
Dr. Keranen
Dr. Hysell
Air team is currently manufacturing a Tethersonde: a moored balloon with fixed sensors, to record vertical soundings in the Cayuga region. Air team has recently devoted itself to expanding the local NEWA network.
The Tethersonde

The Tethersonde is 324 cu. Ft. Balloon moored to an electronic winch. The tethersonde acts as an atmosphere probe by lifting a sensor into the sky to take temperature, wind vector, pressure, and humidity profile soundings.

The entire system was designed and fabricated by students on CU GeoData.
A Newer NEWA

CU GeoData is currently procuring 5 new ONSET weather stations to fill the gaps in the NEWA network surrounding Cayuga Lake. These stations will be donated to local entities in exchange for protected space.

Each GeoData site will be equipped with soil moisture sensors to assist in local INSAR constraints.
INVESTIGATE H.A.B.S ON WATER TEAM

Water team is developing a sensor capable of measuring water depth, temperature, turbidity, and salinity. We are continually monitoring water quality data in Cayuga Lake to identify Harmful Algal Blooms (HABs) via both past and present trend analysis.
CU GeoData's Water Team has utilized data from past citizen science repositories to visualize the patterns, causes, and effects of H.A.B.S. We are currently exploring local avenues via the Fingerlakes Associations to improve the visibility of the research.
The Cayuga Nature Center

CU GeoData's Water Team has recently begun to collaborate with the Cayuga Nature Center. The CNC will house a GeoData weather station and act as site for researching local energy budgets in the hydrologic cycle. Team members are currently exploring sap flux sensor technology at the CNC.
Rock team is responsible for measuring and monitoring the quality and stability of soil in the Cayuga region. We have recently concluded an X-Ray Diffraction (XRD) analysis of the soil. Rock team now analyzes phosphorus contamination using ground penetrating radar and electrical conductivity.
Previously, Rock Team utilized XRD to characterize the components of soil samples as a part of a field campaign to locate sources of phosphorus contamination.
Rock Team currently employes GPR and electrical resistivity sensors to locate areas in which topsoil moisture is directly linked to the local water table. Rock Team is now developing their own shallow depth electrical resistivity sensor called the OhmPi.
SOLVE REAL WORLD ISSUES
ON TECH TEAM

Tech team members are distributed throughout the 3 primary sub teams where they aid in resolving technical issues. We have recently began work on a new project: drone-mounted Normalized Difference Vegetative Index imagery.
Tech Team members are currently constructing a hexacopter drone with a mounted near infrared and visible light camera. The normalized difference between the flux of these light spectrums allows researchers to see the "greeness" or healthiness, of plants.
BUILD GEODATA ON BUSINESS TEAM

Business team is responsible for managing CU GeoData's finances and public outreach. We are always on the lookout for new sponsors and ways to invest in our community through STEM.
Outreach

Business team showcases CU GeoData's accomplishments by creating promotional materials and engaging with sponsors through Giving Day.
A UNIQUE EDUCATIONAL EXPERIENCE

UNPARALLELED IN THE COE AND EAS
A DIVERSE TEAM OF RESEARCHERS AND ENGINEERS

DEVOTED TO MAKING A DIFFERENCE