

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

- NASA's mission *To inspire the next generation of explorers*

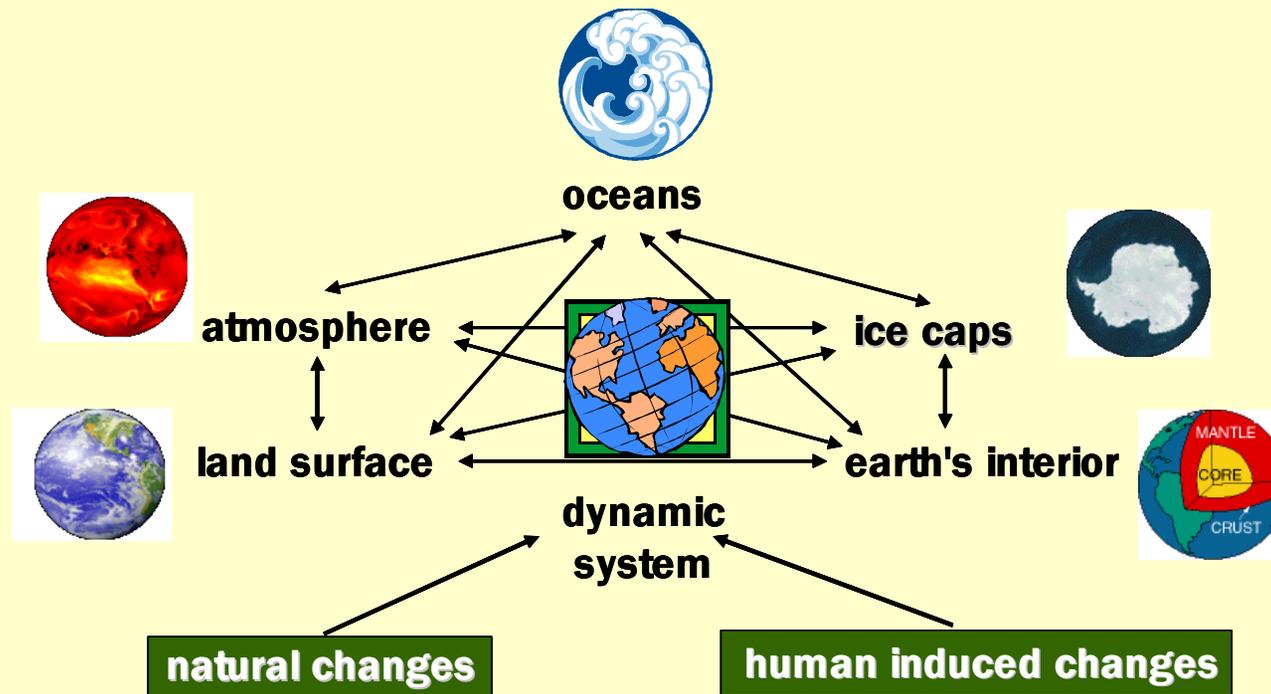


- NASA's interest to strengthen the STEM pipeline

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



GIS-GPS for Alaska teachers: Summer 2004





- Neal Brown – Director, ASGP





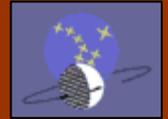
- Geospatial workforce development funds
- Picked up
 - Tuition and lab costs
 - Material costs (text book, license, CDs, prints)
 - Partial expenditure for outstation participants



- 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



**Make the most of your
precious time**



- List servers (ATRM, NASDUG)
- Web sites (ASGP, UAF, ASTA)
- Conferences
- Flyers
- Word of mouth
(most effective)



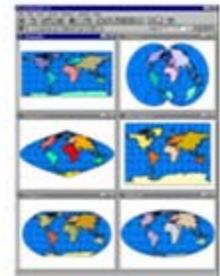
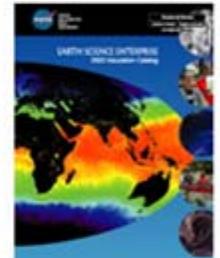
GPS – GIS for Alaska Teachers
A Three Credit Summer Course (June 7-18, 2004) at UAF

