

Existing Terrain Datasets for the State of Alaska (05/20/2008)

(Acronyms listed below table)

| ELEVATION DATASET | DATA TYPE | SCALE & GRID POSTING | GEOGRAPHIC COVERAGE | TEMPORAL COVERAGE | DATA ACCESS | COST / LICENSING | SHAPEFILE/MAP | COMMENTS |
|---|--|---|--|-------------------|--|--|--|---|
| ALOS - PRISM data (JAXA) | DEMs derived from satellite stereo imagery | DEM produced from 2.5 m resolution stereo-imagery | unknown | 2006 - present | N/A | purchase / licensing through Japan Aerospace Exploration Agency (JAXA) | Shapefile requested from Nettie Labelle-Hemer, Director, Alaska Satellite Facility, nettie@asf.alaska.edu | |
| IRS Cartosat-1 data (NRSA) | DEMs derived from satellite stereo imagery | DEM produced from 2.5 m resolution stereo-imagery; 4 m elevation resolution | unknown | unknown | N/A | purchase / licensing through India's National Remote Sensing Agency or resellers | currently unavailable | |
| SPOT HRS/Ref3D data (SPOT Image) | DEMs derived from satellite stereo imagery | 1 arc-second (30 meters) posting for latitude; 1-4 arc-seconds posting depending on longitude | Portions of Alaska | 2005 - present | N/A | purchase / licensing through SPOT Image or resellers | i-cubed Deliverable: Task1_Existing_Inventor y\Maps_Shapefiles\SPOT_HRS_Ref3D | |
| Tandem AO ERS-1/2 SAR data (ESA) | Satellite IFSAR DEM | unknown | Complete coverage of State of Alaska | unknown | N/A | purchase / licensing through European Space Agency or resellers | Nettie Labelle-Hemer, Director, Alaska Satellite Facility, nettie@asf.alaska.edu | DEM product is better than USGS NED; however, Alaska Satellite Facility conducted tests and concluded data quality is not adequate for statewide dataset. |
| STAR-3i IFSAR data (Intermap) | Airborne IFSAR DEM (DSM, DTM) | 5 m posting | Portions of State of Alaska | various | N/A | purchase / licensing through Intermap | https://gina-alaska.grouphub.com:Intermap_Alaska_040208.jpg | |
| LiDAR (Aerometric) | LiDAR | unknown | various small footprint project areas, often transportation features | 2005-2007 | N/A | purchase / licensing through Aerometric | i-cubed Deliverable: Task1_Existing_Inventor y\Maps_Shapefiles\Aero metric_LiDAR | |
| LiDAR (Municipality of Anchorage) | LiDAR | unknown | Areas within Municipality of Anchorage | 2004 | Warren Elkins, MOA, ElkinsWB@ci.anchorage.ak.us | proprietary (Aerometric?) | currently unavailable | Information: Brittini Kilborn, Municipality of Anchorage, 907.343.8259 |
| LiDAR (Fairbanks North Star Borough) | LiDAR | unknown | Fairbanks railroad project | unknown | Aerometric | proprietary | i-cubed Deliverable: Task1_Existing_Inventor y\Maps_Shapefiles\Aero metric_LiDAR | |

