Thank you for the helpful comments and recommendations to improve this paper. Overall, we have made changes to direct focus more specifically on the datasets provided. Comments and our responses are provided in-line below (EC are editor comments; AR are author responses):

EC: Please change your title accordingly, the focus needs to be on the main data products, e.g. Landsat derived Lake bathymetry, …
AR: Changed to: Landsat-derived bathymetry of lakes on the Arctic Coastal Plain of Northern Alaska

EC:Throughout the manuscript: avoid the term 'study', introduce that you provide datasets and description of the data.
AR: We have removed the term 'study' as a descriptor of this project (however I have kept the term to refer to "study lakes" as a shorthand to specify lakes at which measurements were collected).

P2, L47 Deep lakes that are the focus of this study are located on the Pleistocene Sand Sea -> change this sentence that you provide a lake bathymetry data set of deep lakes that are located ….
AR: Changed to: "We collected depth measurements and mapped bathymetry at a group of deep lakes located on the Pleistocene Sand Sea…"

EC: L65 delete 'The ultimate goal of this research' – change to a sentence that includes that you provide data sets
AR: I have changed this sentence to: "Bathymetry measurements and associated estimates of water volume such as those provided in our datasets are important when…". This sentence better focuses on the data we provide while still conveying to a reader why they might be interested in our data.

EC: In fact, you provide at least two data sets that you need to list in the abstract, results and conclusions: the sonar-derived lake depth data and the Landsat-derived lake bathymetry raster data. You even have produced a 3rd data set: the lake water volumes, consider to also publish the lake volume data set with Lake ID, coordinates and volume data
AR: The 2 datasets are listed in the last sentence of the abstract and briefly described earlier in the abstract (Lines 22 – 27: "Here, we collect in situ bathymetric data to test 12 model variants for predicting Sand Sea lake depth based on analysis of Landast-8 Operational Land Imager (OLI) images. Lake depth gradients were measured at 17 lakes in mid-summer 2017 using a HumminBird 798ci HD SI Combo automatic sonar system. The field measured data points were compared to Red-Green-Blue (RGB) bands of a Landsat-8 OLI image acquired on 8 August 2016 to select and calibrate the most accurate spectral-depth model for each study lake and map bathymetry"). We have also added information to the results to focus on the data. We have also added a topic sentence to the conclusions section that focuses on the datasets: "This work provides a unique in situ depth dataset for lakes on the ACP and leverages these data alongside satellite remote sensing to map lake bathymetries and estimate volume." As the volume dataset is built into the bathymetry rasters, we feel it is unnecessary to publish the list of lake volumes as an individual dataset. Instead we provide the information in Table 4. This information is very simply derived from the bathymetry rasters.

Chapter 2 Data and methods
EC: provide a flow chart of sources, processing steps and outcomes
AR: We have added a flow chart (Figure 5).

EC: These are editorial requirements: Please stay consistent: provide separate chapters on sonar data acquisition and processing
and on Landsat satellite data processing – with subchapters for the Landsat satellite data processing until the final product -keeping the sonar-derived lake depth data generation separate
AR: As requested, we have edited the chapter names/broken up sections into 2.1 Depth data acquisition, 2.2 Depth data processing, 2.3 Landsat image selection, 2.4 Landsat image processing and analysis, 2.5 Spectral-depth point extraction, and 2.6 Model application for lake bathymetry mapping. We have also reorganized this section to better separate the different data and processing methods (e.g. moving the sentence beginning " Top-of-Atmosphere (TOA) reflectance values from the blue band (band 2; 452 - 512 nm)…" into the newly-created section 2.5.

EC: 2.1 Field methods -> change to Lake bathymetric data
Include in this chapter all processing steps of the sonar data processing
single-beam soundings?
AR: This subchapter name has been changed from Field methods to Depth data acquisition to ensure language is maximally specific to the subchapter content (as presumably intended by recommended revision), while also ensuring that chapter name is not confusing to readers. Changing the header here to Lake bathymetric data may cause confusion as the full bathymetry maps are not discussed until the last chapter of the Data and methods section. Instead, the last section (2.6) has been changed from Model application and volume estimation to Model application for lake bathymetry mapping. We hope this will redirect focus onto the data we provide as intended by this recommendation. In addition, as recommended above, a second section (2.2) has been created headed "Sonar data processing" to separate the data acquisition from processing steps.