Sponsored by the Alaska Space Grant Program (www.uaf.edu/asgp)

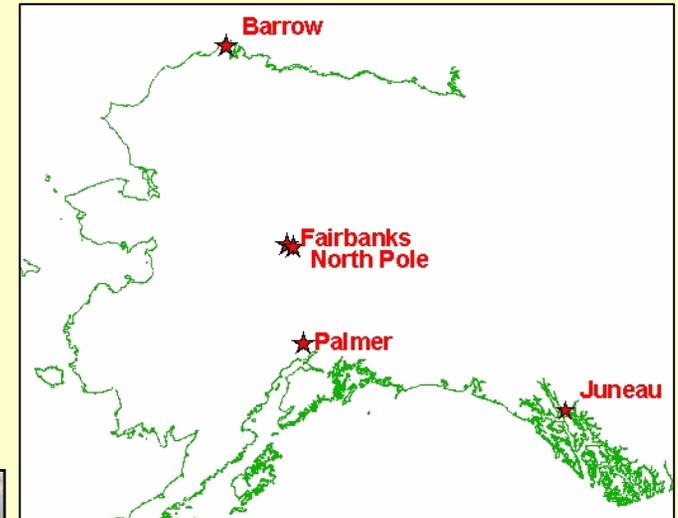
This two week course is specially designed for Geography and Science Teachers of Alaska

- The course will provide an overview of GPS and GIS in a simple and easy to understand way
- Teachers will be exposed to the various on-line and offline sources and repositories of geospatial data and educational material compiled by NASA and other organizations
- Teachers will use GPS receivers to collect field data and will have a chance to integrate it with other map data of their interest
- Teachers will learn to use the Arcview software package
- Lessons will be tailored to meet the national and state education standards

Note: For more information contact the Alaska Space Grant Program Office at fyspace@uaf.edu ; Phone (907) 474-6833



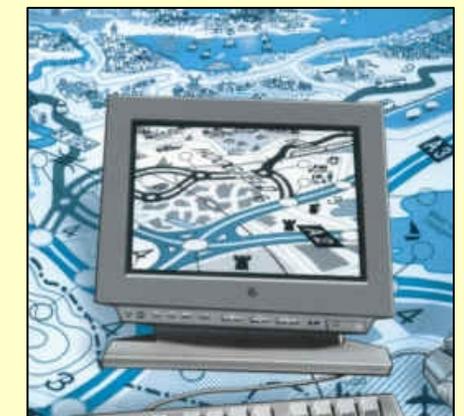
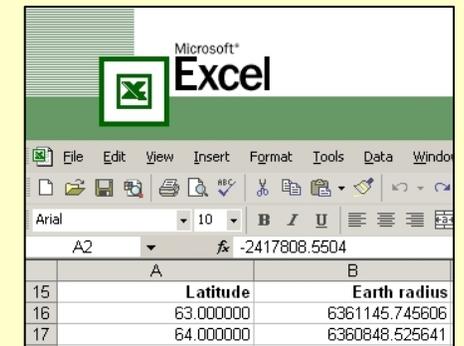
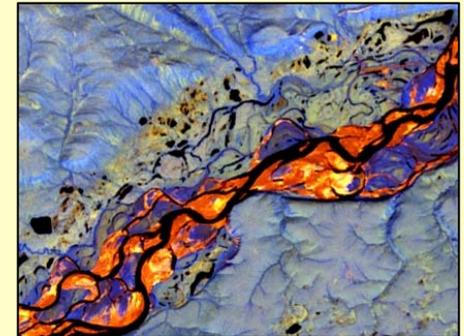
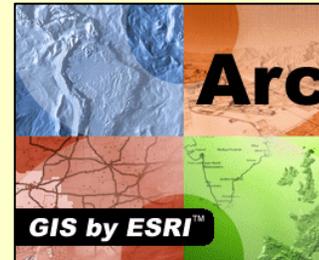
- 13 teachers (cap limit)
- 7 schools
- 5 different locations



