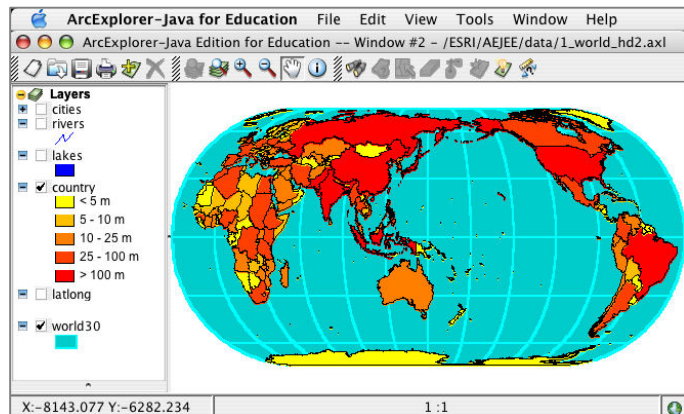


Geospatial Technologies and Spatial Thinking

GIS + GPS + RS = Tools for geographic inquiry

Key geospatial technologies are becoming more evident in our everyday lives. Geographic information system (GIS), global positioning system (GPS) and remote sensing (RS) technologies are the base: Smart maps able to display, query, and analyze geographic databases; receivers that provide location and navigation; and global to local imagery and tools providing visual context and analysis.



Sample map created with ArcExplorer Java Edition for Education

However, tools are just that...tools.

Critical to the best use of geospatial technologies is spatial thinking and thinkers. Geographic inquiry powers the application of these technologies in classroom subjects, in careers, and in the community. In combination these technologies are increasingly more vital in assisting educators, students, and their institutions to ask and answer personal and community questions with local to global implications.

Classroom: Geography and GIS are obvious companions, for example, GIS appears in the US National Geography Standards. However, teachers in earth, environmental, biological, and general science are the largest body of educators using the range of geospatial technologies. Their growing use in an array of social studies and STEM (science, technology, engineering, and mathematics) subjects supports authentic problem-based instruction. The growing importance of these skill sets is prompting countries including Norway, Finland, and South Africa to infuse these tools and approaches into school programs.

Careers: The US High-Growth Job Training Initiative and CareerVoyages.gov have placed a spotlight on GIS and geospatial technologies. In other parts of the world similar workforce emphasis is being seen. Thousands of jobs require key geographic skills in vital areas of our communities such as planning, law enforcement, environmental management, business, public safety, health, and agriculture. Pick a walk of life and geospatial technologies and spatial thinking are active.

Community: GIS, GPS, and RS are helping students and community partners tackle real social and environmental research projects in their local areas. Geospatial technologies and thinking processes are bringing the spatial dimension of display and analysis to service learning and other field-based endeavors.

Selected geography and geospatial resources

Geography in every walk of life

ESRI Map Book Gallery
www.esri.com/mapmuseum

ESRI Industry Applications
www.esri.com/industries.html

GIS background and uses

www.gis.com

GIS in Everyday Life

www.esri.com/company/gis_touches/start.html

Geography across subjects

Exploring Common Ground: The Educational Promise of GIS (Downloadable paper)

www.esri.com/industries/k-12/download/docs/xcg.pdf

Geographic Inquiry: Thinking Geographically (Downloadable paper)

www.esri.com/industries/k-12/download/docs/geoginquiry.pdf

Learning to Think Spatially, a new report from the National Research Council

www.nap.edu/catalog/11019.html

My Wonderful World, a new 5-year campaign led by the National Geographic Society

www.mywonderfulworld.org

Geography across the community, around the world

4-H National GIS/GPS Integration Team,

www.gisgpsintegration.org/index.htm

Earth Science Week (8-14 October, 2006),

www.earthsciweek.org

ESRI US Community Mapping Program,

www.esri.com/communityatlas

GIS Day (15 November, 2006) www.gisday.com

My Community, Our Earth, www.aag.org/sustainable

Society for Conservation GIS, www.scgis.org



Geography across careers

Geospatial Technology @ Career Voyages

www.careervoyages.gov/geospatialtechnology-main.cfm

Geospatial 21 @ Kidz Online

www.geospatial21.org

Mapping Out a GIS Career

www.gis.com/careers

US High-Growth Job Training Initiative—Geospatial Technology
www.doleta.gov/BRG/Indprof/Geospatial.cfm

Desktop GIS and online mapping

ArcExplorer Java Edition for Education (AEJEE)
www.esri.com/software/arcexplorer/download-education.html

(Download Windows or Mac OSX versions. Install software into the default folder in order to make projects work properly. Introductory lessons are automatically installed at \ESR\AEJEE\DATA\LESSONS\AEJEE2.PDF. Find an increasing number of free AEJEE lessons at ArcLessons, www.esri.com/arclessons, select "By Software = ArcExplorer.")

ArcWeb Explorer
www.arcwebservices.com

Geography Network
www.geographynetwork.com

Geospatial One-Stop
www.geodata.gov

INSPIRE European Geo-Portal
<http://eu-geoportal.jrc.it/>

National Geographic Society MapMachine
www.nationalgeographic.com/mapmachine

USGS National Atlas
www.nationalatlas.gov

GPS resources

EarthCaching
www.earthcache.org

Garmin—About GPS
www.garmin.com/aboutGPS/

Geocaching
www.geocaching.org

NASA—GPS Applications Exchange
<http://gpshome.ssc.nasa.gov/>

Sam Wormley's GPS Resources
www.edu-observatory.org/gps/gps.html

Trimble—About GPS

www.trimble.com/gps/index.html

Remote sensing resources

European Earth Observation Web Site for Secondary Schools

www.eduspace.esa.int

International Center for Remote Sensing Education—Remote Sensing Core Curriculum

www.r-s-c-c.org

NASA Goddard Space Flight Center—Remote Sensing Data and Information

<http://rsd.gsfc.nasa.gov/rsd/RemoteSensing.html>

NASA Goddard Space Flight Center—Visualization of Remote Sensing Data

<http://rsd.gsfc.nasa.gov/rsd>

NASA Jet Propulsion Laboratory—Shuttle Radar Topography Mission

www.jpl.nasa.gov/srtm

NOAA Satellite's Eye Art Gallery

www.ncdc.noaa.gov/ol/satellite/satelliteseye/satelliteseye.html