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| State comiled IFSAR DEM for Fairbanks North Star Borough (SOA DNR) | DEM derived from best of NASA's TOPSAR, ESA's Tandem AO ERS-1/2 SAR, & Intermap's STAR 3i IFSAR datasets | undisclosed | Developed area within Fairbanks North Star Borough | 2002-03 | Contact Marc Lee (DNR) regarding licensing or Gordon Worum (DNR) regarding processing | Complex licensing: NASA, ERS, Intermap | currently unavailable | Thomas Duncan of Fairbanks North Star Borough notes this dataset is excellent; compiled by Div. of Forestry to rectify 2002-03 Quickbird and SPOT imagery, but re-licensing could be complex. |
| STAR-3i DEM (SOA UAF) | IFSAR DEM | 5 m posting, horizontal accuracy 2.5 m RMSE | Kuparuk/Putuk ayuk watersheds and Alaska mountain passes | 2001-2007 | Matt Nolan, UAF, Matt.nolan@uaf.edu (after 9/2008) | Academic licensing | currently unavailable | Online reference: Watershed-Scale Analyses of an Arctic Drainage Using a New High Resolution Digital Elevation Model |
| LiDAR (SOA UAF) | LiDAR | unknown | Eastern Brooks Range | 2001-2007 | Matt Nolan, UAF, Matt.nolan@uaf.edu (after 9/2008) | Academic licensing | currently unavailable | |
| LiDAR (Spectrum Mapping LLC, Bureau of Juneau) | LiDAR and derived elevation contours | 2 foot contour interval (meets FEMA specifications for flood zone mapping). Some flaws noted. Reduced-resolution version has 20 foot posting | Urban area of Juneau | 2002 | Bruce Simonson, City & Borough of Juneau, bruce_simonson@ci.juneau.ak.us | proprietary | currently unavailable | |
| LiDAR (Aerometric, Kenai Peninsula Borough & others) | LiDAR first return and bare earth | 3 foot posting | Kenai Peninsula Borough: Seward, Homer | 2006 | Bill Holloway, KP, bhollo@borough.kenai.ak.us | Aerometric; multi-agency license | i-cubed Deliverable: Task1_Existing_Inventor y\Maps_Shapefiles\Aerometric_LIDAR | Purchased with public funds. |
| New LiDAR Project for Kenai Peninsula Borough (going out for bid) | LiDAR and derived elevation contours | 1.4 m spacing for 2 foot contours (meets criteria for hydrology projects) | 4000 square miles of Kenai Peninsula Borough | projected collection: Fall 2008 prior to snow fall, leaf-off | Kari Craun, Director of National Geospatial Technical Operations Center in Denver | Requirement for bidding vendors is to provide universal free licensing | N/A | Contributors: Kenai Watershed Forum (NP - \$500,000 federal grant); KP \$350,000; DNR \$200,000; FWS \$50,000; NGA \$150,000; USGS \$192,000; TOTAL \$1.44 million. Information: Bill Holloway, KP, bhollo@borough.kenai.ak.us |