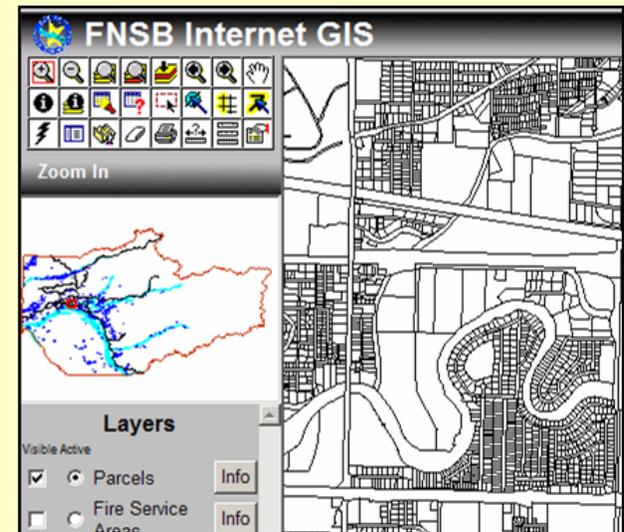
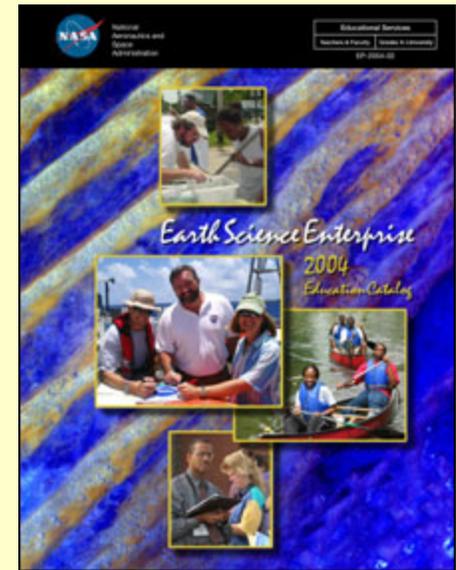
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Lecture/Lab Topic	
Lecture 1	Introduction to the course - GIS / GPS
Lecture 2	Geospatial data and Alaska data
Lab 1	Getting started + Geospatial data sources
Lecture 3	More about GIS
Lecture 4	Point, vector and raster data
Lab 2	ArcView basics
Lecture 5	Introduction to GPS
Lecture 6	Integrating GPS data in a GIS
Lab 3	GPS data collection and processing
Lecture 7	Defining a GIS project
Lecture 8	Sample GIS applications
Lab 4	Landforms and physical processes
Lecture 9	GIS in Physical Geography 1
Lecture 10	GIS in Physical Geography 2
Lab 5	Ecosystems, climate and vegetation
Lecture 11	Analysis in GIS -1
Lecture 12	Analysis in GIS -2
Lab 6	Population patterns and processes
Lecture 13	Analysis in GIS -3
Lecture 14	Analysis in GIS -4
Lab 7	Political geography
Lecture 15	Analysis in GIS -5
Lecture 16	Cartography Basics
Lab 8	Economic geography
Lecture 17	Map Projections
Lecture 18	Creating your map
Lab 9	Human/Environment Interaction
Lecture 19	Tips and tricks for project reporting
Lecture 20	Printing final map and report
Lab 10	Issues/concerns/future direction

