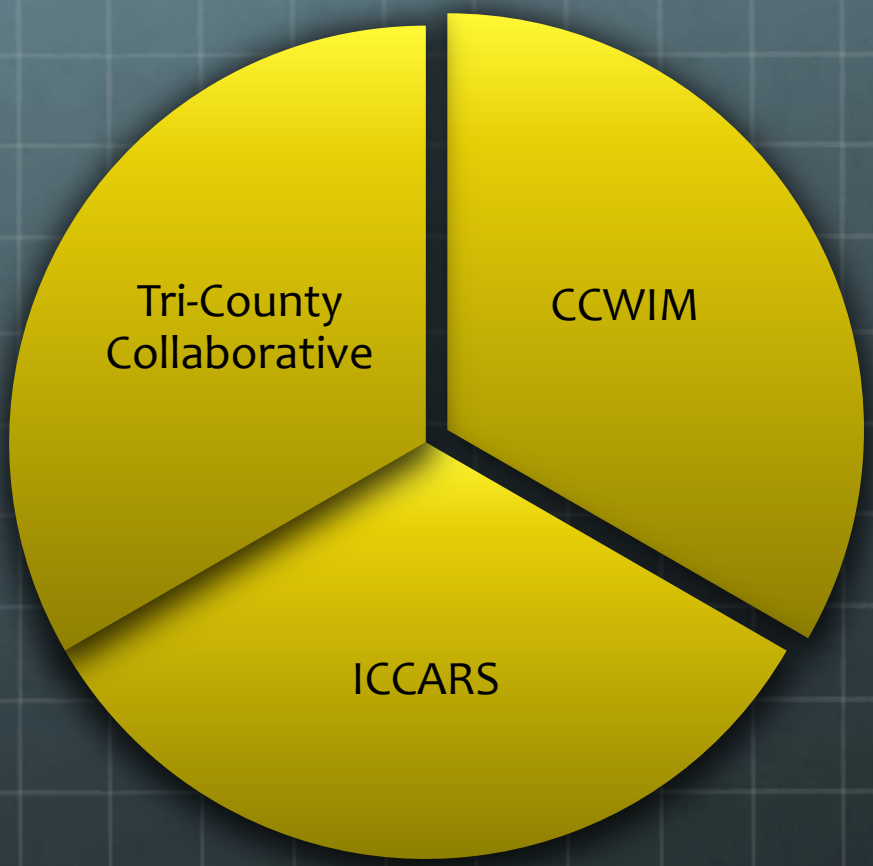
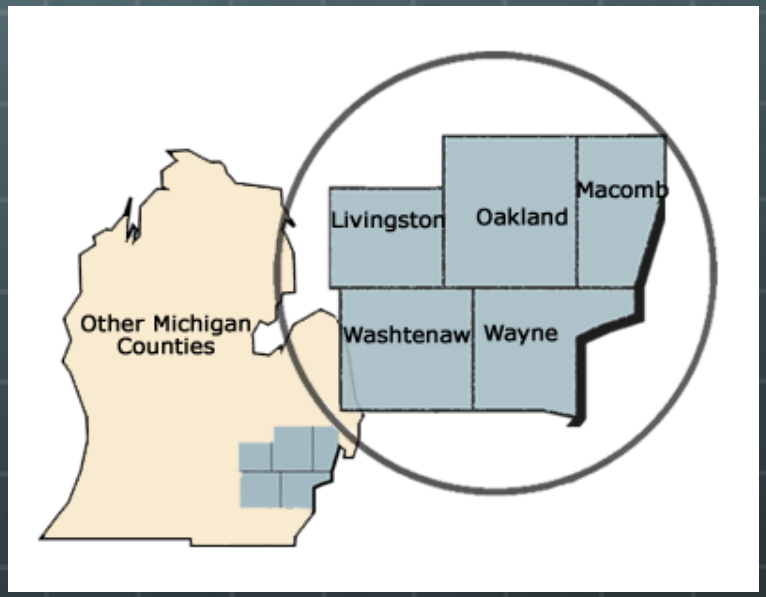
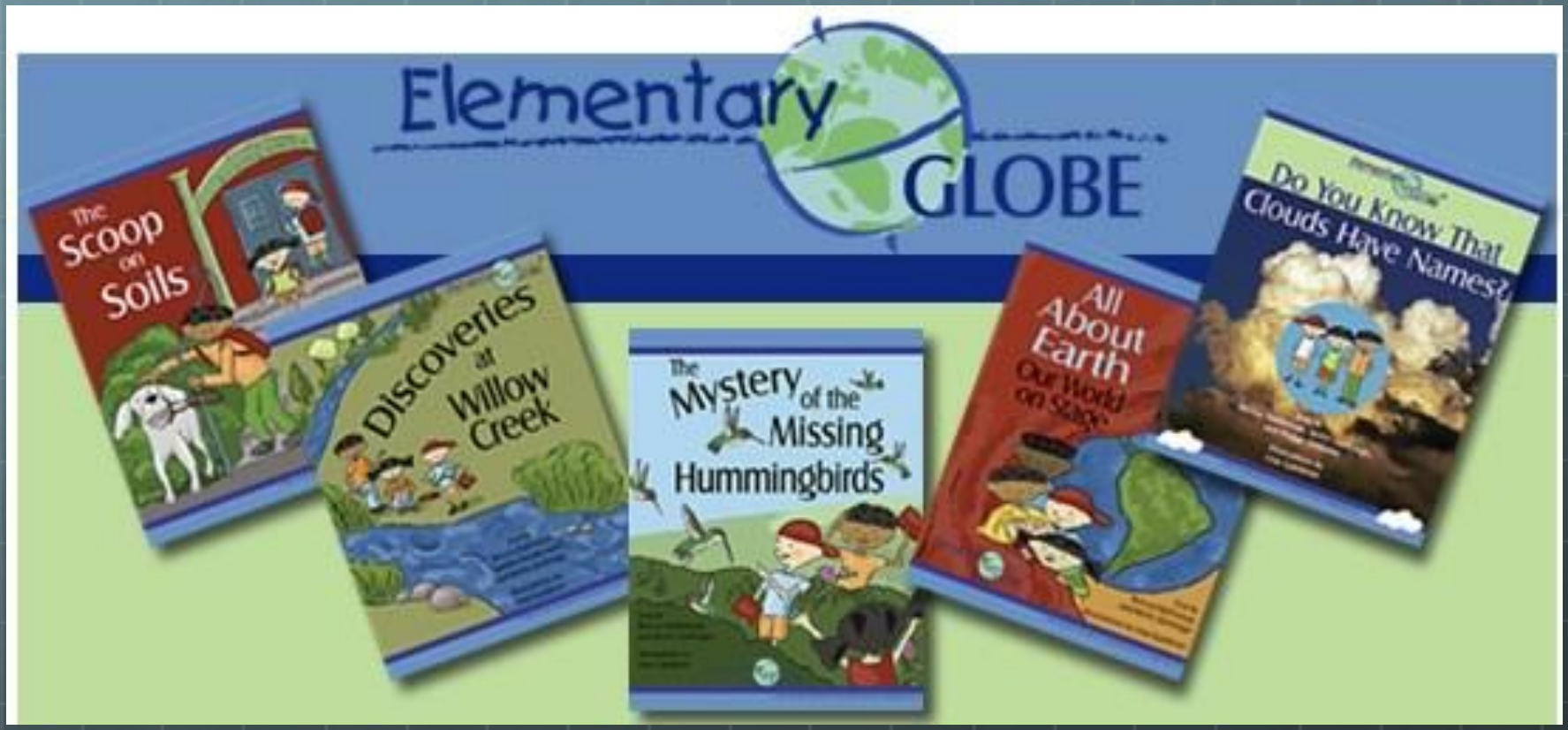
Wayne County Mathematics and Science Center
Wayne, MI
David Bydlowski bydlowd@resa.net

