

Hierarchy USGS Enterprise Web Thesaurus, 7/7/2002

FACETS: SCIENCE, PHYSICAL FORMATS, METHODS, OBJECT TYPES,  
TIME PERIODS, TOPICS, USGS

science

- life sciences
  - anatomy and physiology
    - endocrinology
    - histology
    - immunology
  - aquatic biology
  - biochemistry
  - botany
    - palynology
    - phycology
    - cell biology
  - developmental biology
  - ecology
  - ecotoxicology
  - genetics
  - marine biology
  - microbiology
    - bacteriology
    - virology
  - molecular biology
  - morphology (biological)
  - mycology
  - parasitology
  - pathology
  - systematics and taxonomy
  - zoology
    - invertebrate zoology
      - entomology
    - vertebrate zoology
      - herpetology
      - ichthyology
      - mammalogy
      - ornithology
    - wildlife biology
- Earth sciences
  - atmospheric sciences
    - climatology
    - meteorology
  - geochemistry
    - soil chemistry
    - water chemistry
      - marine chemistry
  - geography
    - cartography
  - geology
    - economic geology
    - geochronology

- geomorphology
- hydrogeology
- marine geology
- mineralogy
- petrology
- sedimentology
- stratigraphy
- structural geology
- volcanology
- geophysics
  - geodesy
  - marine geophysics
  - seismology
    - paleoseismology
- tectonophysics
- glaciology
- hydrology
- limnology
- ocean sciences
  - paleoceanography
- paleontology
  - invertebrate paleontology
  - micropaleontology
  - paleobotany
  - vertebrate paleontology
- soil sciences
- engineering sciences
  - engineering geology
  - hydraulic engineering
- information sciences
  - biological informatics
  - computer science
- planetary sciences
- social sciences

**feature types (named geographic features):** Yet to be selected.

**physical formats**

- digital format
  - CDROM
  - digital application
  - digital audio
  - digital image
  - digital text
  - digital video
  - DVD
  - magnetic disk
  - magnetic tape
  - videodisk
- non-digital format
  - audio tape
  - film
  - microfiche
  - microfilm

paper (material)  
slides (photographic)  
video tape

**methods**

computational methods  
  image analysis  
  mathematical modeling  
    mathematical simulation  
  relative abundance analysis  
  spatial analysis  
    geospatial analysis  
  statistical analysis  
    kriging  
    multivariate statistical analysis  
    regression analysis  
    time series analysis  
  topological analysis  
  visualization methods  
field methods  
  field experiments  
  field inventory and monitoring  
    acoustic methods  
      sonar methods  
      side-scan sonar methods  
  borehole logging  
    borehole temperature logging  
    electrical resistivity logging  
    gamma-ray logging  
  census  
  CTD measurement  
  ecosystem monitoring  
    long-term ecosystem monitoring  
  electromagnetic surveying  
  handheld field spectroscopy  
  seismic methods  
    seismic networking  
    seismic reflection method  
    seismic refraction method  
  streamflow monitoring  
  telemetry  
  tiltmeter measurement  
  video monitoring  
  vocalization methods  
field sampling  
  animal tracing  
  capturing (animals)  
  drilling and coring  
  plant and animal tagging  
  plot sampling  
  sexing (plants & animals)  
  specimen collecting  
  transect sampling  
  trenching

- water sampling
  - geolocation measurement
    - altimetry measurement
    - bathymetry measurement
    - GPS measurement
    - land surveying
- laboratory methods
  - chemical analysis
    - atomic absorption analysis
    - chromatography
      - gas chromatography
      - liquid chromatography
    - DNA sequencing
    - electrophoresis
    - flow cytometry
    - mass spectroscopy
    - neutron activation analysis
    - particle-beam spectroscopy
    - polymerase chain reaction
    - x-ray diffraction
  - core analysis
  - culturing (specimens)
  - faunal and floral census
  - fission-track dating
  - grain-size analysis
    - sieve-size analysis
  - isotopic analysis
    - light stable-isotope analysis
      - beryllium isotope analysis
      - carbon isotope analysis
      - oxygen isotope analysis
      - tritium analysis
    - radiometric dating
      - carbon-14 analysis
      - rubidium-strontium analysis
      - uranium-lead analysis
      - uranium-thorium analysis
  - meristics
  - microscopy
    - electronic microscopy
      - scanning electron microscopy
    - optical microscopy
      - microtomy
  - paleomagnetic analysis
    - Curie temperature analysis
    - laboratory-induced magnetization analysis
    - magnetic hysteresis analysis
    - magnetic susceptibility analysis
    - natural remnant magnetism analysis
  - petrography
  - plant and animal testing
  - therapeutic methods
  - tree ring analysis
- management methods