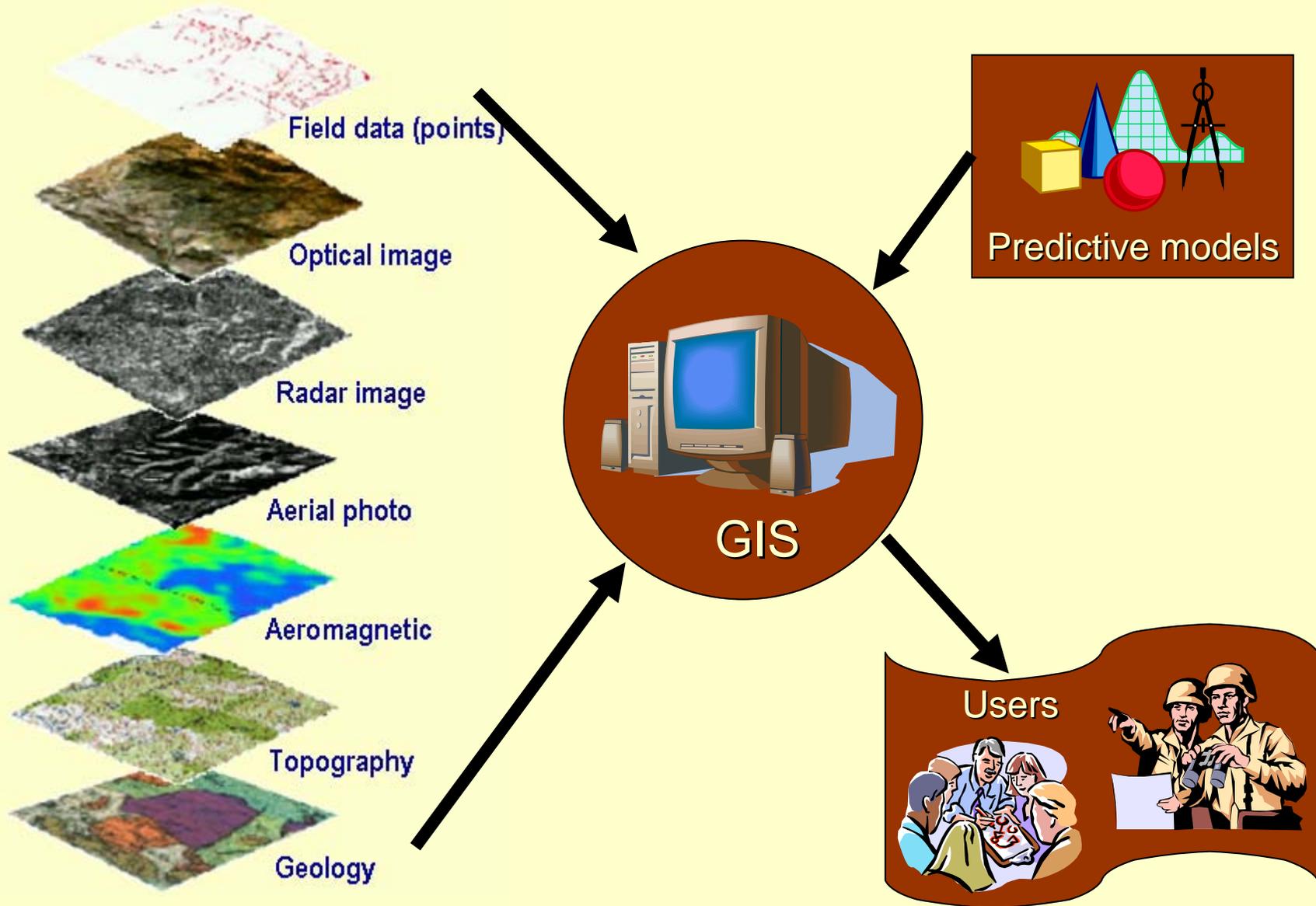


- Data Formats
- Remote sensing data
- Earth Science data
- Alaska specific data



- Data collection
- Geocaching
- Direct import





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

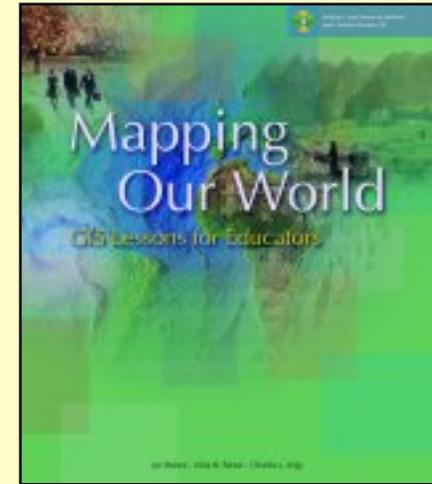


- Fairbanks north Star Borough GIS facilities

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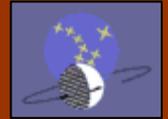


