

## 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
<b>ALOS - PRISM data (JAXA)</b>	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, <a href="mailto:nettie@asf.alaska.edu">nettie@asf.alaska.edu</a>	
<b>IRS Cartosat-1 data (NRSA)</b>	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	
<b>SPOT HRS/Ref3D data (SPOT Image)</b>	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	
<b>Tandem AO ERS-1/2 SAR data (ESA)</b>	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, <a href="mailto:nettie@asf.alaska.edu">nettie@asf.alaska.edu</a>	DEM product is better than USGS NED; however, Alaska Satellite Facility conducted tests and concluded data quality is not adequate for statewide dataset.
<b>STAR-3i IFSAR data (Intermap)</b>	Airborne IFSAR DEM (DSM, DTM)	5 m posting	Portions of State of Alaska	various	N/A	purchase / licensing through Intermap	<a href="https://gina-alaska.grouphub.com:Intermap_Alaska_040208.jpg">https://gina-alaska.grouphub.com:Intermap_Alaska_040208.jpg</a>	
<b>LiDAR (Aerometric)</b>	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	
<b>LiDAR (Municipality of Anchorage)</b>	LiDAR	unknown	Areas within Municipality of Anchorage	2004	Warren Elkins, MOA, <a href="mailto:ElkinsWB@ci.anchorage.ak.us">ElkinsWB@ci.anchorage.ak.us</a>	proprietary (Aerometric?)	currently unavailable	Information: Brittini Kilborn, Municipality of Anchorage, 907.343.8259
<b>LiDAR (Fairbanks North Star Borough)</b>	LiDAR	unknown	Fairbanks railroad project	unknown	Aerometric	proprietary	i-cubed Deliverable: Task1_Existing_Inventor y\Maps_Shapefiles\Aero metric_LIDAR	

<b>State comiled IFSAR DEM for Fairbanks North Star Borough (SOA DNR)</b>	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.
<b>STAR-3i DEM (SOA UAF)</b>	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	<a href="#">Online reference: Watershed-Scale Analyses of an Arctic Drainage Using a New High Resolution Digital Elevation Model</a>
<b>LiDAR (SOA UAF)</b>	LiDAR	unknown	Eastern Brooks Range	2001-2007	Matt Nolan, UAF, Matt.nolan@uaf.edu (after 9/2008)	Academic licensing	currently unavailable	
<b>LiDAR (Spectrum Mapping LLC, Bureau of Juneau)</b>	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	
<b>LiDAR (Aerometric, Kenai Peninsula Borough &amp; others)</b>	LiDAR first return and bare earth	3 foot posting	Kenai Peninsula Borough: Seward, Homer	2006	Bill Holloway, KPB, bhollo@borough.kenai.ak.us	Aerometric; multi-agency license	i-cubed Deliverable: Task1_Existing_Inventories\Maps_Shapefiles\Aerometric_LIDAR	Purchased with public funds.
<b>New LiDAR Project for Kenai Peninsula Borough (going out for bid)</b>	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); KPB \$350,000; DNR \$200,000; FWS \$50,000; NGA \$150,000; USGS \$192,000; TOTAL \$1.44 million. Information: Bill Holloway, KPB, bhollo@borough.kenai.ak.us

<b>LiDAR (City and Borough of Ketchikan)</b>	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
<b>LiDAR (Alaska Army National Guard)</b>	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	
<b>LIDAR (BLM)</b>	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
<b>NPRA DEM (USDA, BLM)</b>	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
<b>AIRSAR-TOPSAR (NASA)</b>	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
<b>SRTM 1-arcsec DEM (NASA, NGIA)</b>	IFSAR DEM	1 x 2 arc-second above 50 deg lat	Complete coverage below 60 degree N. latitude	2000	<a href="#">National Map Seamless Server</a>	\$60/dataset or free ftp download of 30degree x 30 degree blocks	<a href="#">National Map Seamless Server</a>	
<b>SRTM 3-arcsec DEM (NASA, NGIA)</b>	IFSAR DEM	3 x 6 arc-second above 50 degrees latitude	Complete coverage below 60 degree N. latitude	2000	<a href="#">National Map Seamless Server</a>	\$60/dataset or free ftp download of 30degree x 30 degree blocks	<a href="#">National Map Seamless Server</a>	
<b>High-resolution DTM &amp; DSM for Barrow, AK (NSF)</b>	Intermap STAR-3i airborne IFSAR DEM	5 m posting	Barrow, AK	July, 2002	<a href="#">National Snow and Ice Data Center</a>	Data restricted to NSF-funded investigators	currently unavailable	

<b>GLAS/Icesat L1 &amp; L2 Global Altimetry Data (NSIDC)</b>	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	<a href="#">National Snow and Ice Data Center</a>	free/public domain	currently unavailable	
<b>High-resolution LiDAR (USDA)</b>	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
<b>20-meter DEM of Tongass National Forest (USDA)</b>	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
<b>20-meter DEM of Chugach National Forest (USDA)</b>	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
<b>7.5 minute DEM (USGS)</b>	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	<a href="#">Alaska Geospatial Data Clearinghouse</a>	free/public domain	currently unavailable	
<b>15 minute DEM (USGS)</b>	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	<a href="#">Alaska Geospatial Data Clearinghouse</a>	free/public domain	currently unavailable	
<b>NED 2-arc-second DEM (USGS)</b>	DEM & shapefile	grid posting: 2 arc-second	Complete AK State coverage except sections of Aleutian Island chain	1929-present	<a href="#">National Map Seamless Server</a>	free/public domain	currently unavailable	
<b>1 degree DEM (USGS)</b>	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	<a href="#">Alaska Geospatial Data Clearinghouse</a>	free/public domain	currently unavailable	

