Rethinking Horizontal GSN Instrumentation

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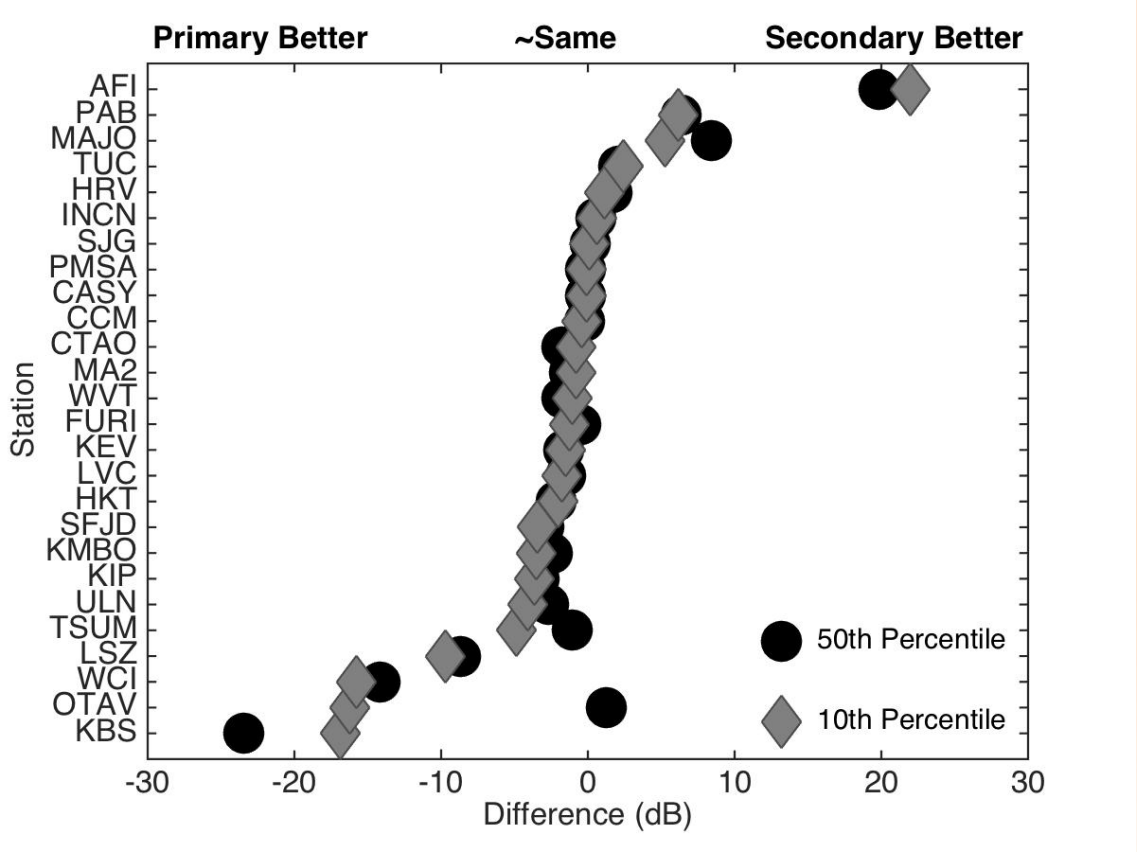
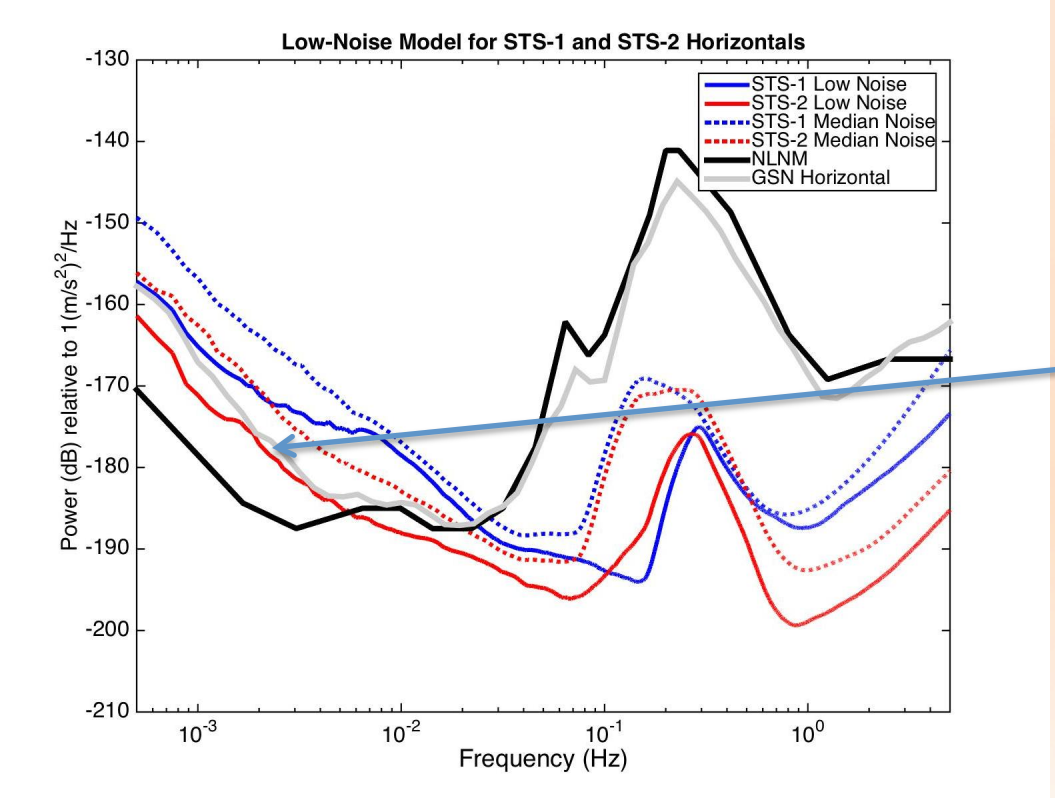
Co-located Horizontal STS-2/2.5 vs STS-1