- Followed ESRI text book
- Supervision assistance: Bill Witte, Rudi Gens, Stefan Gaston (summer intern)



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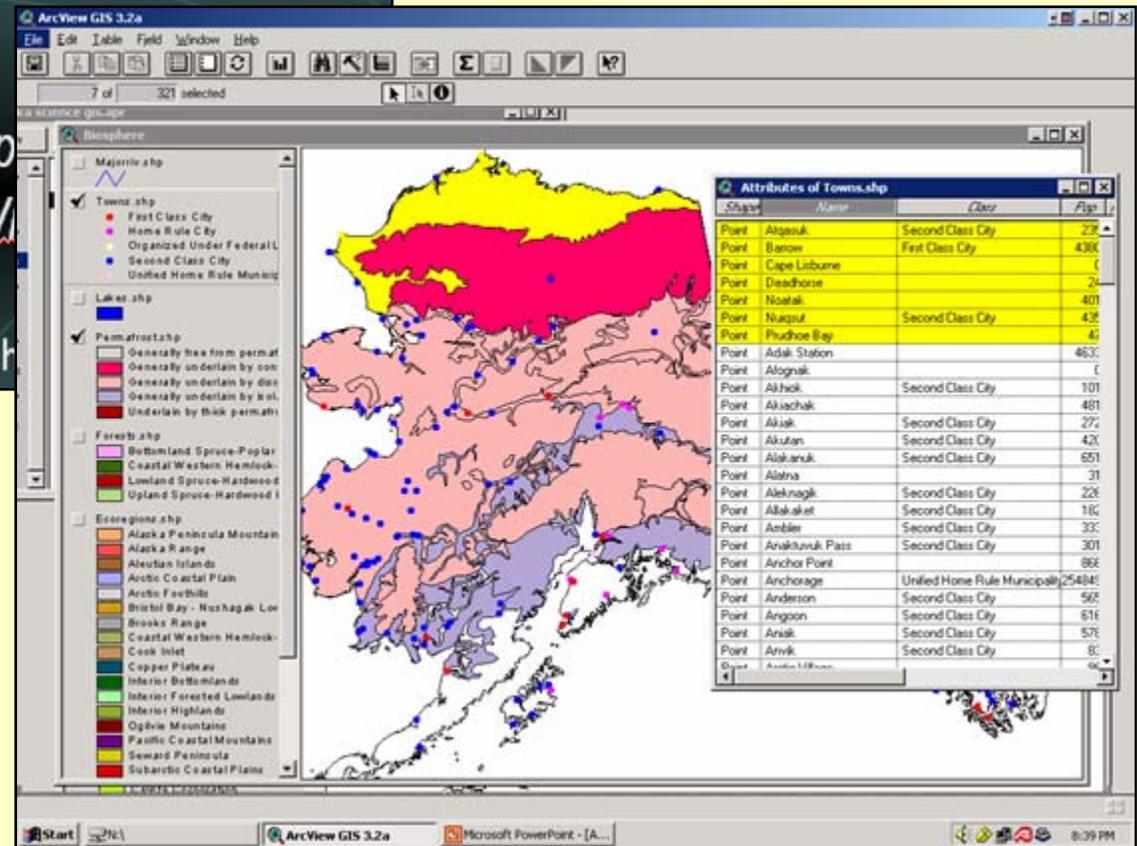