- decision support methods
- environmental assessment
- hazard preparedness
  - earthquake preparedness
- information management methods
- natural resource management
  - biological population management
    - fishery management
    - reintroduction (organisms)
    - wildlife population management
      - game management
  - controlled fires
  - controlled flooding
  - ecosystem management
  - natural resource assessment
  - remediation
    - bioremediation
  - water resource management
  - watershed management
- risk assessment
  - earthquake probabilities
  - landslide susceptibility
- photography
  - aerial photography
  - underwater photography
- remote sensing
  - aeromagnetic surveying
  - aeroradiometric surveying
  - hyperspectral imaging
  - IFSAR
  - infrared imaging
    - AVHRR
  - LIDAR
  - microwave imaging
    - SMMR
    - SSM/I
  - multispectral imaging
  - panchromatic imaging
  - radar imaging
    - SLAR
  - thermal imaging
  - visible light imaging
- videography

**object types**

- audiovisual materials
- bibliographies
- catalogs and indexes
- datasets
  - geospatial datasets
  - hydrographic datasets
  - time-series datasets
- directories
- documents

- checklists
- guidebooks
- manuals
- standards
- educational materials
- geologic time scales
- graphics
  - animations
  - cross sections
  - graphs
- images
- maps and atlases
- models
  - mathematical models
  - physical models
- news releases
- policies and regulations
- posters
- software
- speeches
- terminologies and classifications
  - biologic names and classifications
  - controlled vocabularies
  - geographic names and classifications
  - geologic names and classifications
  - glossaries
  - hydrologic unit codes
  - land use classifications
  - quadrangle names
- web portals

**time periods**

- geologic time period
- historic time period
- projected time period
- real-time period

**topics**

- agriculture and farming
  - aquaculture
- biological and physical processes
  - atmospheric and climatic processes
    - atmospheric circulation
    - atmospheric deposition(chemical & particulate)
      - acid deposition
    - climate change
      - desertification
  - droughts
  - ocean-atmosphere interaction
  - precipitation (atmospheric)
  - storms
    - blizzards
    - hurricanes
    - ice storms

- tornadoes
- ecological processes
  - algal blooms
  - bioaccumulation
  - biogeochemical cycling
    - carbon cycling
    - nutrient cycling
  - food web
  - biological productivity
  - contaminant transport
  - dispersal (organisms)
  - ecological competition
  - ecosystem functions
    - wetland functions
  - eutrophication
  - extinction and extirpation
  - habitat alteration
  - migration (organisms)
  - pollination
  - succession (biological)
- fires
- geologic and hydrologic processes
  - diagenesis
  - earthquakes
    - earthquake occurrences
  - erosion
  - floods
  - geochemical processes
  - glaciation
  - groundwater flow
  - heat flow (Earth)
  - hydrothermal processes
  - isostasy
  - land subsidence
  - landslides
  - liquefaction
  - metamorphism (geological)
  - river discharge
  - sediment transport
  - sedimentation
  - streamflow
  - tectonic processes
    - neotectonic processes
  - volcanic activity
  - water circulation
    - lake circulation
- ocean processes
  - ocean circulation
  - ocean waves
  - tsunamis
- tides
- culture and demographics
  - administrative and political boundaries
  - business and economics

- cadastral and legal land descriptions
- Earth characteristics
  - atmospheric properties
    - air temperature
    - atmospheric composition
      - greenhouse gases
      - ozone layer
  - Earth structure
    - core (Earth)
      - inner core (Earth)
      - outer core (Earth)
    - crust (Earth)
      - lithosphere
        - continental lithosphere
        - oceanic lithosphere
    - mantle (Earth)
      - aesthenosphere
  - geologic history
    - biostratigraphy
    - Earth history
    - lithostratigraphy
  - geologic structure
    - folding (geologic)
    - foliation (geologic)
    - fracture (geologic)
    - lineation (geologic)
    - structure contours
  - gravitational field (Earth)
  - land surface characteristics
    - landforms
  - magnetic field (Earth)
  - ocean characteristics
    - ocean salinity
    - ocean temperature
      - sea surface temperature
    - sea floor characteristics
    - sea-level change
  - rocks and deposits
    - fossils
      - ichnofossils
    - igneous rocks
    - metamorphic rocks
    - sedimentary rocks
      - bedforms
    - unconsolidated sediments
      - clay deposits
      - gravel deposits
      - sand deposits
  - snow and ice cover
  - stratigraphic sections
    - bedrock geologic units
    - geologic contacts
      - unconformities
    - surficial geologic units

