



Digitized Shorelines Dataset, 1950s to 2014, Bering Land Bridge National Preserve and Cape Krusenstern National Monument

Metadata

August 17, 2018

Abstract

This data release consists of shoreline reference features and shoreline change analysis data for the coastal areas of Bering Land Bridge National Park (BELA) and Cape Krusenstern National Monument (CAKR). The data and coastal change results enables coastal erosion analysis and display of the coastline at high resolution for approximately 480 km of shoreline. Shoreline change analysis is based on the coastal shoreline monitoring protocol for the National Park Service Arctic Network Inventory and Monitoring Program (Manley et al., 2012) and the Digital Shoreline Analysis System (DSAS) methods described in Thieler et al. (2017). The shoreline and analysis assists the goals of the NPS Arctic Network Inventory and Monitoring Program, which has a mission to "collect, compile, and synthesize scientific information about the arctic network of parks to facilitate their preservation, unimpaired, for future generations."

Shoreline reference features were digitized both along the water line as well as along the erosion line. Lines were digitized onscreen from orthorectified aerial photography for the coastal areas of BELA, CAKR, and nearby portions of northwestern Alaska. Shorelines consist of four timeslices: from 2013, 2003, approximately 1980, and approximately 1950. The digitized shoreline movements were quantified using DSAS and reported in Farquharson (2017) and Farquharson et al. (2018).

These images and the companion shorelines were completed as part of a study on coastal shoreline dynamics in collaboration between the University of Alaska Fairbanks, University of Colorado (Institute of Arctic and Alpine Research) and the National Park Service (Arctic Network Inventory and Monitoring Program).

Citation

Please cite this dataset as: Farquharson, L., D.K. Swanson, D. Mann, W.F. Manley, L.R. Lestak. 2018. Digitized Shorelines Dataset, 1950s to 2014, Bering Land Bridge National Preserve and Cape Krusenstern National Monument. Edition 2.0. National Park Service Arctic Network Inventory and Monitoring Program. Fairbanks, AK. Retrieved from <https://irma.nps.gov/DataStore/Reference/Profile/2253677>.

Data Files

The following files are included in this data release. Files with .mdb extension are ESRI personal geodatabases. The .zip archives contain the same layers as the personal geodatabases exported to human and machine readable Javascript Object Notation (JSON) text files and are included for archival purposes to ensure the data are available should the proprietary format become unsupported.

Digitized water lines

DSAS_BELA_wl.mdb	Deliverables CE-01 and CE-02: BELA waterline DSAS geodatabase (47Mb)
DSAS_CAKR_wl.mdb	Deliverables CE-01 and CE-02: CAKR waterline DSAS Geodatabase (13Mb)
DSAS_BELA_wl_JSON.zip	Deliverables CE-01 and CE-02: BELA waterline DSAS geodatabase featureclasses exported to JSON. (Compressed archive, 3.9Mb)
DSAS_CAKR_wl_JSON.zip	Deliverables CE-01 and CE-02: CAKR waterline DSAS geodatabase featureclasses exported to JSON. (Compressed archive, 1.3Mb)

Digitized bluff lines

DSAS_BELA_el.mdb	Deliverables CE-06: BELA erosion line DSAS geodatabase (14.7Mb)
DSAS_BELA_el_JSON.zip	Deliverables CE-06: BELA erosion line DSAS geodatabase featureclasses exported to JSON (Compressed archive 2.6Mb)
DSAS_CAKR_el.mdb	Deliverables CE-06: CAKR erosion line DSAS geodatabase (21.4 Mb)
DSAS_CAKR_el_JSON.zip	Deliverables CE-06: CAKR erosion line DSAS geodatabase featureclasses exported to JSON. (Compressed archive, 1.4kb)

Credits

The initial DSAS data generation and analysis was done in 2007 for the 1950s/1980s/2003 time slices by William Manley, Leanne Lestak and E.G. Parrish at the University of Colorado Institute of Arctic and Alpine Research. The 2014 imagery time slice data was generated and analyzed in 2016 by Louise Farquharson, University of Alaska Fairbanks, David K. Swanson, National Park Service, and Daniel Mann, University of Alaska Fairbanks.

Contact

Data manager, National Park Service Arctic Network Inventory and Monitoring Program. 4175 Geist Rd., Fairbanks, AK 99709. Telephone: 907-457-5752. <https://www.nps.gov/im/arcn>.

References

Farquharson, L.M., D.H. Mann, D.K. Swanson, B.M. Jones, R.M. Buzard, J.W. Jordan. 2018. Temporal and spatial variability in coastline response to declining sea-ice in northwest Alaska. *Marine Geology*. 404(2018):71–83

Farquharson L.M. 2017. Arctic Landscape Dynamics: Modern Processes and Pleistocene Legacies. Dissertation. University of Alaska Fairbanks. Fairbanks, AK.

Manley, W.F. and Lestak, L.R. 2012. [Protocol for High-Resolution Geospatial Analysis of Coastal Change in the Arctic Network of Parks](#). Natural Resource Report. NPS/ARC/NRR—2012/537. National Park Service. Fort Collins, Colorado.

Thieler, E.R., Himmelstoss, E.A., Zichichi, J.L., and Ergul, Ayhan, 2017, Digital Shoreline Analysis System (DSAS) version 4.0—An ArcGIS extension for calculating shoreline change (ver. 4.4, July 2017): U.S. Geological Survey Open-File Report 2008-1278, <https://pubs.er.usgs.gov/publication/ofr20081278>.

The Department of the Interior protects and manages the nation’s natural resources and cultural heritage; provides scientific and other information about those resources; and honors its special responsibilities to American Indians, Alaska Natives, and affiliated Island Communities.

National Park Service
U.S. Department of the Interior



[Natural Resource Stewardship and Science](#)

1201 Oakridge Drive, Suite 150
Fort Collins, CO 80525