ACS Students Across Alaska

Using the Alaska In Map Atlas with ArcView
 Kay Holmes
 Alyeska Central Sch

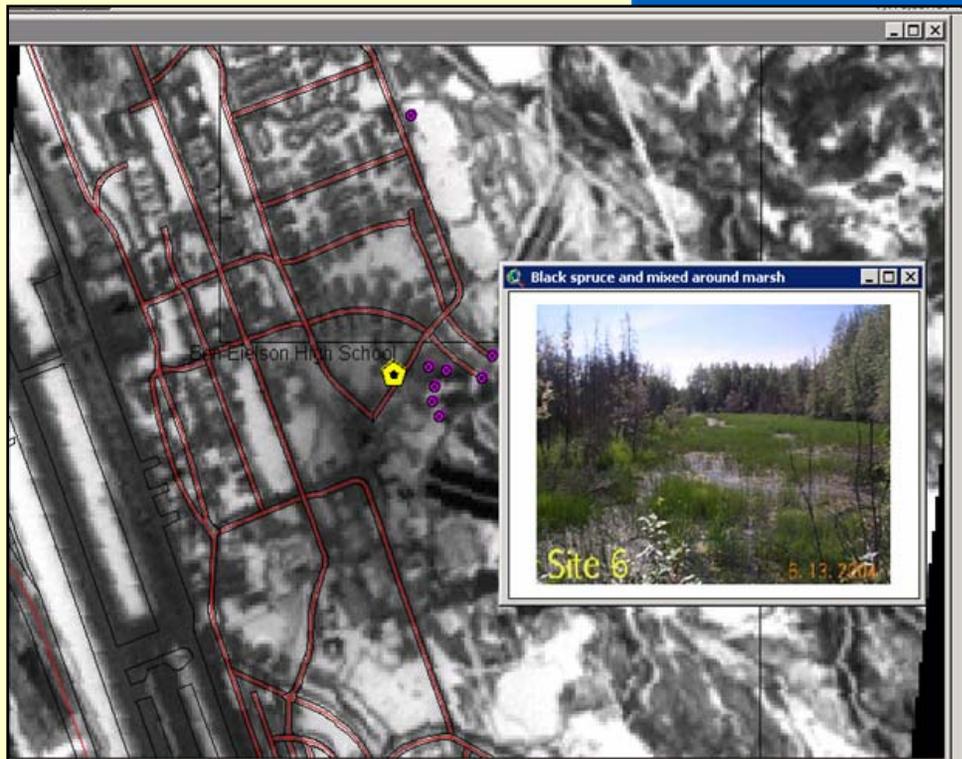
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Forest Vegetation Types in the Vicinity of Eielson High School

Pat Cromer and Larry Terch
-Ben Eielson High School



1. Press the power button. Press page until you see this screen. Press the down arrow until **setup** is highlighted. Press **OK**.



2. Press the down arrow until **units** is highlighted. Press **OK**.



3. Press the down arrow until **metre** is highlighted. Press **OK**.



4. Stand near your model sign. Press page until you see this screen. Press down to highlight **mark**. Press **OK**.



5. Press **OK**. This creates a waypoint marking the location of your model sign.



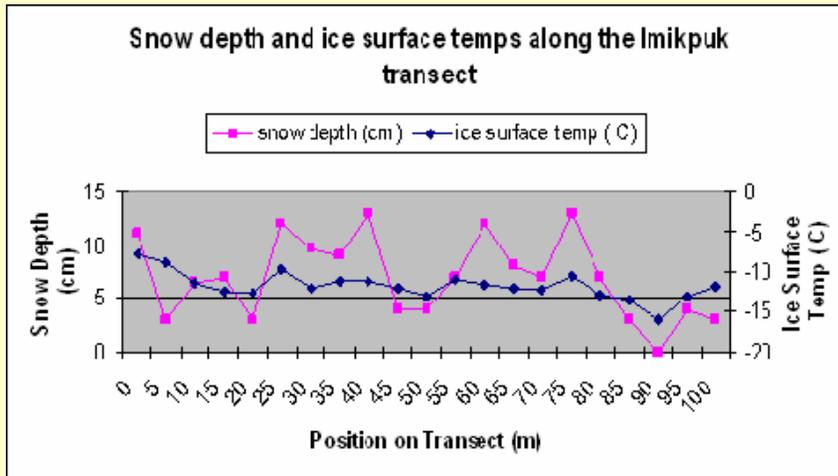
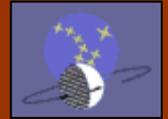
6. Press page until you see this screen. Press down to highlight **waypoints**. Press **OK**.



