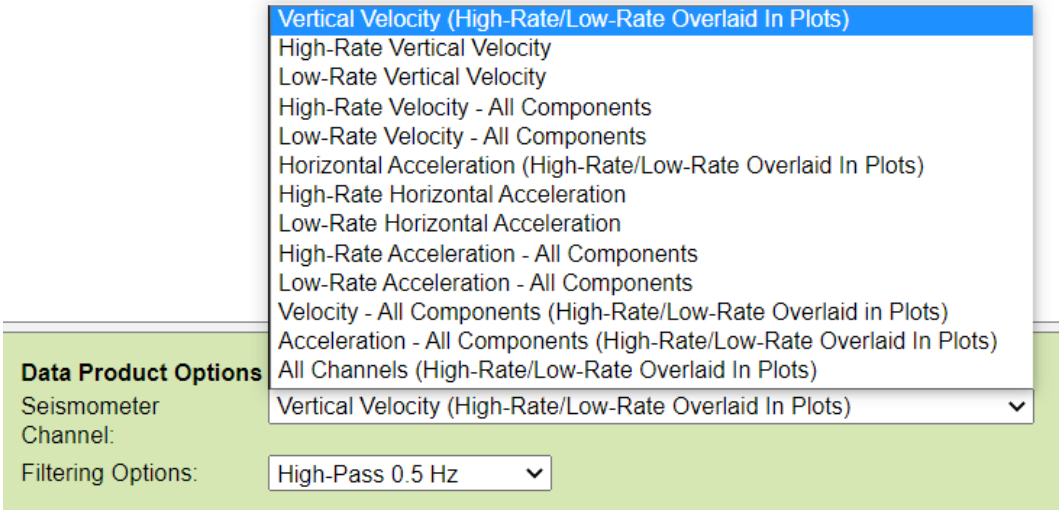
Seismometer Channel Option

The selected seismometer channel option is applied before receiving the data from IRIS:



The Seismometer Channel Option allows you to specify which channel(s) you would like to receive data for. An explanation of seismometer channel codes can be found on the IRIS website here: https://ds.iris.edu/ds/nodes/dmc/tools/data_channels/#. In the channel code the last value represents sensor orientation, where N/E are the North/East cardinal directions and Z is vertical. 1/2/3 are non-cardinal orientations, which generally occur in seismometer data when an instrument is deployed that is not correctly aligned with geographic North or is horizontally tilted.

Here are the options:

Vertical Velocity (High-Rate/Low-Rate Overlaid In Plots): High-rate and low-rate vertical velocity data will be overlaid and plotted on one graph. For broadband seismometers, this will be H- or C-band for the high-rate channel and M- or L-band for the low-rate channel depending on the requested time range. For short period seismometers, this will be high-rate E-band and low-rate M- or L-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=*Z`

High-Rate Vertical Velocity: High-rate vertical velocity data will be plotted on one graph. For broadband seismometers, this will be H- or C-band. For short period seismometers, this will be E-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=HHZ`

Low-Rate Vertical Velocity: Low-Rate vertical velocity data will be plotted on one graph. For broadband and short period seismometers, this will be M- or L-band depending on the requested time range.

Oceans 3.0 API filter: `dpo_seismometerChannel=MHZ`

High-Rate Velocity - All Components: All high-rate velocity data will be plotted on separate graphs. For broadband seismometers this will be H- or C-band. For short period seismometers this will be E-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=HH*`

Low-Rate Velocity - All Components: All low-rate velocity data will be plotted on separate graphs. For broadband and short period seismometers this will be M- or L-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=MH*`

Horizontal Acceleration (High Rate/Low Rate Overlaid in Plots): High-rate and low-rate horizontal acceleration data will be plotted and overlaid on one graph, where high-rate will be C- or H-band and low-rate will be M-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=*N12`

High-Rate Horizontal Acceleration: High-rate horizontal acceleration data will be plotted on one graph for C- or H-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=CN12`

Low-Rate Horizontal Acceleration: Low-rate horizontal acceleration data will be plotted on one graph for M-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=MN12`

High-Rate Acceleration - All Components: All high-rate acceleration data will be plotted on separate graphs for C- or H-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=CN*`

Low-Rate Acceleration - All Components: All low-rate acceleration data will be plotted on separate graphs for M-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=MN*`

Velocity - All Components (High Rate/Low Rate Overlaid in Plots): High-rate and low-rate velocity data will be plotted and overlaid on one graph for each orientation. For broadband seismometers, this will be H-band for high-rate and M- or L-band for low-rate depending on the requested time range. For short period seismometers, this will be E-band for high-rate and M- or L-band for low-rate.