The GLOBE Program in Wayne County, MI



Tri-County Collaborative




Elementary
GLOBE
The Scoop on Soils
Discoveries at Willow Creek
The Mystery of the Missing Hummingbirds
All About Earth
Our World in Space
Do You Know That Clouds Have Names?

PD Series
Grade Level Specific

K - 7

Location

DETROIT ZOO

DETROIT ZOOLOGICAL SOCIETY

Elementary GLOBE

- Soil for K and 3rd Grade
- Clouds for 1st Grade
- Earth Systems for 1st and 2nd Grade
- Seasons for 1st Grade

Comparing and Contrasting Watersheds in Michigan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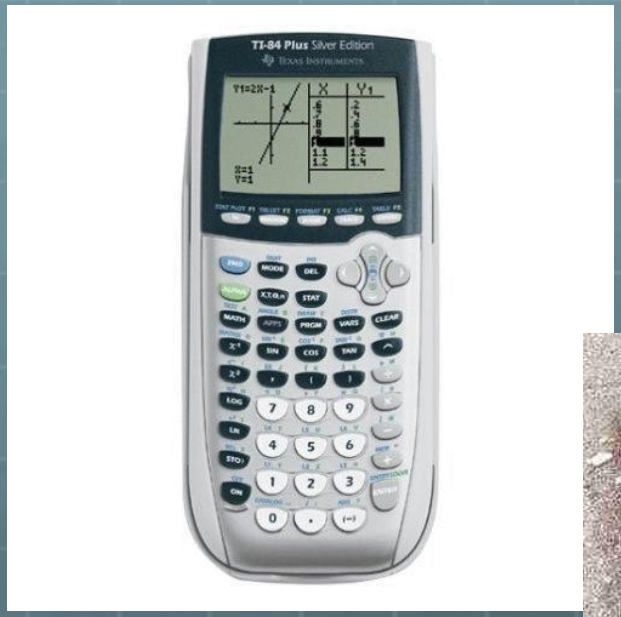
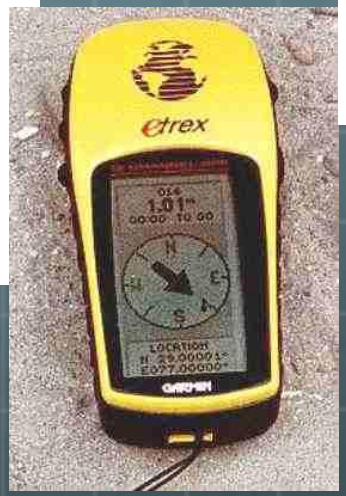
2009 Vernier Technology Award Winning Teacher