- topography
    - bathymetry
- global change
  - global warming
- hazards
- health and disease
  - disease vectors
  - environmental health (human)
    - human environmental safety
- human impacts
  - land use change
  - mining hazards
  - overfishing
  - overgrazing
  - pollution
    - anthropogenic contamination
      - mercury contamination
      - pesticide and herbicide contamination
    - waste treatment and disposal
- information system design and development
  - geographic information systems (GIS)
  - metadata support and development
- instrument design and development
- land use and land cover
- map coordinate systems
- natural contaminants
  - toxic radionuclides (natural)
    - radon
  - toxic trace elements
- natural resource exploration
- natural resource extraction
  - mining and quarrying
  - well drilling
- natural resources
  - nonrenewable resources
    - mineral resources
      - metallic ores
        - gold ores
      - non-metallic deposits
        - building stone deposits
        - gem deposits
    - nonrenewable energy resources
      - coal resources
      - natural gas resources
        - coalbed methane resources
        - gas hydrate resources
      - oil resources
        - oil sand resources
        - oil shale resources
    - soil resources
  - renewable resources
    - fishery resources
      - commercial fishery resources
      - inland fishery resources

- marine fishery resources
      - whaling
      - recreational fishing
      - subsistence fishery resources
    - forest resources
    - renewable energy resources
      - geothermal resources
  - water resources)
    - groundwater
    - surface water (non-marine)
      - river systems
        - river reaches
- organism groupings (non-taxonomic)
  - biota
    - consumers (organism)
      - carnivores
      - herbivores
      - omnivores
    - decomposers
    - endangered species
    - game species
    - keystone species
    - macroinvertebrates
    - migratory species
    - native species
      - endemic species
    - nekton
    - nonindigenous species
      - invasive species
    - plankton
    - pollinators
    - producers (organism)
    - shellfish
    - vegetation
    - wildlife
  - organism growth and development
    - metamorphism (biological)
- organisms
  - algae
    - calcareous nannoplankton
    - diatoms
    - dinoflagellates
  - animals
    - invertebrates
      - arthropods
        - arachnids
        - crustacean
          - ostracodes
        - horseshoe crabs
        - insects
          - butterflies and moths
        - trilobites
      - bryozoans and brachiopods
      - coelenterates

- conodonts
    - echinoderms
    - mollusks
    - sponges
    - worms
      - flatworms
      - roundworms
      - segmented worms
  - vertebrates
    - amphibians
    - birds
    - fish
    - mammals
    - reptiles
      - dinosaurs
- archaea
- bacteria
- fungi
- lichens
- plants (organic)
  - non-vascular plants
    - liverworts and hornworts
    - mosses
  - vascular plants
    - ferns and fern allies
    - flowering plants
    - gymnosperms
- protists
- viruses
- planetary bodies
  - meteorites
- population and community ecology
  - animal behavior
  - biodiversity
    - ecosystem diversity
    - genetic diversity
    - species diversity
  - biogeography
  - community ecology
  - ecosystems
    - aquatic ecosystems
      - benthic ecosystems
      - estuarine ecosystems
      - freshwater ecosystems
      - marine ecosystems
        - reef ecosystems
    - terrestrial ecosystems
      - coastal ecosystems
      - desert ecosystems
      - forest ecosystems
      - grassland ecosystems
      - shrubland ecosystems
      - tundra ecosystems
      - wetland ecosystems

- habitats
  - population dynamics
- scientific careers
- water properties
  - nutrient content (water)
  - oxygen content (water)
  - salinity
  - suspended material (water)
  - water hardness
  - water pH
  - water temperature
- water quality
  - groundwater quality
  - marine water quality
  - surface water quality
- water supply and demand
  - water budget
  - water use
    - instream water use
      - power generation water use
      - wastewater use
    - offstream water use
      - agricultural water use
        - irrigation water use
      - commercial water use
      - domestic water use
        - drinking water
      - industrial water use
      - mining water use

**USGS**

- USGS budget
- USGS contracts and grant
  - USGS cooperative research & development agreements (CRADAs)
  - USGS technology transfer
- USGS facilities
  - USGS field centers
  - USGS laboratories
  - USGS mapping centers
  - USGS nuclear reactors
  - USGS observatories
  - USGS science centers
  - USGS visitor centers
- USGS news
- USGS organization
  - USGS divisions
  - USGS offices
  - USGS partnerships
  - USGS regional organization
  - USGS teams
- USGS personnel
  - USGS employment and volunteer opportunities
- USGS policies and regulations
- USGS programs
  - USGS interagency programs

- USGS international programs
- USGS science programs
- USGS standards development
- USGS user services
  - USGS customer support and user feedback
  - USGS product support
  - USGS technical support
  - USGS educational services
    - USGS college programs
    - USGS internships
    - USGS K-12 programs
    - USGS lifelong learning programs
    - USGS meetings
      - USGS colloquia
      - USGS symposia
      - USGS workshops
  - USGS exhibits and facility tours
    - USGS open houses
  - USGS information services
    - USGS clearinghouses
    - USGS data downloading
    - USGS Earth Science Information Centers (ESICs)
    - USGS expertise services
    - USGS fax-on-demand services
    - USGS libraries and archives
    - USGS map servers
    - USGS media relations
    - USGS publication servers
    - USGS sales and distribution services
      - USGS maps-on-demand
    - USGS search services