Oceans 3.0 API filter: `dpo_seismometerChannel=*H*`

Acceleration - All Components (High Rate/Low Rate Overlaid in Plots): High-rate and low-rate acceleration data will be plotted and overlaid on one graph for each orientation. For broadband accelerometers, this will be C- and/or H-band. For long period accelerometers, this will be M-band.

Oceans 3.0 API filter: `dpo_seismometerChannel=*N*`

All Channels (High-Rate/Low-Rate Channels Overlaid In Plots): The All Channels Option will plot all available channels for the seismometer including velocity and accelerometer data, as well as pressure data. The high-rate and low-rate velocities and accelerations will be overlaid with matching orientations. If the selected output format is MAT file or miniSEED, then mass position will also be included.

Oceans 3.0 API filter: `dpo_seismometerChannel=All`

For Oceans 3.0 API (dataProductDelivery) Users

The Oceans 3.0 API filter parameter values listed above for `dpo_seismometerChannel` do not correspond to IRIS channel codes, even though some are exactly the same. This may cause confusion for our API users in particular. For instance, IRIS channel codes `HHZ` and `MHZ` are also the same text as two of the available values for the `dpo_seismometerChannel` data product option, a parameter that's supplied in API calls to dataProductDelivery. The `dpo_seismometerChannel` Oceans 3.0 option/filter values are our shorthand and are not the IRIS channel codes. Only the listed Oceans 3.0 API filter values for `dpo_seismometerChannel` will work. The Oceans 3.0 option/filters correspond to multiple IRIS channel codes which are returned in the data product request (we overlay multiple channels in plots and bundle them together in file products). For clarity, the data product options listed above are summarized in the table below, showing the IRIS channel codes that will be returned for each Oceans 3.0 API filter value. We've grouped the IRIS channel codes by typical instrument type, and added vertical gaps to group by high/low-rate channels:

Seismometer Channel Option Description	Oceans 3.0 API Filter Parameter	IRIS Broadband Seismometer Channel Codes	IRIS Short-Period Seismometer Channel Codes	Other IRIS Channel Codes (Accelerometer, Mass Position Seismometer)
Vertical Velocity (High-Rate/Low-Rate Overlaid in Plots)	*Z	HHZ, HH3 HLZ, HL3 CHZ, CH3 CLZ, CL3 LHZ, LH3 LLZ, LL3 MHZ, MH3 MLZ, ML3	EHZ, EH3 ELZ, EL3 LHZ, LH3 LLZ, LL3 MHZ, MH3 MLZ, ML3	HMZ, HM3 CMZ, CM3 EMZ, EM3 LMZ, LM3 MMZ, MM3
High-Rate Vertical Velocity	HHZ	HHZ, HH3 HLZ, HL3 CHZ, CH3 CLZ, CL3	EHZ, EH3 ELZ, EL3	HMZ, HM3 CMZ, CM3 EMZ, EM3
Low-Rate Vertical Velocity	MHZ	LHZ, LH3 LLZ, LL3 MHZ, MH3 MLZ, ML3	LHZ, LH3 LLZ, LL3 MHZ, MH3 MLZ, ML3	LMZ, LM3 MMZ, MM3