Kristy Gollakner
Upper Peninsula
7th Grade


TI-84 Plus Silver Edition
Texas Instruments


Dino-Lite
HI-SPEED
CERTIFIED
USB


etrex


LabPro
Vernier

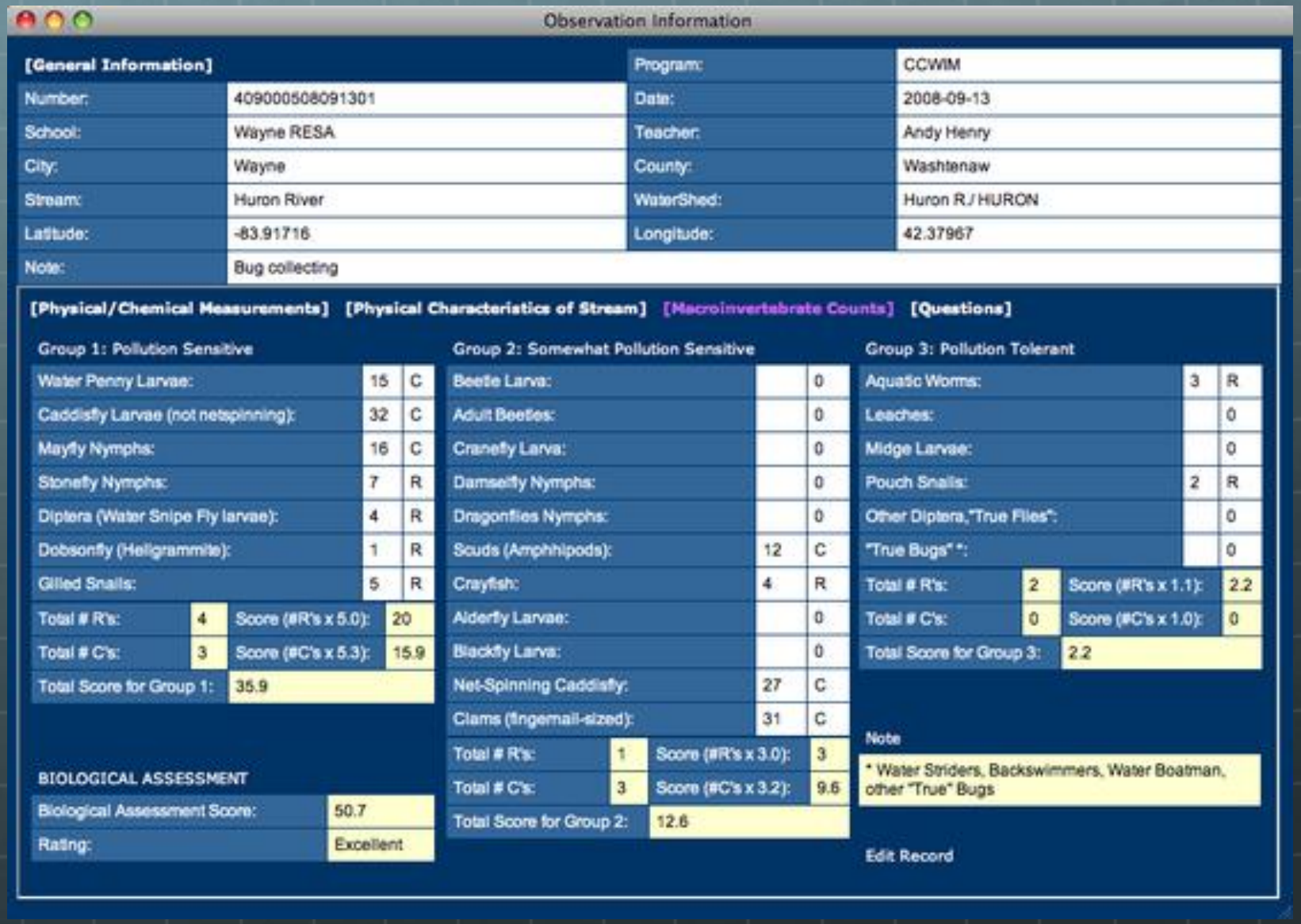

Sprint


