GIS-GPS for Alaska Teachers

Summer 2004: A reflection

Anupma Prakash
Gary Cooper

Day : Thursday
Date : October 13, 2004
Time : 1.00 am to 2.15 pm
Place : Lathrop High School

Geophysical Institute, University of Alaska Fairbanks
Inspiration

• NASA’s mission *To inspire the next generation of explorers*

• NASA's interest to strengthen the STEM pipeline
Inspiration

- Funded project by the Earth System Science Education for the 21st century.
Inspiration

- Neal Brown – Director, ASGP
• Geospatial workforce development funds
• Picked up
  – Tuition and lab costs
  – Material costs (text book, license, CDs, prints)
  – Partial expenditure for outstation participants
About the course

- Two weeks (June 7–18)
- Pre/Inservice Alaska teachers
- 3 credit course
- 25 hrs of lectures
- 45 hrs of supervised laboratory time
- 8 hrs field visit to an industry
- Arcview 3.x exercises
- Independent project
• List servers (ATRM, NASDUG)
• Web sites (ASGP, UAF, ASTA)
• Conferences
• Flyers
• Word of mouth (most effective)
Participants

- 13 teachers (cap limit)
- 7 schools
- 5 different locations
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Data

- Data Formats
- Remote sensing data
- Earth Science data
- Alaska specific data
GPS

- Data collection
- Geocaching
- Direct import
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Lecture material

- Powerpoint
- Flip charts
- Sticky notes
- Group discussions
- Interactivity
- Coffee-cookie break
Industry visit

- Fairbanks North Star Borough GIS facilities
Supervised labs

• Followed ESRI text book
• Supervision assistance: Bill Witte, Rudi Gens, Stefan Gaston (summer intern)
Independent projects

ACS Students Across Alaska

Using the Alaska In MapAtlas with ArcView

Kay Holmes

Alaska Central School

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Independent projects

Forest Vegetation Types in the Vicinity of Eielson High School

Pat Cromer and Larry Terch
- Ben Eielson High School

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Independent projects

Using GPS to Put Our Solar System in Perspective

Presenter: Lori Schoening

1. Press the power button. Press page until you see this screen. Press OK.

2. Press the down arrow until Mark is highlighted. Press OK.

3. Press the down arrow until Mark is highlighted. Press OK.

4. Find your module. Press page until you see this screen. Press down to highlight mark. Press OK.

5. Press OK. This creates a waypoint using the location of your module.

6. Press page until you see this screen. Press down to highlight waypoint. Press OK.

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Independent projects

Snow depth and ice surface temps along the Imikpuk transect

- Snow Depth (cm)
- Ice Surface Temp (°C)

Position on Transect (m)

Conclusions

- Broaden the topic. A single transect on a single lake is too narrow
- Data can be more than numbers
- A database and a spreadsheet are NOT the same thing
- Think BIG PICTURE!!!
Independent projects

Urban Moose Movements in Fairbanks, Alaska
Dave Cox and Matt Steffes
June 17, 2004
Geos 595

Moose 1: Movement
Moose 2: Movement
Moose 3: Movement

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Stress release break
Follow up

- Teachers added to ATRM list serve
- Lecture material, additional information CDs, data backup were mailed to each individual
- Follow up visit: Barrow
Barrow HS lab
New exercise

Step 15. To trace the landfast ice edge for other dates, select the tif image of the other dates and repeat the procedure from step 8 through step 14. Assign a different color to each of the shape files so generated. Display the 4 vector shape files on top of the July 2004 image. Below is a sample of what your view may look like.

Step 16. Use the measure tool to measure the extent of the landfast ice edge from the shore.
Web site under construction
www.gi.alaska.edu/~prakash/teaching/k12/barrow
Network + new proposals

- With ASGP (Neal Brown): NASA
- With UAS (Cathy Connor): NSF
- With ESSE21 participants: Others
Lessons learned

• GPS – GIS are great to introduce at school level
• They address several established standards
• Teachers and students are enthusiastic
• Class exercises need to be tailored to fit into the short 45-50 minute period
• Instructions have to be crisp and crystal clear
Some questions

- ArcView 3.x or ArcGIS 9 or ??
- Hardware and software costs
- Technical/maintenance issues
- Time within existing curriculum
- Sustainability: One time training reaching broad audience or repeat training with a narrow audience
- Funding
For summer 2005

- Alaska Space Grant Program Booth
- www.uaf.edu/asgp
- ATRM list serve
- ASTA web page
- Contact:

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  Web : www.gi.alaska.edu/~prakash