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| LiDAR (City and Borough of Ketchikan) | 5 foot contours, DEM, DTM, derived from LiDAR | appropriate to derive 5 foot contours | Roaded system of Ketchikan Gateway Borough; 1-2% of Borough | 2001, 2008 | Jim Pomplun, Ketchikan Gateway Borough, jimp@borough.ketchikan.ak.us | City and Borough of Ketchikan has exclusive rights to redistribute | i-cubed Deliverable: Task1_Existing_Inventor y\Maps_Shapefiles\Aero metric_LIDAR | Jim Pomplun will provide to GINA upon request / discussion |
| LiDAR (Alaska Army National Guard) | LiDAR derived DEM and color shaded relief map | unknown | Ft Richardson and Elmendorf - 6 tiles | unknown | Aaron Richins, Alaska Army National Guard, aaron.richins@alaska.gov | unknown (unclassified) | currently unavailable | |
| LIDAR (BLM) | LIDAR | unknown | unknown | unknown | Laurie Jones, BLM, Lauri_Jones@ak.blm.gov | free/public domain | currently unavailable | Lauri Jones has submitted, or will submit to GINA |
| NPRA DEM (USDA, BLM) | Intermap STAR-3i airborne IFSAR DEM | 5 m posting, 2.5 m horizontal accuracy, 2 m vertical accuracy | National Petroleum Reserve Alaska (NPRA), North Slope | 2002 - present | Lynette Nakazawa, BLM, Lynette_Nakazawa@ak.blm.gov | unrestricted, non-commercial license | i_cubed Delvierable: Task1_Existing_Inventor y\Maps_Shapefiles\BLM | IFSAR collected and ORIs and DEMs produced for approximately 50% of the eastern half of NPRA; aerial photography acquired for approximately 25% of the northeastern portion of NPRA; and DOQs produced for approximately 25% of NPRA |
| AIRSAR-TOPSAR (NASA) | Airborne IFSAR DEM | undisclosed | Alaska pipeline corridor, transportation corridors | recent | Rick Gertz; UAF - Alaska Satellite Facility, SAR Data Center 907-474-7886 | unknown | currently unavailable | Note that UAV-SAR is new NASA SAR program |
| SRTM 1-arcsec DEM (NASA, NGIA) | IFSAR DEM | 1 x 2 arc-second above 50 deg lat | Complete coverage below 60 degree N. latitude | 2000 | National Map Seamless Server | \$60/dataset or free ftp download of 30degree x 30 degree blocks | National Map Seamless Server | |
| SRTM 3-arcsec DEM (NASA, NGIA) | IFSAR DEM | 3 x 6 arc-second above 50 degrees latitude | Complete coverage below 60 degree N. latitude | 2000 | National Map Seamless Server | \$60/dataset or free ftp download of 30degree x 30 degree blocks | National Map Seamless Server | |
| High-resolution DTM & DSM for Barrow, AK (NSF) | Intermap STAR-3i airborne IFSAR DEM | 5 m posting | Barrow, AK | July, 2002 | National Snow and Ice Data Center | Data restricted to NSF-funded investigators | currently unavailable | |

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| GLAS/Icesat L1 & L2 Global Altimetry Data (NSIDC) | LIDAR points | Ungridded data. The centers of 60 meter spots illuminated by the laser on the Earth's surface are separated in the along-track direction by 172 m | For Alaska, areas south of 86 degrees N. latitude | January 2003 - present | National Snow and Ice Data Center | free/public domain | currently unavailable | |
| High-resolution LiDAR (USDA) | LIDAR | 4 points per square meter with +/- 1 meter accuracy | 600 km over western part of Kenai peninsula | 2004 | Ken Winterberger, USDA Forest Service, kwinterberger@fs.fed.us | Contact John Ellis at Aerometric for licensing | i-cubed Deliverable: Task1_Existing_Inventories\Maps_Shapefiles\Aerometric_LIDAR | Initial project was to collect 120 points; Aerometric collected and provided intervening points. Collection very well controlled; can be used to provide control for other data sets |
| 20-meter DEM of Tongass National Forest (USDA) | DEM developed from 1-meter aerial stereo-imagery | 20 m posting | Tongass National Forest | 2006-2008 | Mark Riley, USDA Forest Service, markriley@fs.fed.us | free/public domain | currently unavailable | Stereo imagery acquired by Aerometric; photogrammetry by FSA contractors; no validated accuracy report |
| 20-meter DEM of Chugach National Forest (USDA) | DEM developed from SPOT HRS satellite stereo-imagery (Ref3D) | 10-15 meter horizontal and vertical accuracy; diminishing accuracy on high slopes | Chugach National Forest | 2006-2008 (a few holes to be filled) | Mark Riley, USDA Forest Service, markriley@fs.fed.us | licensed to USDA only | currently unavailable | Mark Riley recommends SPOT HRS (Ref3D) product over IRS Cartosat-1; notes bit depth is greater |
| 7.5 minute DEM (USGS) | DEM | scale: 1:24,000 & 1:25,000; grid posting: 1 x 2 arc-second (~30-m) | Portions of Anchorage and Tyonek Quadrangles | same source dates as USGS topographic map series | Alaska Geospatial Data Clearinghouse | free/public domain | currently unavailable | |
| 15 minute DEM (USGS) | DEM | scale: 1:63,360; grid posting: 2 x 3 arc-second (~60-m) | Portions of AK State | same source dates as USGS topographic map series | Alaska Geospatial Data Clearinghouse | free/public domain | currently unavailable | |
| NED 2-arc-second DEM (USGS) | DEM & shapefile | grid posting: 2 arc-second | Complete AK State coverage except sections of Aleutian Island chain | 1929-present | National Map Seamless Server | free/public domain | currently unavailable | |
| 1 degree DEM (USGS) | DEM | scale: 1:250,000; grid posting: 3 x 3 arc-second (~90 m) | Nearly complete Alaska State coverage | same source dates as USGS topographic map series | Alaska Geospatial Data Clearinghouse | free/public domain | currently unavailable | |