Logitech


flip

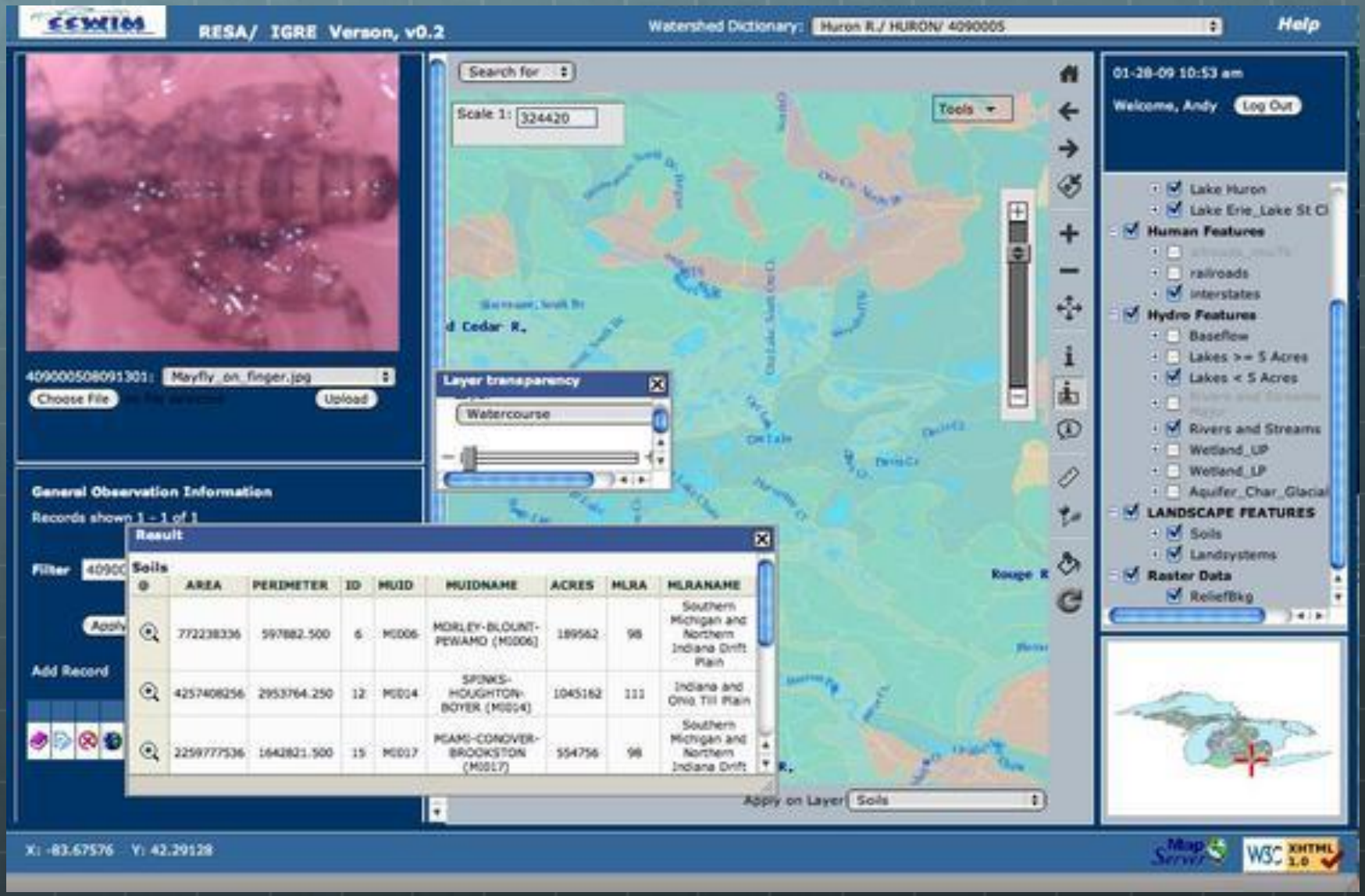
- Temperature, Tubidity, Total Dissolved Solids, pH
- Water Transparency, Water Temperature, Electrical Conductivity
- GPS
- Hydrology

