

Fscans

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Oct. 6, 2009 / Virgo Noise Meeting

Outline

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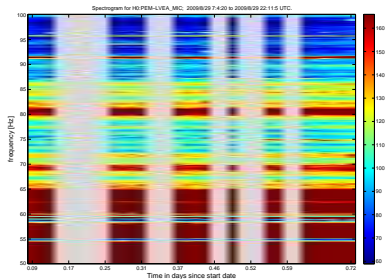
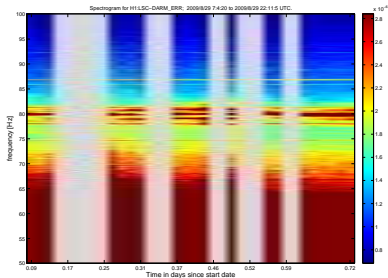
What is Fscan?

- Developed by Greg Mendell, LIGO-Hanford
- Fscans are spectrograms; spectra generated from SFT data.
- The spectrograms currently average over frequency to have a 0.1 Hz frequency resolution.
- Raw output has 0.5 mHz resolution
- The spectra show power normalized with the running median and averaged such that the mean power for gaussian noise is 1 with a standard deviation equal to one over the square root of the number of SFTs used.

- Fscans are presently being run on $h(t)$ and a number of auxiliary and environmental channels.
- Results generated with daily, weekly and monthly averages
- Program by Michael Coughlin (Carleton) mines Fscan results and records coincident lines between $h(t)$ and other channels based on different frequency window sizes, and different power thresholds
- Program by Tomoki Isogai (Carleton) calculates coherence between $h(t)$ and other channels, and searches for similarities with Fscan results.

Example Spectrograms

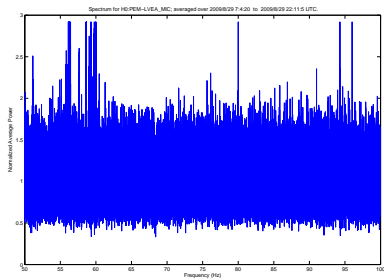
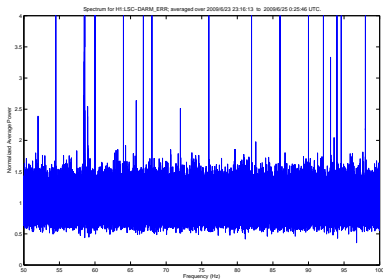
H1 dark fringe and a microphone



Result over a recent day.

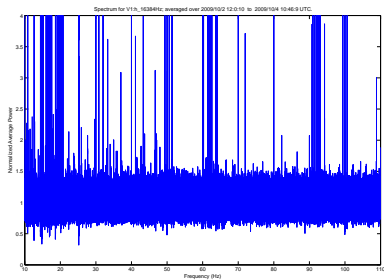
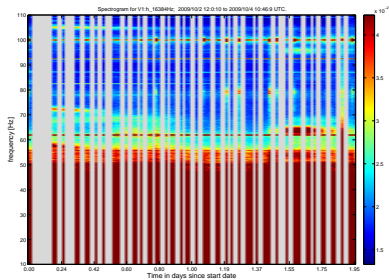
Example Spectra

Spectra for H1 dark fringe and a microphone



Fscan on Virgo h(t)

Recent results from October 4



Fscans on many Virgo channels?

- Fscan presently running on LIGO Idas machines: LHO, LLO, Caltech
- Can we send data from interesting an important Virgo channels to Caltech?
Some set-up time, and then a question of bandwidth.
- Can we install Fscan at Bologna or Lyon?
Yes. Some work to set up, but Gergely has had good luck, and Greg Mendell agrees to help.
- Pulsar search is not the only one where the examination of auxiliary channel data is desired: burst and inspiral too

Summary

- Fscan is a powerful tool for finding noise lines.
- The LIGO and Virgo data analysis effort for all search groups is accelerating rapidly, and there is a strong desire to look closely at data from auxiliary channels as part of data quality, veto and noise studies.
- The LIGO side continues to be very interested in learning more about Virgo data quality and noise studies
- The recent meeting in Budapest was a success for sharing results and techniques; how do we keep up this momentum?