Using GPS to Put Our Solar System in Perspective

Presenter: Lori Schoening





IMI KPUK LAKE / ALISON DATA MANAGEMENT

Tim Buckley
Barrow High School

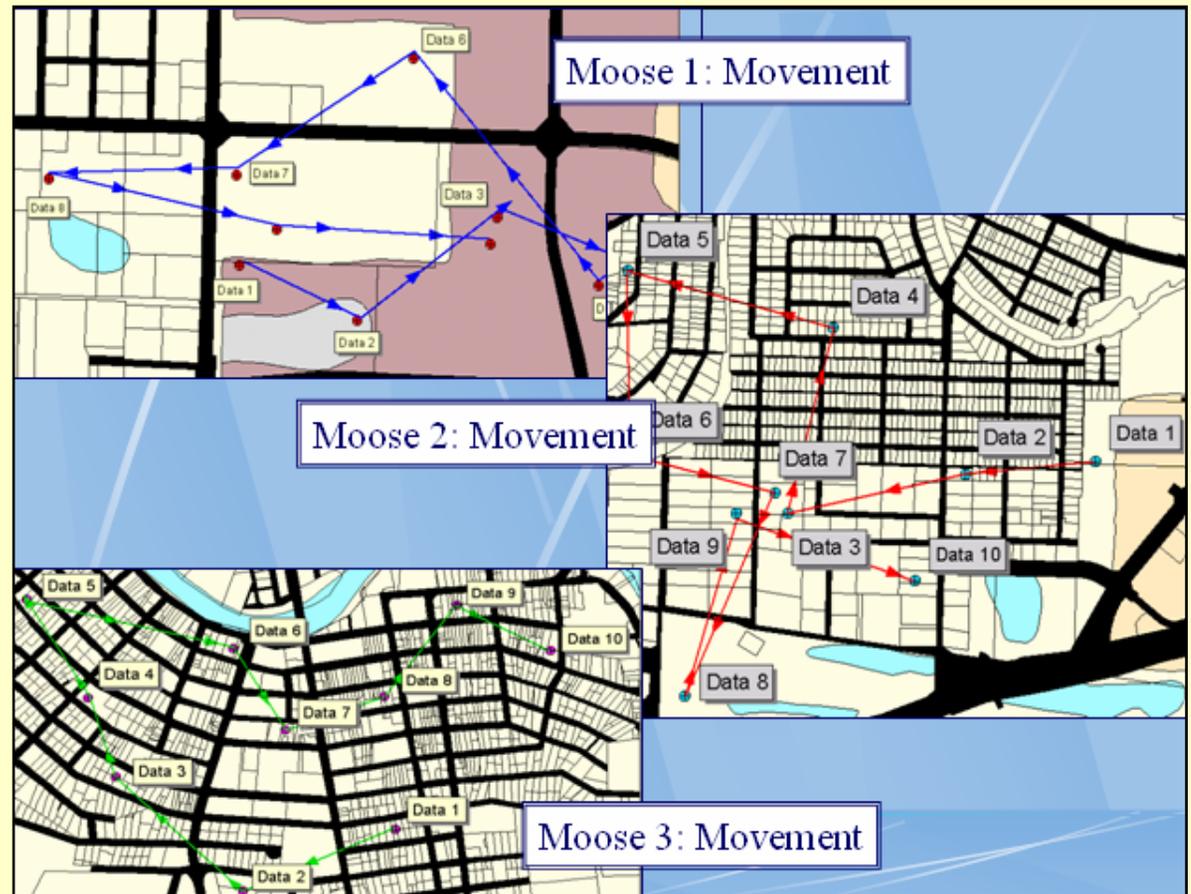
Conclusions

- **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!!!**



Urban Moose Movements in Fairbanks, Alaska

Dave Cox and Matt Steffes
 June 17, 2004
 Geos 595





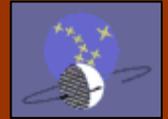
Anadromous Fish Distribution in the Fairbanks Area