H2O Mapper


Observation Information
[General Information]
Number: 409000508091301
School: Wayne RESA
City: Wayne
Stream: Huron River
Latitude: -83.91716
Note: Bug collecting
Program: CCWIM
Date: 2008-09-13
Teacher: Andy Henry
County: Washtenaw
WaterShed: Huron R./ HURON
Longitude: 42.37967
[Physical/Chemical Measurements] [Physical Characteristics of Stream] [Macroinvertebrate Counts] [Questions]
Group 1: Pollution Sensitive
Water Penny Larvae: 15 C
Caddisfly Larvae (not netspinning): 32 C
Mayfly Nymphs: 16 C
Stonefly Nymphs: 7 R
Diptera (Water Snipe Fly larvae): 4 R
Dobsonfly (Helligrammite): 1 R
Gilled Snails: 5 R
Total # R's: 4 Score (#R's x 5.0): 20
Total # C's: 3 Score (#C's x 5.3): 15.9
Total Score for Group 1: 35.9
Group 2: Somewhat Pollution Sensitive
Beetle Larva: 0
Adult Beetles: 0
Cranefly Larva: 0
Damselfly Nymphs: 0
Dragonflies Nymphs: 0
Scuds (Amphhipods): 12 C
Crayfish: 4 R
Alderfly Larvae: 0
Blackfly Larva: 0
Net-Spinning Caddisfly: 27 C
Clams (fingernail-sized): 31 C
Total # R's: 1 Score (#R's x 3.0): 3
Total # C's: 3 Score (#C's x 3.2): 9.6
Total Score for Group 2: 12.6
Group 3: Pollution Tolerant
Aquatic Worms: 3 R
Leaches: 0
Midge Larvae: 0
Pouch Snails: 2 R
Other Diptera,"True Flies": 0
"True Bugs" *: 0
Total # R's: 2 Score (#R's x 1.1): 2.2
Total # C's: 0 Score (#C's x 1.0): 0
Total Score for Group 3: 2.2
Note
* Water Striders, Backswimmers, Water Boatman, other "True" Bugs
BIOLOGICAL ASSESSMENT
Biological Assessment Score: 50.7
Rating: Excellent
Edit Record