Similar performance differences from location in vault and installation

Experimental Self-Noise



STS-2 horizontals (red) are able to resolve the GSN horizontal noise model

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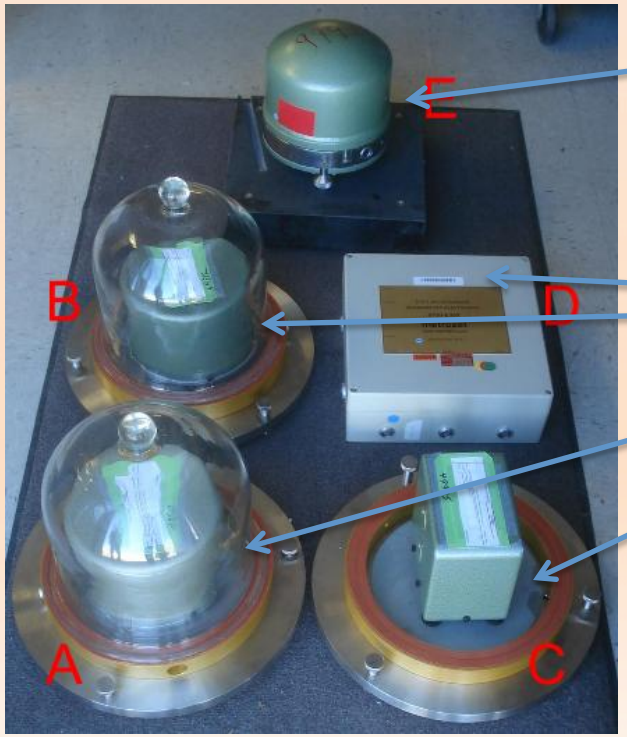
More Room in the Vault