High-Rate Velocity - All Components	HH*	HHN, HHE, HHZ, HH1, HH2, HH3 HLN, HLE, HLZ, HL1, HL2, HL3 CHN, CHE, CHZ, CH1, CH2, CH3 CLN, CLE, CLZ, CL1, CL2, CL3	EHN, EHE, EHZ, EH1, EH2, EH3 ELN, ELE, ELZ, EL1, EL2, EL3	HMN, HME, HMZ, HM1, HM2, HM3 CMN, CME, CMZ, CM1, CM2, CM3 EMN, EME, EMZ, EM1, EM2, EM3
Low-Rate Velocity - All Components	MH*	MHN, MHE, MHZ, MH1, MH2, MH3 MLN, MLE, MLZ, ML1, ML2, ML3 LHN, LHE, LHZ, LH1, LH2, LH3 LLN, LNE, LNZ, LN1, LN2, LN3	MHN, MHE, MHZ, MH1, MH2, MH3 MLN, MLE, MLZ, ML1, ML2, ML3 LHN, LHE, LHZ, LH1, LH2, LH3 LLN, LNE, LNZ, LN1, LN2, LN3	MMN, MME, MNZ, MN1, MN2, MN3 LMN, LME, LMZ, LM1, LM2, LM3
Horizontal Acceleration (High-Rate/Low-Rate Overlaid In Plots)	*N12	n/a	n/a	CN1, CN2, CNN, CNE HN1, HN2, HNN, HNE MN1, MN2, MNN, MNE
High-Rate Horizontal Acceleration	CN12	n/a	n/a	CN1, CN2, CNN, CNE HN1, HN2, HNN, HNE
Low-Rate Horizontal Acceleration	MN12	n/a	n/a	MN1, MN2, MNN, MNE
High-Rate Acceleration - All Components	CN*	n/a	n/a	CN1, CN2, CN3, CNN, CNE, CNZ HN1, HN2, HN3, HNN, HNE, HNZ
Low-Rate Acceleration - All Components	MN*	n/a	n/a	MN1, MN2, MN3, MNN, MNE, MNZ
Velocity - All Components (High-Rate/Low-Rate Overlaid in Plots)	*H*	HHN, HHE, HHZ, HH1, HH2, HH3 HLN, HLE, HLZ, HL1, HL2, HL3 CHN, CHE, CHZ, CH1, CH2, CH3 CLN, CLE, CLZ, CL1, CL2, CL3 MHN, MHE, MHZ, MH1, MH2, MH3 MLN, MLE, MLZ, ML1, ML2, ML3 LHN, LHE, LHZ, LH1, LH2, LH3 LLN, LNE, LNZ, LN1, LN2, LN3	EHN, EHE, EHZ, EH1, EH2, EH3 ELN, ELE, ELZ, EL1, EL2, EL3 MHN, MHE, MHZ, MH1, MH2, MH3 MLN, MLE, MLZ, ML1, ML2, ML3 LHN, LHE, LHZ, LH1, LH2, LH3 LLN, LNE, LNZ, LN1, LN2, LN3	HMN, HME, HMZ, HM1, HM2, HM3 CMN, CME, CMZ, CM1, CM2, CM3 EMN, EME, EMZ, EM1, EM2, EM3 MMN, MME, MNZ, MN1, MN2, MN3 LMN, LME, LMZ, LM1, LM2, LM3
Acceleration - All Components (High-Rate/Low-Rate Overlaid In Plots)	*N*	n/a	n/a	CN1, CN2, CN3, CNN, CNE, CNZ HN1, HN2, HN3, HNN, HNE, HNZ MN1, MN2, MN3, MNN, MNE, MNZ
All Channels (High-Rate/Low-Rate Overlaid In Plots)	All	All channels returned from a location.		

Where N/E are the North/East cardinal directions, Z is vertical, and 1/2/3 are non-cardinal orientations. It is possible for the 'All Channels' option (bottom of table) to return channels not included in the other options, such as the low-rate pressure data in the down-hole orientation (`MDD`, `LDD`). However, if there is channel data included here that should be part of one or more of the options/filters outlined above or should have a new option/filter, please contact us.

Note: A change in sample rate occurred in 2013 for all seismometers causing the low-rate channels to change from LHZ, LHE, LHN, LNZ, LNE and LNN to MHZ, MHE, MHN, MNZ, MNE and MNN.

File-name mode field

The IRIS channel code is applied in the file mode field at the end of the file name after the date, separated with a '-'. If there is more than one, then they are listed (only occurs for overlaid plots), example: '-EHZ-MHZ'.