http://h2omapper.resa.net/pmapper/map.phtml

H2O Mapper

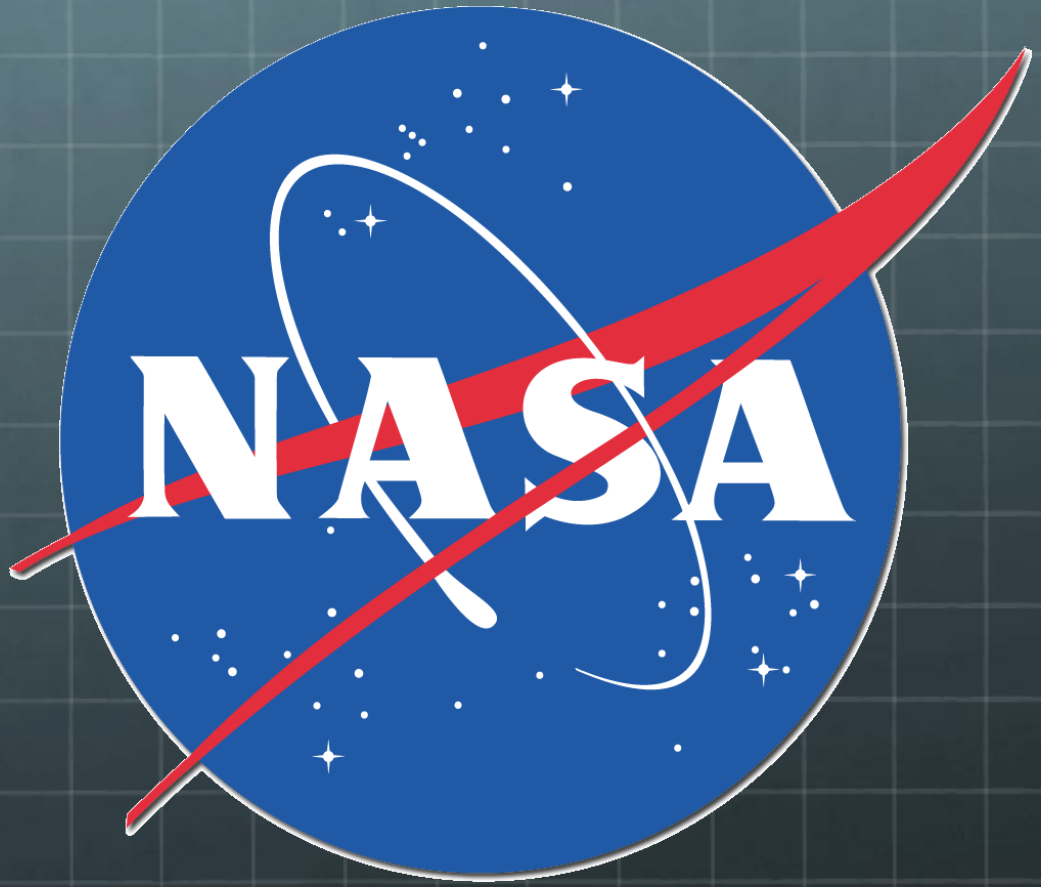


ICCARS

Investigating Climate Change and Remote Sensing

K-12 Education Grant

Targeting 8th – 12th Grade



Goal

Students and Teachers will have a working understanding of the science behind global climate change and its relationship to human activity, in particular its relationship to land-use and land-cover (LULC) changes on multiple scales through NASA data products and models.

Outcomes

- Understand and use remotely sensed data to study global climate change.
- Use an AROKATS kite-based sensor to collect and process remotely-sensed data.
