MGL1110 ALEUT Processed Seismic Data

von Huene, Miller, and Krabbenhoeft

1) Data Description

2-D line segments from the Aleut project have been processed by the USGS and are included as figures in the publication listed below.

SEG-Y format files and jpeg format images are available as follows:

Line MGL1110-mcs03 (Also referred to as ALEUT-03 and A-0;3)

SEG-Y file names: Aleut-03-Figure-6.sgy and Aleut-03-without-lowpass-filter.sgy

Image file names: Aleut-03-Figure-6.jpg and Aleut-03-without-lowpass-filter.jpg

Line MGL1110-mcs04 (Also referred to as ALEUT-04 and A-04)

SEG-Y files name: Aleut-04-Figure-10B.sgy

Image file name: Aleut-04-Figure-10B.jpg

Line MGL1110-mcs05 (Also referred to as ALEUT-05 and A-05)

SEG-Y files name: Aleut-05-Figure-10A.sgy

Image file name: Aleut-05-Figure-10A.sgy

All Lines are processed to the point of Migrated Depth and correspond to the Figures in the publication:

von Huene, R.(1)*, Miller, J.J.(2), and Krabbenhoeft, A.(3), 2020, The Alaska convergent margin backstop splay fault zone, a potential large tsunami generator between the frontal prism and continental framework. *Geochemistry, Geophysics, Geosystems*, doi:10.1029/2019GC008901.

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2) Processing Flow

The generalized processing flow for the data is as follows:

Low-cut Bandpass Filter to remove cable undulation noise
500 ms AGC
Spiking Deconvolution (single design window; 160ms operator)
FOR LINE ALEUT-03 ONLY: SRME multiple suppression
Stacking velocities (VEL) hand picked in detail
Normal Moveout
CDP Stack
VEL converted to interval velocities in Time (VIT)
VIT truncated at 4 km/s
VIT Smoothed using 101 cdp and 100 ms smoother
Stolt Time migration usinf VIT
VIT Converted to Interval Velocity in Depth (VID)
Depth Conversion using VID
FOR LINE ALEUT-03 ONLY: 5-20 Hz Bandpass Filter*

Processed by the USGS in Denver, Colo. by John Miller

*NOTE: For Figure 6 in the publication, a lowpass 5-20 hz bandpass filter was applied to emphasize the low frequency components of the interpreted Backstop Splay Fault Zone (BSFZ), plate interface sediments and subducted ridge.

Files Aleut-03-Figure-6.sgy and Aleut-03-Figure-6.jpg **HAVE** this the lowpass filter applied.

Files Aleut-03-without-lowpass-filter.sgy and Aleut-03-without-lowpass-filter.jpg **DO NOT** have the lowpass filter applied.

File Aleut-03-without-lowpass-filter.jpg is an image the area of the BSFZ.

3) Line segment navigation notes

Navigation is the same as that in the P190 Processed Navigation files. However, the processed SEG-Y data files are subsets of the lines. The SEG-Y files do not have the navigation coordinates stored in their trace headers but the lines can be located along the original track lines by using the following table giving the relationship between the seaward/landward CDP numbers and the seaward/landward distance from the trench axis.

Line Aleut-03	CDP at Trench Axis = 24650	
CDP at Trench Axis=24650	Seaward	Landward
CDP farthest from trench axis	26000	14297
KM from trench axis	8.44	64.7
Line Aleut-04	CDP at Trench Axis = 10300	
CDP at Trench Axis=10300	Seaward	Landward
CDP farthest from trench axis	6300	11499
KM from trench axis	25	7.5
Line Aleut-05	CDP at Trench Axis = 18353	
CDP at Trench Axis=18253	Seaward	Landward
CDP farthest from trench axis	23940	16500
KM from trench axis	35.54	10.95