STS-2

STS-1

One STS-1 horizontal takes easily 5 times longer to install than an STS-2

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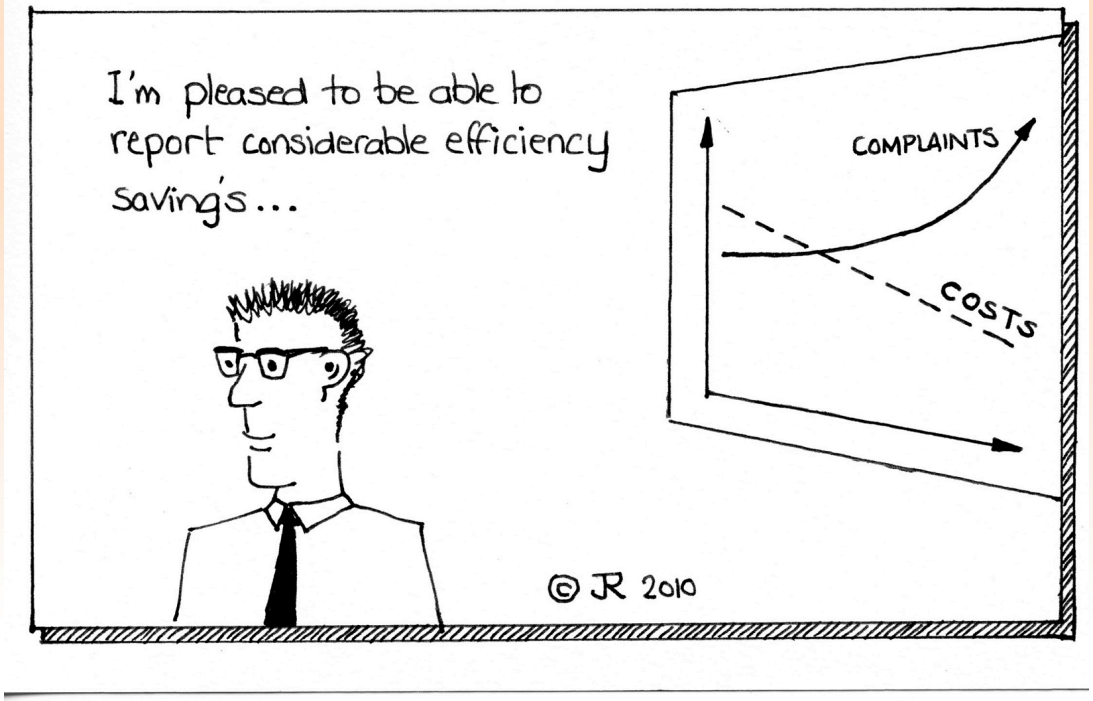
Cost

STS-1: priceless

Definite cost savings + get an extra vertical stream



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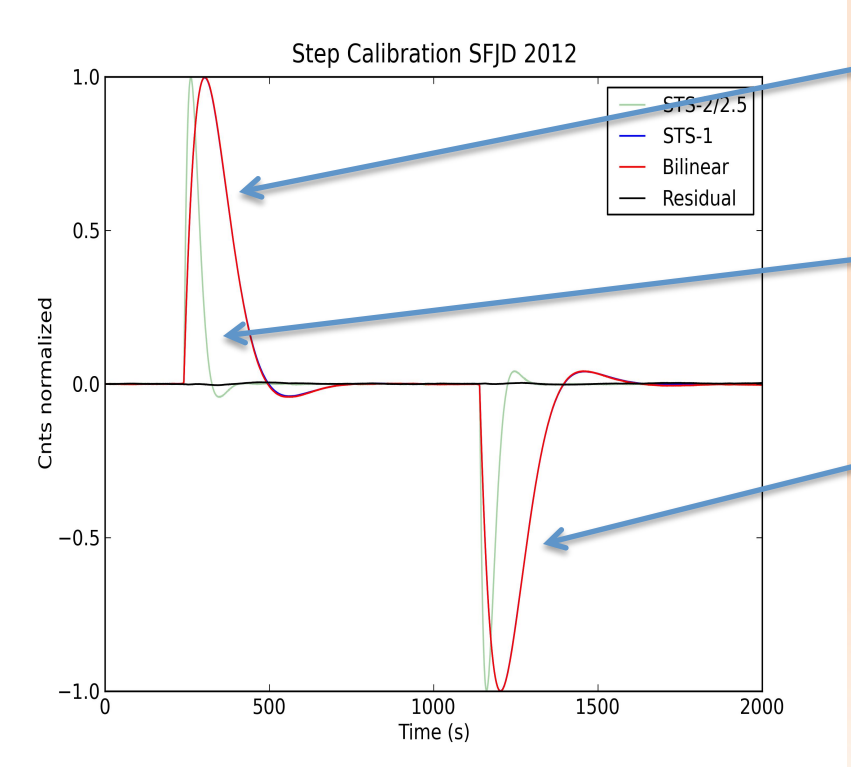
Can Still Get VBB DATA