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| Brooks Range & North Slope 100m DEM (from USGS NED & GTOPO60) | DEM | 100 m posting | Brooks Range and North Slope | 1929-present | National Snow and Ice Data Center | free/public domain | National Snow and Ice Data Center | |
| GTOPO30 DEM (USGS) | DEM | 30 arc-second | Complete Alaska State | unknown | USGS Eros Data Center | free/public domain | USGS Eros Data Center | |
| GTOPO60 DEM (USGS) | DEM | 60 arc-second | Complete terrestrial and bathymetric coverage of Alaska State | unknown | National Map Seamless Server | free/public domain | National Map Seamless Server | |
| e-DEM Alaska (USGS & others) | DEM | 2 arc-second (latitude) | A synergistic combination of USGS, Canadian, and global elevation datasets for Alaska | unknown | Topographic Engineering Center | free/public domain | Topographic Engineering Center | |
| 300-meter DEM mosaic (USGS) | DEM | derived from DMA 1:250,000 3 arc-second DEM; 300 m resolution | Nearly complete Alaska State coverage | same source dates as USGS topographic map series | Environmental Protection Agency | free/public domain | currently unavailable | |
| ETOPO5 Elevation Data for Areas Greater than 50deg N (DMA, FNOC, DBDB5) | DEM | 5 arc-minute | Areas north of 50deg N. latitude | unknown | National Snow and Ice Data Center | free/public domain | currently unavailable | |
| Global Topography & Bathymetry Grid | DEM | Topographic resolution: ~30 arc-second (0.66 km at 45° latitude); Bathymetric resolution: ~ 2 arc-minute (2.6 km at 45° latitude). | Complete Alaska State coverage | unknown | Geographic Information Network of Alaska | free/public domain | Geographic Information Network of Alaska | |

| Acronym | Definition |
|----------------|---|
| ALOS - PRISM | Advanced Land Observing Satellite - Panchromatic Remote-sensing Instrument for Stereo Mapping |
| BLM | Bureau of Land Management |
| DBDB5 | Digital Bathymetric Data Base 5-minute (DBDB5) from the U.S. Naval Oceanographic Office |
| DEM | Digital Elevation Model |
| DMA | Defense Mapping Agency |
| DSM | Digital Surface Model (first return) |
| DTM | Digital Terrain Model (bald earth) |
| ERS | Earth Remote Sensing Satellite |
| ESA | European Space Agency |
| FEMA | Federal Emergency Management Agency |
| FNOC | Fleet Naval Oceanographic Center (US Navy) |
| GLAS | Geoscience Laser Altimetry System |
| IFSAR | Interferometric Synthetic Aperture Radar |
| JAXA | Japan Aerospace Exploration Agency |
| LiDAR | Light Detection and Ranging |
| NASA | National Aeronautic and Space Administration |
| NED | National Elevation Dataset |
| NGIA | National Geospatial Intelligence Agency |
| NSF | National Science Foundation |
| NRSA | National Remote Sensing Agency, Dept. of Space, Government of India |
| NSIDC | National Snow and Ice Data Center |
| SAR | Synthetic Aperture Radar |
| SRTM | Shuttle Radar Topography Mission |
| USDA | United States Department of Agriculture |
| USGS | United States Geological Survey |