- Collaborate via a social network of peers
- Align understanding to Michigan's Merit Curriculum
- Implementation of Project-Based Learning

Deliverables

- Student produced AEROKATS field manual and image processing lab guide.
- Develop a handheld field data collector for spatially referenced data.
- Develop 48 Instructional Units to be used in STEM classes to study climate change.
- Design an e-Learning Collaboratory for social networking, data sharing, and peer review.

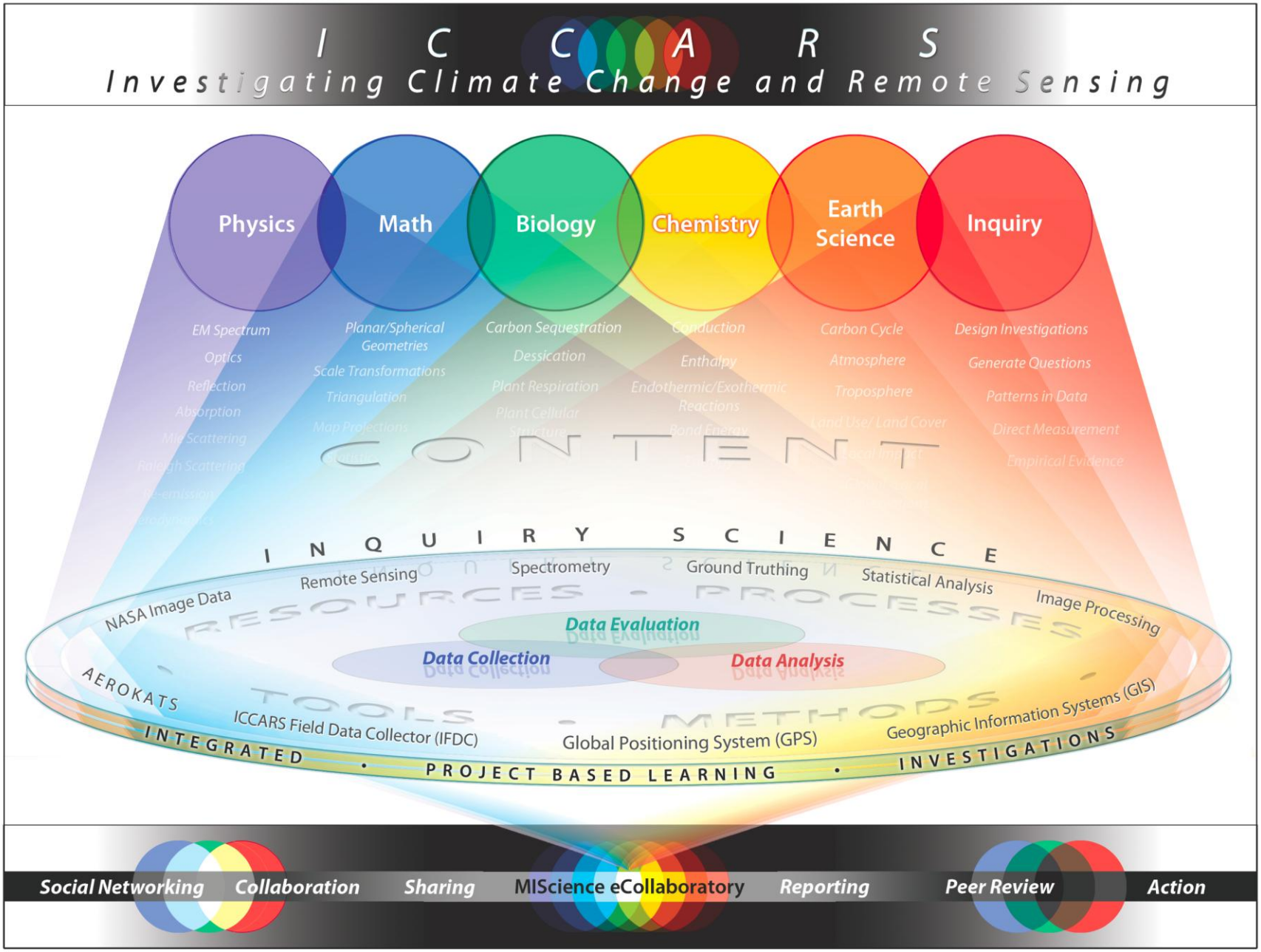
Agricultural and Environmental Research Observation Kites and Tethered Systems (AEROKATS)