Bilinear transform (red)

Allows for VBB data from an STS-2 (light green) in real-time

Similar to STS-1 data (blue)

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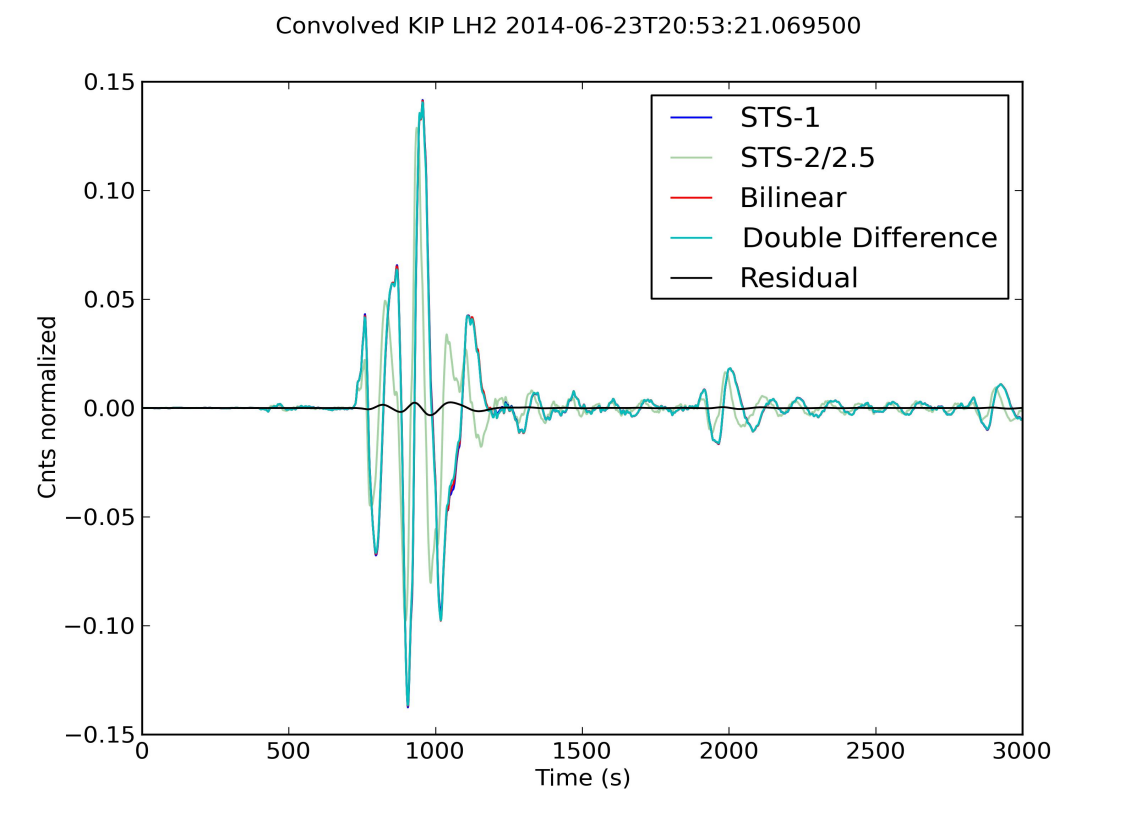
Example Earthquake



M_w=7.9 June 23, 2014 Aleutian Islands event
band-pass filtered 100 s to 400 s at KIP

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Thanks for your attention!

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More Details

Ringler, A. T., Steim, J. M., van Zandt, T., Hutt, C. R., Wilson, D., Storm, T. (2015). Potential Improvements in Horizontal Very Broadband Seismic Data in the IRIS/USGS Seismic Networks, in review.