EC: Move several parts of chapter 3 results to chapter 2: content on P 5 chapter 3, Lines 242 to P 6 L258, and all content on P 6 from L268 on
As ESSD cannot publish a remote sensing research study paper this parts belong to Data and Methods
AR: We have made major changes to the methods and results sections, however we believe that some discussion of the best models and their limiations is still relevant to the results and discussion sections as these were needed to create the bathymetry maps. WE have therefore left the paragraph beginning: "The best model variants… fall below this threshold" in the results section with a minore revision to the first sentence to refocus on model accuracy as a determinant of bathymetry map accuracy.

EC: Include an estimate of the accuracy of the lake water volume data derived from the accuracy of the lake depth data.
AR: We include this in Table 4.

EC:These are editorial requirements: please provide in results a chapter with a detailed description of your published lake bathymetry data sets and lake water volume data
You can e.g. show frequency distributions, discuss shallow and deep lakes, are they evenly distributed? skewness or symmetry of lake depth data,

AR: We have changed the focus of the results section to better reflect the importance of the data.

EC: Show a figure of the mosaic of all bathymetry lake data with lake IDs
AR: We have created this figure (Figure 6).

EC: These are editorial requirements:
As you apply optical remote sensing for the derivation of your data set, you need to include more relevant work, specifically authors who also applied band ratio –based methods:
Please include (Clark et al., 1987; Hodúl et al., 2018; Pacheco et al., 2015; Pope et al., 2016; Yunus et al., 2016)
Clark et al. 1987. Bathymetry calculations with Landsat 4 TM imagery under a generalized ratio assumption. Appl. Opt. doi: 10.1364/AO.26.4036_1
Hodúl et al. 2018. Satellite derived photogrammetric bathymetry. ISPRS J. Photogramm. Remote Sens. doi: 10.1016/j.isprsjprs.2018.06.015.
Pacheco et al. 2015. Retrieval of nearshore bathymetry from Landsat 8 images: A tool for coastal monitoring in shallow waters. Remote Sens. Environ. doi: 10.1016/j.rse.2014.12.004
Pope et al 2016. Estimating supraglacial lake depth in West Greenland using Landsat 8 and comparison with other multispectral methods. Cryosphere. doi: 10.5194/tc-10-15-2016.
Yunus et al 2019 Improved Bathymetric Mapping of Coastal and Lake Environments Using Sentinel-2 and Landsat-8 Images. Sensors. doi: 10.3390/s19122788
AR: We have included these references and in-text citation at the end of the Introduction.

EC: Data publication: ESSD requires an optimization of the published data sets.
Please publish a new data publication with: a read me document describing the format of the data: e.g. geotiff, which projection, band variable: lake depth in meter, please include the description of the value for the land around the lake.
AR: I have uploaded a REAME.txt file to the Modeled Bathymetry Maps dataset summarizing the format, number of bands, pixel type, pixel depth, spatial reference information, resolution, band value, and background value, including a note describing the 2 different “background” values (i.e. the land value and the water value where negative depths were modeled). In addition, the format, spatial reference, band value description and unit, as well as other info are listed in a metadata pdf and xml provided within the publication content. The new DOI has been added to the text and references to replace those from the previous data publication.

EC: Editorial requirements: in the existing data publication, currently the land surrounding in at least some of the lake files seems to be noisy, consisting of 2 values: minus 1 and other values, please provide a consistent value for the land background only, it would be optimal if this would be NaN (no data value). Please check also the land background in the mosaic if it consists of one data value only, if not please publish also an enhanced raster version of the mosaic.
AR: There are two different “background” values in some of the rasters (-1 and -3.4028235e+38 [the value typically designating NoData in a 32 bit float raster]; this is now listed in the readme file in the data publication). These two values represent pixels at which negative depths were predicted by our model and land pixels, respectively. It was important to differentiate between these two pixel types, as not all “NoData” pixels were land, however including the true predicted negative depths may have led to confusion. Instead we chose to acknowledge the failing of the

models at predicting some shallow-water pixels by reclassifying negative depths to -1. This reclassification has been clarified in the text and is described in the data publication under Step 3 of the Methods description (“Pixels with negative depth values have been reclassified to a value of -1.”), in the readme that was just added to the bathymetry map data publication, in the results section (“Pixels at which models predicted negative depths were reclassified to a secondary NoData value of -1 and ignored when calculating water volume (i.e., water volume was calculated for the surface area with predicted depths greater than zero [Fig. 6]).”) and has been clarified in the caption for Figure 6.