Geoff Bland/NASA GSFC WFF
AeroScienceCenter
757-824-2855

1st Year: Visible and Near Infrared Imagery
2nd Year: Will include Air Column data sampling

Implementation

- August, 2010: Global Climate Change One-Day Conference
- 2010-2011 School Year: Project Development with students (30) and teachers (12)
- May, 2011: Global Climate Change One-Day Conference
- August, 2011: 5-Day Teacher Training
- 2011-2012 School Year: Implementation with students (1500) and teachers (36 + 12)


I C C A R S
Investigating Climate Change and Remote Sensing
Physics
Math
Biology
Chemistry
Earth Science
Inquiry
EM Spectrum
Optics
Reflection
Absorption
Mie Scattering
Rayleigh Scattering
Re-emission
Planar/Spherical Geometries
Scale Transformations
Triangulation
Map Projections
Carbon Sequestration
Dessication
Plant Respiration
Plant Cellular Structure
Conduction
Enthalpy
Endothermic/Exothermic Reactions
Bond Energy
Carbon Cycle
Atmosphere
Troposphere
Land Use/ Land Cover
Design Investigations
Generate Questions
Patterns in Data
Direct Measurement
Empirical Evidence
CONTENT
INQUIRY SCIENCE
NASA Image Data
Remote Sensing
Spectrometry
Ground Truthing
Statistical Analysis
Image Processing
RESOURCES - PROCESSES
Data Evaluation
Data Collection
Data Analysis
AEROKATS
ICCARS Field Data Collector (IFDC)
Global Positioning System (GPS)
Geographic Information Systems (GIS)
TOOLS - METHODS
INTEGRATED • PROJECT BASED LEARNING • INVESTIGATIONS
Social Networking
Collaboration
Sharing
MIScience eCollaboratory
Reporting
Peer Review
Action

- Active participation in the GLOBE Student Climate Research Campaign
- Use of GLOBE Protocols – Temperature / Precipitation/GPS
- Earth System Science Projects – Carbon Cycle / Watershed Dynamics / Seasons and Biomes

Can we make this happen?

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