<b>Brooks Range &amp; North Slope 100m DEM (from USGS NED &amp; GTOPO60)</b>	DEM	100 m posting	Brooks Range and North Slope	1929-present	<a href="#">National Snow and Ice Data Center</a>	free/public domain	<a href="#">National Snow and Ice Data Center</a>	
<b>GTOPO30 DEM (USGS)</b>	DEM	30 arc-second	Complete Alaska State	unknown	<a href="#">USGS Eros Data Center</a>	free/public domain	<a href="#">USGS Eros Data Center</a>	
<b>GTOPO60 DEM (USGS)</b>	DEM	60 arc-second	Complete terrestrial and bathymetric coverage of Alaska State	unknown	<a href="#">National Map Seamless Server</a>	free/public domain	<a href="#">National Map Seamless Server</a>	
<b>e-DEM Alaska (USGS &amp; others)</b>	DEM	2 arc-second (latitude)	A synergistic combination of USGS, Canadian, and global elevation datasets for Alaska	unknown	<a href="#">Topographic Engineering Center</a>	free/public domain	<a href="#">Topographic Engineering Center</a>	
<b>300-meter DEM mosaic (USGS)</b>	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	<a href="#">Environmental Protection Agency</a>	free/public domain	currently unavailable	
<b>ETOPO5 Elevation Data for Areas Greater than 50deg N (DMA, FNOC, DBDB5)</b>	DEM	5 arc-minute	Areas north of 50deg N. latitude	unknown	<a href="#">National Snow and Ice Data Center</a>	free/public domain	currently unavailable	
<b>Global Topography &amp; Bathymetry Grid</b>	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	<a href="#">Geographic Information Network of Alaska</a>	free/public domain	<a href="#">Geographic Information Network of Alaska</a>	

<b>Acronym</b>	<b>Definition</b>
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

## Existing Elevation / Terrain Datasets Disclosed by Alaska Local Government Agencies

ELEVATION DATASET	DATA TYPE	GRID POSTING / ACCURACIES	GEOGRAPHIC COVERAGE	TEMPORAL COVERAGE	DATA ACCESS	PROVIDED TO GINA/SDM I?	COST / LICENSING	SHAPEFILE/ MAP	COMMENTS
<b>LiDAR (Municipality of Anchorage)</b>	LiDAR	undisclosed		2004	Warren Elkins, MOA, ElkinsWB@ci.anchorage.ak.us	No	proprietary	currently unavailable	Information: Brittnei Kilborn, Municipality of Anchorage, 907.343.8259
<b>LiDAR (Aerometric, Fairbanks North Star Borough)</b>	LiDAR	undisclosed	Fairbanks railroad project			No	proprietary	Aerometric LiDAR shapefile	
<b>AirSar (NASA)</b>	IFSAR DEM	drainages and roads visible	Covers entire Fairbanks North Star Borough	recent	Web address to be provided	unknown	free / public domain	currently unavailable	Information: Thomas Duncan, Fairbanks North Star Borough, tomduncan@co.fairbanks.ak.us
<b>Fairbanks DEM compiled from multiple sources ("frankenDEM")</b>	DEM derived from a mixture of sources	unknown	Developed area within Fairbanks North Star Borough	2002-03	Contact Marc Lee (DNR) regarding licensing or Gordon Worum (DNR) regarding processing	No	Various: SOA DNR Div of Forestry, Aerometric, NASA?, others?	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.
<b>LiDAR (Spectrum Mapping LLC, Bureau of Juneau)</b>	LiDAR and derived elevation contours	2 foot contour interval to meet 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	No	proprietary	currently unavailable	
<b>LiDAR (Aerometric, Kenai Peninsula Borough &amp; others)</b>	LiDAR first return and bare earth	3 foot posting	Kenai Peninsula Borough: Seward, Homer	2006	Bill Holloway, KPB, bhollo@borough.kenai.ak.us	No	Aerometric; multi-agency license	Aerometric LiDAR shapefile	Purchased with public monies.

<b>New LiDAR Project Kenai Peninsula Borough (going out for bid)</b>	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	No	Requirement for bidding vendors is universal free licensing	N/A	Contributors: Kenai Watershed Forum (NP - \$500,000 federal grant); KPB \$350,000; DNR \$200,000; FWS \$50,000; NGA \$150,000; USGS \$192,000; TOTAL \$1.44 million. Information: Bill Holloway, KPB, bhollo@borough.kenai.ak.us
<b>LiDAR (City and Borough of Ketchikan)</b>	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	Jim Pomplun will do so upon request / discussion	City and Borough of Ketchikan has exclusive rights to redistribute	Aerometric LiDAR shapefile	