Will Boger – IDEA Fairbanks





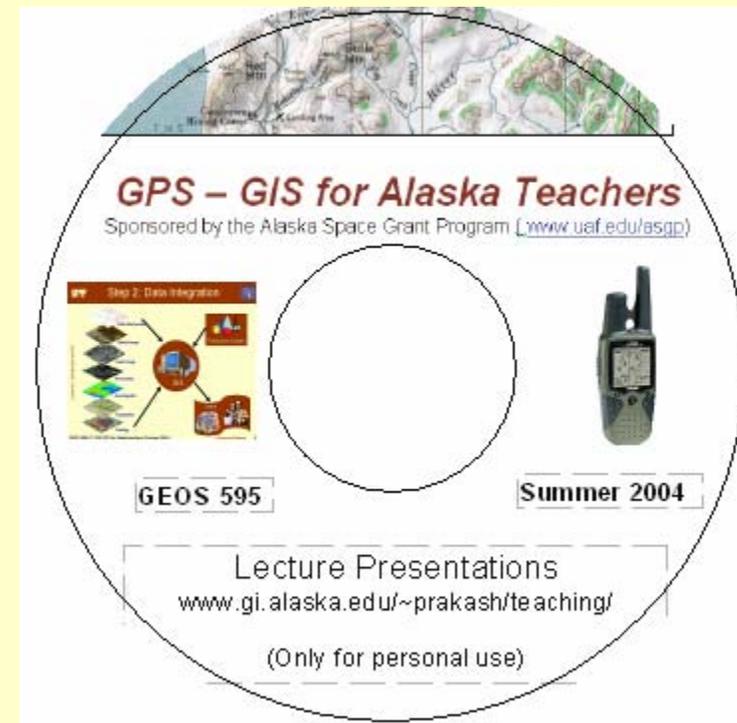
Stress release break



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





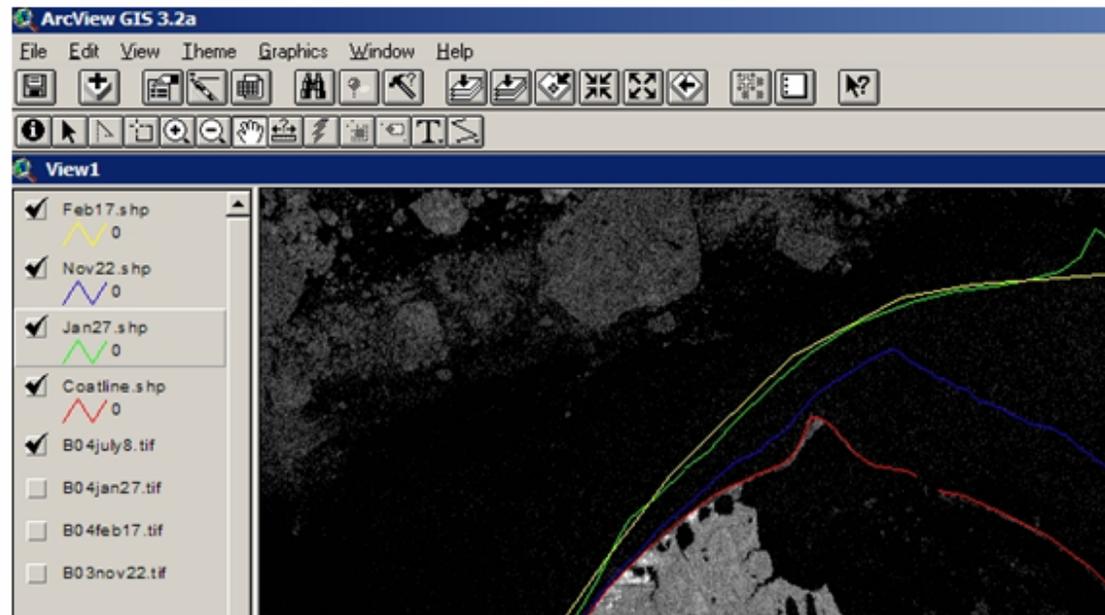
Barrow HS lab



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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



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

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- 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



- 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



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

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Phone : 907-4741897

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

